

THE SOCIO-STRUCTURAL ANALYSIS OF TEENAGE PREGNANCY IN SOUTH AFRICA



**Sibusiso Mkwanzani
(9904211V)**

**A DISSERTATION SUBMITTED TO THE SCHOOL OF SOCIAL SCIENCES,
FACULTY OF HUMANITIES, UNIVERSITY OF THE WITWATERSRAND IN
FULFILMENT OF THE REQUIREMENTS FOR THE DEGREE OF DOCTOR OF
PHILOSOPHY IN DEMOGRAPHY AND POPULATION STUDIES**

October, 2017

DECLARATION

I, Sibusiso Mkwanaenzi, declare that this thesis is my own original work. It is being submitted for the degree of Doctor of Philosophy in Demography and Population Studies of the University of the Witwatersrand, Johannesburg. To the best of my knowledge, it has not been submitted before in part or in full for any degree or examination at this or any other University.

Sibusiso Mkwanaenzi

25th day of October in the year 2017

TABLE OF CONTENTS

DECLARATION	II
TABLE OF CONTENTS	III
LIST OF FIGURES.....	VI
LIST OF TABLES.....	VII
LIST OF APPENDICES.....	VIII
GLOSSARY OF ACRONYMS USED.....	IX
DEDICATION.....	X
ABSTRACT	1
CHAPTER 1: INTRODUCTION TO THE STUDY	3
1.0 Introduction	3
1.1 The Problem Statement.....	11
1.2 Literature Review	18
1.2.1 Global Reviews	18
1.2.2 Sub-Saharan Africa Reviews	30
1.2.3 South African Reviews.....	34
1.3 Deficiencies in the Existing Literature	42
1.4 The Purpose Statement	43
1.5 Research Question	44
1.6 Research Objectives	44
1.6.1 General Objectives	44
1.6.2 Specific Objectives.....	44
1.7 Definitions and Delimitations	44
1.8 Significance of the study.....	45
CHAPTER 2: THEORIES AND MODELS.....	48
2.0 Introduction	48
2.1 Theoretical Framework	49
2.2 Conceptual and Operationalised Framework	57
2.3 Research Hypotheses	60
CHAPTER 3: METHODOLOGY	61
3.0 Introduction.....	61
3.1 Study Setting.....	61
3.2 Survey Design.....	62
3.3 The Population and Sample	63
3.4 The Instruments	64
3.5 Variable Identification.....	67
3.5.1 Independent Variables	67
3.6 Steps in Data Analysis	72
3.6.1 Community Level in Census Data	72
3.6.2 Generation of Household and Community Level Variables.....	74
3.6.3 Univariate and Bivariate Analysis.....	75

3.6.4	Multilevel Logistic Regression	76
3.7	Quality Issues in the Data	81
3.7.1	Age and Sex Data Assessment.....	81
3.7.2	Fertility Data Assessment.....	84
3.8	Ethical Issues.....	87
CHAPTER 4:	PROFILE OF RESPONDENTS.....	89
4.0	Introduction.....	89
4.1	Sample Characteristics	89
CHAPTER 5:	RESULTS	92
5.0	Introduction.....	92
5.1	Levels of All, Early and Late Teenage Pregnancy in South Africa in 2011	92
5.2	Age Specific Teenage Pregnancy Rates in South Africa 2011	93
5.3	Bivariate Analysis of Teenage Pregnancy	94
5.4	Determinants of Teenage Pregnancy	99
5.4.0	Introduction.....	99
5.4.1	Individual-level Determinants	99
5.4.2	Household-level Determinants	103
5.4.3	Community-level Determinants.....	105
5.4.4	The Combined Effect of Household and Community Determinants	108
5.4.5	Decomposition of Community-level variance.....	111
5.5	Hypothesis Testing	114
5.5.1	Hypothesis One	114
5.5.2	Hypothesis Two	116
5.5.3	Hypothesis Three.....	117
5.5.4	Hypothesis Four	118
CHAPTER 6:	DISCUSSION	121
6.0	Introduction.....	121
6.1	Family Disruption and Teenage Pregnancy in South Africa	121
6.2	Household Service Inaccessibility and Teenage Pregnancy in South Africa.....	148
6.3	Residential Mobility and Teenage Pregnancy in South Africa	159
6.4	Community Unemployment and Teenage Pregnancy in South Africa.....	165
CHAPTER 7:	CONCLUSION & RECOMMENDATIONS: POLICY, PROGRAMMES & RESEARCH.....	170
7.0	Introduction.....	170
7.1	Study Conclusion.....	170
7.2	The Study Contributions	171
7.3	Recommendations	177
7.4	Frontiers of Research	185
7.5	Study Limitations	190
REFERENCES		192
APPENDIX A:		215

DISSEMINATION PLAN.....	215
PUBLICATIONS ACCEPTED:.....	217
COPY OF ANY PUBLICATIONS:	217
Publication 1:	218
Publication 2:	244
PERSONAL SELF-ASSESSMENT:.....	258
Funding Awards.....	258
Capacity-building workshop(s) attended:.....	258
Manuscripts Submitted	260
Manuscripts Published	260
Contribution to the Department	260
BIOSKETCH.....	263
APPENDIX B.....	264
APPENDIX C	282
APPENDIX D.....	283
APPENDIX E	298

LIST OF FIGURES

No.	Title	Page
2.1	The Model of the Theory of Social Disorganisation	51
2.2	Conceptual Framework of Socio-Structural Analysis of Teenage Pregnancy.....	58
2.3	Operational Framework of Socio-Structural Analysis of Teenage Pregnancy	60
3.1	Map of South Africa, showing all nine provinces	61
3.2	Age Ratios by age and sex, 2011 South African census	83
3.3	Sex ratios by age, 2011 South African census	83
3.4	Average parities by age group of women, South African 2011 census	86
4.1	Percentage distribution of teenage females by orphanhood status	90
4.2	Percentage distribution of teenage females by relationship to head of household	90
4.3	Percentage distribution of teenage females by place of residence	91
4.4	Percentage distribution of teenage females by province	91
5.1	Teenage pregnancy incidence in South Africa- 2011 Census	93

LIST OF TABLES

No.	Title	Page
3.1	Definition of dependent and independent demographic and socio-economic variables	68
3.2	Definition of Social-disorganisation-related variables	73
3.3	Distribution of women by parity and age, 2011 South African census	84
3.4	Summary of derived measure of parity, 2011 South African census	85
4.1	Weighted percentage distribution of population and sample of female teenagers by socio-economic factors, South Africa 2011.....	89
5.1	Age-Specific Teenage Pregnancy Rates in South Africa, 2011 Census.....	94
5.2	Bivariate association between teenage pregnancy and individual-level characteristics, 2011 South Africa Census.....	96
5.3	Bivariate association between teenage pregnancy and social-disorganisation-related characteristics, 2011 South Africa Census.....	97
5.4	Direct effect of individual-level background characteristics on teenage pregnancy, 2011 South Africa Census.....	101
5.5	The effect of household-level social disorganisation-related characteristics on teenage pregnancy, 2011 South Africa Census.....	104
5.6	The effect of community-level social disorganisation-related characteristics on teenage pregnancy, 2011 South Africa Census.....	107
5.7	The combined effect of household and community-level social disorganisation-related characteristics on teenage pregnancy, 2011 South Africa Census.....	109
5.8	Random effects and model characteristics for multilevel modelling of teenage pregnancy, 2011 South Africa Census.....	113
5.9	The effect of household and community-level family disruption on teenage pregnancy, 2011 South Africa Census.....	114
5.10	The effect of household service inaccessibility on teenage pregnancy, 2011 South Africa Census.....	117
5.11	The effect of community unemployment on teenage pregnancy, 2011 South Africa Census.....	118
5.12	The effect of community residential mobility on teenage pregnancy, 2011 South Africa Census.....	119
A.1	Conferences for the dissemination of research findings	216
C.1	Correlation testing results for study variables, 2011 census.....	282

LIST OF APPENDICES

Appendix name	Title	Page
Appendix A	Dissemination Plan.....	216
	Publications Accepted.....	218
	Publication 1.....	219
	Publication 2.....	245
	Personal Assessment.....	259
	Biosketch.....	264
Appendix B	Policy Brief.....	265
Appendix C	Correlation Testing Results	282
Appendix D	Statistics South Arica Census 2011 Questionnaire.....	283
Appendix E	Tabular presentation of some of the reviewed articles.....	298

GLOSSARY OF ACRONYMS USED

BIC	Bayesian information criterion
DBE	Department of Basic Education
DHS	Demographic and Health Survey
EAs	Enumeration areas
HHH	Head of household
ICC	Intra class correlation coefficients
IPUMS	Integrated Public Use Microdata Series
MTO	Moving to Opportunity for Fair Housing Program
MQL	Marginal quasi likelihood
NDoH	National Department of Health
NEET	Not in education or employment or training
NGOs	Non-governmental organisations
PAS	Population Analysis System
PRB	Population Reference Bureau
SRH	Sexual and reproductive health
STIs	Sexually transmitted infections
UNFPA	United Nations Population Fund
USA	United States of America
WHO	World Health Organisation

DEDICATION

I dedicate this thesis to the thousands of South African females who have ever been pregnant as teenagers. You can make it sisi wami- Love and peace!

NTOMBI UZONQOBA!

ACKNOWLEDGEMENTS

To Him who deserves all glory and praise- My Lord and saviour, Jesus Christ: Thank you for without your guidance, strength, peace and light I would not have made it this far.

To my supervisor, teacher and mentor-Professor Clifford Odimegwu: Your patient counsel has allowed me to grow in areas where I never thought I could blossom- Thank you sir

I also thank Statistics South Africa for permission to use the 2011 South African census data, under the support of the Integrated Public Use Microdata Series (IPUMS), without which this research would not have been completed.

A thank you goes to the great team in the Demography and Population Studies Programme at the University of the Witwatersrand, for being supportive throughout my journey. First and foremost to the head of the department, Dr Nicole De Wet-Thank you for your continuous encouragement. Also, my gratitude is extended to Ms. Julia Mamabolo, Mrs. Soraya Patel, Mrs. Sasha Frade as well as all current and previous colleagues and students. God bless you all!

To all my PhD running mates- Thank you! It is your presence that gave me courage to press on ahead.

To my late mother: Thank you mama, you are my inspiration.

To baba and my siblings-Thank you for loving and supporting me through this time.

ABSTRACT

Teenage pregnancy is noted as one of the key development challenges in sub-Saharan Africa and globally due to its adverse social, health and demographic consequences. An avalanche of studies has emerged to identify the predictors of teenage pregnancy in South Africa which indicate a persistently high prevalence of teenage pregnancy.

This study intends to examine how social disorganisation contributes to the prevalence of teenage pregnancy in South Africa. Social disorganisation is defined here as family disruption, service delivery inaccessibility, community unemployment and residential mobility. The theoretical basis of the study is the social disorganisation theory propounded by Shaw and McKay (1942). The theory was deemed appropriate due to its ability to investigate unfavourable factors beyond the individual-level occurring within society. This theory has not been applied to any teenage pregnancy study in South Africa.

The data source for the study is South Africa's 2011 census. The target population includes females aged 12 to 19. The study uses multilevel logistic regression modelling allowing heterogeneity at the individual and community levels to test the applicability of the theory in explaining teenage pregnancy. Results indicate that teenage pregnancy remains at critical levels with 3.97% of teenage females having given birth in the preceding year yet incidence among 15-19 year olds is 15 times higher than that of 12-14 year olds. Family forms other than two-parented marriages and communities with high levels of family disruption increase the likelihood of teenage pregnancy. Similarly, increasing household service delivery inaccessibility predisposes teenage females to higher odds of pregnancy, as expected.

However, higher community unemployment was negatively associated with teenage pregnancy as were higher levels of residential mobility, which is contrary to previous

international research findings. To this end, the study provides empirical evidence of the social disorganisation determinants of teenage pregnancy in South Africa. Additionally, the study shows the contribution of certain household and community factors in pregnancy likelihood among young women locally. In light of these findings it becomes necessary for practitioners to create intervention strategies that target these factors to curb the levels and chances of teenage pregnancy nationally. Furthermore, it is vital that government and other stakeholders financially support investigation and prevention campaigns that intentionally address contextual factors to increase adolescent sexual and reproductive health. Consequently, this study contributes to the investigation of structural derivatives to determine pertinent factors in the quest to decrease teenage pregnancy in South Africa.

KEYWORDS

Adolescence; Teenage pregnancy; Sexual and reproductive health; Multilevel investigation; Social disorganisation; Family disruption; Household service delivery inaccessibility; Community unemployment

INTRODUCTION TO THE STUDY

Introduction

Teenage pregnancy is regarded as a significant social and health challenge all over the world. Accordingly, the phenomenon was the focus for the 2013 World Population Day and the United Nations Population Fund (UNFPA) pledged to “deliver a world where every pregnancy is wanted, childbirth safe and every young person’s potential fulfilled”(United Nations Population Fund, 2013). In 2014, the World Health Organisation reported that 11% of all births are to females aged 15-19 years, which is estimated to globally be 16 million under-aged females (World Health Organization, 2014). According to the Population Reference Bureau (PRB) the global teenage birth rate was 52 births per 1,000 females aged 15-19 years in 2013 (Clifton and Hervish, 2013). This latter age group, however, represents a fraction of teenage pregnancies which are defined as pregnancies that occur below the age of 20 years (Loaiza and Liang, 2013).

Only 5% of teenage pregnancies occur in developed countries at a rate of 17 births per 1000 females aged 15-19 years (Clifton and Hervish, 2013). The remaining 95% happen in developing countries with approximately 19% (36.4 million) of females becoming mothers before the age of 18 and 3% (5.6 million) having a live birth before the age of 15 (United Nations Population Fund, 2013). Sub-Saharan Africa had the highest prevalence of teenage pregnancy in the world in 2013 and teenage mothers accounted for more than half of all the births in this region: an estimated 101 births per 1000 females aged 15 to 19 (United Nations Population Fund, 2013).

In South Africa the teenage pregnancy rate was 50 births per 1000 women aged 15-19 in 2013 (Clifton and Hervish, 2013). A youth risk behaviour survey reported 24.4% of sexually

active teenage females had ever been pregnant in 2010 (Reddy et al., 2010). Consequently, teenage pregnancy remains a critical issue for social, health and demographic reasons in South Africa. In response, the national government and non-governmental organisations have attempted to address this phenomenon. For example, ‘the South African Population Policy’ advocates awareness, gender equality in education and employment opportunities, and empowerment of women. Drafters hope that such advocacy will foster goal-orientation among young females and protect them from adverse societal pressure that could result in their pregnancy.

However, policy makers have not accounted for pregnancy among this cohort as possibly a rational decision that young females may make. It is problematic to equate certain terminology such as unplanned pregnancy, mistimed pregnancy, unwanted pregnancy, early pregnancy, unmarried teenager and teenage mother as these are not mutually inclusive terms (Flanagan, 1998, MacIntyre and Cunningham-Burley, 1993). Literature shows that pregnancy among teenagers may be consciously wanted though unplanned (Stapleton, 2010).

Some feminists argue that certain young females from socially disadvantaged areas find little motivation in delaying childbirth as it may prove to be a practical pathway to adulthood in the presence of adequate familial support (Macleod, 1999b, Preston-Whyte et al., 1990). Paton (2006) gave evidence that teenage sexual behaviour may be a calculated decision. This and other research has shown consistent evidence that some teen pregnancies may be deliberate, with the overall births among teens reducing moderately despite child-restrictive policies and increased access to contraceptives (Kearney, 2009, Paton, 2006). Once pregnant a young female may choose to keep the child for reasons such as the desire to start a family, achieve purpose, reinforce the relationship with the sexual partner, to feel loved, have a reason to live as well as to have someone to love, nurture and be responsible for (Hanna, 2001, Redwood et

al., 2012, Unger et al., 2000). Therefore, feminists posit that the concerns surrounding teenage pregnancy may be driven by greater matters of power, exclusion, economic security and the need to control female bodies (Macleod, 2002).

In addition, the Choice on Termination of Pregnancy Act, 1996, the National Contraception Policy and the Integrated School Health Policy legalise pregnancy termination and convenient access to comprehensive sexual and reproductive health (SRH) services for individuals from the age of 12 years (South Africa Department of Health, 1996; South Africa Department of Health, 2012b). These SRH-related policies have been heavily criticised by some for promoting sexual intercourse among adolescents (Brooks, 2015, Geary et al., 2014, Wood and Jewkes, 2006). However, they are internationally considered ground-breaking moves in helping to remove barriers to adolescent sexual and reproductive health services. The Children's Act of 2005 criminalises sex with individuals below the age of 16 years. Marriage below the age of 18 years is also illegal unless legitimate parental consent is granted (Children's Act, 2005). This legislation was specifically drafted to prevent sex between adults and individuals under the age of 16 years as well as to curb child marriage. Additionally, various non-governmental organisations (NGOs) such as Soul City, loveLife, etc. organise peer education, multimedia campaigns, counselling and other awareness initiatives to address teenage pregnancy (Macleod and Tracey, 2009). Previous studies have shown that these initiatives are largely ineffective in ensuring positive behaviour change (Jewkes et al., 2008; Pettifor et al., 2005).

Despite these efforts and decades of investment in SRH services, levels of teenage pregnancy have remained relatively unchanged with the 2016 Demographic and Health Survey (DHS) reporting a teenage pregnancy prevalence of 16% as in 1998 (National Department of Health (NDoH et al., 2017). Moreover, great disparities in the teenage pregnancy prevalence exist

based on location in South Africa with lower levels of 0-5% occurring in affluent areas as opposed to levels as high as 60-80% in deprived areas (Macleod and Tracey, 2009; Sayagues, 2007). This suggests reasons beyond the individual circumstance which predispose young females to higher levels of teenage pregnancy in certain areas. Therefore, a need arises to explore further factors existing at household and community level that may be driving the rate of teenage pregnancy in affected communities of South Africa.

This study aimed to analyse specific socio-structural occurring factors that could be associated with teenage pregnancy through the social disorganisation theory. Muftić (2009) states that the social disorganisation theory is an example of a macro-level or socio-structural theory. Such theories by definition "link socio-structural characteristics to variations in the rates and distribution of other phenomena" according to Bernard and Snipes (1996). Specifically, the study contemplated structurally occurring phenomena relating to family structure, migration, unemployment and service delivery through the lens of the social disorganisation theory.

This theory was decided upon as negative health outcomes may result more commonly when social structures are disorganised (Hogben and Leichter, 2008). This has been shown more recently in studies that have examined links between social disorganisation and negative as well as positive human behaviour. Such outcomes include timing of sexual debut, intercourse consistency and frequency, extra-marital sex, short term sexual partnering, pregnancy, contraceptive use, sexually transmitted diseases, educational performance, extramural activity participation, obesity, diabetes as well as residential mobility between cities and suburbs (Beneto, 2008, Billy et al., 1994, Bowen et al., 2002, Brewster et al., 1993, Browning and Olinger-Wilbon, 2003, Cantillon et al., 2003, Cubbin et al., 2005, Hogben and Leichter, 2008, Ludwig et al., 2011, Moore and Chase-Lansdale, 2001, South and Crowder, 1997). A

more detailed description of the relevance and use of the social disorganisation theory pertaining to this study and its socio-structural nature is outlined in the theoretical section (see Chapter 2). Suffice to say is that the theory was useful in investigating structurally occurring factors existing beyond the individual teenage female.

The study focused on the teenage female. Although I recognise the teenage genitor role in pregnancy, this element was not included in the study. This was as a result of lack of data on teenage males that had impregnated someone from the census data utilised. However, I acknowledge that studying factors associated with teenage fatherhood and the partners of teenage mothers remains an area that needs to be investigated once relevant data can be attained. In support of this, Morison (2013) argues that the role of men in the decision process prior to conception within heterosexual relationships is often overlooked. Thus, the research investigated social factors relevant to teenage females and not males.

While the social disorganisation theory suggests teenage pregnancy as a problem, I recognise that feminist literature has conducted ground-breaking research to show that though pregnancy among teens may have unintended negative consequences in certain cases, the pregnancy in itself is not always problematic as young females may choose this direction for positive dimensions brought as a result of bringing a child into the world (Macleod, 1999b, Preston-Whyte et al., 1990). Furthermore, this study does not equate teenage pregnancy to crime or delinquent behaviour. Neither does this research declare any moral standing regarding teenage pregnancy. Rather the research intended to investigate structural factors associated with pregnancy among this young cohort due to the possible negative health and social outcomes that it may be associated with especially in the South African context.

Although some scholars look at teenage pregnancy as an indication of dysfunction and negative conditions in the lives of pregnant teenagers, feminist researchers have shown that teenagers exercise a level of agency in their sexual decisions that may even lead to pregnancy being a rational decision at times (Schalet, 2011). Feminists argue that young people possess agency and autonomy regarding their sexuality and reproductive health (Chilman, 1985, Furstenberg Jr, 1991, Geronimus, 1991, Heslop and Banda, 2013, Macleod, 2002, Outwater et al., 2005, Phoenix, 1988, Ruddick, 1991). Therefore, teenagers are seen as able to make rational decisions with regards to their sexuality, fulfilling their desires and wishes about starting a family and entry into adulthood (Luker, 1996). In their engaging enquiry of sexuality, they learn with time which situations might compromise their agency and ability to make sound resolutions or to even be able to make any choices (Schalet, 2011). Furthermore, research shows that sexual exploration is typical and a necessary process in development for adolescents to affirm their personality and individualised identity (Trad, 1993). In light of the above it could be concluded that with regards to their sexuality, young people often know what they are doing, like what they are doing and have a right to do what they are doing.

However, other scholars, including feminist scholars recognise that although teenagers have agency to make their own sexual decisions and decisions about reproduction, there are other structural, historical and political forces beyond the teenage female that may compromise their agency and autonomy to make these choices (Schalet, 2011). These include a culture of patriarchy, rape, gender norms and expectations, poverty, transactional sex, access to healthcare, age disparities in relationships, etc. (Nkani and Bhana, 2016, Schalet, 2011). Mkhwanazi (2009b) indicated that the social context which reflects some of the issues above is seldom interrogated to determine the likelihood of teenage pregnancy. These contexts may put teenagers in situations where they are coerced into engaging in sexual activity as well as

being unable to use contraceptives (Kruger et al., 2015, Schalet, 2011). Bhana (2012) states that exercising agency is constrained for young women in the South African context. This is because choices and opportunities available are reduced for this group due to structural effects including the combination of culture, economic and gender power inequalities as well as the subordination of women (Bhana, 2012). In an assessment of multiple quantitative and qualitative studies Luke (2003) found that relationships with older partners or economic exchange were associated with the non-use of condoms as young females had little negotiating power regarding sexual practices. It is important that these contexts and forces beyond the teenage female are explored so as young people have sexual and reproductive health.

In addition to the above, feminists assert that it is important to investigate the socio-structural disparities that fundamentally underlie the predisposition of pregnant teen females to negative health and social consequences (Luker, 1996). Research suggests that teenage pregnancy outcomes differ based on social policies, availability of resources, familial support, employment opportunities for young people, the health of the economy as well as societal attitudes that may all vary by class (Chilman, 1983, Furstenberg, 1976, Miller, 1983). Scholars from the health and quantitative persuasions highlight negative consequences of teenage sexuality such as HIV and early pregnancy that could increase the predisposition to incomplete schooling, non-acquisition of lucrative employment, poverty and decreased life chances (Schalet, 2011). These factors are principally related as it is school disruption that potentially accompanies pregnancy and the consequential limitations placed on the mother's professional trajectory that prejudice such women to long-term lower socioeconomic status (Adams et al., 1989, Boulton and Cunningham, 1993, Macleod, 1999b). Nevertheless, research has shown that this mainly occurs when a history of social disadvantage pre-existed the

pregnancy. Macleod (2002) insists that the association made between teenage pregnancy, disruption of schooling and future lower socio-economic status may be rooted in gendered power relations and class differentials. For example, Preston-Whyte and Allen (1992) proposed, that in most instances school disruption may have transpired prior to conception not as a result of it and hence school dropout may be linked more to socio-structural challenges than pregnancy. Consequently, this emphasizes further the need to examine the social contexts that young people in South Africa exist in. Particularly, the disparities in contexts, class, health service provision, types of partners etc. require analysis to determine those associated with unfortunate adolescent sexual and reproductive health outcomes.

This study considered these feminist perspectives in quantitatively examining teenage pregnancy as it aimed to establish the association of contextual factors while controlling for individual-level variables. These contextual disparities need to be explored when interrogating consequences without shaming, ridiculing or undermining the importance of teenage sexuality, desire and autonomy. The study acknowledges that there are factors beyond the teenager that may predispose them to pregnancy. Therefore, it is important to continue investigating elements of the socio-structure that may be associated with unwanted pregnancy in particular. Specifically, the study sought to establish the association of unfavourable household and community level factors with teenage pregnancy. The social disorganisation theory proved appropriate in examining these unfavourable conditions as it allowed for interrogation of disparities at the household and community-levels of the independent variables.

The Problem Statement

The rate of teenage pregnancy is a major health and demographic challenge in South Africa. Estimates from different surveys from 2004 to 2010 indicate a national teenage pregnancy rate ranging from 10% to 41% (Statistics South Africa, 2010; Timæus and Moultrie, 2012). In 2013, two studies reported that pregnancy had occurred among 30% of females below the age of twenty (Shefer et al., 2013; Willan, 2013). Such levels and the unfavourable consequences associated with teenage pregnancy ensure that this phenomenon remains a national concern.

Consequences associated with teenage pregnancy are primarily due to incomplete development of the reproductive organs at this young age. This renders the weak internal lining of the birth canal susceptible to tearing during prolonged or obstructed labour (Bangser, 2006). In the event of a perforation occurring between the bladder and vagina the young female experiences urinary incontinence and when the fistula occurs between the vagina and rectum, faecal incontinence results. In the event of both points being compromised urinary and faecal incontinence occur. The WHO (2014) reported that 65% of obstetric fistulae develop due to teenage childbearing.

Early childbearing also increases the occurrence of pregnancy induced hypertension, eclampsia, post-partum haemorrhaging, sepsis, urinary tract infections, anaemia, malaria, puerperal endometriosis, the need for an episiotomy, depression and a five-fold increased likelihood of maternal mortality (Macleod and Tracey, 2010; Mangiaterra et al., 2008; Tsui et al., 2007; World Health Organization, 2014). In 2008, 23% of all disability adjusted life years were reported globally to be due to maternal conditions during adolescence (Mangiaterra et al., 2008). Globally, just over seven million females below the age of 20 give birth annually

and of these 70 000 die from pregnancy and childbirth complications (United Nations Population Fund, 2013).

In South Africa teenage fertility contributes 36% to the maternal mortality ratio which was 300 maternal deaths per 100,000 live births in 2010 (WHO et al., 2010). Additionally, De Wet (2016) found that the most common direct causes of adolescent maternal mortality in South Africa were gestational hypertension (55.6%), abortion (17.6%), maternal sepsis (17.2%) and haemorrhage (9.2%) while obstructed labour accounted for 0.4% of adolescent maternal mortality.

Ideally in modern euro-centrally aligned societies, adolescence is a milestone for a girl to celebrate: the stage when transition occurs as a girl blossoms into a woman (Feixa, 2011). With the biological changes come hormonal and emotionally associated variations as well (Sawyer et al., 2012). Therefore, this should be a time for individuals to mature, learn about themselves and develop appropriate self-regulation of external stimuli. This process is supposed to occur in the safe confines of a family while an individual is pursuing education with limited opportunities for sexual or substance abuse experimentation due to the discipline of the family or school. Adolescence is also guided by close peers and adults from the household, neighbourhood and school environments (Larson, 2006). Consequently, behaviour learned during this period is heavily influenced by contextual norms and values (Larson, 2006).

Sadly, the current experience of many adolescent females in South African society is a distant cry from this ideal. It is often argued that high levels of poverty at the household level as well as violence and economic deprivation at the societal level, create conditions for adolescents to engage in activities which at times affect the future prospects of young people (Delius and

Glaser, 2002;Emmett, 2003). These include low self-esteem, substance use and relationships that may lead to coerced sex, unintended pregnancy and sexually transmitted infections, including HIV (Dunkle et al., 2003;Jewkes et al., 2010b;Wood et al., 1998).

In addition, becoming pregnant when under the age of 20 years frequently reflects a myriad of infringements of the human rights of an adolescent female as defined in international law. Firstly, the right to non-discrimination on the basis of gender is violated. The teenage years mark transition to adulthood and ideally it can be argued that this ‘rite of passage’ should be equally liberating for females as it is for males. However, research has shown that males entering puberty are encouraged by peers to explore their sexual identity, whereas teenage females are warned to avoid males and shun all sexual activity outside of marriage (Durojaye, 2011;Willan, 2013). Jewkes et al (2001; 2005; 2010) and Bhana (2012) argue that the different messaging of sexuality to young females versus males clashes and is problematic. For example what it means to be a real man through engaging in sexual activity and dominating women might infringe on the rights of the girl child. Resultantly, sexual coercion and gender-based violence have been implicated by some scholars as the underlying drivers of teenage pregnancy in South Africa (Bhana, 2012; Jewkes et al., 2005;Jewkes et al., 2001;Jewkes et al., 2010a; Willan, 2013).

Additionally, low social acceptability of young people engaging in sexual intercourse constitutes a violation of the right to non-discrimination based on age. Societal values of disapproval and denial of sexuality among teenagers are often linked to a reluctance to offer young people information and services on reproductive and sexual health. This too constitutes a violation of a teenager’s rights to freedom to receive information, dignity, liberty and health. Without relevant information about sexual intercourse’s pathological threats to the reproductive system, the odds of disease transmission, and methods to prevent transmission

and pregnancy, an individual cannot make an informed decision about their reproductive health (Durojaye, 2011). Research has shown that many parents, teachers and healthcare workers deny young people these rights, even when liberal and progressive government policies exist (Bhana and Mcambi, 2013;Coetzee, 2012).

Regardless of such societal obstacles, many teenagers secretly experiment with exploring their sexuality despite social pressures, gender inequality, lack of knowledge and non-use of contraceptives. This culminates in negative consequences for young females such as unintended pregnancy, sexually transmitted infections (STIs) and HIV exposure. The right to dignity, health and life are therefore exposed by all three of these conditions (Durojaye, 2011). No or incomplete provision of information on STIs constitute the infringement of a person's right to health, and, in addition, if treatment is delayed or not sought they can lead to infertility, cancer and eventual death (Gottlieb et al., 2014). Likewise, chronic medication for HIV is available free from national public health services, but acquisition of treatment is largely dependent on local availability and accessibility of health facilities as well as societal tolerance (or lack thereof) of HIV-infected teenagers.

Finally, unintended pregnancy of young females signifies to adult guardians being 'caught in the act': divulging that one is sexually active. Therefore, fear, shame and stigma may frequently prevent pregnant young females from exercising their right to primary health care and ante-natal services (Durojaye, 2011). Not seeking or having access to ante-natal care can exacerbate the dangerous obstetric and health consequences associated with teenage pregnancy.

Some pregnant teenagers decide to attempt to terminate the pregnancy via legal or illegal means. However, illegal abortion is opted for more frequently due to stigma and associated

discrimination regarding terminations (Gresh and Maharaj, 2014, Mosley et al., 2016). This has resulted in approximately three million unsafe abortions globally in 2010 and the South African prevalence from four provinces was estimated at 6.7% in 2012 (Mchunu et al, 2012; WHO et al, 2010). Further to these obstetrically-related issues, teenage pregnancy has other health consequences. Recently scientists found that teenage pregnancy is associated with higher odds of acquiring STIs and HIV (Christofides et al., 2014).

Furthermore, there are less favourable birth outcomes for teenage women with a particular predisposition to pre-term deliveries, low birth weight babies, congenital malformations, and asphyxia of infants during delivery (Chen et al., 2007;Hoque et al., 2013). A study that investigated the outcomes of teenage pregnancy in South Africa among other countries found that younger maternal age of 19 years and below significantly increased the likelihood of low birthweight by 18% and preterm birth by 26% (Fall et al., 2015). Stillbirths and newborn deaths are 50% more likely among teenage mothers compared to older mothers (Mangiaterra et al., 2008;World Health Organization, 2014). Neonatal deaths are also 50% to 100% more likely to occur among the same group (ibid). Research has shown that this greater likelihood is frequently connected to lower levels of education, lack of access to knowledge, limited experience and low income levels among younger mothers (Mangiaterra et al., 2008); and therefore, these challenges may increase as age decreases if familial support is absent (World Health Organization, 2014).

Children born to teenagers experience poorer health and socio-economic outcomes that predispose them to abuse, neglect and hardship (Reynolds et al., 2006). A study showed that the odds of stunting for children at the age of 2 years was increased by 46% if born to teenage mothers in South Africa (Fall et. al, 2015). Poor childhood health outcomes have

been found to have enduring adverse effects into early adulthood, later life stages and even other generations (Mangiaterra et al., 2008; World Health Organization, 2014).

Above and beyond negative health consequences, there are disadvantageous socio-economic prospects for the teenage mother. Most pregnant teenagers in South Africa are unmarried and therefore, in an important preparatory stage of their lives, pregnancy interrupts the pursuit of educational and employment opportunities - as well as marital opportunities - thereby leading to lower income-earning potential and socio-economic statuses (Lee, 2010). Poor socio-economic prospects also include interruption of schooling or acquisition of skills, which could lead to lower educational attainment and permanently dropping out of schooling. Fall et al. (2015) found that teenage pregnancy was associated with a 38% higher likelihood of non-completion of secondary schooling for the mother in South Africa. Similarly, the longitudinal national study conducted by Timæus and Moultrie (2015) showed that teenage females that gave birth had twice the odds of dropping out of school and a five times greater likelihood of failing to matriculate. These are violations of the right to basic education (Lee, 2010).

Hence, teenage pregnancy and early parenthood is one of numerous factors (including domestic caring responsibilities, type and degree of aspirations, economic disadvantage, mental and physical health, homelessness, residing in a high unemployment area, etc. (Gladwell et al., 2016; Bathgate and Bird, 2013)) positively associated with an increase in the numbers of young people who are not in education, employment or training (NEET) as it could be independently linked to school dropout and unemployment (Mangiaterra et al., 2008). Mkwanzani and De Wet (2014) found that pregnancy among South African female adolescents was the number one reason for dropping out of school at a rate of 83.97 females per 10000 female adolescents dropping out. Interestingly only adolescent females had reported dropping out from school to look after their own children at a rate of 11.36 females

dropping out per 10000 adolescent females (Mkwanzani and De Wet, 2014). Additionally, the Organisation for Economic Co-operation and Development affirmed that more than half of non-schooling, unemployed youth aged 15 to 24 were females and this may be due to females choosing motherhood as teenagers over working under bad conditions, poor wages and bleak career prospects (Nobrega, 2014). Of course a classic chicken-egg situation is highlighted here as teenage pregnancy may result in unemployment, but was originally due to the disadvantaged employment prospects as well. In South Africa, at least 30% (three million) of youngsters aged 15-24 years are NEET (Statistics South Africa et al., 2013). The potential for such women and their children to ever flourish in life is greatly decreased by these circumstances. The perseverance of poverty and social exclusion in the midst of teenage pregnancy results in basic human rights being denied.

In addition, teenage pregnancy prevention has benefits for a society in general (Xu and Shtarkshall, 2004). Delaying pregnancy beyond the teenage years has been found to correlate with higher female educational attainment. This in turn is passed on in raised levels of community knowledge, skills, employment prospects and the chance of a productive life (Clifton and Hervish, 2013; Mangiaterra et al., 2008; World Health Organization, 2014). In particular, higher rates of secondary school completion have been found to correlate with lower fertility in the teenage years and subsequently lower population growth rates which aids in development of a country (Xu and Shtarkshall, 2004). Consequently, teenage pregnancy could contribute to the delayed or non-acquisition of the demographic dividend.

The unfavourable social costs of teenage pregnancy discussed create many arguments for limiting this phenomenon. Therefore, studying the predictors of teenage pregnancy would aid in decreasing the associated challenges of maternal morbidity and mortality, undesirable birth and child health outcomes, low educational achievement as well as a possible persistence of

poverty. Correspondingly, it is necessary to study the possible association of social disorganisation with teenage pregnancy. This will ensure policies and programmes that contain appropriate interventions which address these factors within society.

Literature Review

The literature's structure is discipline-specific through looking at previous studies conducted in areas outside of the continent namely at a global level, sub-Saharan African level and within South Africa separately. At each of these geographical strata, I first discuss individual-level occurring factors that are present in the current study as background controls. Secondly, the findings from previous literature regarding variables related to social disorganisation at the household level are presented. Finally, previous social disorganisation-related characteristics occurring at community level are shown to determine their relationship with teenage pregnancy. Overall looking at the literature in this way assists to establish how social disorganisation-related variables have been linked to teenage pregnancy in different contexts in the past. Also, these enquiries may be dissimilar with regards to the extent of variables covered and number of studies conducted at the various geographical planes. This exercise is to assist in identifying possible literature gaps that still need to be investigated through the current study.

Global Reviews

The global teenage birth rate in 2013 was 52 births per 1,000 women aged 15-19 years, according to the Population Reference Bureau (2013b). However, developed countries have a rate of 17 births per 1000 women aged 15-19 years while the rate of developing countries is almost three times that rate at 56 births per 1000 women aged 15-19 years(Clifton and Hervish, 2013). Globally, social scientists have attempted to establish the differences between

subjects that result in teenage pregnancy in exclusion of the differences of contexts. This is because the relevance of the inter-subjectal space, commonly known as the context or environment of social phenomena, has been considered vital for many years.

However, this same stance has only recently been embraced among scientists studying biologically inclined phenomena. This is despite detailed existing research that argues such biological phenomena are a result of human behaviour (Ellis et al., 2009; Gaudie et al., 2010; Miller and Moore, 1990; Muindi, 2007). However, the UNFPA has very recently acknowledged and begun promoting the environmental model developed by Blum (2013) in their global teenage pregnancy report. Consequently, there is now a necessity to empirically study the effects and contribution of household, as well as community factors, over and above those of individual subjectivities on the rate of teenage pregnancy in South Africa.

Although the main point of enquiry in this study is social-disorganisation related factors, individual-level characteristics are detailed in the literature review as they form control variables in the study and may also proxy underlying contextual factors. Studies on teenage pregnancy by Mkhwanazi (2009), Jewkes et al (2009) and Panday et al (2009) have recommended the need to study the social factors leading to teenage pregnancy due to cultural views, the dynamics of families and communities as well as existing 'racial' differences. They argue that the neglect of social and structural predictors of teenage pregnancy has led to its continued persistence. This is because inequalities exist in health service provision, access to sexual and reproductive health services, socio-economic status and class on the basis of race, education, employment status and other individually-occurring factors. Differences in family structure may also exist according to race if certain structures are more common within distinct groups. Therefore the individual-level factors previously shown to be linked to teenage pregnancy may mask deeper contextual differences between

communities and households. The first section of this review critiques studies on various individual-level factors specifically age, marital status, race, employment status and education attainment.

The first individual level factor is age and analysis of previous studies is conducted to give some context for why the current study included 12 to 19 year olds compared to previous studies that commonly investigate teenage pregnancy within the 15 to 19 year old age group. Introducing these lower ages in my investigation allows me to understand whether the occurrence of pregnancy is similar across adolescents. Also, incorporation of the younger age band allows an investigation of whether social variables have similar, higher or lower effects on younger females compared to their older counterparts. International research includes a cross-sectional study conducted in the United States of America (USA) by Moore and Chase-Lansdale (2001) which found that age was a significant predictor of teenage pregnancy, and doubled its likelihood. Another similar study in Jamaica by Geary et al. (2006) also found this, with the odds of pregnancy being almost ten times higher for older teenagers. These results are not surprising as it has been shown that as age increases the chance of sexual debut increases which would increase the likelihood of pregnancy as well (Klein, 2005). However, an analytical cross-sectional study by Haldre et al. (2009) in Estonia, found age not to be associated with teenage pregnancy. This interview study included young females attending two medical centres for sexual and reproductive health services. The non-significant result may have been due to the study consisting of a small sample of 279 girls. Also within the control group using contraceptives and the study group that had an unintended pregnancy very few participants (approximately 13% and 26%, respectively) were younger than 17 years. The current study was unable to include age in the regression models as it was correlated to education attainment. Nevertheless, the study included the age factor through

conducting separate analyses for the older (16-19 year old) and younger (12-15 year old) females in addition to the overall analysis for the complete adolescent age band. A comparison of results of these three samples helped to control for age without having to include age in the regression models.

It has been important for previous studies to consider the influence of marital status of young females with relevance to pregnancy. The current study controlled for marital status through specifically investigating teenage pregnancy amongst single never married females. This particular stance was chosen due to the 2011 census showing that in South Africa 95% of all adolescent females were never married and 93% that gave birth in the previous year were single (Statistics South Africa, 2011). Therefore, in the local setting the bulk of teenage pregnancies occur within the unmarried group and this study focuses on this context of marital status.

Entering into marriage by teenage females has been established as a contributing factor of teenage pregnancy in the past. An extensive review of historical data on teenage pregnancy by Kirby (2002) established the consistency of this variable in studies conducted in the USA from 1975 onwards. In contrast, an analytical cross-sectional study done in Canada by Al-Sahab et al. (2012) reported that teenage mothers were more likely to be single. Likewise, a Thai study by Isaranurug et al. (2006) found that a significantly higher proportion of teenage mothers were single parents between 2000 and 2004. These inconsistencies may be due to the local context in which teenage pregnancy occurs. However, Macleod (2002) does show that with time there has been a greater concern with fertility among non-married young women. This has partly led to the obsession and panic over teenage pregnancy.

As alluded to above, the inclusion of race in this analysis is relevant as specific groups may be predisposed to certain social conditions more than others. Particularly, in the South African context numerous variables such as socio-economic status, family structure, unemployment and various aspects of social factors show different profiles by race (Panday et al., 2009). The current study includes the race groups as defined by Statistics South Africa for population profiling viz. African/Black, Coloured, Indian/Asian and White (Statistics South Africa, 2011). Consequently, the extent and methods in which previous studies have investigated race become important to explore. Numerous international studies, particularly those conducted in the United States repeatedly confine their analysis within a specific race group, more often than not the African American or other minority group of young females (Moore and Chaseland, 2001; Talashek et al, 2006). As a result of this, race has not been investigated widely with only certain studies including it as a possible predictor of teenage pregnancy. For example, the American prospective cohort study by Meade et al. (2008) found that being African-American was a shared independent factor of all participants regardless of birth age. However, race was not associated with teenage fertility in another American longitudinal study by Haynie et al. (2009) and in the adolescent reproductive outcome review of developing countries by Mmari and Blum (2009).

Assessing the employment status of the teenage female and its possible effects helps in describing the characteristics of the study population. In the South African context, the majority of adolescent females are unemployed due to current labour laws in place as well as the pursuit of education during this period (Makiwane and Kwizera, 2009). It was not possible to determine whether employment status preceded the pregnancy or not in the current study due to the cross-sectional nature of the data, but this remains an important area to explore in future studies. Being in employment was discovered to be associated with

teenage pregnancy among Puerto Rican girls in a case-control study undertaken by Talashek et al. (2006). Mmari and Blum (2009) found employment to be an important factor of adolescent pregnancy and childbearing in their review of adolescent reproductive outcomes in developing countries. However, findings in these studies contrasted with those of Wahn and Nissen (2008) in Sweden where a greater proportion (61%) of teenage mothers were unemployed. These contrasting findings may be linked to social contexts where the studies were conducted that allow or prevent wide labour participation among younger ages. Additionally, these studies were mostly cross-sectional studies and therefore temporality could not be determined. Consequently, whether this employment or the pregnancy occurred first could not be distinguished yet could be strongly influential to the results.

The investigation of educational attainment was relevant as context may be linked to satisfaction, quality and stimulation of the education received which may differ in poor as opposed to other areas. It also allowed the study to position participants regarding sexual and reproductive health knowledge as well as possible level of agency (Jewkes et al., 2009).

The association of educational attainment with teenage pregnancy has not been consistently proven. Talashek et al. (2006) reported that Puerto Rican pregnant teenagers had significantly less problem-solving skills than their non-pregnant counterparts. Pregnant teenagers had significantly lower education levels in the Malaysian case-control study by Omar et al. (2010). However, a higher proportion of teenage mothers completed secondary school or higher levels of formal education in a population-based prospective cohort study by Isaranurug et al. (2006). This finding may be more a reflection of the age of teenage girls than their educational attainment, as older girls would be attending secondary schooling and higher.

Social Disorganisation at Household Level

Family disruption is the household level parameter that has most frequently been studied and its investigation permits an analysis of the possible association of family structure on teenage pregnancy. The family is an essential unit as the individual locates and establishes identity within it firstly (Campbell et al., 1984). Researchers have particularly attempted to establish the effects of two-parent homes and of single-parenthood. Very few studies were unable to find a significant association between single-parenthood and teenage pregnancy (Allen et al., 2007; Bonell et al., 2006; Goicolea et al., 2009; Johns, 2011). Conversely, most studies have repeatedly found that single-parenthood especially female single-parented households were significantly associated with pregnancy, while two-parent families significantly lowered the likelihood of pregnancy before the age of twenty years (Domenico and Jones, 2007; Kirby, 2002; Meade et al., 2008; Mmari and Blum, 2009; Moore and Chase-Lansdale, 2001; Omar et al., 2010). This finding has been consistent in numerous studies conducted across many regions of the world and across time. In particular, a cross-sectional study conducted in the USA by Moore and Chase-Lansdale (2001) found that reaching adulthood while living with married parents significantly decreased the likelihood of teenage pregnancy by 79 to 82%.

Correspondingly, the review of factors affecting adolescent reproductive health in developing countries by Mmari and Blum (2009) reported that in Taiwan female teenagers brought up in single-parent homes were five times more likely to become teenage mothers than those from two-parent families. The main reasons for this connection have been cited as less parental supervision, more permissive sexual attitudes and paternal absence (Domenico and Jones, 2007; Miller, 2002). A longitudinal prospective study conducted in the USA and New Zealand looked at the exclusive influence of paternal absence on teenage pregnancy in 2003 (Ellis et al., 2003). The study concluded that earlier onset of paternal absence significantly led to

teenage pregnancy in both countries with the odds of being pregnant tripling in both study settings. Paternal absence also predisposed the young women to social disadvantage and low socio-economic status. In addition, even living in a step or blended family was shown to double the likelihood of teenage pregnancy in the study by Gaudie et al. (2010). Nevertheless, beyond these relationships studied is the implication for teenage females living within households headed by cohabiting parents. This seems to be ignored in previous literature and may be due to the assumption that such households are similar to those headed by married parents. However, an exploration to test this assumption is still warranted as is done in the current study.

Linked to family disruption is the absence or presence of parents within the household as the head of the household may not necessarily be the parent of the teenage female. Investigating this factor may be of use to understand the effects of various forms of orphanhood and parental proximity to adolescent pregnancy. Previous studies have been inconsistent in establishing the relationship with teenage pregnancy concerning parental presence. For example, the study by Talashek et al. (2006) found conflicting results based on ethnicity with pregnant teens being less likely to live with their parents amongst Mexicans while they were more likely to live with their parents if they were Puerto Rican. These inconsistencies may be rooted in factors beyond the individual level and encompass the intersection of variables such as socio-economic status, the value of family, 'racial' and cultural differences. For the purposes of this study parental presence was not interrogated, but it would be useful for future studies to incorporate this variable to show its possible association as well as to investigate if it has a mediating effect on the family disruption factor.

Considering socio-economic status is relevant for investigation of the social context the teenager lives in. The current study incorporated socio-economic status at household level by

means of service delivery inaccessibility and at community level through analysing community levels of unemployment. This was to test different factors of poverty that could still possibly proxy the variable. Household socio-economic status has been researched extensively as a possible determinant of teenage pregnancy internationally. Here, the relationship between the two variables is negative with the likelihood of teenage pregnancy decreasing as socio-economic status increases (Al-Sahab et al., 2012;Gaudie et al., 2010;Goicolea et al., 2009;Haynie et al., 2009;Isaranurug et al., 2006;Kirby, 2002;Meade et al., 2008;Mersky and Reynolds, 2007;Woodward et al., 2001). Notably, two studies stand out regarding this finding. The first was a matched case-control study conducted in Ecuador by Goicolea et al. (2009). Multivariate logistic analysis found that living in a socio-economically deprived household increased the odds of being pregnant during adolescence by more than 15 times. Likewise, an Australian study by Gaudie et al. (2010) used Cox proportional hazards regression and found teenage pregnancy to be significantly and independently associated with living in a deprived home. Conversely, two European studies were unable to establish a significant association between household socio-economic status and teenage pregnancy (Allen et al., 2007;Santos and Rosário, 2011).A possible reason for this contrasting finding was that the sample sizes for both of these studies were very small thereby decreasing power in the investigation.

Social dependence is closely associated with household socio-economic status and therefore has been investigated as a potential predictor of teenage pregnancy. The study by Mersky and Reynolds (2007) proved receipt of public aid to be significantly associated with teenage pregnancy, while Moore and Chase-Lansdale (2001) found no association between welfare receipt and teenage pregnancy. Similarly in the local context, as the concern of teenage pregnancy heightened the social department's child grant became a scapegoat for sustained

levels. However, these claims have been rejected as numerous studies have proven otherwise and in fact shown the grant's protection against teenage pregnancy (Makiwane, 2010, Makiwane and Udjo, 2006).

Social Disorganisation at Community Level

A cross sectional study by Bradshaw et al. (2005) is the most comprehensive international study focusing on community level variables and teenage pregnancy. The study aimed to find explanations for differences in teenage conception rates of 352 local authorities in England. The study concluded by establishing a statistically significant association between community levels of employment, deprivation, education, health and access to services, and teenage conception rates. However, this study established the ecological odds of teenage pregnancy at district level with other parameters at the same community-level. Consequently, the findings cannot be extrapolated to the experience of teenage pregnancy for an individual teenage female. This contrasts to the current study that interrogates the association between higher-level occurring variables to teenage pregnancy at the individual –level.

Previous international studies had investigated factors related to service delivery inaccessibility at community - rather than household - level. Specifically, Bradshaw, Finch and Miles' (2005) study as well as that of Wei et al (2005) illuminated this association in developed settings, namely England and Pennsylvania respectively. However, results from the two studies did not concur as the relationship between physical disorder and teenage pregnancy was positive in Wei et al.'s (2005) study while lack of services was inversely related to conception rates in the English study. This may indicate the importance of contextual relevance as well as variable stability across studies. However, it may also be a

function of other community-level occurring phenomena that influence the effect of service-delivery on teenage fertility.

Higher residential mobility has been associated with higher levels of teenage pregnancy (Jelleyman and Spencer, 2008; Kirby, 2002; Miller, 2002). In particular, Jelleyman and Spencer (2008) review reported that teenage premarital pregnancy was associated with the number of residential moves, increasing as the number escalated. However, the study by Haynie et al. (2009) was unable to establish a significant association between the two phenomena. The measurement of residential mobility in this latter study differed from those that found an association as residential mobility was defined as “moving homes in the past 12 months” (Haynie et al., 2009). Therefore, individuals that moved one or three times would be coded the same i.e. as yes or 1 = adolescent moved homes in the past 12 months. This does not compare with earlier studies that measured the number of residential moves. Due to data restrictions of the 2011 census a similar stance as this latter method of accounting for residential mobility is used in the current study.

Community levels of unemployment have been shown to influence the likelihood of teenage pregnancy with studies by and Kirby (2002) showing higher levels of teenage pregnancy when there is a higher level of community unemployment. Nevertheless, these findings have been linked to community unemployment being a tell-tale sign of poverty. Low neighbourhood socio-economic status, referred to as neighbourhood deprivation, has been consistently proven to increase teenage pregnancy in international studies (Bradshaw et al., 2005; Jelleyman and Spencer, 2008; Kirby, 2002; Smith, 1993). In a cross sectional study conducted in Scotland by Smith (1993), a neighbourhood deprivation scale of one to seven was used to classify communities into different deprivation levels. The study found that the pregnancy rate in the most deprived areas was three times greater in under 16 year olds and

six times greater in under 20 year olds than in the most affluent communities. The various global studies mentioned above that investigate community level factors were ecological investigations that explained association to teenage pregnancy or conception rates at community level. Consequently, I add a cautionary note that such ecological findings cannot be extrapolated to confer the association of community-level factors to the likelihood of teenage pregnancy at the individual level as this will amount to ecological fallacy (Piantadosi et al., 1988).

As seen in the this section, certain global studies have investigated the association of variables classically known to constitute the social disorganisation theory with teenage pregnancy. Despite there being value in such international scholarship, social science research defined in developed contexts cannot be automatically assumed relevant in developing settings. This is due to the very different environments that developed and developing milieus offer in which similar phenomena may occur.

Moreover, these studies have only looked at specific household or community level elements separately and not formed a comprehensive holistic portrayal of how social disorganisation can lead to teenage pregnancy (Haynie et al., 2009, Kirby, 2002). This contrasts with how social organisation has been studied in relation to other phenomena such as crime and violence.

Additionally, international studies on teenage pregnancy have examined some social determinants, but most of these have used isolated methodology. In particular, the application of multilevel regression is necessary in studying factors operating at different contexts to account for the true variability based on the stratum's position to an individual. Correspondingly, Subramanian (2004) concluded that multilevel modelling offers superior

“predictive power, description and precision” in the analysis of community influence. To this end, there remains room for deeper, more accurate explorations of the factors causing teenage pregnancy. This study methodically investigates this role of social factors in the perpetuation of teenage pregnancy through the use of multilevel logistic regression.

Sub-Saharan Africa Reviews

Sub-Saharan Africa in 2013 had a teenage birth rate of 101 births per 1000 women aged 15 to 19 years (Clifton and Hervish, 2013;United Nations Population Fund, 2013). However, the teenage pregnancy rate within sub-Saharan Africa ranges from 150 or higher to less than 50 births per 1000 women of ages 15 to 19 with central Africa displaying the highest levels and southern Africa having the lowest (Clifton and Hervish, 2013).

Numerous studies in the subcontinent have focused on identifying the factors that are associated with teenage pregnancy. These studies have predominantly concentrated on demographic, socio-economic and reproductive health knowledge and behaviour parameters (Kyokwijuka, 2009;Ogunlesi et al., 2013;Palermo and Peterman, 2009). At the individual level, studies show the education level attained by a teenage female to be associated with teenage pregnancy (Beguy et al., 2013;Kyokwijuka, 2009;Magadi and Agwanda, 2009;Mamboleo, 2012;Were, 2007). These studies show increasing levels of education decrease the likelihood of teenage pregnancy. In particular, the study by Angeli et al. (2010) found that young women enrolled in a school programme were 60% less likely to fall pregnant before the age of 18 years compared to those not enrolled.

Likewise, according to Amoran (2012) females with post-secondary education had four and nine times less odds of pregnancy compared to their counterparts with secondary and primary level education. Possible reasoning for this relationship is that females with higher

educational attainments have better access to information on sexual and reproductive health from school, the media and books (Molosiwa and Moswela, 2012;Nalenga, 2012). Additionally, such women are more empowered and proactively seek information (Molosiwa and Moswela, 2012).

The influence of marital status has been widely investigated in sub-Saharan Africa as child marriage is a driving factor for teenage pregnancy with the greatest legacy in some parts of the region (Durojaye, 2011; Mturi and Moerane, 2001). Although the incidence of the practice of child marriage has decreased slightly due to increased female education and its recognition internationally as a human rights violation, studies consistently continue to associate teenage pregnancy with the phenomenon to this day (Demissie, 2008; Durojaye, 2011).

Certain studies have shown marriage to increase the likelihood of early pregnancy as much as eight fold (Alemayehu et al., 2010;Beguy et al., 2013;Demissie, 2008;Gurmu and Dejene, 2012;Kaphagawani, 2006;Runsewe-Abiodun and Bondi, 2013). On the other hand, other studies have found teenage pregnancy to occur more among unmarried females (Angeli et al., 2010;Isa and Gani, 2012;Mamboleo, 2012;Ogunlesi et al., 2013). This latter finding correlates with the current worldwide trend of early pregnancy becoming a premarital phenomenon. The associations found in different studies could thus be linked to the local frequency and attitudes towards marriage and early marriage in particular.

Previous studies have shown that the ages of young females are a factor consistently associated with teenage pregnancy (Alemayehu, 2010; Beguy et al., 2013;Francis, 2008;Kyokwijuka, 2009;Nalenga, 2012;Nwogwugwu, 2013;Palermo and Peterman, 2009). These studies demonstrate that older teens are more predisposed to pregnancy than their

younger counterparts. This is mainly due to the likelihood of sexual debut, menarche and marriage increasing with age.

Differentials by place of residence have been found in levels of teenage pregnancy with teenage females from rural areas having a higher likelihood of pregnancy than those from urban areas (Alemayehu et al., 2010; Demissie, 2008; Gurmu and Dejene, 2012; Kyokwijuka, 2009; Magadi and Agwanda, 2009). The study by Alemayehu et al. (2010) reported that the odds of teenage pregnancy were three times higher in rural teens than their urban counterparts. It is postulated that young females in rural areas are more vulnerable to engaging in transactional sex due to poverty than urban teenagers (Molosiwa and Moswela, 2012). Nevertheless, the multi-country study by Palermo and Peterman (2009) found that place of residence was a significant determinant of teenage pregnancy in only two (namely Benin and Malawi) of the ten countries investigated across sub-Saharan Africa (Palermo and Peterman, 2009). This lack of urban-rural differential was also shown in the likelihood of early marriage and sexual debut which would explain the results for teenage pregnancy. Additionally, it is possible that other parameters included in the study displayed collinearity with the place of residence variable thereby nullifying its association with the outcomes tested.

Studies incorporating household level variables have found household size, the number of female occupants in the household, socio-economic status and parental levels of education as significant predictors of teenage pregnancy (Francis, 2008; Jelili et al., 2013; Magadi and Agwanda, 2009). Particularly, the likelihood of pregnancy while a teenager increased in households with lower levels of parental education, lower socio-economic status, fewer individuals and fewer female occupants.

Social Disorganisation at Household Level

The consistent components of social disorganisation investigated in household level studies in sub-Saharan Africa are family disruption and socio-economic status. Studies have found significantly higher levels of teenage pregnancy in households headed by single parents, especially never married or divorced females (Francis, 2008; Oyefara, 2011; Ugoji, 2011). Such results need to be reviewed in context as previous studies have shown a higher likelihood of poverty among single parented households (Corcoran, 1999). Therefore, it is possible that associations found between family disruption and teenage pregnancy may be rooted in other factors such as poverty, social disadvantage and lack of social protection.

The possible effect that socio-economic status has on teenage pregnancy has been studied in sub-Saharan Africa and shown this factor to be a constant determinant (Isa and Gani, 2012; Kaphagawani, 2006; Nalenga, 2012; Nyakubega, 2010; Palermo and Peterman, 2009; Were, 2007). For example, Amoran (2012) in Nigeria found that teens from low socio-economic backgrounds were almost four times more likely to be pregnant compared to female teens from high socio-economic households.

Jelili (2013) examined whether residential density (defined as the number of persons per room in a household) and heterogeneity (defined as the number of families in a house) are predictive of teenage pregnancy. The study found a significant association between the former, but not with the latter variable.

From this section, it is seen that the investigation of social disorganisation in relation to teenage pregnancy in sub-Saharan Africa has focused on the household level in particular. The studies that have attempted to investigate other factors beyond family disruption and socio-economic status at household level have used incomparable parameters with

international literature. Also, the household factors have been interrogated in isolation to community-level occurring parameters with even community-level factors of the same parameters not being studied. Further, beyond family disruption and socio-economic status the variables at household level do not tally with the definition of factors according to the social disorganisation theory rendering them difficult to locate within it. To this end, in the sub-Saharan African context there remains a shortage of studies investigating various social disorganisation-related factors and this study will fill this gap which further highlights the importance of the current study.

South African Reviews

The rate of teenage pregnancy in South Africa in 2013 stood at 50 births per 1000 15-19 year old women (Clifton and Hervish, 2013). This is in spite of a decrease of more than 20% in the teenage pregnancy rate since 1996 (Chohan and Langa, 2011). Numerous studies have gone to great lengths to argue that teenage pregnancy is a social problem that requires to be addressed beyond the individual level (Macleod, 2011; Mkhwanazi, 2010; Panday et al., 2009). Local studies have focused on determinants and interventions at an individual level. However, this analysis seems to have had little efficacy due to possible barriers that inhibit individuals accessing prevention measures or ineffective implementation of recommendations by the public service.

Since the 1980's, South African studies have explored the predictive influence of demographic and socio-economic factors on teenage pregnancy (Ibisomi and Odimegwu, 2007; Malema, 2000; Mchunu et al., 2012). These studies have found increasing age, low levels of education and poverty as predictors of teenage pregnancy (Biddecom and Bakilana, 2003; Panday et al., 2009; Willan, 2013). The study by Panday et al (2009) found the

majority of pregnancies to occur amongst 17 to 19 year old females. In the national youth risk behaviour survey, about a third of pregnancies occurred among 19 year olds while less than 20% of all the other ages were pregnant (Reddy et al., 2010). However, age was not associated with teenage pregnancy in a study conducted in Limpopo (Limpopo Population and Development Directorate, 2012). This result was surprising as approximately 91% of pregnancies had occurred at 16 years and above while only 9% occurred among teenage females below the age of 16 years. It is possible that the association of this background characteristic was cancelled by another factor such as education level and correlation testing should have been conducted before regression modelling.

Lower levels of education have been shown to increase the likelihood of teenage pregnancy (Jewkes et al., 2009;Malema, 2000;Manzini, 2001;Marteleto et al., 2008;Timæus and Moultrie, 2012). This effect noted in previous studies has ranged from a 30% higher likelihood to a three-fold greater chance (Jewkes et al., 2009;Marteleto et al., 2008). Nevertheless, there are some studies that have not found an association between education levels and teenage pregnancy in South Africa (Mchunu et al., 2012;Reddy et al., 2010). This was based on analysis at the bivariate level in the study by Mchunu et al (2012) and may have been influenced by the categorisation of education into two groups of grade 11 or less constituting 37.8% of participants and grade 12 or higher which comprised the majority (61.6%) of female participants. Nevertheless, the study by Mchunu et al (2012) found that being a student as opposed to being unemployed or employed was protective against pregnancy. Reasons for the non-association may have been the inclusion of both the level of education variable and the employment status variable including the student category which resulted in the two variables correlating. An option of choosing the employment status variable over the education level variable was then taken.

Teenage pregnancy has been consistently associated with socio-economic status of individuals (Macleod, 1999; Macleod and Tracey, 2010; Mchunu et al., 2012; Mothiba and Maputle, 2012; Ramathuba, 2013; Timæus and Moultrie, 2012; Willan, 2013). Specifically, a study by Marteleto et al. (2008) reported a 41% higher likelihood of pregnancy in the presence of temporary or permanent socio-economic hardship. Additionally, the study by Panday et al. (2009) explained ‘racial’ differences in rates of teenage pregnancy to be as a result of differences in socio-economic status. This is due to poverty and levels of unemployment being higher among Africans and Coloureds in South Africa, which lead to much higher levels of teenage pregnancy in these population groups.

The incidence of coercive sex and gender-based violence has been associated with higher levels of teenage pregnancy (Macleod, 1999; Macleod and Tracey, 2010; Willan, 2013). Jewkes et al. (2010a) found that 23% of women aged 15 to 26 had experienced more than one episode of physical or sexual intimate-partner violence in South Africa. This has been found to occur more commonly within age-disparate relationships¹. Jewkes et al. (2001) showed that pregnant girls had significantly older partners and the likelihood of teenage pregnancy increases when a teenage female’s partner is more than five years older than her (Macleod and Tracey, 2010; Vundule et al., 2001). In the study by Mothiba and Maputle (2012) almost half (48%) of pregnant teenagers had partners above the age of 21 years of age. Vundule et al. (2001) found that partners of pregnant teenagers had a higher mean age difference of 5.1 years compared to non-pregnant teenagers. Toska et al. (2015) showed that having engaged in

¹ According to LECLERC-MADLALA (2008) these are defined as relationships where young women have partners that are more than five years older

age-disparate sex increased the likelihood of teenage pregnancy by almost three times (2.98) compared to those who had not.

The incidence of this large relationship age gap is said to decrease the ability of young women to negotiate for safe sex (Mkhwanazi, 2011). In addition, experiencing coercive sex and a greater frequency of domestic violence increased the likelihood of teenage pregnancy by 76 percentage points and 85 percentage points, respectively. The authors argued that these findings were mediated through power inequality within relationships which was reinforced through violence (Jewkes et al., 2001). They attested that teenage pregnancy revealed sexual activity practice that placed young females at risk of HIV infection as well. Accordingly, Pettifor et al. (2005) showed that having an older partner tripled the likelihood of HIV infection.

Social Disorganisation at Household Level

Very few studies have investigated household variables as possible predictors of teenage pregnancy in South Africa (Limpopo Population and Development Directorate, 2012; Malema, 2000; Vundule et al., 2001). Nevertheless, service inaccessibility, household size and parental absence have been associated with teenage pregnancy (Limpopo Population and Development Directorate, 2012; Vundule et al., 2001). The matched case-control study conducted by Vundule et al in Cape Town was conducted more than a decade ago and identified paternal absence, higher household size, not owning a television set and not living in a brick house as the most significant determinants of teenage pregnancy. In particular, not living with one's biological father almost tripled the likelihood of teenage pregnancy while larger household size doubled the odds. Ownership of a television set and residence in a brick house were proxies for socio-economic status.

The Limpopo study constituted a component of a national study commissioned by the South African government “to identify and understand the psychosocial, economic, cultural and household factors associated with teenage pregnancies” in South Africa (Limpopo Population and Development Directorate, 2012). This study showed that access to water and electricity was negatively associated with unwanted teenage pregnancy, although not significantly so. Also, the larger the household size, the more a teenage mother would want to be pregnant with teenage females being 63% more likely to want to get pregnant for every unit increase in household size (Limpopo Population and Development Directorate, 2012). It is important to note that household size may indicate socio-economic status as poverty has been linked to higher levels of fertility in previous studies. Also, household sizes may be larger when there is more than one family living in the home—a possible indicator of poverty and compensatory shared resources and infrastructure.

However, population group, being in an age-disparate relationship, access to a child support grant, housing type and parental survival status were not significant predictors of teenage pregnancy (Limpopo Population and Development Directorate, 2012). These non-significant findings are matters for further investigation and may be due to a small sample size rendering lower power for the study. Also, the findings may be greatly affected by the location of the study and the resultant average socio-economic status, race patterns, levels of service provision, and age-disparate relationships. If these factors occurred among most teenage females regardless of pregnancy status their effects would have been insignificant, as the study found.

The relationship between family disruption and teenage pregnancy has been investigated by a few studies in South Africa (Macleod, 1999; Malema, 2000; Mothiba and Maputle, 2012). In the study by Mothiba and Maputle (2012), 44% of teenage mothers were dependent on their

single mothers while only 12% were dependents of both parents. Therefore, what researchers refer to as non-heteronormative family forms have been identified as contributors to teenage pregnancy in South Africa (Macleod, 1999; Mothiba and Maputle, 2012). Conversely, there was no association found between parental marital status and teenage pregnancy in the study by Malema (2010). Nevertheless, this result was said to be due to at least 60% of the parents being migrant workers in the area. Such parents were married yet absent from the household. Therefore, the majority of households were headed by lone parents and even other family members when both parents were not present. To ensure that this same error is not repeated in the current study I use the marital status of the head of the household who by definition is present within the home at the time of the census.

The comparison of single versus two-parented households in previous studies may be rather isolated though as it neglects the possible effect of a middle ground in co-habiting parented families. The previous assumption has been that parental cohabitation has the same effect as parental marriage on children and their sexual socialisation. However, Inazu and Fox (1980) argue that sexual activity among cohabiting couples increases the likelihood of their children's sexual activity during adolescence. Therefore, it was beneficial to test whether cohabitation had a bearing on pregnancy as was done in the current investigation.

Further, the community influence of family disruption while controlling for the household equivalent was also needed. This is due to various family structures beyond married two-parented households existing within South African society more often. Schalet (2011) argues that adolescent sexual health and positive development requires connectedness of adolescents to parents as well as other trustworthy adults that can be turned to during decision making. However, it has been shown that a predominance of family structures other than married two-parented households decreases social networks and community supervision of young people

(Kwong Wong, 2007). Therefore, the importance of determining the association with teenage pregnancy remains and this study sought to establish the community family structure influence regardless of the household level effects.

Social Disorganisation at Community Level

Community-level factors have not been widely studied in South Africa. Nevertheless, the few studies conducted have found culture, gender inequality and gender stereotyping to be significant community level predictors of teenage pregnancy (Varga, 2003;Willan, 2013). A cross-sectional study by Varga (2003) used triangulation of focus group discussion, narrative role playing, questionnaires and in-depth interviews. The study was conducted in KwaZulu-Natal and examined societal gender ideology, gender roles and the social impact of teenage childbearing. The study found gender stereotyping reinforced females' inability to negotiate for safer sex, and other disadvantageous sexual dynamics. These factors as well as double-standard treatment based on gender increased the likelihood of conception among adolescent girls. Likewise, Willan's (2013) literature review concluded that societal levels of gender inequalities, gender-based violence and poverty were the major issues needing attention for the high rate of teenage pregnancy to be reduced in South Africa.

The above literature critique has highlighted the inconsistencies in previous research findings. These discrepancies can be attributed to differences in sample sizes, as well as analytical methods used and the intersections between certain variables. Particularly in the South African context, great intersections exist among race, socio-economic status (class) and educational attainment. Different social realities exist in South Africa based on race that spill over to teenage pregnancy profiles varying by race and socio-economic status.

Consequently, dynamics that would be accounted for by class may seem race-related if socio-economic status is not controlled for. Similarly, cultural dynamics and contextual factors such as social perceptions, norms and beliefs may underlie the effects of gender-based violence and sexual coercion locally. Numerous and complex family orientations, behaviours and features have continued to occur in South African society today that entrench violence, strain social relations and demolish authority and social institutions (Delius and Glaser, 2002).

Specifically with reference to social disorganisation and teenage pregnancy these past bodies of knowledge lack an approach of viewing teenage pregnancy as a possible construct of social disorganisation. Therefore, previous studies have investigated some elements of social disorganisation at household or community level separately and in isolation. This then does not allow the determination of the holistic effect of social disorganisation elements and how they could possibly interact in influencing teenage pregnancy. These more contextual variables could affect the level of agency and autonomy young people have when making decisions about relationships, sexuality and contraception (Schalet, 2011). The implication of this would be that as social disorganisation rises in households and communities of South Africa so would teenage pregnancy.

This proposed paradigm shift will aid in understanding the contextual quantitative influence on teenage pregnancy better. Local studies lack the analytical focus of contextual influence on individual human behaviour. As mentioned above, analysing the determinants of teenage pregnancy through multilevel regression allows for accurate measurement of contextual influence enabling further contribution. As such, the study aims to provide empirical quantitative insight on the social construction of teenage pregnancy in South Africa.

Deficiencies in the Existing Literature

As seen in the previous section, certain global studies have investigated the association of variables classically known to constitute the social disorganisation theory with teenage pregnancy. Despite there being value in such international scholarship, social science research defined in developed contexts cannot be automatically assumed relevant in developing settings. This is due to the very different environments that developed and developing milieus offer in which similar phenomena may occur.

Moreover, these studies have only looked at specific household or community level elements separately and not formed a comprehensive holistic portrayal of how social disorganisation can lead to teenage pregnancy (Haynie et al., 2009; Kirby, 2002). This contrasts with how social organisation has been studied in relation to other phenomena such as crime and violence. The extent to which sections of South African society have been affected by oppression resulting in social disorganisation makes this particular investigation necessary in the South African context. To this end, a gap arises for the effects of social disorganisation on rates of teenage pregnancy to be studied especially in South Africa. In particular, the influence of family disruption, household service inaccessibility, residential mobility and community unemployment on rates of teenage pregnancy needs to be assessed. This study aims to investigate this through including the aforementioned traditional and modern aspects of social disorganisation and measuring the effect that each one has on teenage pregnancy.

Additionally, international studies on teenage pregnancy have examined some social determinants, but most of these have used isolated methodology. In particular, the application of multilevel regression is necessary in studying factors operating at different contexts to account for the true variability based on the stratum's position to an individual.

Correspondingly, Subramanian (2004) concluded that multilevel modelling offers superior “predictive power, description and precision” in the analysis of community influence. To this end, there remains room for deeper, more accurate explorations of the factors causing teenage pregnancy. This study methodically investigates this role of social factors in the perpetuation of teenage pregnancy through the use of multilevel logistic regression. Reasons for the use of multilevel modelling are further explained in the methods section (Chapter 3).

Over and above the status of international research, lies that of sub-Saharan Africa and even more so that of South Africa. These vast bodies of knowledge lack an approach of viewing teenage pregnancy as a possible construct of social disorganisation. This proposed paradigm shift will aid in understanding teenage pregnancy better. Furthermore, local studies lack the analytical focus of contextual influence on individual human behaviour. As mentioned above, analysing the determinants of teenage pregnancy through multilevel regression allows for accurate measurement of contextual influence enabling further contribution. As such, the study aims to provide empirical quantitative insight on the social construction of teenage pregnancy in South Africa.

The Purpose Statement

The purpose of this study was to test the theory of social disorganisation that may attribute teenage pregnancy to the household and community levels of social disorganisation through research in all nine South African provinces. In this study, the theory related family disruption, household service inaccessibility, residential mobility and community unemployment to rates of pregnancy among female teenagers in South Africa. The independent variables family disruption index, household service inaccessibility, community family disruption, residential mobility and community unemployment were defined generally

as social disorganisation. The dependent variable was defined generally as experience of teenage pregnancy understood as the occurrence of pregnancy before the age of 20 and the demographic and socio-economic variables not related to social disorganisation were statistically controlled for in the study.

Research Question

What is the relationship between social disorganisation at family and societal levels and teenage pregnancy in South Africa?

Research Objectives

General Objectives

This study aims to establish the multilevel effect of social disorganisation on teenage pregnancy.

Specific Objectives

To determine the levels and patterns of teenage pregnancy in South Africa.

To establish the demographic and socio-economic determinants of teenage pregnancy in South Africa.

To investigate the social disorganisation determinants of teenage pregnancy in South Africa.

Definitions and Delimitations

Child marriage: A formal marriage or informal union (i.e. considered formal traditionally or according to customary laws) before age 18

Community: A group of households that share a common geographical location

Household: Persons living in the same dwelling unit who make common provision for food and other essential items whether they are related or not (United Nations Statistics Division, 2017).

Parental presence: The physical occurrence of a parent within the household where a teenage female lives

Teenage pregnancy: Pregnancy of a female aged below 20 years

Social disorganisation: The disruption of social relations and values leading to the deterioration of a community's structures (relationships, culture, social capital, economic independence and stability) and anomie.

Significance of the study

Previous studies have attempted to establish the major predisposing factors of teenage pregnancy. Studies focusing on individual characteristics found increasing age, low education levels and poverty as significant predictors while those looking at household factors found household size and socio-economic status as consistent predictors of teenage pregnancy (Panday et al., 2009; Vundule et al., 2001; Willan, 2013). Finally, a study that the South African government commissioned in Limpopo found culture, gender inequality and gender stereotyping to be significant community level predictors of teenage pregnancy (Limpopo Population and Development Directorate, 2012).

Studies on teenage pregnancy by Mkhwanazi (2009), Jewkes et al (2009) and Panday et al (2009) have recommended the need to study the social factors leading to teenage pregnancy due to cultural views, the dynamics of families and communities as well as existing 'racial' differences. They argue that the neglect of social and structural predictors of teenage pregnancy has led to its continued persistence. Past studies looking at household and

community variables have used incomplete methodologies which failed to account for multiple level occurring parameters (Limpopo Population and Development Directorate, 2012; Vundule et al., 2001).

Furthermore, context strongly influences the behaviour of young people (Godley, 2012). In particular, the teenage years are a self-formative and awareness phase. Therefore, certain skills have not yet been fully developed such as self-control, risk assessment and resistance to peer pressure. This makes young people particularly vulnerable to external influence from peers as well as from the environment they exist in. Consequently, Makubalo (2008) argued that a clearer comprehension of teenage pregnancy in South Africa will only be achieved upon establishing the local, social and contextual drivers of the phenomenon.

Previous studies in South Africa have cited some community effects on teenage pregnancy, but have not looked at household - and community -level social disorganisation to see how it accounts for higher rates of teenage pregnancy. Panday et al.'s (2009) study attests to this as trade-offs between health and survival were noted in pregnant teenagers from disadvantaged communities. It is postulated that women who are part of socially disorganised communities fail to exercise their individual rights and desires due to environmentally-occurring forces.

Thus, teenage pregnancy is not merely a reproductive health matter that can be reduced through making contraceptives available and accessible (Willan, 2013). Rather, responses should address socio-structural factors thereby empowering girls through optimisation of their communities. Indeed, creating safer and more organised societies has been seen to encourage healthier risk perception and behaviour (Godley, 2012). Local exploration of teenage pregnancy has hinted at the importance of inequality in relationships and communities, yet

this has not been analysed in-depth (Macleod, 1999). Studies investigating teenage pregnancy in this way have been sparse and superficial.

Vundule et al in 2001 attempted to take up this challenge, as they determined to investigate contributing factors of teenage pregnancy among sexually active adolescents through a matched case-control study in Cape Town. The study found the likelihood of teenage pregnancy to triple due to paternal absence and to be fivefold higher among teenage females not living in a brick house (as a proxy of poverty). Since then no other matched case-control study on teenage pregnancy has been undertaken.

Additionally, the Limpopo Directorate of Social Development commissioned a study that attempted to investigate contextual factors. It found that access to water, electricity, parental survival and housing types were not significantly associated with teenage pregnancy. The study has since been found to have had some irregularities in sampling and other methodological issues.

However, both these studies used logistic regression without accounting for the multidimensional position that possible factors occupied and the inter-relations between these levels. It is believed that the inability to apply robust methodologies, unavailability of data and possible challenges in comprehensive measurement of these factors led to this past approach. Therefore, a study of the effects of contextual social disorganisation on teenage pregnancy is important for several reasons. First, tracking levels and patterns of teenage pregnancy in different communities can reveal where teenage pregnancy is higher or lower will assist in identifying communities that need greater support in teenage pregnancy intervention and prevention.

Second, investigating the demographic and socio-economic determinants of teenage pregnancy will show the numerous non-social disorganisation factors associated with teenage pregnancy and allow the independent predictive value of these to be obtained.

Third, identifying the social disorganisation-related determinants of teenage pregnancy at multiple levels will establish their predictive value, assist policy makers to direct efforts synergistically to the most pressing social issues, as well as provide evidence for structural changes needing prioritisation. This will assist policy makers to use the most expedient methods to combat teenage pregnancy thereby reducing teenage pregnancy cost effectively and efficiently.

From the above discussion, it is clear that it is necessary to examine teenage pregnancy from this alternative approach. Specifically, the investigation of the relationship between teenage pregnancy and social disorganisation-related factors is necessitated. This study advocates for a shift in the research and policy agenda surrounding teenage pregnancy. It postulates that teenagers' behaviour is a product of the communities they live in. If these societies are heavily infused with characteristics of social disorganisation then young people cannot be blamed for the unfavourable choices made, as this reflects the societies in which they live more than intentional behaviour. Therefore, a study of this nature is vital in curbing this phenomenon.

THEORIES AND MODELS

Introduction

This chapter outlines the theory upon which the research emanates from as well as the resultant conceptual framework and hypotheses that stem from the foregoing chapter.

Theoretical Framework

The social disorganisation theory is from the family of ecological theories originating from the Bronfenbrenner's theory. Additionally, it is an example of a macro-level and social structural theory (Kubrin, 2009). Therefore, social disorganisation encompasses an aspect of structural phenomena. Social disorganisation is defined as the inability of community members to achieve shared values or to jointly solve experienced problems emanating within the household and society (Bursik, 1988). Levels of social disorganisation have been shown to explain contextual variations in violence and crime (Elliot and Merrill, 1961;Kubrin, 2009). This study focused on contextual factors while controlling for individual-level factors.

The social disorganisation theory was developed in Chicago in the late 1800s and early 20th century (Shaw and McKay, 1942). It is also known as the ecological school and Chicago school of criminology. The theory evolved in Chicago as the city was battling with overpopulation caused by in-migration made possible as a result of its centrality and rail access from other regions of the United States (Bernard, 1992, Vold et al., 2002).Challenges ensued, in the absence of social structures to deal with rising levels of urbanisation and associated city growth changes. By the end of the 19th century, the responsibility of solving problems such as crime and delinquency fell on communities and not the local police force (Shaw and McKay, 2009). However, more than 50% of the Chicago population was made up of migrants (70% foreign-born nationals and 20% first generation American citizens) and most people did not share cultural views or a common language thereby rendering it difficult to unitedly solve their problem of crime (Bernard, 1992, Vold et al., 2002).

Burgess (1928) posited that city growth resembled ecological competition following the fundamentals of ecology being “the study of the dynamics and processes through which

plants and animals interact in the environment”. This led to the development of the Concentric Zone Theory and Burgess (1928) subdivided cities into five primary zones namely the central business district (I), transition zone (II), workingmen’s homes (III), high priced family dwelling zone (IV) and suburban zone (V). In the zone theory, these zones corresponded to areas of higher and lower social disorganisation (Burgess, 1928, Park, 1936). The zone II was most affected by ecological principles of invasion, domination, recession and succession when the factory zone as it increased in size invaded the residences within it (Burgess, 1928, Park, 1936). This resulted in zone II possessing an environment that harboured and encouraged social disorganisation (Park, 1936).

Shaw and McKay drew on this ecological city framework to explain why certain neighbourhoods of Chicago had more structural problems than others (Shaw and McKay, 1942). According to Shaw and McKay (1942), areas that resembled zone II with high physical dilapidation, racial/ethnic heterogeneity, poverty, residential mobility, unemployment as well as what they termed other social ills (e.g. high levels of infant mortality and disease) were considered to be socially disorganised and these areas were posited to have the highest levels of crime (Please see Figure 2.1). This was mainly due to disorganised communities having weaker social ties and little informal social controls (Kubrin, 2009) Therefore, the theory showed that crime was indirectly due to community effects in addition to individual effects as the crime rates in specific places remained consistently high despite complete population transitions (Kubrin, 2009, Stark, 1987).

According to the theory the following definitions were derived:

Social disorganisation-the breakdown of social controls (Shaw and McKay, 1942)

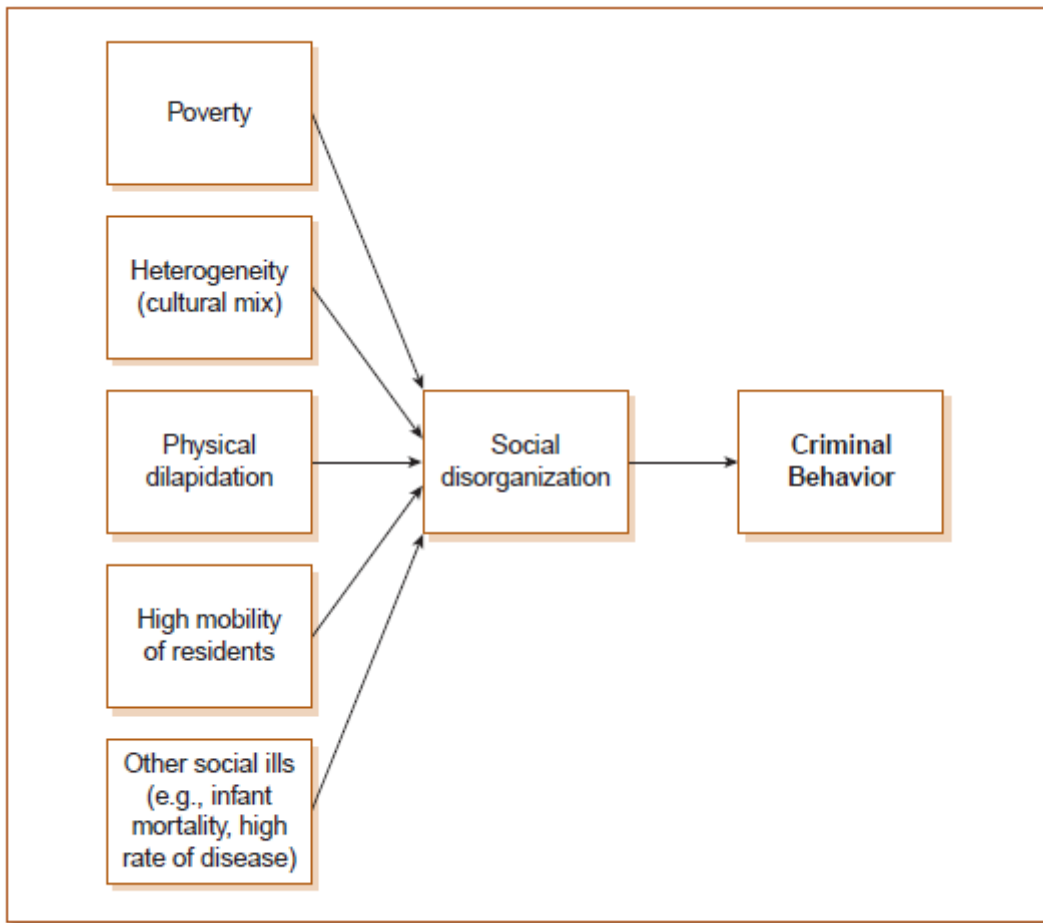
Physical dilapidation- collapsing structures, shabby areas with progressive traffic, pollution and uninhabitable surroundings (Shaw and McKay, 1942)

Racial/ethnic heterogeneity- This was defined as the mix of people from different cultural backgrounds (Shaw and McKay, 1942). It has been measured through ethnic diversity index, number of ethnic groups per community and ethnic composition.

Poverty-This was considered economic deprivation or low economic status (Shaw and McKay, 1942). It has been measured in the past through the proportion of families with social grants, home ownership levels, percentage of low income households, unemployment, parental education level, community disadvantage, poverty rates, percentage of households in the lowest 20% wealth index, median rental and occupation.

Residential mobility/instability-This was defined as the high rate of turnover in the community (Shaw and McKay, 1942). It was measured through the proportion of households occupied by individuals who moved from another dwelling in the past 5 years, number of residential moves per household in the past year, median household size per community.

Figure 2.1: The Model of the Theory of Social Disorganisation



Source: Shaw and McKay, 1942

Criticism of the Social Disorganisation Theory:

The social disorganisation theory has been criticised in three main areas. Firstly, scholars have argued that initial forms of the theory equated social disorganisation to its precursors without an ability to measure it (Tibbet and Hemmens, 2009). This study uses the precursors of social disorganisation as the actual measures of the entity is not accounted for in the census data. Nevertheless, despite this shortcoming, association has been established between the precursors and numerous outcomes, including outcomes related to sexual and reproductive health (Kubrin, 2009, Sampson and Groves, 1989).

Secondly, the social disorganisation theory has been criticised for concentrating heavily on community effects without accounting for and considering the influence of individual-effects. This assisted in predicting the communities with greater levels of crime correctly, but was unable to determine reasons for certain youth being involved or not in crime (Kubrin, 2009, Tibbetts and Hemmens, 2009). For this reason, this study utilises an adapted version of the theory to establish factors associated with teenage pregnancy at the individual basis and controls for individual-level factors beyond social contextual variables.

Finally, the greatest weakness of the theory was the lack of recommendations on how to prevent crime through invasion of Zone II areas (Tibbetts and Hemmens, 2009). Shaw and McKay (1942) concentrate on decreasing the levels of the various social disorganisation precursors rather than suggesting ways that could decrease the invasion of Zone II areas by factories and businesses which initiated the whole process (Kubrin, 2009). However, this may have been due to the presence of a conflict of interest as the owners of these businesses had funded these research endeavours (Tibbetts and Hemmens, 2009).

The social disorganisation theory was adapted through the addition of establishing the effects of family structure to determine the influence of factors below the community level and to determine how instability in families could mediate the process (Sampson and Groves, 1989). To this end, family disruption was incorporated and considered the reflection of family structure where individuals living with both parents were compared with those living in other family arrangements (Kwong Wong, 2007). This concept was applied at the household and community levels. It has been measured in the past through percent of residents in the community who were ever married, divorced or separated, percent of single female-headed families, female headed households, percent of single-headed households, family socio-economic wellbeing, index of cohabiting status of household head.

Additionally, over time the inability to measure social disorganisation has been corrected through researchers adapting the theory and including the measurement of collective efficacy and social capital within communities when collecting primary data (Tibett and Hemmen, 2009). Although originally used to explain and study crime, the theory has been adapted for other outcomes that are negative and sometimes positive in nature to be investigated. A number of studies have applied this theory and tested its relevance with regards to timing of sexual debut, intercourse consistency and frequency, extra-marital sex, short term sexual partnering, pregnancy, contraceptive use, sexually transmitted diseases, educational performance, extramural activity participation, obesity, diabetes as well as residential mobility between cities and suburbs (Benefo, 2008; Billy et. al, 1994; Bowen et. al, 2002; Brewster et al, 1993; Browning and Wilborn, 2003; Cantillon et. al, 2003; Cubbin et al, 2005; Hogben and Leichliter, 2008; Ludwig et al, 2011; Moore and Chase-Lansdale, 2001; South and Crowder, 1997).

Demography does not have many theories. As a result it has become common practise to adapt theories from other disciplines. The social disorganisation theory used in this study is also an adaptation of the original theory. For this study, the theory was deemed appropriate due to the ability to investigate unfavourable factors beyond the individual-level occurring within society. If the same entities are present within the current context these same predictions could possibly also underlie other outcomes, including teenage pregnancy in this case.

Research has shown that South Africa is engulfed by the effects of family and social breakdown (Holborn and Eddy, 2011). At household level the country shows high levels of social disorganisation. Holborn and Eddy's (2011) study reported a total of 30763 divorces nationally with 56% of these involving families with children. The study also showed that

more than 60% of urban families in all race groups were headed by female single parents. Additionally, an estimated 1.4 million AIDS orphans occurred nationally, 7% of who were living in child-headed households and only 34% of children lived in households with an employed adult.

At community level, South Africa also exhibits social disorganisation which is reflected in high rates of unemployment, gender-based violence, and service delivery protests. The unemployment rate has been found to range from 20% to 30% depending on geographic location (Kingdon and Knight, 2004; Klasen and Woolard, 2009). Research has shown that South Africa has one of the highest levels of gender-based violence in the world (Durojaye, 2011). The study by Jewkes et al. (2010a) found that 23% of females aged 15 to 26 years old in South Africa had experienced more than one episode of physical or sexual intimate partner violence. However, Wilson (2012) noted that 15% of school learners reported that they had been forced to have sex while Swart et al. (2002) found that half of all adolescents in romantic relationships had experienced gender-based violence.

Finally, the incidence of service delivery protests in disadvantaged localities seems to have increased in South Africa following the achievement of democracy in 1994 (Tsheola, 2012). Nleya (2011) found that the occurrence of protests decreased as service delivery improved. Factors that directly and indirectly led to service delivery protest actions were perceptions of service delivery and living standards, as well as levels of attendance at meetings in a community. Additionally, the study showed that half of the populations in informal settlements were involved in protests in contrast to only 36% of people in formal settlements. By noting this background, the aim of this study is to identify and research possible critical predictors of teenage pregnancy rooted in social disorganisation pertinent for relevant empirically-based policy making. The basis of this study was to investigate whether these

household and social outcomes are associated to teenage pregnancy. Thus, this study draws upon a theory of social disorganisation to examine and better understand household and community characteristics that may perhaps predict rates of teenage pregnancy in South Africa.

Although the social disorganisation theory has been commonly used to show how communities can work together to solve common problems e.g. crime, in this study it has been adapted to establish how family and community-level variables could be associated with an individual-level outcome. The theory was utilised specifically to test alternative independent factors beyond the individual level in relation to teenage pregnancy. This could assist to examine why teenage pregnancy was higher in some households and communities more than others as well as what are the household and the community level variables within such contexts (above and beyond individual-level characteristics) that foster teenage pregnancy in South Africa. I am aware that adapting this theory to understand teenage pregnancy may be unusual due to it classically illuminating male-dominated behaviour, whereas I am investigating female behaviour in this study. However, the theory explored the relationship of macro-level factors and behaviour during adolescence, which remains the core of my task in this study. Additionally, this study did not in any way equate teenage pregnancy to crime or delinquency. Neither did the study imply any moral stance on teenage pregnancy. Rather the study argues that teenage pregnancy may have negative outcomes and as such it becomes important to establish how structurally occurring factors may be associated with its occurrence.

For the purposes of this study, family disruption was included at household and community levels, residential mobility was included at municipal level, service inaccessibility was included at the household level and community levels of unemployment were included in the

model. However, contrary to the original model, poverty and ethnic heterogeneity were not included due to their correlation with residential mobility and family disruption.

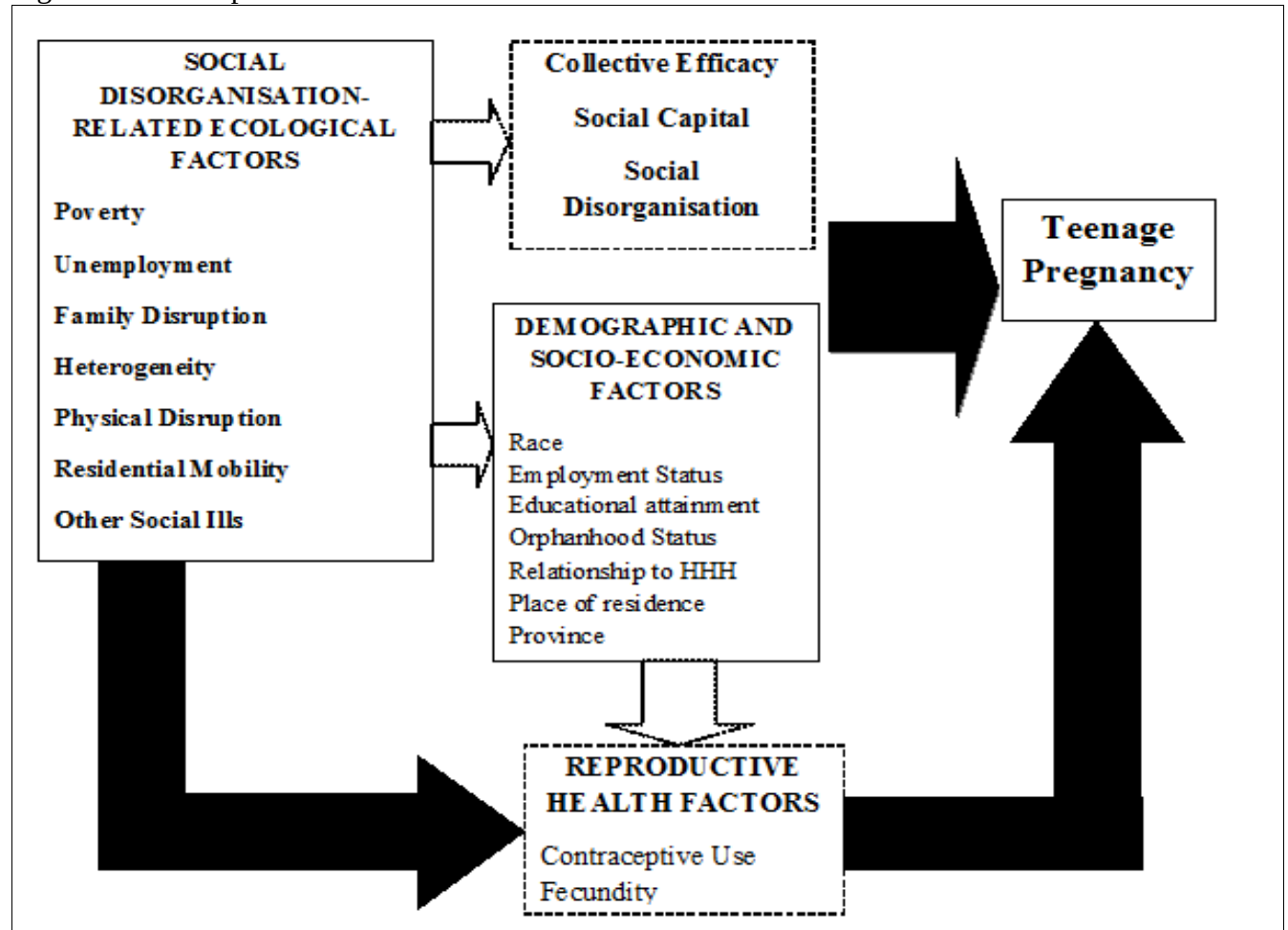
Therefore, as applied to my study, this theory holds that the independent variables family disruption index, community family disruption, residential mobility, service delivery inaccessibility and community unemployment will explain dependent variable teenage pregnancy because individual behaviour is a construct of the contextual environments that people live in. Social disorganisation is classically composed of family disruption, ethnic heterogeneity, socio-economic deprivation and residential mobility. However, this study goes further to add the dimension of service delivery inaccessibility to the theory. Further to this I test community unemployment levels rather than socio-economic deprivation to determine its relevance as well as applicability of proxying poverty at community levels.

Conceptual and Operationalised Framework

As seen in the conceptual framework below, teenage pregnancy would be directly associated with demographic and socio-economic factors, reproductive health factors as well as entities that result from social disorganisation-related ecological factors.

However, teenage pregnancy would be indirectly associated with social disorganisation related factors through collective efficacy, social capital, social disorganisation, reproductive health factors, demographic and socio-economic factors. The white dotted arrows indicated not all factors in the preceding box are associated with the following box while the black arrows indicate that an association would be expected between all preceding factors and the contents of the following box.

Figure 2.2: Conceptual Framework



Adapted from Shaw and McKay (1942)

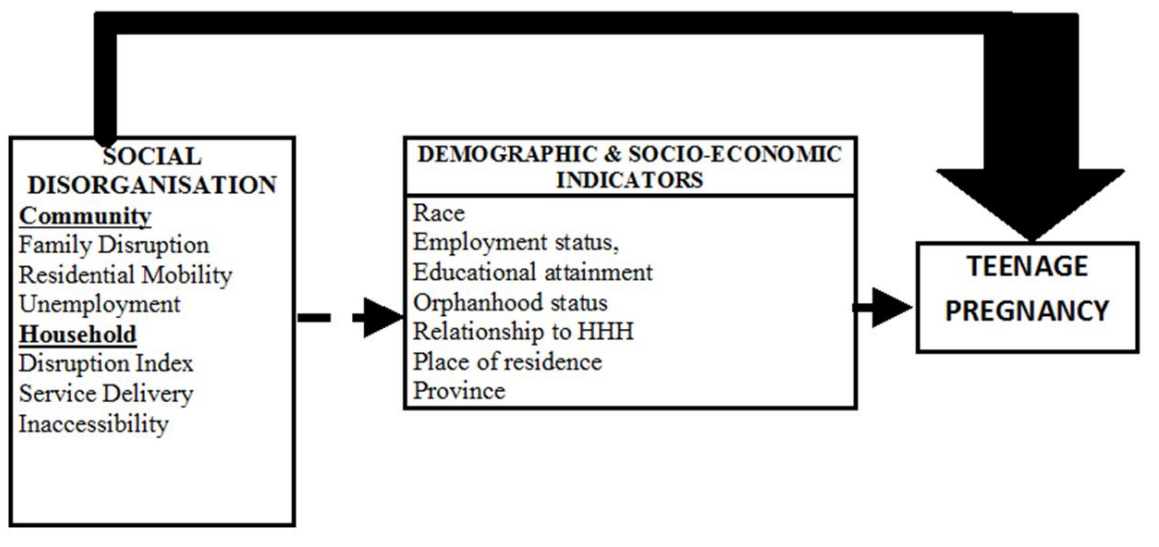
The contents in dotted boxes are factors that could not be tested in the current study due to lack of data while the solid line boxes indicate the elements that were explored to different degrees. According to the conceptual framework, social disorganisation related factors could be associated with demographic and socio-economic factors, collective efficacy, social capital, social disorganisation and reproductive health factors which all could directly be associated with teenage pregnancy. The complete associations that were explored in the current are shown in the operationalised framework below in Figure 2.3.

Deriving from the foregoing theory, my working concept model is depicted in the operational framework below. The operational framework shows how social disorganisation at the

household and community levels leads to teenage pregnancy. The framework was used to identify the independent association between social disorganisation-related factors and teenage pregnancy in South Africa. According to the operational framework I expect demographic and socio-economic parameters to be directly associated with teenage pregnancy while elements of social disorganisation are expected to be indirectly associated with teenage pregnancy when individual demographic and socio-economic factors are controlled for. Dotted arrows indicated that not all factors in the preceding box were associated to those of the following box while the solid line arrows show that all contents of the preceding box can be linked to the following box factors. Specifically, as seen in Figure 2.3 below, the demographic and socio-economic indicators have a direct relationship with teenage pregnancy. For example, place of residence may be associated with teenage pregnancy as teenage females from rural areas are more likely to have lower educational attainment and quality as well as lower availability, financial and social access to contraceptives that may predispose them to teenage pregnancy.

The operational framework considers the social disorganisation-related factors as distal factors to teenage pregnancy. Therefore, these distal variables may be associated with teenage pregnancy through one of the intermediate demographic and socio-economic factors or may be independently associated with teenage pregnancy. For example, service delivery inaccessibility may be positively associated with teenage pregnancy yet this occurrence will occur more in rural areas where other resources as discussed above are fewer. This is the first attempt to operationalise the conceptual framework of Figure 2.2. A diagrammatic representation of the operational framework for the study is seen in Figure 2.3 below.

Figure 2.3: Operational Framework of Socio-Structural Analysis of Teenage Pregnancy



Adapted from Shaw and McKay (1942)

Research Hypotheses

H_0 : There is no association between family disruption and teenage pregnancy

H_0 : There is no association between service delivery inaccessibility and teenage pregnancy

H_0 : There is no association between residential mobility and teenage pregnancy

H_0 : There is no association between community unemployment and teenage pregnancy

METHODOLOGY

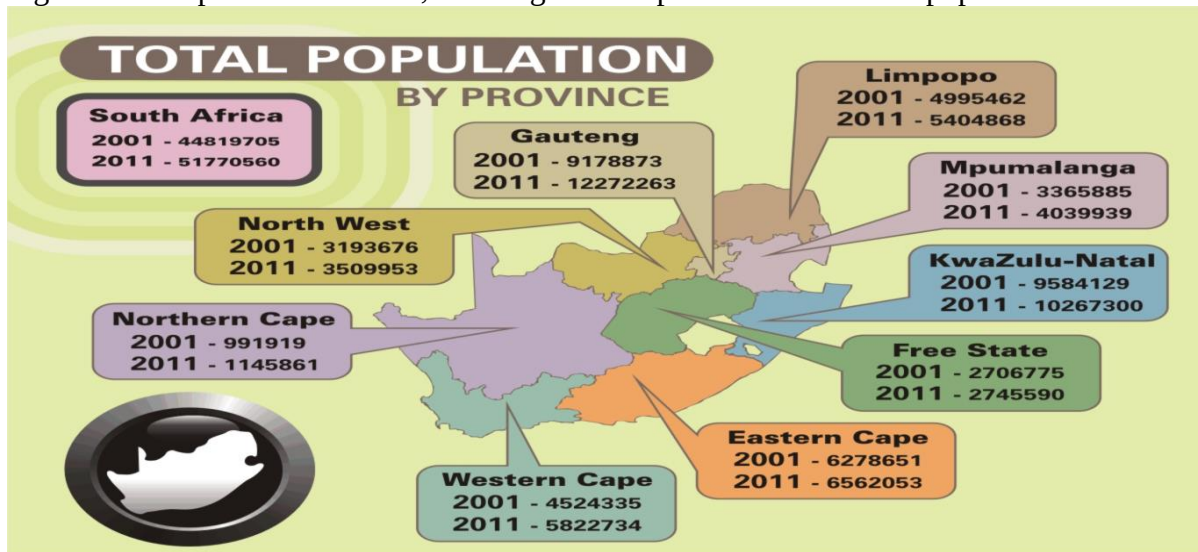
Introduction

This chapter presents the description of the study area, sources of data, details of data collection procedures, sample size, variables definition, quality assessment of the data, data analysis procedures and finally the ethical issues pertaining to the study.

Study Setting

The setting chosen for this research is South Africa. It is situated at the most southern tip of the African continent. As seen in Figure 3.1, South Africa is bordered by the Indian and Atlantic oceans on its eastern and south-western aspects respectively. On its northern and north-eastern borders lie its neighbouring countries: Namibia, Botswana, Zimbabwe, Mozambique and Swaziland and within it lies Lesotho. South Africa is comprised of nine provinces namely Limpopo, North West, Gauteng, Mpumalanga, Northern Cape, Free State, KwaZulu-Natal, Eastern Cape and Western Cape. The map in Figure 3.1 also shows the national and provincial population estimates for 2001 and 2011 across South Africa.

Figure 3.1: Map of South Africa, showing all nine provinces with 2011 population estimates



Source: Statistics South Africa (2012)

South Africa was chosen for this study particularly due to its stagnant rates of teenage pregnancy over time as well as the presence of social disorganisation -related factors present nationwide. Results from the 2016 DHS show that the teenage pregnancy prevalence in South Africa has remained at 16% for the past 18 years between 1998 and 2016 (National Department of Health (NDoH et al., 2017).

Additionally, South Africa displays social disorganisation related factors such as family disruption with almost two thirds of urban families headed by single females, widespread unemployment where 66% of children live in households with unemployed adults and 50% of informal settlement individuals involved in service protests due to lack of service delivery.

Survey Design

This study is an analytical cross-sectional study that makes use of secondary data from the 2011 census of South Africa which is the most recent and nationally representative data source encompassing fertility data from women aged 12 to 50 years in South Africa. It is a *de facto* population and housing census that collects data from people in houses, institutional communal lodgings as well as from people who were homeless or travelling during the reference period. (Statistics South Africa, 2011). The information was collected at one point in time being the reference period of 9-10 October 2011.

The census provides a basis for mid-year population projections and sampling frames for South African surveys as well as avails data at the lowest geographical level and statistics for social, economic, housing, and demographic features. Data were collected from a total of 120000 enumeration areas with approximately 180 dwelling units in each. The census aimed to collect data from all individuals in the country.

Although results show 14% of the South African population were not counted, this was corrected for during the stage of data processing. The process utilised a direct enumeration method through face-to-face interviews with respondents that sought information for concurrent completion of household and individual questionnaires, but self-enumeration was also allowed in exceptional cases (Statistics South Africa, 2011). These methods were chosen to ensure collection of correct, relevant and complete information from as many individuals as possible.

The Integrated Public Use Microdata Series (IPUMS) census data is not the complete dataset, but includes only a 10% sample of the 2011 census. Systematic stratified sampling was applied to the census data where one in every ten households and persons from institutional accommodation were selected. Strata included local municipalities at the primary level as well as demographic characteristics of individuals at the secondary level (Integrated Public Use Microdata Series, 2013).

The Population and Sample

The mid-year population of South Africa in 2015 was approximately 54,96 million people (Statistics South Africa, 2015). The primary population studied in this research was all adolescent females of South Africa aged 12 to 19 years. The census of 2011 reported 19.25% of the population, approximately 9 967 956 females were less than twenty years old in South Africa (Statistics South Africa, 2012b).

The unit of analysis was the young female. This incorporated a total of 320 141 single and married adolescent females representing 3 642 649 adolescent females nationally in 2011. A minority of them of approximately 12 366 (3.9%) individuals had been pregnant in the preceding year, while 304 274 had not been pregnant.

The study sample incorporated a total of 300 858 single adolescent females. Theoretically and empirically marriage protects pregnant teenagers as unmarried pregnant teenage females suffer violence such as beating and verbal abuse from family members (Amobi and Igwegbe, 2004). Also most unmarried pregnant young women experience stressors such as stigmatization, school disruption, job termination, partner negativity, marginalisation, discrimination and religious ostracization (Amobi and Igwegbe, 2004, SmithBattle, 2013). These above negative consequences show that pregnancy in marriage is seen as a societal norm regardless of age and therefore the same event for unmarried and married teenage females is not the same. Additionally, beyond the physical risk of pregnancy, the social implications of premarital pregnancy as a teenager were considered making it necessary to include all teenage females below the age of 20. Therefore this study aimed to investigate premarital teenage pregnancy that may have a more negative experience with less social support and higher societal stigma for teenage females below the age of 20.

While, 320 141 adolescent females were eligible and present in the ten per cent sample of census data availed to the public by Statistics South Africa, 3 504 individuals could not be merged to household level data. These individuals represented less than one per cent of the potential population size and did not significantly affect the results of the analysis. Consequently, these observations as well as married adolescent girls were excluded from the analysis. The sample of adolescent females' ages ranged from 12 to 19 years. The minority of them (3.5%) had been pregnant in the preceding year, while 290 377 had not been pregnant.

The Instruments

The census of 2011 was a nationally representative *de facto* census that occurred in October of 2011. Special dwelling institutions were counted first on the night of 9 October followed

by visitation of households within the 12 000 enumeration areas (EAs) throughout South Africa until the end of October. EAs were generated based on municipal boundaries, size and estimated population density.

A national count of all individuals living in all forms of dwellings as well as homeless people was conducted through sub-dividing the country into enumeration EAs comprising an average of 180 households each. This constituted 120 000 EAs nationally (Statistics South Africa, 2011). Different questionnaires for households (Questionnaire A), individuals dwelling within institutions (Questionnaire B) and people who were homeless or travelling (Questionnaire C) were created for collection of data.

Questionnaire A permitted collection of data on individuals and the actual household simultaneously. Data for up to ten individuals living within the same household as well as information on the household relationships, type of dwelling, available services and goods were recorded. This differed from questionnaires B and C that only allowed data for institutional individuals and others respectively to be collected (Statistics South Africa, 2012b).

All information used in this study was acquired from the census questionnaire data. Questionnaire A had a total of 74 items while questionnaires B and C had approximately 41 items each. These instruments enquired about demographics, migration, general health and functioning, parental survival, income, education, employment, fertility, housing, household goods and services as well as agricultural activities. The relevant questionnaire items relating to each variable used in the study can be seen in Tables 3.1 and 3.2 below.

The entire questionnaire with all the items present can be seen in Appendix D. Statistics South Africa established internal validity and reliability of collected data through an editing

process using automated alerts to identify structural and content related errors. Completed questionnaires were checked according to a set of pre-defined editing specifications. If the information was not correct it was changed to a missing value. The second process corrected and filled all missing values through imputation using programming rules (Statistics South Africa, 2012b).

The three main methods of imputation were the dynamic or hot deck method, the cold deck or static method and the logical imputation. The dynamic method entails using information from neighbours or very similar individuals to fill in missing values for a questionnaire. The static method uses prior survey or census information, for example aggregate data, to modify current information. The logical imputation uses data supplied in the entire questionnaire to logically change missing information. An example would be an individual who did not state their sex going on to give details about the births she has had. Logically this individual had to be female (Statistics South Africa, 2012a). All of these methods ensured internal consistency of the data.

In addition to the 2011 census, the study drew on secondary qualitative data from previous qualitative studies as part of the body of evidence to interpret the findings. These particular studies were used due to their relevance to understanding the factors investigated in relation to teenage pregnancy. These studies were able to augment the quantitative evidence and data around teenage pregnancy and social-disorganisation related factors. Arguments from these studies along with their raw data are presented in the discussion section.

Variable Identification

Independent Variables

The independent variables in this study included characteristics at the individual, household and community levels. These characteristics spanned demographic, socio-economic and social disorganisation-related variables. Reviewed literature guided the choice of independent variables as well as the theoretical foundation of the study. Empirically, the selected variables in this study have been shown to be associated directly or indirectly in literature from other settings (Gaudie et al., 2010; Gilliam, 2007; Jelili et al., 2013; Jelleyman and Spencer, 2008; Macleod, 2011).

3.5.1.1 Demographic and socio-economic variables

In order to determine whether social disorganisation-related effects were independent of background adolescent characteristics, I included demographic and socio-economic variables at the individual level. These variables encompass race, education level, employment status, orphanhood status, relationship to head of household, place of residence and province. I controlled for this set of measured adolescent characteristics to reduce the potential for unobserved differences and reciprocal adolescent influence. Details of the description, categories and questionnaire items for the demographic and socio-economic variables are given in Table 3.1.

Table 3.1: Definition of dependent and independent demographic and socio-economic variables

No	Variable Name	Definition	Coding	Item on Questionnaire
Dependent Variable				
1	Teenage Pregnancy	Experience of teenage pregnancy in the past year	Not pregnant (0), Pregnant (1)	Item P-38: When was (name's) last child born even if the child died soon after birth?
Independent Variables				
1	Race	Race of respondent	African/Black(1), White(2), Indian/Asian(3), Coloured (4)	Item P-05: How would (name) describe herself in terms of population group?
2	Education Level	Highest education level of respondent	No Schooling(0), Primary(1), Secondary(2), Tertiary(3)	Item P-20: What is the highest level of education that (name) has completed?
3	Employment Status	Employment status of respondent	Employed(1), Unemployed(0)	Item P-23a: In the SEVEN DAYS before 10 October did (name) work for a wage, salary or commission or any payment in kind (including paid domestic work) even if It was for only one hour?
4	Orphanhood Status	Orphanhood status of respondent	Parents alive(0), Paternal orphan(1), Maternal orphan(2), Double orphan(3)	Item P-14: Is (name's own biological mother still alive? And Item P-15: Is (name's) own biological father still alive?
5	Relationship to head of Household	Respondent's relationship to the head of the household	Head(1), Immediate relative(2), Distant relative(3), Not related(4)	Item P-02: What is (name's) relationship to the head or acting head of the household?
6	Place of Residence	Rural or urban residence	Rural(1) Urban(2)	Derived from Front cover items of main place and sub-place
7	Province	Geographical province where the respondent lives	Western Cape(1), Eastern Cape(2), Northern Cape(3), Free State(4), KwaZulu-Natal(5), North West(6), Gauteng(7), Mpumalanga(8), Limpopo(9)	Item P-10a: In which province does (name) usually live?

3.5.1.2 Social disorganisation-related variables

Data on social disorganisation-related factors were computed from the census data. Information was generated using the entire dataset then merged with the adolescent female data by pairing the household and community identification numbers. I examined the level of family disruption in the household and in the community, the level of municipal service inaccessibility in the household, the community level of unemployment among adults and the level of residential mobility in the community. Full details of the description, categories and questionnaire items for the social disorganisation-related variables are given in Table 3.2.

Previous studies have established significant associations between teenage pregnancy and the social disorganisation-related factors constructed in this study. For instance, the measures used for household and community-level family disruption in the study integrate a number of previously investigated phenomena namely divorce, female single headedness and single parent headedness. These have been commonly associated with lower levels of supervision and monitoring of children as well as a higher level of delinquency (Gaudie et al., 2010; Omar et al., 2010; Santos and Rosário, 2011).

Adolescents are in a stage of determining their own identity, value and personality. This is accompanied with the need to explore and experiment with sexuality as they develop their secondary sexual characteristics upon puberty (Trad, 1993). However, other studies state that without adequate supervision and monitoring, exploration may lead to engagement in premature sexual activity and in the absence of rules or monitoring of adherence to rules young people may feel more confident in experimentation and exploring their sexuality (Gaudie et al., 2010; Omar et al., 2010). These studies insist that without guidance from adults who can explain and caution against the risks of sexual exploration, this becomes an

environment that fosters early unwanted pregnancy.

However, this model polices adolescent behaviour which has been frowned upon and found to be ineffective by numerous feminist theorists (Schalet, 2011). Therefore, the current study considers the importance of adult involvement rather than supervision and monitoring in healthy adolescent sexual and reproductive health and takes a stance that acknowledges the magnitude of connectedness and communication to adults. Specifically, Schalet (2011) states that connectedness and communication to parents, caregivers and other trustworthy adults may be necessary. This is particularly important as young people need to be able to share when things are going well, and not so well, in their relationships with adults so as they can be guided, given pointers, advice and help along the way (Schalet, 2011). Nevertheless, she states that such guidance needs to steer away from dramatisation of sexuality and adults need to show certain levels of calm so as young people remain comfortable in speaking about these topics to them (Schalet, 2011).

Panday et al. (2009) indicate that racial differences in teenage pregnancy levels in South Africa are due to the concentration of unemployment among Black and Coloured communities. Community levels of unemployment have been found to be associated with teenage pregnancy (Kirby, 2002). Young people residing in communities with more employed adults are less likely to engage in sex at an early age and become pregnant. This is related to employed adults encouraging such teenagers to pursue educational exploits and careers. Young people in such communities also have more role models for such behaviour that protects them from early childbearing (Kirby, 2002). Massey and Shibuya (1995) hypothesised that the community level of male unemployment was related to higher levels of early unwed motherhood through decreasing the likelihood of marriage among African-American communities in the United States.

Additionally, unemployment is associated with higher levels of poverty in households and societies (Kwong Wong, 2007). Previous studies in Kenya, Tanzania and the USA have shown that widespread poverty predisposes teenage females to pregnancy due to such communities having less resources (Kirby, 2002;Magadi and Agwanda, 2009;Miller, 2002;Nyakubega, 2010;Were, 2007). Such resources could be used for constructive youth activity, communal recreation centres and support to combat prevalent common problems. In dire situations deprivation at the household level can lead young women to seek for monetary assistance in exchange for sex (Zembe et al., 2013).

Communities that have higher levels of residential mobility may be indicative of unfavourable intra community circumstances. When individuals can afford to move out to better communities, they do so. Therefore, the level of residential mobility can be an indication of the inherent state of the community left behind (Kwong Wong, 2007).Wood et al. (1993) found that frequent family relocation was associated with increased odds of behavioural problems among adolescents including teenage pregnancy.

Residential mobility in the African context has also been independently linked with premarital sexual initiation and pregnancy (Mberu and White, 2011;Xu et al., 2013). Stack (1994) argues that residential mobility leads to premarital sex among adolescents through cutting familial links, decreasing levels of societal monitoring as well as increasing social exclusion and loneliness. This leads to a higher susceptibility to engaging in unprotected sex and therefore unplanned pregnancies.

Additionally, this study added service delivery inaccessibility to the social disorganisation theory: based on the broken window theory of Wilson and Kelling (1982), it was necessary to establish the influence of service delivery inaccessibility of a household. A household that is

a recipient of municipal services of good quality considers itself to be advantaged and will possess characteristics that reflect this as opposed to one that lacks service delivery and feels wrongfully neglected.

Steps in Data Analysis

3.6.1 Community Level in Census Data

A variable coding the census enumeration areas was absent though the enumeration type (EA type) was present which categorised enumeration areas into ten different types, viz., i. formal residential, ii. informal residential, iii. traditional residential, iv. farms, v. small holdings/agricultural holdings, vi. commercial, vii. industrial, viii. collective living quarters, ix. parks/recreation areas including state parks/military training grounds, and x. vacant land (Mokgokolo, 2011). The final two enumeration types were non-residential spaces thereby giving eight options for residential areas. The municipality was the lowest identifiable community level in the census. This was extracted from the data using the ‘muncode’ variable which named and coded all the municipalities in South Africa.

Table 3.2: Definition of Social-disorganisation-related variables

No	Variable Name	Definition	Coding	Item on Questionnaire
Independent Intervening/Interest Variables				
	<u>Household Level</u>			
1	Family Disruption Index	Family disruption status of household based on marital status of head of household	None(1), Cohabiting(2), Single parented HH(3)	Item P-03: What is (name's) PRESENT marital status? for household head considered
2	Household Service Delivery Access Index	Level of access to municipal services for the household	No Services(0), 1 service(1), 2 services(2), 3 or 4 services(3)	Item H-08: What is this household's MAIN source of WATER for household use?, Item H-10: what is the MAIN type of TOILET facility used by this household?, Item H-11:What type of energy/fuel does this household MAINLY use for cooking? and Item H-12: How is refuse or rubbish from this household MAINLY disposed of?
	<u>Community Level</u>			
3	Community Level of Family Disruption	Percentage of HHs with unmarried heads per community	Low (1) Medium (2) High(3)	Item P-03: What is (name's) PRESENT marital status? for household head considered
4	Community Level of unemployment	Community percentage of individuals aged 18-64 years old that are unemployed	Low (1) Medium (2) High(3)	Item P-23a: In the SEVEN DAYS before 10 October did (name) work for a wage, salary or commission or any payment in kind (including paid domestic work) even if It was for only one hour? For all community members
5	Community Level of Residential Mobility	Percentage of individuals that moved municipality in the past 5 years	Low (1) Medium (2) High(3)	Item P-11: Has (name) been living in this place since October 2001? Item P-11a: When did (name) move to this place? And Item P-11c: In which municipality or magisterial district did (name) live before moving to this place?

The 2011 census data have an adequate representation of teenage pregnancy and allow assessment of all social disorganisation elements including residential mobility. However, recent teenage births are used to proxy teenage pregnancy in the census data. This is justifiable as past local research has shown that 95% of females with unintended pregnancies choose to give birth to the child (Marteleteo et al., 2008).

Generation of Household and Community Level Variables

Indices were generated for household levels of service delivery access and some social disorganisation structures as well as for community levels of social disorganisation. This was done through aggregation of individual and household variables to allow analysis at household and community levels. The percentages of all community level variables were created using the complete census dataset of males and females from all households nationally. Further, the tertiles of three equal groups created thereof used the sample of teenage females to distribute these percentages of community phenomena.

Family Disruption Index: marital status of household head coded to represent no family disruption (0) if the household head was married, medium family disruption (1) if they were cohabiting and high family disruption (2) if they were a single parent. Single parents were constituted of household heads that were never married, divorced and widowed.

Household Service Delivery Access Index: level of municipal services, including sewerage, piped water, electricity and refuse removal, which a household has access to coded as 0 = 3 or 4 services, 1 = 2 services, 3 = 1 service and 4 = 0 services.

Community-level of Family Disruption: municipal percentage of households headed by individuals that are unmarried grouped into three equal tiles of low, medium and high.

Community-level of Unemployment: municipal percentage of unemployed adults aged 18-65 years grouped into three equal tiles of low, medium and high.

Community-level of residential mobility: municipal percentage of individuals who have changed municipalities in the past five years grouped into three equal tiles of low, medium and high.

Previous literature guided the selection of independent variables, the theoretical foundation established in literature as well as the results of correlation testing between variables (Gaudie et al., 2010; Gilliam, 2007; Jelili et al., 2013; Jelleyman and Spencer, 2008; Macleod, 2011). A test of multicollinearity used with Pearson correlation was conducted on the variables. Results indicated the ones that were highly correlated. The multicollinearity matrices for testing the social disorganisation-related variables that were chosen are presented in Appendix C.

Univariate and Bivariate Analysis

The study employed three stages of data analysis. Firstly, univariate analysis was conducted through showing the national incidence of all early and late teenage pregnancies in the preceding year. In addition, the weighted age-specific frequency of pregnancy and teenage pregnancy rate was calculated using the equation below for the whole country by individual ages.

$$TeenagePregnancyRate = \frac{Numberofteenagepregnancies}{Totalnumberoffemaleteenagers} \times 1000...(1)$$

The study employed the above indicators to describe the levels of teenage pregnancy across different age groups and individual ages. Results were presented in tables and graphs. The distribution of all study participants by demographic and socioeconomic background and

social disorganisation-related variables was also established and shown.

Secondly, bivariate analysis involved cross-tabulation of teenage pregnancy by all background and interest variables and application of the chi-square test to establish the significance of the differences in pregnancy levels across categories of the various variables. The Wilcoxon-signed rank test was utilised in bivariate testing for variables that were continuous such as age, average household age and household density. The level of significance for both the chi-square and Wilcoxon-signed rank tests was 0.05. All analysis at the univariate and bivariate level as well as initial correlation testing was conducted using the Stata statistical package (version 13.1).

3.6.4 Multilevel Logistic Regression

Given the differing levels of aggregation of the data (individual and community), the multilevel nature of the regression models' error structure was taken into account. By including a random intercept at community level, the models allow teenage pregnancy to vary by community. The two-level models were needed to establish the variation between individuals as well as the variation between communities in the predisposition to the outcome. Simple logistic regression would fail to capture this accurately as members within households as well as households within communities are similar, therefore violating the assumption of independence of residuals (Kawachi and Subramanian, 2007; Merlo, 2003; Subramanian, 2004). This would result in underestimation of standard errors and very small p-values.

Binary logistic multilevel modelling was employed to distinguish variables related to one of the two categories of teenage pregnancy versus teenage non-pregnancy. Teenage pregnancy from the census data was regressed on independent and interest variables using numerous

models. At this third stage of analysis, multilevel logistic regression models examined the association between the outcome variable and the two distinct sets (background characteristics and social disorganisation-related) of variables. The multivariate analysis used the MLwiN statistical package (version 2.32). This is the Microsoft Windows version of the MLn programme designed by the Multilevel Models Project of the University of London (Zhou et al., 1999). The program was specially designed to fit multilevel models through non-Bayesian generalised linear mixed model methods. It is a user-friendly program needing one to click on desired variables from a pull-down menu to construct the equation. Other advantages include its ability to store commands and process iteration of large data quickly compared to STATA.

Li et al. (2011:10) compared the performance of statistical packages to run logistic multilevel modelling and concluded that: “for relatively large data, parameter estimates would not be influenced much by the choice of the statistical package. Therefore, choice of statistical implementation should depend on other factors, such as speed and desired flexibility.” They named MLwiN, R and SAS as the superior programs for multilevel modelling and recommended their use. Output consists of the coefficients of fixed parameters with their associated standard errors as well the variance component estimates and related standard errors.

Multilevel logistic regression analysis was performed using the second order marginal quasi likelihood (MQL) conversion option of MLwiN. The MQL method uses the Taylor expansion that linearises the exponential multilevel logistic function by calculating the function’s derivatives on fixed predictors to represent it as an infinite summation (Zhou et al., 1999). The second order option is unique to the MLwiN and MLn programs and adds a quadratic term to the first order’s Taylor expansion to estimate parameters which are closer to the true

value than the first order.

The Wald Z and Wald X2 determined the significance of each model as a whole as well as the significance of beta coefficients. These test a null hypothesis of no association by contrasting parameter estimates to their standard errors and comparing the resultant test statistic to zero (Bolker et al., 2009).

Objective two and three were met through assigning a logistic link function for binary dependent variables allowing heterogeneity in the outcome at individual and community-levels, through the use of a multilevel binary logistic regression model with a random intercept. Teenage pregnancy was fitted to the models. This is a dichotomous outcome with possible responses of ‘yes’ or ‘no’. Only socio-demographic and economic factors were initially entered in the model to establish their direct effect on teenage pregnancy. This also allowed me to establish the baseline effects of a wide variety of individual level variables often considered in research on teenage pregnancy. Representation of the model is as follows (Goldstein, 2011):

$$\log \left(\frac{\pi_{ij}}{1-\pi_{ij}} \right) = \delta_{0ij} + \sum_{i,j=1}^{\omega} \delta_{ij} z_{ij} + \varepsilon_{ij} + U_j \dots\dots\dots (2)$$

Where: π_{ij} = probability of having a positive event for the i^{th} individual in the j^{th} community, δ are parameters of the model, z are regressors, ε_{ij} are the residuals for individuals, and U_j is the community residual also known as the random intercept.

I converted the coefficients through exponentiation of parameter estimates to odds ratios to assist interpretation of the results. A ratio greater than one implies that an individual in a given category would be more likely to experience the outcome as opposed to an individual in the base category and vice versa. I first ran an empty or null model that tested the

significance and level of heterogeneity in teenage pregnancy among communities in South Africa. This empty model also allowed me to determine the contextual influence on teenage pregnancy (Larsen and Merlo, 2005).

The empty model is specified as:

$$\log\left(\frac{\pi_{ij}}{1-\pi_{ij}}\right) = \delta_{0ij} + U_j \dots\dots\dots (3)$$

Where: δ_{0ij} is the overall mean probability (prevalence) expressed on the logistic scale while U_j is the community level residual, having a normal distribution with mean 0 and constant variance $\sigma_{\mu 0}^2 \sigma_{\mu 0}^2$.

The significance of the between community variance was determined through the Wald test by dividing the random intercept by its standard error. A random intercept variance is regarded significant if the above division falls above 2.8 and below -2.8 (Goldstein, 2011).

Secondly, I investigated the effects of household and community-level social disorganisation factors on teenage pregnancy. Unadjusted modelling tested the univariate association between each social disorganisation variable and teenage pregnancy. Adjusted modelling followed where I employed a systematic approach that controls for adolescent characteristics then individually considers each social disorganisation entity (family disruption, household service delivery inaccessibility, community unemployment and community residential mobility) at a time in the model.

The rationale for this type of modelling is to show the specific effect of social disorganisation-related phenomena on teenage pregnancy. Also, this approach allows a more reliable sense of how the potential range of effects, that are social disorganisation-related, may have on teenage pregnancy. Finally, the last model tests the combined effect of all social

disorganisation-related variables on teenage pregnancy while controlling for individual background characteristics. This will allow determination of the independent association between social disorganisation-related factors and teenage pregnancy.

The various models are described below:

Model 0 - This is the univariate model for all the variables. This model showed the unadjusted association between all factors and teenage pregnancy

Model 1 - This model considered the individual-level background characteristics to establish the direct relationship between these factors and teenage pregnancy

Model 2 - This model tested the individual effect of family disruption (at household and community-levels) on teenage pregnancy

Model 3 - This model tested the separate effect of household service delivery inaccessibility on teenage pregnancy

Model 4 -This model tested the distinct effect of community unemployment on teenage pregnancy

Model 5 -This model tested the individual effect of community residential mobility on teenage pregnancy

Model 6 – This model tested the combined effect of social disorganisation-related variables controlling for individual background characteristics

Each model allowed the estimation of the degree of homogeneity within communities through calculation of the variance partition coefficients also known as the intra class correlation coefficients (ICC). The linear threshold model also known as the latent variable approach was used to calculate the VPC for the multilevel logistic models. This assumes that the underlying binary variable is a continuous latent variable y_{ij} with the variance at individual level being constant (Browne et al., 2005). The individual variance is assumed to have a standard logistic

distribution, with mean 0 and variance of $\pi^2/3 = 3.29$. Therefore, according to this method the proportion of variance due to level 2 is calculated using the formula:

$$VPC = \frac{\sigma_{\mu 0}^2}{\sigma_{\mu 0}^2 + 3.29} \dots\dots\dots (4)$$

Quality Issues in the Data

The data sources have been evaluated and adjusted by the National Statistics Office in South Africa (Statistics South Africa, 2012b). The office further adjusted the census data for errors identified in the post-enumeration survey. This section details the procedures and results of data quality assessment. Single year age data, misappropriation of ages in datasets as well as grouped data assessment of age-sex structure were assessed through a variety of demographic methods. Additionally, the quality of fertility data in the datasets used was verified for accuracy.

Age and Sex Data Assessment

Whipple's index was utilised to assess the concentration or avoidance of the terminal digits zero and five in the age range 10 to 60. The age range was broadened beyond the conventional norm to a minimum of 10 in order to ensure that age data of individuals that would form part of the study were assessed. To establish the level of heaping on terminal digit zero I compared the sum of populations at ages ending in the digit zero with ten per cent of all people falling within this age range. Additionally, Whipple's index established the level of heaping on digit five through comparing the addition of populations at ages ending in the digits zero and five with twenty per cent of all people belonging to the age range 10 to 60.

Further age data assessment was conducted using Myer's Blended Method. This procedure avoids partiality generated from indices resulting in populations at terminal digits zero being

larger as a consequence of mortality (Shryock, 2004). Consequently, the procedure determines the extent of preference or avoidance of any digit within the population's age range. The U.S. Census Bureau's (1997) spreadsheet programme AGESEX was employed in the application of the United Nations age-sex accuracy index to evaluate the age-sex data quality. The index calculates the overall absolute deviation in age-to age changes in sex ratios from zero (Shryock, 2004).

Whipple's index results showed that the population at ages ending in zero understated the corresponding unbiased population by approximately 12.3 per cent. Therefore, the data avoided ages ending in terminal digit "0" by less than 15 per cent and was considered to approximate the actual situation with regards to these ages. Whipple's index analysis results for the population at ages ending in zero and five revealed slight under-representation of the corresponding unbiased population by 2.6 per cent. Therefore, the data were accurate and avoided these ages minimally.

Myer's blended index calculations revealed that at least 0.9 per cent of people in 2011 had their age reported with an incorrect final digit. This confirmed that the data was adequately accurate regarding the quality of age data. The United Nations accuracy index for the 2011 census data stood at 18.0. The age ratio scores for males were 3.8, whereas the scores for females were 4.1. The sex ratio score was 3.3.

Figures 3.2 below depicts the age ratios across the age groups by sex for data. Age ratios indicate the proportion of a current age group (x) in relation to half of the preceding age group ($x-5$) and the following age group ($x+5$). Accurate age ratios range between 80 and 110.

Figure 3.2: Age Ratios by age and sex, 2011 South African census

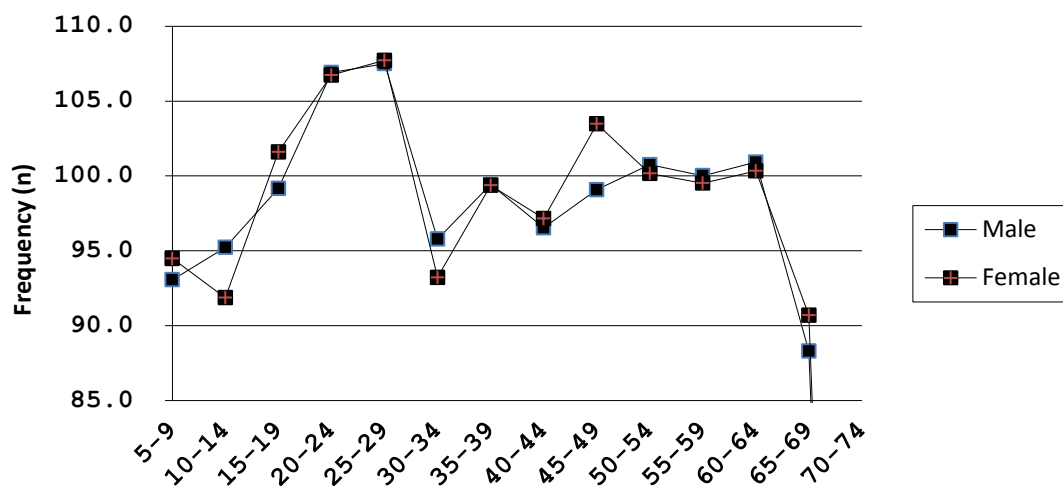
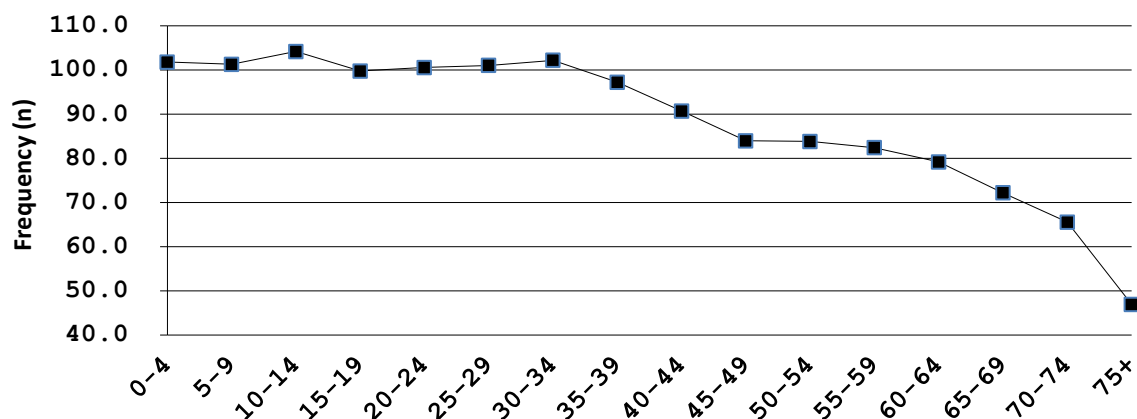


Figure 3.2 above shows that the age ratios across age groups for males and females were relatively accurate ranging in score between 82 and 107.

Figure 3.3 below depicts the overall sex ratios by age in the South African census data. This was relatively equal from birth until approximately age group 30-34, after which the number of females begins to increasingly exceed that of males in each age group. These results are expected as the mortality of males exceeds that of females as age increases locally.

Figure 3.3: Sex ratios by age, 2011 South African census



Fertility Data Assessment

Fertility data assessment was conducted for the dataset to ensure the fertility data, particularly for teenagers, were acceptably accurate. The parity data assessment method described by Moultrie (2013) facilitated this through the Population Analysis System (PAS) program of the United States Census Bureau. This involved aggregating the number of females by age group and number of children ever born. Further to this, graphs of the average parity by age group were plotted for the data to check consistency graphically. Results of the various assessments conducted are seen below in Tables 3.3 to 3.4 as well as Figure 3.4.

Table 3.3: Distribution of women by parity and age, 2011 South African census

<u>CEB</u>	<u>12-14</u>	<u>15-19</u>	<u>20-24</u>	<u>25-29</u>	<u>30-34</u>	<u>35-39</u>	<u>40-44</u>	<u>45-49</u>	<u>50-54</u>
0	660294	1482246	977774	545925	278738	181024	132345	114300	18370
1	10142	278349	862133	810891	475213	291427	199811	166773	33310
2	1231	33850	283242	573783	568094	485332	380011	308249	50123
3	0	5850	56666	199136	301334	348108	318940	280686	43331
4	0	1045	13841	58007	116644	176153	198974	194602	28324
5	0	0	4392	14827	39074	77065	101364	114237	16923
6	0	0	1459	6783	16122	36251	55821	67799	10167
7	0	0	0	3348	5644	13852	26219	35657	5530
8	0	0	0	1222	3917	8039	13358	20961	3311
9	0	0	0	0	2390	3891	8040	10516	1691
10+	0	0	0		1123	4401	9130	15543	2655
Total Children	12605	367781	1684697	2935935	3377841	3857138	4019033	4070683	632659
Total Women	671667	1801341	2199509	2213921	1808295	1625542	1444014	1329323	213735

The above Table 3.3 shows the distribution of women by age group and reported children ever born according to the 2011 census. The table shows slight evidence of inaccurate age-specific reporting of children ever born among the 10-14 year olds. However, this may possibly be a depiction of reality as less than 0.2% of this age group fell into the category of two children.

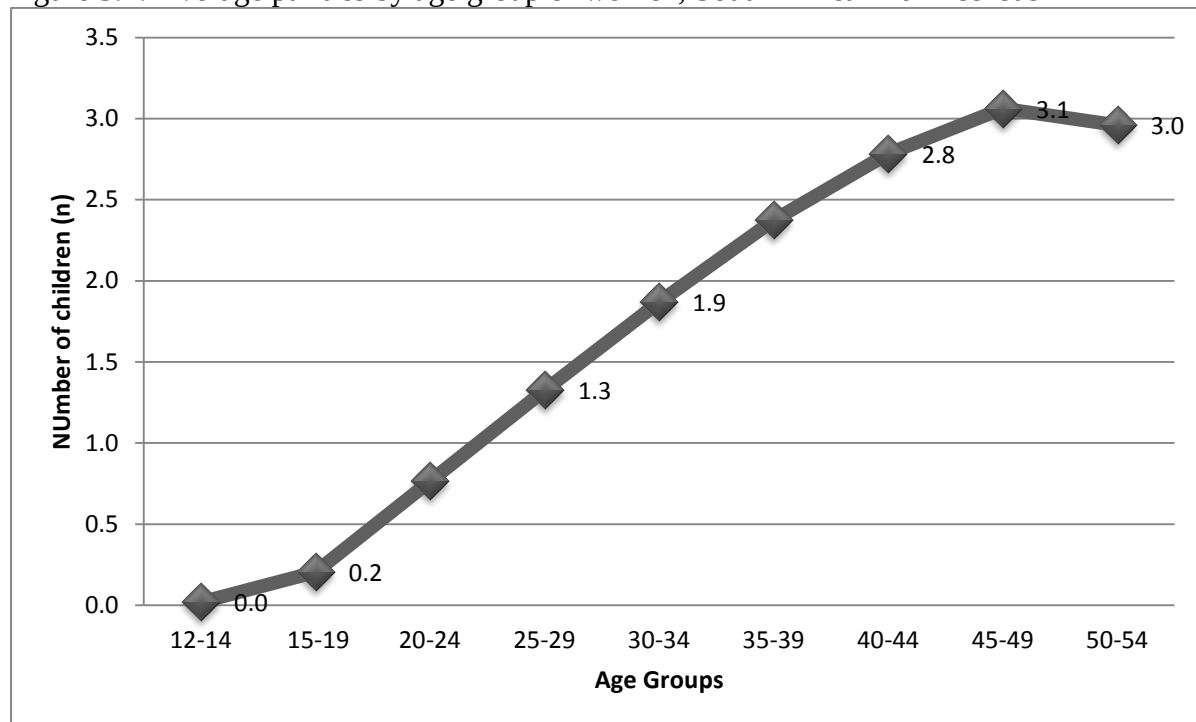
Table 3.4: Summary of derived measure of parity, 2011 South African census

	<u>12-14</u>	<u>15-19</u>	<u>20-24</u>	<u>25-29</u>	<u>30-34</u>	<u>35-39</u>	<u>40-44</u>	<u>45-49</u>	<u>50-54</u>
Average Parity	0.019	0.204	0.766	1.326	1.868	2.373	2.783	3.062	2.960
Proportion Childless	0.983	0.823	0.445	0.247	0.154	0.111	0.092	0.086	0.086

Table 3.4 above gives a summary of derived measures of parity based on the fertility data from Table 3.3. Good quality fertility data is determined by four criteria viz. The proportion of unknown parity should remain constant across age groups, the proportion of childless women should decrease as age increases, the average parity should increase with age, and the total number of children by age group should be equal to the parity multiplied by women in that age group. Overall the table shows that the fertility data for census 2011 was of good quality as generally three of the four criteria mentioned above were met. That is the proportion childless decreased as ages increased generally save for the age group 15-19, the average parity increased with age and finally the number of children per age group did equal parity multiplied by women in that age group.

The criterion of unknown children was unable to be established due to the integral erroneous nature of the CEB unknown categories. The total CEB variable in the census data has three categories for missing data. Firstly, the value 95 is given for individuals who did not specify the number of children ever born. However, these values were extremely high in certain age groups particularly among 12 to 14 year olds. Secondly, the value 97 was given for values of children ever born that did not make sense biologically for the age of the participant. Finally, the value 99 was allocated to individuals that the question was irrelevant for such as male individuals. Due to the inherent erroneous nature of the three classifications, especially the value 95, I decided against deriving the proportion unknown and evaluated the fertility data quality based on the three criteria alone.

Figure 3.4: Average parities by age group of women, South African 2011 census



Average parity by age group was plotted as seen in Figure 3.4 for the data. A steady increase in average parity with age was observed as expected for good quality data. The methods available for correction of fertility data would only be able to correct at the aggregate level through smoothing or other techniques and not correct for specific individual observations. Based on this limitation of correction of data, the above data assessment findings as well as the study population consisting of the youngest two age groups that were generally free of errors, it was deemed unnecessary to correct the fertility data. Additionally, the census used for this study had already been cleaned of the gross erroneous errors by Statistics South Africa through the various methods highlighted earlier. This section was to reassure us that indeed the data was relatively clean as it was found to be.

Ethical Issues

This study executed a secondary analysis on the 2011 census existing dataset. According to the Statistics Act, (Act No. 6 of 1999) Statistics South Africa is mandated to conduct a census at least every ten years for the provision of demographic, economic, social and other contextual national information (Statistics South Africa, 2011). Ethical approval to collect data from participants was obtained before commencement by Statistics South Africa. Individuals give consent to answer any questions posed for the collection of national statistics during the process of data collection (Statistics South Africa, 2011).

This information was collected and a ten percent sample made freely available to researchers and students upon registering on the IPUMS website. No personal information or name of the respondents was identified in the dataset due to the use of secondary data where all details of participants were anonymised and replaced by a unique identity number to ensure anonymity. Therefore, the protection of the privacy of the research participants was ensured. Additionally, data are disaggregated to the municipality level to ensure that specific suburbs, towns and smaller areas cannot be identified. The 2011 census data have been evaluated and adjusted by the National Statistics Office in South Africa (Statistics South Africa, 2012b). The office further adjusted the census data for errors identified in the post-enumeration survey. Before data analysis, I assessed the quality of the data. Specifically, single year age data, misappropriation of ages in data as well as grouped data assessment of age-sex structure were assessed through a variety of demographic methods. Additionally, the quality of fertility data in the dataset used was verified for accuracy to ensure that the data utilised was of acceptable quality and represented the studies population appropriately.

The data was analysed using the statistical programmes STATA 13 as well as MLwiN 2.32. The researcher ensured that the data results were accurate without any suppressing, falsifying or invention of findings to meet the researcher or audience needs.

The study utilised the social disorganisation theory to interpret the results and discuss the findings. Further, the study drew on qualitative data to interpret the study's results and these are presented in the discussion section. Objectivity in discussions and analyses throughout the research was maintained through the author drawing meaning of results from previous studies and providing evidence to qualify any conclusions.

Specifically, the researcher kept the data and the University of the Witwatersrand is the owner of the research findings. However, the study methodology and analyses have been detailed in this report to allow the study to be reproduced by interested parties in the future. The results of this study were disseminated widely. The complete findings of the study were reported at a publicly accessible departmental seminar in March 2017. A copy of the full thesis is stored in the University of the Witwatersrand's electronic dissertation repository. Some results and concepts from the thesis have been published in peer-reviewed journals as well as presented at various national and international conferences. Additionally, other manuscripts and conference presentations are due to ensure wide distribution of the research findings.

PROFILE OF RESPONDENTS

Introduction

This chapter presents a description of the entire study population. The research comprised a study sample of 316 640 females from the 2011 census.

Sample Characteristics

As Table 4.1 shows, the study sample and original population of teenage females had similar background characteristics for all variables, except marriage.

Table 4.1: Weighted percentage distribution of population and sample of female teenagers by socio-economic factors, South Africa 2011¹

Characteristics	n=316640 Population (%)	n=300858 Sample (%)
Pregnancy		
Not Pregnant	96.08	96.51
Pregnant	3.92	3.49
Age (median; IQR)	16; 4	16; 4
Age Group		
12-14 year olds	35.02	35.74
15-19 year olds	64.98	64.26
Marital Status		
Never Married	94.93	100.00
Ever Married/Cohabiting	5.07	0.00
Race		
African/Black	83.34	83.49
Coloured	8.87	8.87
Indian/Asian	1.93	1.90
White	5.56	5.48
Educational Level		
No Schooling	0.76	0.66
Primary	32.90	33.21
Secondary	65.81	65.62
Tertiary	0.53	0.51
Employment Status		
Unemployed	96.91	97.23
Employed	3.09	2.77

¹Percentage distribution of teenage females by other individual-level factors including orphanhood status, relationship to the head of the household, place of residence and province were presented in figures.

Figure 4.1: Percentage distribution of teenage females by orphanhood status

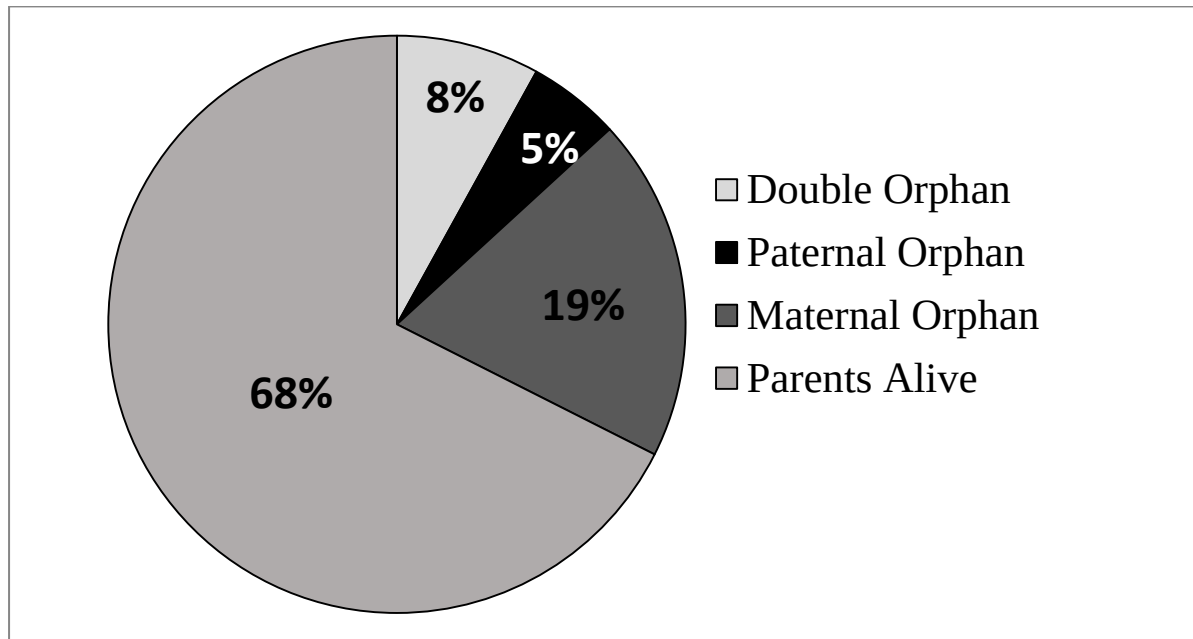


Figure 4.2: Percentage distribution of teenage females by relationship to head of household

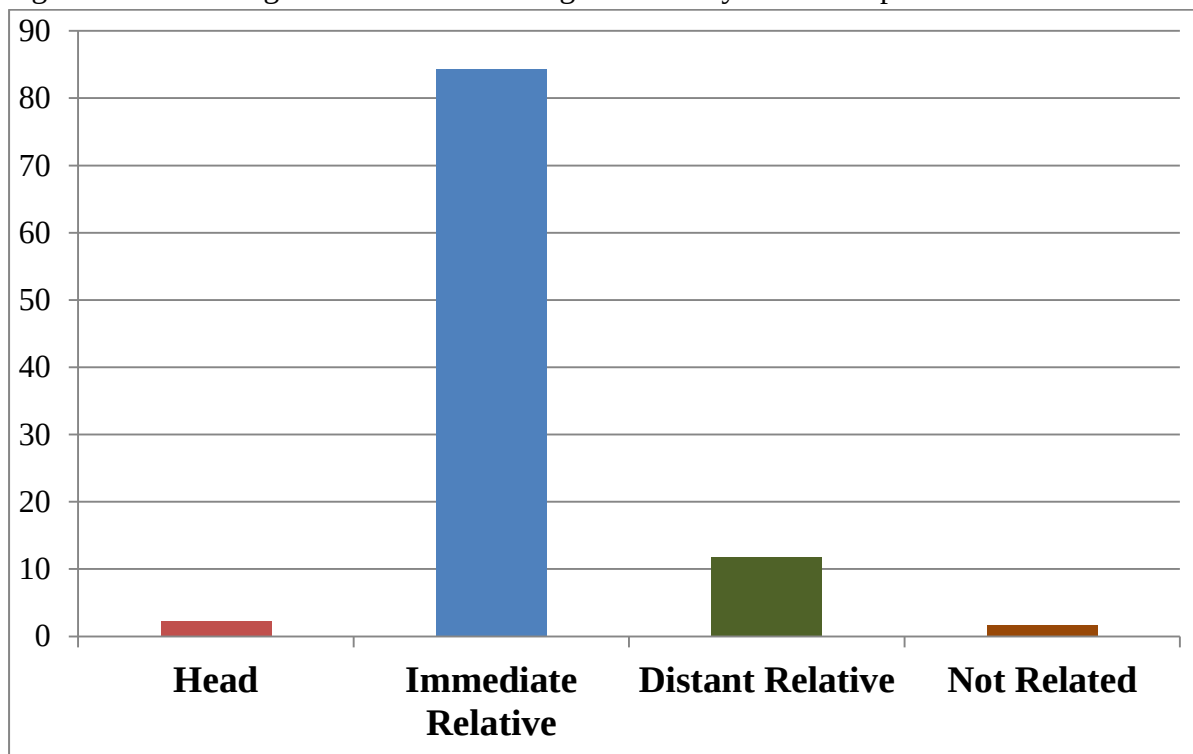


Figure 4.3: Percentage distribution of teenage females by place of residence

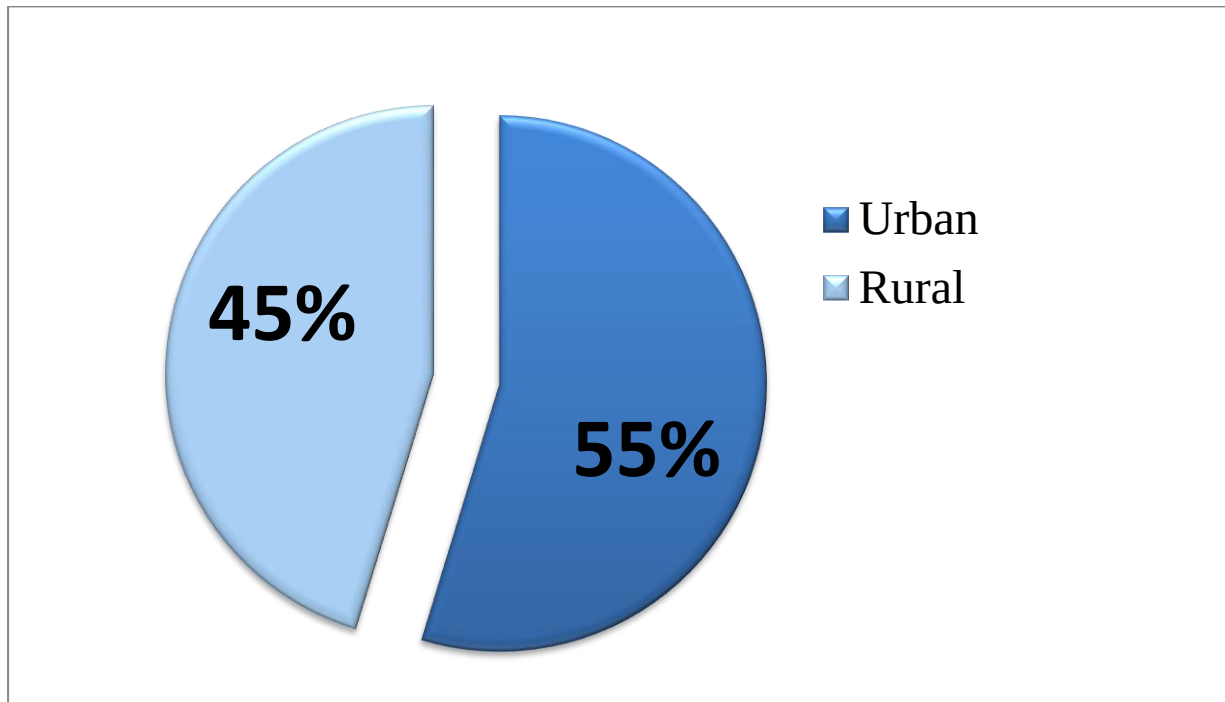
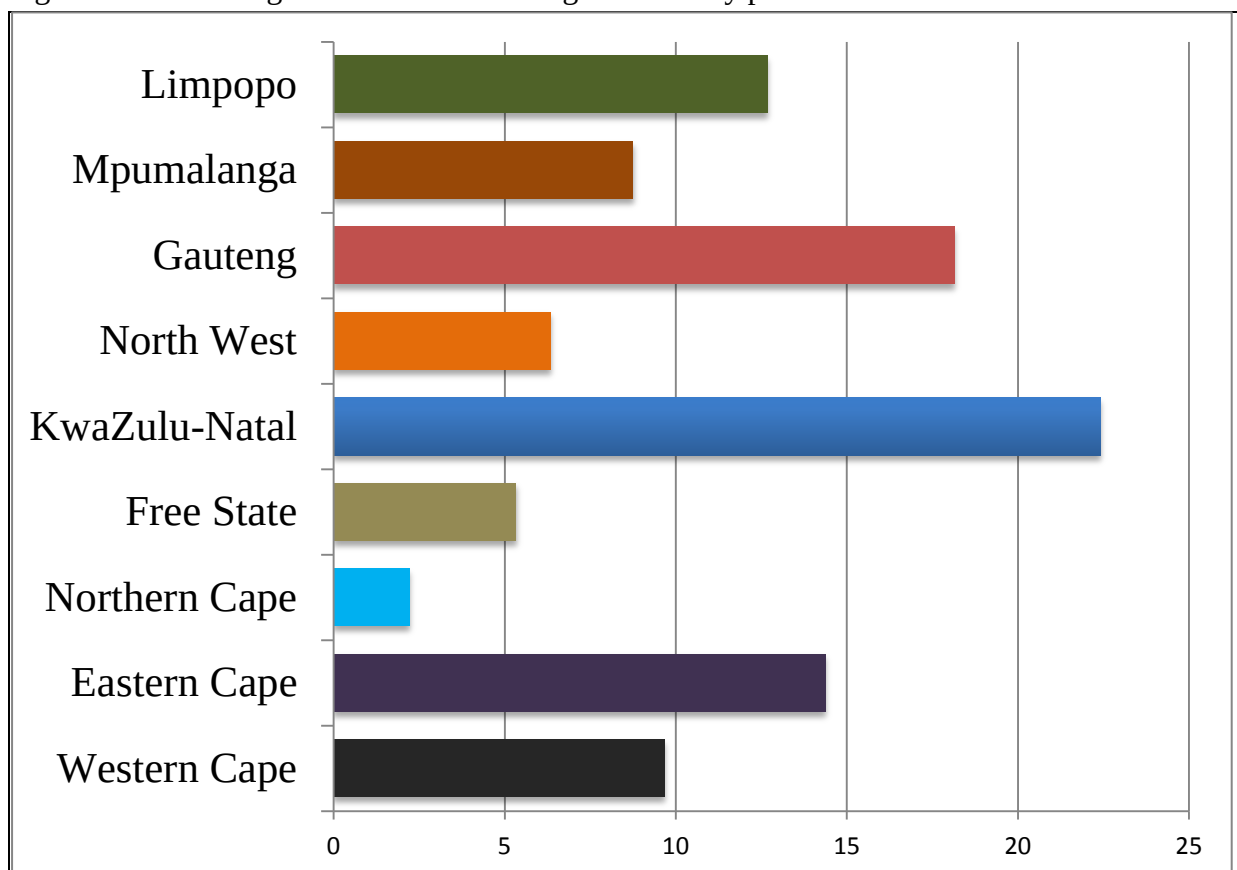


Figure 4.4: Percentage distribution of teenage females by province



RESULTS

Introduction

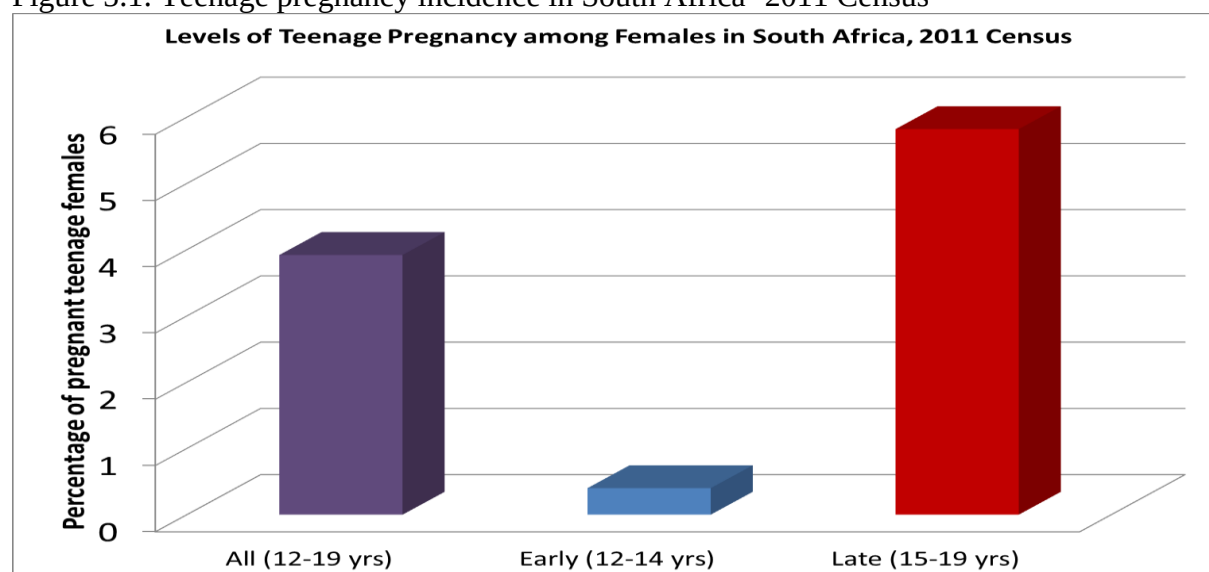
The study results are depicted in this chapter and answer all the objectives of the study. It is constituted of five sub-sections. The first sub-section presents the levels of teenage pregnancy in South Africa. In sub-section two, I show the age specific rates of teenage pregnancy. The broad patterns and differentials of teenage pregnancy are presented in sub-section three along with chi-square test results to depict the bivariate relationship between teenage pregnancy and all the selected individual, household and community-level characteristics. Sub-section four shows the determinants of teenage pregnancy and finally sub-section five presents the results for the hypothesis testing for the study.

Levels of All, Early and Late Teenage Pregnancy in South Africa in 2011

This section presents the levels of teenage pregnancy in South Africa. Levels for teenage pregnancy as a whole are illustrated, first followed by a description of early teenage pregnancy occurring between ages 12 and 14 years and later teenage pregnancy between ages 15 and 19 years shown separately.

The levels of all, early and late teenage pregnancies according to the census of 2011 are shown in Figure 5.1.

Figure 5.1: Teenage pregnancy incidence in South Africa- 2011 Census



The figure shows that just under a twentieth (3.97%) of teenage females had given birth in the previous twelve months. Approximately half a per cent (0.4%) of girls aged twelve to fourteen years were pregnant in the preceding twelve months while just below six per cent of older teenage females aged 15 to 19 years were pregnant in the previous year. To further explore the levels of teenage pregnancy in South Africa the levels of teenage pregnancy were calculated for all ages between ten and nineteen years. These results are presented in the following sub-section.

Age Specific Teenage Pregnancy Rates in South Africa 2011

The rates of age specific teenage pregnancy from the 2011 census are shown in Table 5.1 below. The table shows the age-specific rates of teenage pregnancy in South Africa for the 2011 census data sets. Overall the age-specific rates increased with age, especially among the teenage females who were 15 years and older. This was expected as childbearing is dependent upon age of first sexual intercourse, age of menarche as well as socio-cultural norms.

Table 5.1: Age-Specific Teenage Pregnancy Rates in South Africa, 2011 Census

Age	2011
12	2.80
13	3.61
14	5.44
15	14.63
16	32.98
17	58.65
18	83.68
19	99.10

Though literature has shown that age of first sexual intercourse and age of menarche have decreased globally over time (see Buga et al., 1996; Freedman et al., 2002; Mensch et al., 2006; Zaba et al., 2004), these results show that this has not changed the pattern of childbearing increasing with age. Therefore, the proportion of incidental mothers, be they from first time or subsequent births, are higher among older teenage females.

Bivariate Analysis of Teenage Pregnancy

The distribution of the study sample by background individual-level characteristics and pregnancy status is shown in Table 5.2. Generally, levels of pregnancy in various categories of individual-level characteristics were all significantly different exhibiting a p-value of less than 0.05 based on the chi-square test.

Regarding race, Whites and Indians had the lowest proportions of teenage pregnancy compared to other races. However, Blacks had the highest levels of pregnancy at 4.19%. The percentage of pregnancy was highest among teenage females that had no schooling at 8.43%, followed by those with secondary education (4.98%) and primary education (1.65%).

Teenage females who were employed had significantly higher proportions of pregnancy at 5.68% than those that were unemployed. Teenage pregnancy was generally higher among orphans regardless of the type of orphanhood compared to teenage females with both parents alive. Maternal orphans (5.68%), double orphans (5.61%) and finally paternal orphans (5.06%) had the largest proportions of pregnant teenage females.

Regarding the relationship to the household head, pregnancy occurred most among girls who were household heads (7.81%) followed by teenage females who were distant relatives to the household head (4.83%). In contrast, the lowest proportion of pregnancy occurred among teenage females who were not related to the head of the household at 3.18%.

Considering place of residence, the occurrence of pregnancy was higher among teenage females residing in rural settings at 4.55%. The chi-square showed that this difference was statistically significant with p-values of 0.00. Similarly, the levels of teenage pregnancy differed across provinces in South Africa. In particular, the highest percentage of teenage pregnancy was amongst females residing in the Northern Cape at 4.77% whereas the lowest levels were among teenage females in Gauteng at 3.14%.

Table 5.2: Bivariate association between teenage pregnancy and individual-level characteristics, 2011 South Africa Census

Characteristics	Pregnant n=10480	P-value
Race		0.00
African/Black	4.19	
Coloured	3.68	
Indian/Asian	0.92	
White	0.78	
Educational Level		0.00
No Schooling	8.43	
Primary	1.65	
Secondary	4.98	
Tertiary	4.17	
Employment Status		0.00
Unemployed	3.85	
Employed	5.68	
Orphanhood Status		0.00
Double Orphan	5.61	
Maternal Orphan	5.68	
Paternal Orphan	5.06	
Parents Alive	3.3	
Relationship to Head of Household		0.00
Head	7.81	
Immediate Relative	3.69	
Distant Relative	4.83	
Not Related	3.18	
Place of Residence		0.00
Urban	3.37	
Rural	4.55	
Province		0.00
Western Cape	3.16	
Eastern Cape	4.31	
Northern Cape	4.77	
Free State	3.83	
KwaZulu-Natal	4.10	
North West	4.20	
Gauteng	3.14	
Mpumalanga	4.61	
Limpopo	3.99	

The distribution of teenage pregnancy by social disorganisation-related factors is shown in

Table 5.3. Regarding family disruption in the household, the table shows the highest levels of

teenage pregnancy happened amongst females living in households where the head of the household was cohabiting at 5.79% followed by those living in households with single parent heads (4.21%). The lowest proportions of pregnancy were amongst teenage females living in households with married heads of households. The household service delivery index generally shows higher levels of pregnancy amongst teenage females living in homes with fewer services and lower levels of pregnancy among teenage females living in homes with more services.

Table 5.3: Bivariate association between teenage pregnancy and social-disorganisation-related characteristics, 2011 South Africa Census

Interest Variables	Pregnant n=10480	P-value
Household Social Disorganisation Precursors		
Family Disruption Index		0.00
None	3.30	
Cohabiting	5.79	
Single Parented Household	4.21	
Household Service Delivery Index		0.00
No Services	5.16	
1 Service	5.18	
2 Services	4.50	
3 or 4 Services	3.22	
Community Social Disorganisation Precursors		
Community Level of Family disruption		0.00
Low	3.69	
Medium	3.74	
High	4.61	
Community Level of Unemployment		0.00
Low	3.47	
Medium	4.23	
High	4.15	
Community Level of Residential Mobility		0.00
Low	4.5	
Medium	3.91	
High	3.25	

However, surprisingly the highest levels of teenage pregnancy occur amongst females living in homes with one service (5.18%) and not without any services at all (5.16%) though the difference was slight. The lowest levels of pregnancy are among teenage females living in homes with access to three or more services with 3.22% being pregnant.

Considering community levels of family disruption, the distribution of Table 5.3 shows consistencies for the highest levels of pregnancy across categories. Consequently, the highest levels of pregnancy were shown to occur amongst teenage females from communities with high levels of family disruption at 4.61%. In contrast, the lowest pregnancy levels occurred amongst teenage girls from communities with low levels of family disruption at 3.69%.

Regarding community-levels of unemployment, the highest level of teenage pregnancy occurs surprisingly among females living in communities with medium levels of unemployment at 4.23% while the lowest rates occur among teenage females from communities with low levels of unemployment (3.47%). These differences were statistically significant.

With respect to residential mobility, levels of pregnancy differences were significant as indicated by the chi-square test results. Generally, as the community levels of residential mobility increased, the levels of pregnancy decreased. Accordingly, the highest levels of pregnancy occurred amongst girls residing in communities with low levels of residential mobility (4.50%) whereas the lowest levels of teenage pregnancy were among teenagers residing in communities with high levels of residential mobility at 3.25%.

Determinants of Teenage Pregnancy

Introduction

The determinants of teenage pregnancy as presented in this section answer the second and third specific objectives of this study. It is constituted of three sub-sections. The first sub-section presents the individual determinants of teenage pregnancy in South Africa. In sub-section two, I show the household-level social disorganisation-related determinants of teenage pregnancy and section three shows the community-level determinants of teenage pregnancy.

Individual-level Determinants

I first discuss the effects of the individual background determinants as shown in Table 5.4. This table shows that all background variables were significantly associated with teenage pregnancy in unadjusted and adjusted regression.

The effects for all demographic and socio-economic variables except place of residence and province were similar in direction for univariate and adjusted regression. However, the adding of controls weakened the effect of all the variables on teenage pregnancy.

The effect of race is statistically significant. The average odds of teenage pregnancy were 96% lower among coloureds and 99% lower among Indians and whites compared to black teenage females in the unadjusted model.

The association was weakened in magnitude upon adjustment of other variables to 2% lower average odds among coloureds, 89% lower likelihood among Indians and 88% lower risk of teenage pregnancy among whites compared to black teen girls. The results were not significant among coloureds in the adjusted model, but remained significant for the other races.

Similarly, the association was significantly negative for teenage females who had any form of education compared to teenage females who had no schooling. In other words, as expected, education decreased the odds of teenage pregnancy. Surprisingly though, the lowest odds of teenage pregnancy were among teenage females with primary education at 83% lower odds in the unadjusted model and 81% lower odds in Model 1.

Table 5.4: Direct effect of individual-level background characteristics on teenage pregnancy, 2011 South Africa Census

Individual Background Measures:	Model 0: n=300857			Model 1: n=287288		
	Estimate	Standard error	Odds Ratio	Estimate	Standard error	Odds Ratio
Race: (Blacks†)						
Coloured	-3.264*	0.032	0.038	-0.018	0.043	0.982
Indian/Asian	-4.679*	0.134	0.009	-2.172*	0.21	0.114
White	-4.850*	0.0884	0.008	-2.134*	0.136	0.118
Educational Level: (No Schooling†)						
Primary	-1.725*	0.0961	0.178	-1.676*	0.095	0.187
Secondary	-0.459*	0.092	0.632	-0.405*	0.091	0.667
Tertiary	-0.564*	0.161	0.569	-0.464*	0.163	0.629
Employment Status: (Unemployed†)						
Employed	0.359*	0.054	1.400	0.255*	0.057	1.290
Relationship to Head of HH: (Head†)						
Immediate Relative	-3.263*	0.01	0.038	-0.445*	0.054	0.641
Distant Relative	-2.981*	0.024	0.051	-0.377*	0.059	0.686
Not Related	-3.415*	0.078	0.033	-0.549*	0.104	0.578
Orphanhood (Both Parents Alive†)						
Double	2.822*	0.028	16.810	0.370*	0.035	1.448
Maternal	2.809*	0.035	16.593	0.401*	0.042	1.493
Paternal	2.933*	0.019	18.784	0.335*	0.025	1.398
Place of Residence: (Urban†)						
Rural	0.326*	0.023	1.385	0.276*	0.024	1.318
Province: (Western Cape†)						
Eastern Cape	0.616*	0.002	1.851	0.606*	0.005	1.833
Northern Cape	-0.193*	0.038	0.824	-0.162*	0.037	0.850
Free State	-0.169*	0.039	0.845	-0.172*	0.038	0.842
KwaZulu-Natal	0.062*	0.031	1.064	0.045	0.035	1.046
North West	-0.268*	0.053	0.765	-0.287*	0.052	0.751
Gauteng	0.116*	0.034	1.123	0.084	0.035	1.088
Mpumalanga	0.093	0.035	1.097	0.106*	0.034	1.112
Limpopo	-0.167*	0.039	0.846	-0.095	0.036	0.909

*=p<0.05

Girls with secondary education had 37% lower odds of pregnancy compared to those with no schooling in the unadjusted model and this decreased to 33% lower odds in the adjusted Model. Tertiary education decreased the odds of pregnancy among teenage females by 43% in Model 0 and by 37% in the controlled Model compared to girls without any schooling.

These differences may be a reflection of teenage pregnancy increasing with age and not necessarily an indication of primary education being more protective than secondary and tertiary education against teenage pregnancy.

In contrast, employed teenage females had significantly higher average odds of childbearing than unemployed teens in both unadjusted and adjusted regression. In Model 0 employed teenage females had 49% higher odds of pregnancy compared to their unemployed counterparts while they had 29% higher odds of pregnancy in the adjusted Model.

Teenage females who were not the head of household all had significantly lower odds of teenage pregnancy compared to those who were. The magnitude of this association decreased upon controlling for other background variables. Nevertheless, the relationship remained consistent with immediate relatives of the household head having 36% lower odds of teenage pregnancy, distant relatives of the household head having 31% less likelihood and teenage females not related to the household head having 42% lower likelihood of teenage pregnancy compared to teenage females who were head of the household in the adjusted Model.

Regarding orphanhood, all forms of orphans had a significantly higher likelihood of teenage pregnancy compared to teenage females whose parents were alive. This positive association was 11 to 13 times higher in the unadjusted Model compared to the adjusted one. Double orphans had 45% higher likelihood of teenage pregnancy, maternal orphans 49% higher likelihood and paternal orphans 40% higher odds of pregnancy than their counterparts who had both parents alive.

Teenage females from rural areas had 95% lower odds of pregnancy in the unadjusted model. This association changed in magnitude and direction in the adjusted model with rural teenage

females having 32% higher average odds of teenage pregnancy than those from urban areas. Results were statistically significant in both models.

Provincially, the adjusted model showed teenage girls from Mpumalanga had the highest average odds of teenage pregnancy at 11% higher likelihood, whereas the North West had the lowest average odds at 25% lower likelihood compared to teenage girls from the Western Cape. Both of these results were significant as was the negative association for the Northern Cape and the Free State. In the Northern Cape, teenage females had 15% lower odds of pregnancy while the girls from the Free State had 16% less likelihood of teenage pregnancy compared to their counterparts in the Western Cape.

As more factors were adjusted for in Model 1, the constant increased in magnitude and remained significant. Additionally, successive models revealed community-level intercepts and community intra-cluster correlation that decreased and remained significant. In other words, the controlling for all demographic and socio-economic variables decreased the differences in teenage pregnancy levels across communities due to accounting for some of that variability.

Household-level Determinants

The first household variable is family disruption, which is measured at household level. Table 5.5 shows that teenage females living in homes where the household head is not married were more likely to be pregnant.

The effect is substantial: 25% higher odds among teenage females living in homes with cohabiting heads and 43% higher odds for those living in households with single parent heads in unadjusted analysis.

Table 5.5 The effect of household-level social disorganisation-related characteristics on teenage pregnancy, 2011 South Africa Census

Model 0: n=300857				Model 2: n=287288			Model 3: n=287288		
Fixed Effects	Estimate	Standard error	Odds Ratio	Estimate	Standard error	Odds Ratio	Estimate	Standard error	Odds Ratio
Family Disruption (None†)									
Cohabiting	0.224	0.038	1.251*	0.236	0.039	1.254*			
Single Parented Household	0.354	0.021	1.425*	0.147	0.024	1.155*			
Household Service Delivery Inaccess (3/4 Service†)									
2 Services	0.328	0.025	1.388*				0.246	0.036	1.264*
1 Services	0.481	0.029	1.618*				0.417	0.040	1.517*
0 Services	0.459	0.044	1.582*				0.415	0.053	1.514*

*=p<0.05

Upon adjusting for background characteristics of the teenage females, the association was weakened for teenage females living in homes with single parent heads by 27 percentage points to 16% higher likelihood of teenage pregnancy, yet remained unchanged for teenage females in homes with cohabiting heads.

I also measured service delivery inaccessibility at household level as the number of municipal services accessible to a household. Here the result shows a positive effect. The higher the level of service inaccessibility, the higher the likelihood of teenage pregnancy is. For females living in homes with two services, the likelihood of teenage pregnancy was 39% higher in the unadjusted model, 26% higher controlling for individual level characteristics. Girls from homes with one service had the highest likelihood of teenage pregnancy at 62% higher odds in the unadjusted model, 52% in Model 3. The teenage females from homes without any services had slightly lower odds than those from homes with one service. Consequently, the odds were 58% higher in Model 0 and 51% higher in Model 3. The effect is significant at univariate level and having adjusted for background characteristics.

Community-level Determinants

In Table 5.6, I examine the effects of contextual variables on teenage pregnancy. The first community variable is family disruption, which is measured at municipal level as the percentage of households with heads that are not married. Table 5.6 shows that the higher the level of family disruption in one's community, the higher the likelihood of teenage pregnancy. The effect is substantial in the high community family disruption at univariate level and after adjusting for background characteristics.

The likelihood of teenage pregnancy was 7% higher for teenage females from communities with medium levels of family disruption in univariate analysis and 4% higher for such teenage females upon adjusting for background characteristics compared to their counterparts

from communities with low levels of family disruption. For teenage females living in communities with high levels of family disruption, the likelihood was 16% higher in univariate analysis and 11% higher adjusting for background factors.

The second community variable is community unemployment measured at municipal level as the percentage of unemployed adults aged 18 to 65 years. I expected the likelihood of teenage pregnancy to increase as the community level of unemployment increased. The results reveal a significant positive effect of community employment on teenage pregnancy in unadjusted regression only, with the likelihood of teenage pregnancy being 26% higher among teens from communities with medium levels of unemployment and 24% higher for teens from communities with high levels of unemployment. However, this effect changed in direction upon controlling for background factors, with the likelihood of teenage pregnancy decreasing now as community level employment increased. The association was also weakened upon controlling for background characteristics.

I also measured community residential mobility as the percentage of individuals who had moved municipalities in the past five years per municipality. Although individuals were grouped in communities according to the municipality that they had moved to I still expected results for residential mobility to be positively associated with teenage pregnancy as the more people moved into an area, the higher disruption should be in that area. According to the theory, as the community level of residential mobility increased the likelihood of teenage pregnancy should increase.

Table 5.6 The effect of community-level social disorganisation-related characteristics on teenage pregnancy, 2011 South Africa Census

Model 0: n=300857				Model 2: n=287288			Model 4: n=287288			Model 5: n=287288		
<i>Fixed Effects</i>	Estimate	Standard error	Odds Ratio	Estimate	Standard error	Odds Ratio	Estimate	Standard error	Odds Ratio	Estimate	Standard error	Odds Ratio
Community-level Family Disruption (Low†)												
Medium	0.069	0.028	1.070	0.03	0.030	1.040						
High	0.146	0.030	1.157*	0.10	0.030	1.107*						
Community-level Unemployment (Low†)												
Medium	0.227	0.028	1.255*				-0.05	0.030	0.961			
High	0.217	0.030	1.242*				-0.06	0.040	0.950			
Community-level Residential Mobility (Low†)												
Medium	-0.115	0.026	0.891*							-0.010	0.030	0.990
High	-0.391	0.030	0.676*							-0.139	0.037	0.870*

*=p<0.05

The results divulge significant effects at both medium and high community levels of residential mobility in univariate analysis but only at high community levels of residential mobility for partially adjusted model. The theory was shown not to hold true for this variable. Specifically, in Model 0 the average odds of teenage pregnancy were 11% lower for girls living in communities with medium residential mobility levels and 32% lower for girls in communities with high residential mobility levels compared to teenage females from communities with low residential mobility. The magnitude of this association was decreased when adjusting for background variables with the likelihood of teenage pregnancy being 1% lower among girls from communities with medium levels of residential mobility and 13% lower among those from communities with high levels of residential mobility compared to their counterparts from communities with low levels of residential mobility.

The Combined Effect of Household and Community Determinants

In Model 6, where all background and social disorganisation-related factors were controlled for, the average odds of family disruption at household level remained relatively unchanged. Here, teenage females living in homes with cohabiting heads were unexpectedly 24% more likely to be pregnant and those from households with single parent heads had 15% higher odds of being pregnant in comparison with teenage females living in homes with married heads of households. These results show that teenage females living in homes with cohabiting heads are more likely than those from single parented homes to become pregnant. This finding sheds light on the independent influence of family structure on teenage pregnancy and is significant in a setting like South Africa where cohabitation and single parented homes have become increasingly common in society over time.

Females from homes with two services show 27% higher likelihood of being pregnant in the fully adjusted model compared to girls from homes with three or four services. Similarly,

girls living in households with only one service had 50% higher odds of teenage pregnancy in the fully adjusted model compared to teen females living in households with three or four services. Teenage females from homes without any services consistently had higher likelihood of teenage pregnancy having adjusted for all variables in Model 6 and this was very similar to the odds for girls from households with one service at 52%. Generally, this showed that as inaccessibility to services increased so did the likelihood of teenage pregnancy with the risk being just as great among teenage females living in homes with one service as it was for those living in homes without any services.

Table 5.7 The combined effect of household and community-level social disorganisation-related characteristics on teenage pregnancy, 2011 South Africa Census

Model 6: n=287288			
<i>Fixed Effects</i>	Estimate	Standard error	Odds Ratio
Family Disruption (None†)			
Cohabiting	0.215	0.039	1.239*
Single Parented Household	0.141	0.024	1.151*
Household Service Delivery Inaccess (3/4 Service†)			
2 Services	0.237	0.036	1.267*
1 Services	0.408	0.040	1.504*
0 Services	0.418	0.054	1.519*
Community-level Family Disruption (Low†)			
Medium	0.035	0.029	1.035
High	0.124	0.032	1.132*
Community-level Unemployment (Low†)			
Medium	-0.074	0.039	0.93
High	-0.201	0.045	0.818*
Community-level Residential Mobility (Low†)			
Medium	-0.010	0.030	0.99
High	-0.165	0.050	0.848*

*=p<0.05

The effect remained substantial after adjusting for background and other social disorganisation-related variables. However, with the adjusting of more variables the association was weakened slightly. These results were expected, but the similarity in

significant risk for homes with one and zero services was not and may need to be investigated further.

The likelihood of teenage pregnancy was 4% higher for teenage females from communities with medium levels of family disruption in the final model compared to their counterparts from communities with low levels of family disruption. Teenage females living in communities with high levels of family disruption the likelihood was 14% higher in the final model. The positive association between community levels of family disruption and teenage pregnancy was not substantial for the middle category, but was for the high category upon adjusting for all background and other household and community variables.

Regarding community levels of unemployment, Model 6 shows the likelihood of teenage pregnancy decreased as community unemployment increased, with the effect being substantial at high levels of community unemployment alone. The likelihood of teenage pregnancy was 7% less among teenagers from communities with medium levels of unemployment and 19% lower for females from communities with high levels of community employment. This result was not expected and needs further examination to determine how the association is possible.

Considering residential mobility in the final model that adjusted for all variables, the likelihood for teenage pregnancy decreased as levels of residential mobility increased. In particular, the odds of teenage pregnancy among females from communities with medium levels of residential mobility remained constant at 1% lower odds. Teenage females living in communities with high levels of residential mobility had slightly decreased likelihood of teenage pregnancy with a 15% lower likelihood of teenage pregnancy.

Decomposition of Community-level variance

The random effects and model characteristics are shown in Table 5.8. Individual level variables explained 24% of the initial community-level variance in teenage pregnancy (the variance of the empty model). Therefore, this proportion of the differences in teenage pregnancy was due to background factors. A decrease in community-level intercept of approximately 63%- 64% between the empty model and Models 2, 3, 4 and 5 showed the extent to which individual social disorganisation-related factors and background factors accounted for the community-level variance of teenage pregnancy.

Accounting for individual, household and community level variables displayed the greatest decrease in community-level variance of 70% from the empty model. Hence, about 46% of the community-level variance in teenage pregnancy can be attributed to the social disorganisation related factors. In the final model the community-level intercept remained significantly different from zero with 6.5% community-level variability in teenage pregnancy.

The constant for all models remained approximately the same and significant ranging between 91% and 89% lower odds of teenage pregnancy when all variables were equal to zero and community-level variability was also equal to zero.

Intra-class Correlation Coefficient results reveal that when all the social disorganisation-related variables are accounted for, teenage females from the same community are 1.9% similar regarding their risk of teenage pregnancy whereas in the empty model the risk of teenage pregnancy was 6% similar for teenage females within the same community. The magnitude of the Bayesian information criterion (BIC) decreased as more variables were added from 83200.65 in Model 2 to 83092.74 in Model 6 indicating that the added variables explained the outcome more accurately with a significant change of approximately 65 to 172

points. Additionally, this result indicates that Model 6 is the best fit for teenage pregnancy compared to all other models built.

Table 5.8 Random effects and model characteristics for multilevel modelling of teenage pregnancy, 2011 South Africa Census

	Empty Model			Model 2			Model 3			Model 4			Model 5			Model 6		
Constant	-3.244	0.001	0.039*	-2.383	0.112	0.092*	-2.180	0.110	0.113*	-2.277	0.111	0.102*	-2.240	0.111	0.106*	-2.392	0.120	0.091*
<u>Random Effects and Model Characteristics</u>																		
Community-level Intercept	0.220	0.017		0.080	0.013		0.078	0.013		0.081	0.013		0.079	0.013		0.065	0.012	
Individual-level Intercept	1.000	0.000		1.000	0.000		1.000	0.000		1.000	0.000		1.000	0.000		1.000	0.000	
Intraclass Correlation Coefficient		0.063			0.024			0.023			0.024			0.023			0.019	
AIC		90548.08			83200.65			83155.19			83252.52			83264.87			83092.74	

*= $p < 0.05$

Hypothesis Testing

The purpose of this section is to test the study's hypotheses. These focused on the association between social disorganisation, contextual independent factors, and teenage pregnancy. Four hypotheses were tested:

there is a relationship between family disruption and teenage pregnancy;

there is an association between service delivery and teenage pregnancy;

there is a relationship between community unemployment and teenage pregnancy;

there is an association between residential mobility and teenage pregnancy.

Hypothesis One

H₀: There is no relationship between family disruption and teenage pregnancy

H₁: There is a relationship between family disruption and teenage pregnancy

The hypothesis stated above examines the relationship between teenage pregnancy and family disruption at household and community levels in South Africa. I first tested the family disruption hypothesis at household level through distinguishing cohabiting and single parent household heads from those that are married. Secondly, in assessing the impact of family disruption I go further by testing the influence of family disruption hypothesis at community level by calculating levels of households with unmarried heads per community. I theorise that the contextual dimensions of family disruption - specifically family structure at household and community level - explain teenage pregnancy even after controlling for background adolescent factors.

I would expect predisposition to higher levels of pregnancy among teenage females living in homes and communities with unmarried household heads. This is due to there being lower levels of monitoring, supervision and control in such homes and communities (Davis and

Friel, 2001). Previous literature has shown the importance of adolescents living in two-parent households to ensure lower levels of sexual initiation and risky sexual behaviour (Luo et al, 2012; Mberu and White, 2011; Miller, 2002; Miller and Moore, 1990; Miller et al., 1999; Thornton and Camburn, 1987; Young et al., 1991).

The hypothesis was tested through multilevel binary logistic regression analysis. This process was repeated at univariate level, controlling for background factors (viz. race, employment status, educational attainment, orphanhood status, relationship to head of household, place of residence, province) and controlling for background and other social disorganisation-related variables (community unemployment, community residential mobility, household service inaccessibility). The significance of the association was tested by examining the p-value corresponding to the estimated ratio of the parameter's coefficient and standard error and comparing this to the Wald X2 test result of 95% significance level.

Table 5.9: The effect of household and community-level family disruption on teenage pregnancy, 2011 South Africa Census

Model 0				Model 2			Model 6		
<u>Fixed Effects</u>	Estimate	Standard error	Odds Ratio	Estimate	Standard error	Odds Ratio	Estimate	Standard error	Odds Ratio
Family Disruption (None†)									
Cohabiting	0.224*	0.038	1.251	0.236*	0.039	1.266	0.215*	0.039	1.239
Single Parented Household	0.354*	0.021	1.425	0.147*	0.024	1.158	0.141*	0.024	1.151
Community-level Family Disruption (Low†)									
Medium	0.069	0.028	1.071	0.034	0.028	1.035	0.035	0.029	1.035
High	0.146*	0.030	1.157	0.102*	0.031	1.107	0.124	0.032	1.132*

*=p<0.05

Results from analysis as seen in Table 5.9 above indicate that family disruption at household and community levels was significantly associated with teenage pregnancy at the 5% level of significance (thereby leading to rejection of the null hypothesis). Particularly, family disruption at both levels increased the likelihood of teenage pregnancy. Generally, it could be

said that the findings of this study confirmed hypothesis 1 - that there is a relationship between family disruption and teenage pregnancy.

Hypothesis Two

H₀: There is no association between service delivery inaccessibility and teenage pregnancy

H₁: There is an association between service delivery inaccessibility and teenage pregnancy

The second hypothesis examines the relationship between teenage pregnancy and service delivery inaccessibility in households of South Africa. The hypothesis rests on the premise from the broken window theory that the behaviour of individuals living in disorderly conditions could be affected by that environment (Wilson and Kelling, 1982). In the context of this study, disorder can be associated with lack of municipal services namely water, electricity, refuse collection and sewerage facilities. This may bring about a higher predisposition of unprotected sex due to lower or complete lack of accessibility to contraceptives leading to teenage pregnancy in such conditions.

The study by Wei et al. (2005) revealed that physical disorder in the neighbourhood including lack of refuse collection increased the likelihood of teenage births in Pittsburgh, USA. Therefore, I hypothesised that increased service inaccessibility was associated with a higher likelihood of teenage pregnancy. The hypothesis was tested through multilevel binary logistic regression analysis conducted at univariate level, controlling for background (viz. race, employment status, educational attainment, orphanhood status, relationship to head of household, place of residence, province) and controlling for background and other social disorganisation-related variables (community family disruption, community unemployment, community residential mobility, family disruption index). The significance of the association was tested by examining the p-value corresponding to the estimated ratio of the parameter's

coefficient and standard error and comparing this to the Wald X2 test result of 95% significance level.

Table 5.10: The effect of household service inaccessibility on teenage pregnancy, 2011 South Africa Census

Model 0				Model 3			Model 6		
<u>Fixed Effects</u>	Estimate	Standard error	Odds Ratio	Estimate	Standard error	Odds Ratio	Estimate	Standard error	Odds Ratio
Household Service Delivery Inaccess (3/4 Service†)									
2 Services	0.328*	0.025	1.388	0.246*	0.036	1.279	0.237*	0.036	1.267
1 Services	0.481*	0.029	1.618	0.417*	0.040	1.517	0.408*	0.040	1.504
0 Services	0.459*	0.044	1.582	0.415*	0.053	1.514	0.418*	0.054	1.519

*=p<0.05

Results from analysis are seen in Table 5.10 and indicated that service delivery inaccessibility at household level was significantly associated with teenage pregnancy at the 5% level of significance (thereby leading to rejection of the null hypothesis), with it increasing the likelihood of teenage pregnancy. Therefore, it could be said that the findings of this study confirmed hypothesis 2 - that there is an association between service delivery inaccessibility and teenage pregnancy.

Hypothesis Three

H₀: There is no relationship between community unemployment and teenage pregnancy

H₁: There is a relationship between community unemployment and teenage pregnancy

The hypothesis examines the relationship between teenage pregnancy and unemployment at community levels. I theorised and expected to establish that teenage females living in communities with high levels of unemployment were predisposed to pregnancy due to their having fewer incentives to study and pursue careers as well as fewer role models (Kirby, 2002).

Multilevel binary logistic regression analysis tested the hypothesis and was conducted at univariate level, controlling for background factors (viz. race, employment status, educational attainment, orphanhood status, relationship to head of household, place of residence, province) and controlling for background and other social disorganisation-related variables (viz. community family disruption, community residential mobility, family disruption index, household service inaccessibility). The significance of the association was tested by examining the p-value corresponding to the estimated ratio of the parameter's coefficient and standard error and comparing this to the Wald X2 test result of 95% significance level.

Table 5.11: The effect of community unemployment on teenage pregnancy, 2011 South Africa Census

Model 0				Model 4			Model 6		
Fixed Effects	Estimate	Standard error	Odds Ratio	Estimate	Standard error	Odds Ratio	Estimate	Standard error	Odds Ratio
Community-level Unemployment (Low†)									
Medium	0.227*	0.028	1.255	-0.046	0.031	0.955	-0.074	0.039	0.929
High	0.217*	0.030	1.242	-0.056	0.035	0.945	-0.201*	0.045	0.818

*=p<0.05

Results from analysis are shown above in Table 5.11 and indicated that high levels of community unemployment were significantly associated with teenage pregnancy at the 5% level of significance (thereby leading to rejection of the null hypothesis). In particular, community unemployment decreased the likelihood of teenage pregnancy. Consequently, it could be said that the findings of this study confirmed hypothesis 3: that there is a relationship between community unemployment levels and teenage pregnancy. However, although a relationship was present, the observed result of a negative relationship between the two variables was contrary to the expected positive relationship.

Hypothesis Four

H₀: There is no association between residential mobility and teenage pregnancy

H₁: There is an association between residential mobility and teenage pregnancy

The fourth hypothesis examines the relationship between teenage pregnancy and residential mobility across communities in South Africa. This hypothesis rests on the premise that residential mobility leads to premarital sex among adolescents through cutting familial links, decreasing levels of societal monitoring as well as increasing social exclusion and loneliness (Stack, 1994). This may lead to a higher predisposition of teenage pregnancy in such conditions as previous literature has shown the independent positive association between residential mobility and teenage pregnancy (Mberu and White, 2011; Xu et al., 2013). Therefore, controlling for background factors I expected significantly higher predisposition to teenage pregnancy as levels of residential mobility increased.

This hypothesis was tested through multilevel binary logistic regression analysis and repeated at univariate level, controlling for background factors (viz. race, employment status, educational attainment, orphanhood status, relationship to head of household, place of residence, province) and controlling for background and other social disorganisation-related variables (viz. community family disruption, community unemployment, family disruption index, service delivery inaccessibility). The significance of the association was tested by examining the p-value corresponding to the estimated ratio of the parameter's coefficient and standard error and comparing this to the Wald X² test result of 95% significance level.

Table 5.12: The effect of community residential mobility on teenage pregnancy, 2011 South Africa Census

Model 0				Model 5			Model 6		
Standard				Standard			Standard		
Fixed Effects	Estimate	error	Odds Ratio	Estimate	error	Odds Ratio	Estimate	error	Odds Ratio
Community-level Residential Mobility (Low†)									
Medium	-0.115*	0.026	0.891	-0.010	0.030	0.990	-0.010	0.030	0.990
High	-0.391*	0.030	0.676	-0.139*	0.037	0.870	-0.165*	0.050	0.848

*=p<0.05

Results from analysis as seen in Table 5.12 above indicated that high community levels of residential mobility were significantly associated with teenage pregnancy at the 5% level of significance (thereby leading to rejection of the null hypothesis). Particularly, the likelihood of teenage pregnancy decreased with increasing levels of residential mobility. Generally, it could be said that the findings of this study confirmed hypothesis 4 - that there is an association between residential mobility and teenage pregnancy. However, although a relationship was present, the observed result of a negative association between the two variables was contrary to the expected positive association.

DISCUSSION

Introduction

This chapter presents a discussion of the research findings based on the main research question and hypotheses. It is divided into three main sections. Firstly, I discuss the results pertaining to teenage pregnancy and family disruption. Section two discusses the association revealed between teenage pregnancy and service delivery inaccessibility. Section three elaborates on the results regarding teenage pregnancy and residential mobility. Finally, in section four I discuss the findings related to community unemployment.

Family Disruption and Teenage Pregnancy in South Africa

This first element of the study aims to establish whether there is an association between family disruption and teenage pregnancy in South Africa. To do this I investigate family disruption at two levels, viz. household and community levels.

At household level this study's results reveal that teenage females residing in households with heads that are cohabiting have the highest odds of teenage pregnancy, followed by those living in households with heads that are single and households with married heads (Please see Table 5.5-Models 0 and 2 as well as Table 5.7-Model 6). Several studies internationally and locally such as Santos and Rosário (2011), Mmari and Sabherwal (2013), Ugoji (2011) as well as Mothiba and Maputle (2012) have looked at this matter mainly by comparing the risk of pregnancy in two-parented households as opposed to single-parented households. These studies looked at family disruption, specifically the effects of lone parenting in the forms of divorced and single female headed households.

In the global context, studies looking at family structure have found similar findings to this. For instance, Omar et al. (2010) case-control study conducted in Malaysia found a

significantly higher level of adolescent pregnancy among girls raised by single parents. Correspondingly, Santos and Rosário (2011) case-control study showed that the odds of pregnancy were nine times lower among teenage females belonging to nuclear and extended type families. Studies by Kirby (2002), Domenico and Jones (2007) as well as Santelli and Melnikas (2010) have found similar findings of the consistency over time of the protective nature of married parented households. For example, in the USA, Meade et al. (2008) using hierarchical Cox regression demonstrated that regardless of teenagers' maternal birth age the likelihood of pregnancy was significantly increased among teen females whose parents were not married. Also, Luo et al. (2012) case-control study in Taiwan found in single-parent families that the odds of teenage child-bearing increased approximately five fold.

Even in the more local context numerous studies have found similar results to those presented in this study. For example Mmari and Sabherwal (2013) conducted a multi-country systematic review of 26 studies from developing countries and found that living with both parents was a key protective factor against teenage pregnancy and childbearing. Similarly, Francis (2008) and Ugoji's (2011) studies found single-parented households of various forms predisposed teenage females to pregnancy (Francis, 2008;Ugoji, 2011).

In particular a study of teenage single females in Lesotho found that the likelihood of pregnancy was increased when adolescents were living in a household headed by a separated or divorced female (Francis, 2008). Likewise my findings compare with those of Oyefara (2011) where childbirth was twice as likely among daughters of divorced couples than those of married couples. Finally, previous studies in South Africa by Mothiba and Maputle (2012) as well as Panday et al. (2009) showed that the majority of pregnant adolescents were dependent on single parents and that such parenting also increased the odds of teenage pregnancy. Although the above studies support the present study's results, methodologically

they are problematic due to the use of logistic and other simple regression modelling techniques rather than multi-level modelling to account for the lack of independence of observations from the same household. Such studies celebrate marriage and advocate its promotion and advantages. However, over time marriage has been becoming increasingly rare in South Africa with couples preferring cohabitation, individuals being unmarried or happy to stay alone to raise their children as single parents. According to the 2001 census data, 54% of teenage females were living with heads of households that were married while this decreased to 48% in 2011. Likewise, levels of cohabitation and single-parenting amongst teenage females' household heads increased by 13.28% during the same ten-year period. This trend is likely to continue as time progresses.

On the other hand, studies by Bonell et al. (2006), Mersky and Reynolds (2007) and Gaudie et al. (2010) have found contrary results to ours with no significant association found between family structure and teenage pregnancy at household level. In Bonell et al. (2006) study, initial results showed that girls living with a single mother were more predisposed to early pregnancy, but upon controlling for socio-economic status, the likelihood of teenage childbearing in single mother households was substantially reduced to non-significance. These differences may be attributed to differences in settings, sample sizes, approaches and control variables leading to attenuation of the effects of family disruption. Also, the various study populations may have lower levels of family disruption with consequent association being seen less in such groups.

The present study goes further to distinguish cohabiting heads as a separate entity of its own. Most previous literature has not used this approach due to the assumption that a cohabiting couple has similar features to the household of a married couple due to the presence of two parents in both types of household. However, based on my results, I conclude that the two

entities are actually not the same as the odds of pregnancy are highest for girls living with cohabiting heads. Kirby (2001) review looked at this particular issue in the USA and uncovered similar findings where the risk of early childbearing increased amongst teenage females who had cohabiting parents. In contrast, however, Moore and Chase-Lansdale (2001) study did not find a significant risk of pregnancy among teenage females living with cohabiting parents. However, the latter study used a much smaller sample and was conducted in poor African-American neighbourhoods in 1996.

Reasons for the above associations are numerous and complex but mainly lie in the premise that the familial environment is a key influence on the behaviour, attitudes and perceptions of teenagers. Lesser and Pope (2007) posit that the family can be viewed as a system functioning like other social systems following the principles of systems theory. Accordingly, the family uses boundaries to govern members and set its inclusion criteria, regulate relational interaction as well as to defend the family unit from external intrusion. However, the authors argue that the boundaries “must be clear and sufficiently well-defined to allow it to carry out its functions, but must also be open enough to allow members of the system to communicate with outsiders”(Lesser and Pope, 2007). Viewing the family in this manner highlights a number of important attributes needed by a family to function correctly in spite of its structure which I outline below.

Socialisation of children

Firstly, as a social system, the family enables socialisation of children by constituent members. Carlson and Davis (1977) acknowledge the family’s “implicit right to influence the behaviour of its members”. Further, the socialisation thesis describes the impact of family happenings on current behaviour (Powers, 2005). In particular, the attitudes and behaviour of parents work together in transferring values and norms to adolescents (Moore and Chase-

Lansdale, 2001). Muindi (2007) writes that sexual behaviour and ideology can be affected by the environment in which teenagers reside through the modelling of parental sexual habits and the adoption of parental views concerning sex and contraception.

With regards to behaviour, Lee (2001) insists that a single-parented family structure elevates predisposition to premarital birth due to early sexual socialisation. Conventional wisdom has it that a child may carry out what they are told, while another may not, but a child will always do what they are repeatedly shown. This can be explained through the modelling hypothesis that suggests adolescents observe parental interaction consciously and subconsciously and this leads to social learning (Moore and Chase-Lansdale, 2001). Single parents are more likely to model dating behaviour (with associated partner changing) and non-marital sexual activity (Moore and Chase-Lansdale, 2001; Young et al., 1991).

Similarly, cohabiting households also represent a form of non-marital coitus that Moore and Chase-Lansdale (2001) identify as attenuating the protective effect of an additional adult in the household. In fact, Inazu and Fox (1980) argue sexual activity among cohabiting couples increases the likelihood of sexual activity during adolescence. Adolescents from such homes may believe that homes can be managed without marriage. They may consider these options more acceptable and familiar even though such family arrangements have been shown to have more teenagers becoming pregnant (McLanahan and Bumpass, 1988; Makola, 2011).

To this end, Tucker et al. (2011) showed that adolescent modelling of adult marriages decreased the risk of teenage pregnancy in the United States. Children from married households may also aspire to marry before engaging in sex or having children. Mkwanzani and Odimegwu (2015) demonstrate that 79% of ever married teen females came from households where the heads were either married or cohabiting. This shows the influence of environment in the socialisation of children (Otor and Pandey, 1999). Children who are

brought up in households with heads that are married or cohabiting will naturally also desire to one day marry or cohabit.

Regarding attitudes, single parents have been shown to consistently have more permissive views of sex and sexual roles which may increase the likelihood of early commencement of sex and pregnancy (Markham et al., 2010; Miller, 2002; Moore and Chase-Lansdale, 2001). The attitudes towards pregnancy in certain homes may also influence adolescents to engage in sexual activity at early ages, for example if pregnancy is a rite of passage into womanhood and proves the existence of a boyfriend and being sexually coveted (Jewkes et al., 2009; Makola, 2011).

Another form of the socialisation theory states the importance of parental presence in the development of children's personalities (McLanahan and Bumpass, 1988). Issues may arise in any family regardless of structure when one or both parents are absent. They argue that, though it may be imposed by social expectations, the longing for an absent parent is intrinsic to a child, and consequently the child needs consistent reassurance and validation of their worth from the present parent as well as reinforcement from father/mother figures and other relatives. Research has shown that fathers are just as important as mothers in the development and well-being of children (Luo et al., 2012). This has led to a wave of studies investigating the effects of paternal absence; which is the most common type of parental absence due to the social expectation of mothers remaining with their children as primary care givers (McLanahan and Bumpass, 1988).

Consequently, research has found paternal absence to increase the risk among children of identity crises, low self-esteem, the dependence of daughters on men, early sexual debuts and adolescent pregnancy (Franklin, 1988; Luo et al., 2012; McLanahan and Bumpass, 1988). They argue that paternal presence assists in children's cognitive development, nullifies the

need for compensatory masculine attention and ensures strict relationship rules for daughters with the opposite sex. In this argument, validation of the girl child from the male parent has a lasting impression on her personal value and raises confidence levels.

Paternal absence also affects the reassurance of identity. The co-parenting state of cohabiting or remarried single females may be eroded if the child does not identify with their mother's husband, especially if they do not share surnames (Axinn and Thornton, 1993). In addition, McLanahan and Bumpass (1988) showed in an American study that maternal absence is just as harmful as paternal absence to the reproductive health outcomes of offspring. Nevertheless, in this present study paternal absence appears to be very relevant in South Africa as, according to the 2011 census, 95% of female teenagers living in single-parented households do not live with their fathers, while 51% from similar families live without their mothers. These figures are high and demonstrate how frequently young people grow up without one or both their parents in this country.

Paternal absence in South Africa was originally a result of migrant labour during the colonial and apartheid eras (Delius and Glaser, 2002) which separated fathers from their children for extended periods of time, reduced parental authority and forced mothers to bring up children on their own. What initially was due to forced circumstances repeated itself over succeeding generations until it became entrenched as normal in the minds of boys and young men (Richter and Morrell, 2006). They grew up without fathers and therefore did not view it as unusual when they subsequently abandoned their own children to grow up without them. This intergenerational cycle of paternal absence has led to the high frequency of single female headedness.

Relational interaction

Secondly, as highlighted above, the healthy family as a social system needs relational interaction. Franklin (1988) hypothesised that teenagers living in single-parented households showed higher levels of predisposition of pregnancy due to lower levels of sexual communication and guidance from their parents. The study by Bonell et al. (2006) found that difficult parent-child communication was associated with higher rates of conception among girls as well as with earlier incidences of first sexual encounter. They advanced that this may partially explain the association between family type and the risk of teenage pregnancy as the effects of adjusting for difficult parent-child communication attenuated this association showing that the influence of different family arrangements may be partly enabled by the level and quality of parent-child communication (Bonell et. al, 2006). Additionally, the study found that children from all types of families compared in their contraception use at sexual debut. Therefore, these studies' results show that teenage pregnancy may be more a factor of parent-child communication rather than the actual marital status of parents.

Similarly, Allen et al. (2007) discovered that girls that had better communication with their mothers had a lower risk of pregnancy than those with difficult communication. This dynamic is not restricted to the female parent as Markham et al. (2010) study revealed that girls who communicated more freely about sex with their fathers debuted sexually at a later age than their counterparts. These increased levels of communication between parent and child were shown to increase consistency of contraceptive use, decrease levels of sexual activity as well as decrease premarital childbearing (Powers, 2005). Makola's (2011) qualitative study aimed to explore the perceptions regarding contributing factors of teenage pregnancy from teenagers, teachers and parents/primary caregivers in Soweto, Johannesburg. The study utilised in-depth semi-structured interviews to collect the data and thematic content

analysis. Although the study's findings are not generalizable as it was confined to individuals from Soweto and it only included 20 participants, they substantiate some of the quantitative results and pathways for the results found in the current study. The Makola (2011) study confirmed the pathway of the importance of communication as 17% of participants attributed teenage pregnancy to a lack of communication. Specifically one of the educators in the study stated : *“Lack of communication between a girl child and her mother close the gap for information sharing”* while an adolescent participant affirmed that *“Teenagers are seeking guidance from their peers rather than their parents/care-givers because of lack of communication and openness between parents/care-givers and children”* (Makola, 2011:66). Thus, I posit that family disruption works partially through the lack of effective parent-child communication in predisposing young females to pregnancy. However, it is important to note that this problem may affect a young female in any family structure.

Additionally, the content is also important as communication can be used as a means of equipping adolescents to avoid unwanted pregnancy and abuse (Nemutanzhela, 2007). Parent-child communication is an important protective factor against early sex and pregnancy. In a study conducted in Kenya, (Magadi and Agwanda, 2009) found that adolescents who discussed sexual issues with their boyfriends rather than with their parents or peers began childbearing earlier. They also noted that adolescents who made autonomous reproductive health decisions, such as when and what method of contraception to use, had a higher likelihood of childbearing during adolescence, as did those who had strong traditional gender views.

Parental ability to command authority in opposing premarital sex may also be compromised in single-parented or cohabiting headed homes because the household arrangements reveal the parents' inability to conform to their own guidance (Makola, 2011). Eaton et al. (2012)

assert that adolescents avoid using family planning due to inadequate levels of related knowledge. (Makola, 2011) argued that if parents were adequately knowledgeable themselves and able to discuss these issues with their children, they would be able to transfer knowledge on sexual matters and the prevention of unwanted pregnancy to their children. However, Makola (2011) found that parents did not speak to their children about sexual matters, and this then decreased teachers' opportunities to discuss such matters in the school environment. Congruently, a teacher in Makola (2011: 94) declared that it was *"difficult to deal with sensitive issues whereas parents at home are not talking about them. If parents can be able to stress these sexual activities at home, it will be very simple for teachers to advise teenagers about sexual activities."*

However, international literature fails to acknowledge culture or societal norms as a barrier to parent-child communication. In the South African context, beyond the need for parents to be adequately knowledgeable about sex lies the hindrance of culture. African culture positions itself against parents discussing sex with their children due to an assumption that it is improper, dishonourable and a means to encourage sexual activity (Kioli, 2008). A study in the Limpopo province confirmed this as teenagers and parents concurred that the reluctance to speak about sex with parents and elders in general was due to cultural constraints (Limpopo Population and Development Directorate, 2012). One participant explained *"they might suspect that we have started doing it, so we feel that we can't talk to them about sex, plus traditionally you are not allowed to talk sex with elders..."* (Limpopo Population and Development Directorate, 2012:33).

Family stability

Thirdly, the family as a social system needs to defend itself and remain intact to function correctly. Family stability strengthens family controls and occurs more frequently in two-

parent families (Young et al., 1991; Zito, 2012). Instability has been associated with teenagers seeking external affection and independence from parents that leads to unplanned pregnancies and non-use of contraceptives (Moore and Chase-Lansdale, 2001). It has also been shown to account for earlier sexual activity occurring among adolescents from single-parent households. Instability is caused by events such as marital disruption which produce imbalance in family units and cause offspring to take on adult roles (McLanahan and Bumpass, 1988). For example, parental divorce has been shown to increase the likelihood of premature sexual activity, marriage and exit from the home among adolescents (Booth et al., 1984). Similarly, single-parenthood has also been shown to predict early and premarital birth among teenage females in the USA (McLanahan and Bumpass, 1988).

Additionally, as a social system the family implements boundaries “to govern, regulate and defend itself and constituents”. The parental control thesis claims that behaviour is dependent on family experience (Powers, 2005). Neurologists have argued that decision making during adolescence is impaired (i.e. functions poorly) due to the frontal lobe not having yet developed to its optimum (Giedd et al., 1999). This leads to a disjuncture in thinking amongst adolescents where they think that taking risks cannot harm them in spite of being aware of associated negative consequences (Seamark and Gray, 1998).

Consequently, adolescents need support during this stage of neural development through open communication, clear boundaries, rules, supervision and monitoring to ensure avoidance of deviant behaviour (Markham et al., 2010). Roche et al. (2005) discovered that greater parental decision making lowered the possibility of early sexual initiation. Similarly, numerous studies have shown the importance of parental supervision, monitoring and control in protecting adolescents against adverse outcomes such as teenage pregnancy, risky sexual

behaviour and early sexual initiation and experience (Beguy et al., 2013;Markham et al., 2010;McLanahan and Bumpass, 1988;Muindi, 2007).

Bonell et al. (2006) found that earlier observed low parental strictness increased the likelihood of first sex at follow up for young females while Markham et al. (2010) observed the lack of explicit parental standards and expectations to work as a mediating factor in the association between divorce and risk of sexual initiation. Bezuidenhout (2008) asserts that low levels of parental control lead to increased levels of independence among teenagers which increases their interaction with peers. This increased peer interaction can erode parental principles and replace conservative sexual ideologies with liberal sexual values with resultant behaviours of sex and teenage pregnancy when protection is not used. Similarly, Makola (2011) adds that decreased parental monitoring and supervision of activities and behaviour can lead to adolescents engaging in sexual intercourse through youngsters having independence and freedom while socialising at night. In accordance with this, one participant from the same study said *“my parents never guided me or monitored my behaviour. They did not bother when I am coming home. So this gave me a chance to do what pleases me outside”* (Makola, 2011:77).

Consequently, family disruption is mediated by decreased parental authority, control, and monitoring which increases the chance of teenage pregnancy (Kwong Wong, 2007;McLanahan and Bumpass, 1988;Moore and Chase-Lansdale, 2001). Correspondingly, single-parented homes have been shown to have poorer parental control, less discipline and lack of supervision compared to two-parented households (Franklin, 1988;McLanahan and Bumpass, 1988;Moore and Chase-Lansdale, 1999). There may be fewer adults in single-parented homes leading to decreased supervision as well as less time for parental interaction and influence (Abrahamse et al., 1987;Moore and Chase-Lansdale, 2001). Teenagers then

have more opportunities to engage in sexual activity and problem behaviour, and to be influenced by deviant peers. Consequently, Miller (2002) concluded that adolescents in single-parent homes had a higher risk of pregnancy due to lower levels of parental supervision.

During the stage of adolescence, standard rules need to be set by parents and consistently adhered to by all members of the household. If these rules are not enforced fairly across siblings and other household members or by parents themselves a child may disregard them. Makola (2011) found that single parents had more difficulty maintaining authority and control when changing partners frequently as this decreased respect for parents. This suggests that different partners entering and exiting the home lowers the boundaries of the home which in turn reduces the parent's ability to reinforce parental rules. In the USA, Edin and Tach (2012) found that parents who break up with their partners do not remain single for long, but rather move on to new romantic relationships, many of which produce additional children. This blending of romantic partners and the birth of additional resulting children is posited to compromise parenting and create unstable family environments for young children.

Regarding cohabitation, Moore and Chase-Lansdale (2001) reasoned that the level of monitoring provided may be associated with the degree of relation to the adolescent. Consequently, a parent's cohabiting partner who is unrelated to the child may be unable to successfully influence their behaviour due to not possessing adequate authority to be taken seriously. This may eventually culminate in cohabiting partners not participating in parenting. Closely associated with parental control, supervision and monitoring is the level of closeness or attachment between parent and child. According to Erikson's theory of psychosocial development, adolescence is a time when an individual is establishing and forming their identity, sense of belonging and self-worth (Erikson, 1959). The stage involves the process of

a child learning the roles that they will occupy in adulthood from peers, family and society at large. Additionally, successful transition through this stage requires a loving and supportive family environment for free yet guided safe exploration to take place (Boyd and Bee, 2012).

Therefore, the elements of a loving and supportive familial setting need to be understood. Franklin (1988) noted that the family is a “complex dynamic network of interlocking, interconnected, interdependent and interactive relationships.” Thomson et al. (1992) deduced that children from single-parent and cohabiting homes received lower levels of attention compared with children in married households. Closer and stronger bonds with parents, coupled with warmth and support, facilitate the generation of a stable emotional environment within a home that prevents an adolescent needing alternative external intimacy (Moore and Chase-Lansdale, 2001). Adolescents from such homes are able to express their frustrations to a caring, loving parent and process negative feelings, preventing the need for relief through sexual indulgence. Makola (2011) found female adolescents without loving supportive families had a higher risk of pregnancy as a result of experiencing feelings of closeness with strangers; and this gave rise to an inability to resist sexual advances associated with endearing words and actions. In accordance with this notion, a participant from Makola (2011: 60) pronounced *“if a teenager is not given attention and love by the mother, she seeks attention outside.”*

Likewise, previous scholars have shown that higher levels of parental warmth, attention and support delay sexual debut, decrease the frequency of sex and reduce the odds of adolescent pregnancy and fertility (Makola, 2011; Markham et al., 2010; Moore and Chase-Lansdale, 2001; Wildsmith et al., 2012). In particular, Davis and Friel (2001) found that teenage females that reported lower quality connections with their parents had a 16% higher risk of early sexual debut and 0.19 more partners than their counterparts with high quality parental

relationships. Tucker et al. (2011) showed that authoritative parenting lowered the odds of teenage pregnancy due to combining high levels of parental support with control; they therefore advocated that prevention programmes should assist parents to develop such skills.

Furthermore, according to attachment theory, a child needs a secure attachment to their primary caregiver to enable a secure sense of self, healthy peer relations, successful social reliance and emotional development and regulation (Moore and Chase-Lansdale, 2001). Such an attachment needs the parent to be attuned, sensitive and appropriately responsive when a child perceives pain or threat. This leads to a healthy parent-child connection with the child using their parent as a springboard from which to explore life while obtaining guidance. Creating a secure attachment with children is difficult enough in a two-parented household yet this may become exigent in a single-parented home. Waddington (2007) confirms that girls from a 'promiscuous' home are at higher risk of becoming pregnant due to not developing a positive attachment to their primary caregivers.

When a secure attachment is not established anxious-ambivalent attachment with anxiety upon separation, anxious-avoidance attachment where a child avoids their parent or disorganised attachment characterised by an absence of attachment may evolve (Luo et al., 2012). All these unfavourable attachment styles result in poor self-image, low self-esteem and loneliness that may lead to relationships and sexual intercourse with the opposite sex as remedial measures (Bezuidenhout, 2008; Makola, 2011). Makola (2011) confirmed this as parent and primary care-givers believed that loneliness was a contributing factor to teenage pregnancy as the girl child interpreted it as a means of fulfilling her sexual desires. A participant in the Makola (2011:60) study explained that "*Insufficient attention from parents leads to loneliness in teenagers*". Previous literature demonstrates that this occurs mainly amongst female offspring when an erroneous attachment (i.e. unstable without the

characteristics of strong healthy paternal relationship attachment) with her biological father exists (Lamb, 2004). Correspondingly, higher odds of teenage pregnancy were associated with authoritarian and disengaged parenting styles in a study conducted in the USA (Tucker et al., 2011). Borst (2015) further highlighted the need to offer children higher levels of support, communication and love during times of family conflict (for example, during divorce or separation) in order to maintain the integrity of a secure attachment between parent and child.

When processed successfully the stage of adolescence results in a person having a strong sense of self and confidence, while it results in role confusion if not. Role confusion or identity crisis leads to unhappiness and seeking attention outside the home (Makola, 2011). At this time, adolescents may turn to their peers. The peer group is an important social agent during adolescence that is viewed as a source of information about sex and helps an individual determine appropriate behaviour (Beguy et al., 2013; Muindi, 2007). The characters of dominant constituent peer members determine what is deemed “appropriate behaviour” to remain a member of the group. A study conducted in Kenyan urban informal settlements found that perceived peer displeasure of antisocial behaviour protected girls from early childbearing (Beguy et al., 2013).

However, children from single-parented families have been found to have a higher propensity of associating with so called “deviant” cohorts and thereby raising their susceptibility to poor outcomes such as problem behaviour, difficulties in sexual identity and poor cognitive achievement (Luo et al., 2012). A participant from Lebesse et al. (2015) study conducted in Limpopo province revealed peers who had children repeatedly discussing their children would make childless teenagers consider having a child as well to fit in the group and have a greater sense of belonging within it. Similarly, a teenage participant from Makola (2011:79)

said *“If you are not doing what they are doing, you are called by names. Therefore, because we are not feeling well if you are called ‘a boring person’ we are joining them for social acceptance.”* This view was shared by a participant who was a teacher in the same study.

Studies have proposed decreased support, love and attention to explain why children from single-parent households are more prone to peer pressure than their counterparts from two-parented families (McLanahan and Bumpass, 1988). When familial support diminishes or deteriorates the extent of attention seeking and peer influence increases (Makola, 2011). Attention seeking also increases the likelihood of alliances with deviant cohorts and sexual unions to prove worthiness (Ardelt and Day, 2002;Bezuidenhout, 2008). Consequently, a family’s ability to support the emotional turmoil that adolescents experience is vital to decrease the need and effects of peer affiliation that may lead to teenage pregnancy.

Single parents may find parenting overwhelming due to the numerous tasks involved in raising children alone. Such parents also have a greater challenge juggling work, finances, family and parenting responsibilities; and hence that increases their level of distraction and exhaustion, and decreases the amount of time they can spend with their child (McLanahan and Bumpass, 1988). Waddington (2007) confirmed this through showing how neglect of teenage children is a consequence of parents involved in their careers. Makola (2011) in a South African study also found that teenagers were not given attention at home by their single parents. One of the participants explained this by saying *“single parents working as domestic workers stay full-time with their employers and far away from their children”* (Makola, 2011:60).

In addition to these daily life issues, after the departure of the child's genitor a single parent may also face emotional challenges such as processing rejection, regret and hurt. Mkhwanazi (2014:117) refers to this as "performing the discourse of regret". If she is female and advised

against abortion, a single parent may feel she had been forced to keep her child due to religious, cultural or family pressures, resulting in venting her frustration on her child (Mkhwanazi, 2014). These numerous disappointments culminate in affecting the attachment between parent and child resulting in low levels of love, empathy and security for the child (Borst, 2015). Disconnection, avoidance and an ambivalent relationship may predispose a female adolescent to seek love, protection and acceptance from elsewhere including male partners.

Single parents may also be more prone to poverty and financial constraints which increase levels of parental frustration. Corcoran (1999) found that family structure was related to socio-economic status and suggested that these two variables could be “confounded”. Additionally, Bonell et al. (2006) proved that family effects were independent of socio-economic status in the United Kingdom. Fomby et al. (2010) highlighted that the effects of family structure may intersect with race and socio-economic status as the effects of family structure on reproductive health outcomes could be due an individual’s relative position of disadvantage.

I agree with these latter scholars because in South Africa poverty and race overlap with family structure. For instance, the affordability of marriage may affect family structures as marriage is more able to be chosen by middle-class or wealthy people because they can afford it, while couples who do not have the means to pay for “lobolo” may opt for single-parenthood or cohabitation. The 2011 census data shows that 13% of black teenage females live in poverty compared to approximately 10% in all other race groups. It also shows that 64% of all poor households are either headed by single parents or cohabiters while 36% are headed by married heads. However, among black teenage females, 77% of poor households have unmarried heads and the majority (58%) of these are single parents. Also, 46% of black

teenage females live in single-parented households while only 17% of white teenage females and 19% of Indian teenage females live in these types of families. These racial differences in family structures interact with poverty.

Regardless of race group, poverty is lowest in married headed households at around 10%, rises slightly to approximately 12% in cohabiting headed households and is highest in single-parent headed households ranging from 12% among coloureds to 17% among blacks. However, it should be noted that for all three family structures, the rates of poverty remain highest among blacks. Panday et al. (2009:12) revealed that *“when young children grow up in residential areas where poverty is entrenched, they are at risk of experiencing an early pregnancy.”* Makola (2011) alluded that this may be due to early exposure of sexual encounters and one of the participants in the Makola (2011:63) study explained this to be as a result of *“insufficient spaces in the family where parents are sharing a room or a shack with their children tend to expose children to sexual activities.”* This problem may be cyclical in nature as adolescents in such homes may choose to escape the hardships of poverty through premarital childbearing, leaving the home and opting for cohabitation with the father of their child. When things fail with that partner they fend for the child as a single parent, thereby reproducing the same family structure they were raised in (McLanahan and Bumpass, 1988). This is a reflection of the structurally constructed gap between the rich and the poor created in apartheid South Africa. This inequality between rich and poor emanates from a financial gap between black Africans and other race groups and constitutes an additional constructed crevice between married and other types of families in this country.

This section has shown the numerous mechanisms whereby family disruption may lead to teenage pregnancy in South Africa. Because of these complex pathways, it becomes necessary to give early support to parents in local settings to enable them to raise their

children optimally. Engaging with parents on how to increase purposeful validation and secure attachment with their children may assist in raising levels of self-esteem and confidence that may work synergistically to heighten resilience amongst young females from deprived environments. This would mitigate the risks of negative relationships, risky behaviour and teenage pregnancy later in life.

My study also determines the predisposition of teenage pregnancy among community levels of family disruption. I found that, although the likelihood of teenage pregnancy increases as community levels of family disruption increase, this relationship is only significant at high levels and is of smaller magnitude than at household level (Please see Table 5.6-Models 0 and 2 as well as Table 5.7-Model 6). This is expected as household level factors should have a greater bearing on the individual than those occurring in the community. Relating community levels of family disruption in any form to teenage pregnancy has not often been conducted in the past. Studies that have looked at this aspect include those by Bickel and Weaver (1997) as well as Copping et al. (2013).

However, both these studies investigated links at higher levels than at the level of the individual teenage female by relating community family dynamics to community levels of teenage birth rates. Particularly, Bickel and Weaver (1997) modelled teenage birth rates with a composite variable that embodied a shift from traditional patterns of community organisation including family structures. On the other hand Copping et al. (2013) looked at the rate of female lone parents which was found to have an indirect effect on teenage fertility through affecting strategic development levels. The studies found a positive relationship between community levels of family dynamics and teenage fertility. Mkwanzanji and Odimegwu (2015) found this same positive relationship between community rates of divorce

and single female headedness using the general household survey data of 2011 to 2013 in South Africa.

Role modelling

A few mechanisms have been put forward to explain the association between community level of family disruption and teenage pregnancy. Firstly, according to the collective socialisation theory adults in a community are seen as role models for young people growing up within it (Crane, 1991). Therefore, if these role models achieve success despite being single parents it may give adolescents a notion that success can be attained even if one becomes pregnant during the teen years (Preston-Whyte and Allen, 1992). Moore and Chase-Lansdale (1999) also posited that teenage pregnancy may occur more in such neighbourhoods due to the presence of adult models who practised non-marital childbearing.

Community role modelling may be sex specific with females modelling community females while males would find it easier to model males within their communities. Makusha et al. (2013) highlight this point in the South African context as some of the male participants stated that they were raised by females yet chose to model the behaviour of men within their community. In particular, one maternally-raised male participant stated that although his mother was his hero, he aspired to be like the adult male neighbour: *“I looked at the way he conducted himself. He looked after his family. I could tell this man was a good father, and I said I want to be like him when I grow up. I want to be able to provide and be there for my family”* (Makusha et. al, 2013:145). Another participant from the same study was concerned of the influence that paternal absence may bring upon her son though she did not personally believe that growing up without a father had affected her greatly (Makusha et al, 2013). These sentiments highlight Makusha et al's (2013) suggestion that a gendered element of parent child relationships may mediate the importance of role modelling especially in the

Zulu tradition where females require mother-figures more as they grow up while males may need father-figures more.

Of single-parented households in South Africa, 88% were headed by females as opposed to 12% by males in 2011. Taking this and the above discussion into consideration would mean that teenage females would be affected more by adult single-parent female role models in their communities than teenage males. However, lack of adult male role models who support and live with their children in a community may create the perception among boy children that fathers are insignificant which may influence their behaviour when they impregnate a young female.

Brewster et al. (1993) showed a high positive association between female divorce/separation rates and non-use of contraceptives at first intercourse. They suggested that frequent exposure to adult marital dissolution may result in adolescent females deviating from family sequencing norms due to the low costs associated with such behaviour. Similarly, Billy and Moore (1992) found that the likelihood of non-marital childbearing was higher in communities with high divorce and separation rates. They argued that this was due to females in such communities deeming marriage stability so fragile to the extent of regarding it as not being worth entering into for procreation. As this applies to high rates of divorce and separation it may possibly apply to high levels of single-parenting and cohabiting headed households.

In this study, community family disruption includes cohabiting and single-parented homes due to marital dissolution, widowhood and never marrying. As previously discussed, marriage levels in South Africa have declined substantially over time, particularly among blacks. Posel et al. (2011) use micro-data from numerous South African nationally representative surveys conducted from 1995 to 2010 using self-reporting of marital status.

The study established that during the post-apartheid era cohabitation has increased and marriage rates for black women aged 20 to 45 years approximate 24% while that of their white counterparts stands at almost three times the level at 67% (Posel et. al, 2011). A decline in marriage has occurred across races in the country; nevertheless, this is more markedly seen amongst black people than white people. Scholars attribute this to the systemic disruption in family formation during apartheid as well as the economic challenge brought on by the payment of lobolo (bride wealth) requirements in the face of high male unemployment among blacks (Hunter, 2010;Posel et al., 2011). These never married households may increase the perception by adolescents of the irrelevance of marriage as they demonstrate that marriage is not essential to have children. Adolescents may also hold the perception that marriage is not the best environment in which to raise children as the chances of marriage disintegration are high as observed in their community. Additionally, marital dissolution may make young people sceptical about the need for marriage and increase levels of anxiety regarding marital union over and above already prevailing worries.

Social Control

Secondly, literature has shown that communities with fewer two-parented married couples have lower levels of social control. Kwong Wong (2007) asserts that two-parent families provide more effective supervision of neighbourhood children compared to single-parent families. Scholars have proposed that single parents tend to isolate themselves from the larger community through lower levels of involvement and support for community organisations (Kwong Wong, 2007;Moore and Chase-Lansdale, 1999).

In a local study conducted in Mpumalanga, Zwang and Garenne (2009) suggested that a young mother may isolate herself “in order to avoid unpleasant comments or mockery that will hurt her”. Single parents are more likely to face social stigma and persecution due to

having children out of wedlock. This decreases connectedness to general society which may lead to lowered social cohesion, an inability to inculcate collective efficacy and lower informal social control. A lack of community connectedness, perceived or measured, has been found to increase the likelihood of having had sex, recent sex, non-use of contraceptives and the number of sexual partners among black adolescent females in America (Crosby et al., 2002; Oman et al., 2005; Small and Luster, 1994). Additionally, community connectedness was protective in preventing risky behaviour amongst youth living in two-parent families, but not for their counterparts in one-parent families (Oman et al., 2005). Divorced adults were observed to fail to manage and control children within their neighbourhood thereby allowing levels of juvenile delinquency to increase (Kwong Wong, 2007). This could possibly predispose young people to higher levels of experimentation and sexual exploration leading to teenage pregnancy.

However, above and beyond the reasons presented, it is generally known in sociology “that norms are creations of social structure and that behavioural choices flow from norms” (Billy and Moore, 1992). In the same fashion, Makola (2011) stated that “norms and values of society regulate sexual behaviour and change over time”. Billy (1983) found that community levels of divorce increased the chance that a teenage female experienced non-marital sex. He explained that structural factors generated norms that provided a conducive setting for teenage sexual intercourse. Similarly, Beguy et al. (2013) showed that adolescent females were predisposed to pregnancy due to early childbearing among peers and family members being common practice in Kenya, and this enabled young non-marital parenthood to “become normative” in the environment they lived.

The process involves common practice structural factors influencing reproductive behaviour. This can occur through summative reproductive behaviour motivating similar behaviour at

individual level or structural phenomena shaping general norms that change the perceived costs and benefits for specific reproductive behaviour. Individuals internalise community norms about premarital sex, abortion, marriage, etc., by incorporating them into their personal value systems that directly influence their behaviour (Billy and Moore, 1992). In South Africa, I do not think that it is high teenage pregnancy rates that keep teenage pregnancy high, but rather relationship dynamics, gendered power dynamics and the lack of recourse and measures to ensure responsible behaviour among males.

Firstly, my statement is due to the fact that teenage pregnancy is highly stigmatised in South Africa and considered a shame to the girl, her family and the entire community. One of the participants in Mkhwanazi (2010:355) study illustrates this through saying *“I mean it is a shame for a girl to be pregnant at such an age. I was ashamed of being pregnant. I never wanted to be pregnant so I was ashamed of being pregnant . . . I think because the baby was not planned and somewhere at the back of my mind I thought the baby was a mistake. Now that the baby is here I don’t think it is a mistake. Teenagers normally expect babies at the age of 14. I became pregnant at 16 years old. My parents were very disappointed that, they felt that I had ruined my future. My friends made jokes about me. Having a child is not easy; you have to sacrifice your life for it.”*

Social norms that lead up to and follow a pregnancy keep teenage pregnancy rife in South Africa. As discussed low levels of parent-child communication about sex are associated with earlier sexual debut and pregnancy. Culture further exacerbates this subject in South Africa (Mkhwanazi, 2014). Therefore, the social norm of parents feeling prohibited to speak to their children about sex leads to friends being the most common source of information. This leaves a teenager with little knowledge about contraceptives and negotiating safe sex, that predisposes a girl to early pregnancy (Kioli, 2008).

It is an unspoken yet accepted social norm that premarital sexual activity takes place; and that when young people are in a “serious relationship” condoms are not used as evidence of love, trust and fidelity (Makiwane, 1998; Mkhwanazi, 2010). However, early motherhood is highly unacceptable in South African society and frequently results in young females being “shocked and scared”, being jeered at and mocked by their peers, being censured by parents, being ridiculed by nurses and being abandoned by male partners (Kaufman et al., 2001; Mkhwanazi, 2009). Mkhwanazi (2009) suggests that these feelings are due to societal expectations of how young females should behave. In other words, premarital pregnancy confirms adolescent sexual activity which society does not want to know about but yet also accepts as being inevitable.

Furthermore, the way that society and families react upon discovering the pregnancy is different for females and males. Females are forced to take on the responsibility of motherhood through the social value that abortion is wrong. It is her responsibility also to report the pregnancy to the boy’s family and to prove his paternity of the child upon which *inhlawulo* (damages) may be paid. The male’s family defend and believe their son throughout this process as if the girl’s intention is to trap him into fatherhood (Mkhwanazi, 2010). This is well documented in Mkhwanazi (2010) as she details the experiences of young girls during the *inhlawulo* proceedings. The events of this interaction were explained by one of the participants in the Mkhwanazi (2010:353) study who stated *“once you are there, at the boyfriend’s home they ask you questions such as how did this happen? Where were you sleeping with the boy? Why didn’t you use contraceptives? They are not in a good mood when they ask you the questions. They are very angry because they have to pay.”*

This process seems biased towards the male partner and resultantly leads to a mere “slap on the wrist” for him. The male is not obliged to have a relationship with his child or pay

maintenance. In many cases the male partner is not held accountable for his actions as the family defends him and requires hard evidence before any responsibility is admitted to (Mkhwanazi, 2010). On the other hand, the girl is required to live with the consequences of premarital birth for the rest of her life: it may make her less marriageable as many men are reluctant to marry women who have borne children by other men and lowers the amount of her lobolo upon marriage if she does marry (Kishindo, 1994; Mturi, 2015). The above studies show that the system as a whole disadvantages the female much more than the male. Males who observe this are taught that impregnating a female before marriage, while unwise, is not disastrous; and these perceptions thus propagate teenage pregnancy (Sutherland, 2003).

Patriarchy is a system that privileges men and works to subordinate women through culture, institutions and persuasions (Walby, 1990). South Africa is largely a patriarchal society. Forced segregation of people by their ethnicity during apartheid instilled a sense of attachment to culture and tradition that lingers on to this present day (Carlson, 2012). As a result, cultural values surrounding gender roles and attitudes are adhered to with women considered to be subordinate and inferior to men, particularly amongst rural poor people who make up the bulk of the populace (Carlson, 2012; Morrell et al., 2012). The legacy of apartheid, cultural customs and poverty are cited as the main reasons for gender discrimination in South Africa (Carlson, 2012; Dastile, 2013; Morrell et al., 2012; Unterhalter and North, 2011). In turn gender inequality is the cause of gender gaps in education and wages and is also evident in the high rates of infection of the HIV epidemic as well as violence against women. It is reflected in the persistent marginalisation, unemployment and poverty of females in South Africa (Dworkin et al., 2012; Kehler, 2001). After more than 20 years of government efforts since democracy, 55% of women are still unemployed in non-agricultural sectors, women make up less than half of the members of parliament and the

number of boys enrolled in primary schools is still higher than that of girls at 0.99 versus 0.96 (Statistics South Africa, 2010).

In communities where single-parenting, cohabitation and paternal absence are common the enforcement of responsibility and marriage in response to a pregnancy may not be adhered to although historically subscribed to. As shown above, single-parented heads are mostly females and would have themselves experienced a similar procedure of possible *inhlawulo*, resultant non-accountability of their partners and personal shame at the time of their own pregnancy if it was out of wedlock. Mainstream society looks down upon them because they have had children outside of marriage and consequently they have no authority to stand against cultural statutes. Even if they do not agree with the process, they adhere to its principles in order to redeem themselves from how non-marital childbearing is viewed from an African cultural perspective as a misdemeanour. Therefore, single-parent mothers may perpetuate this cultural procedure.

The above social norms discussed may be rife in communities populated by single parents and cohabiting couples due to the intersections with race and poverty. Family structures other than normative two-parented families may interweave with the social norms described above in explaining rates of teenage pregnancy.

Household Service Inaccessibility and Teenage Pregnancy in South Africa

This study investigates the association between household levels of service delivery inaccessibility and teenage pregnancy in South Africa. Mfenyana et al. (2006) acknowledge that access to basic amenities is an important predictor of adult, child and maternal health. There are a limited number of studies that investigate the influence of service delivery inaccessibility on teenage pregnancy and even fewer that can confirm the findings presented in this study. My results show that service delivery inaccessibility was significantly

associated with teenage pregnancy, and the likelihood of teenage pregnancy increased as inaccessibility rose (Please see Table 5.5-Models 0 and 3 as well as Table 5.7-Model 6).

A study by Wei et al. (2005) found that their physical disorder index was associated significantly with rates of teenage births; in their research conducted in Pittsburgh, Pennsylvania (USA), teenage pregnancy increased as the index in physical disorder rose. A Limpopo study found access to amenities decreased the likelihood of unwanted teenage pregnancy yet the results were not statistically significant (Limpopo Population and Development Directorate, 2012). In particular, the study investigated access to water and to electricity separately. Notably the study failed to use multilevel modelling in regression analysis. A study in England by Bradshaw et al. (2005) found that lower conception rates occurred in areas with low access to services, but explained that this was due to lack of services occurring more in rural areas where teenage conception was low due to other rural factors. Service delivery inaccessibility in the present study relates to an index comprised of the level of inaccessibility to basic amenities (water, electricity, sanitation and refuse disposal).

South Africa continues to suffer from the legacies of apartheid regarding service delivery inaccessibility. Under the apartheid regime people were classified and allocated (or denied access to) resources including basic amenities according to the colour of their skin and their hair texture. As a result areas where 'white' people lived had access to all services while the spaces inhabited by 'blacks', 'coloureds' and 'Asians' had fewer services (Macleod and Durrheim, 2002). When apartheid ended in 1994 a new democratic government was instated yet the social inequalities remain more than 20 years later. In 2010, approximately 66% of municipalities across the country faced a service delivery crisis (Koelble and LiPuma, 2010). This has been blamed on skills shortages, lack of accountability, corruption and dubious

decision making at local government level. The following section will discuss the numerous ways that service delivery inaccessibility may possibly be related to teenage pregnancy.

There are a number of reasons that could explain the association found between service delivery inaccessibility levels and teenage pregnancy in this study. Firstly, a lack of access to basic services has been used as a proxy for socio-economic status in previous research (Natsayi et al., 2010). This is based on the proposition that as the level of access to amenities increases so would socio-economic status increase. Richter et al. (2009) state that investigating the effect of social and economic conditions on adolescent health assists in supporting developmental and ecological agendas.

In studying health inequalities, socio-economic measures need to be sensitive enough to capture logical hierarchy. Additionally, they should not be a result of health status as reverse causation may make interpretation of results difficult (Grundy and Holt, 2001). A lack of basic amenities has limitations in this regard as a socio-economic measure because inaccessibility may influence levels of morale and self-reported health. However, teenage pregnancy would not be affected by this issue. Consequently, Bärnighausen et al. (2007) concluded that household assets indices were valid proxies of wealth in health surveys conducted in rural areas in Africa. Further, certain studies have gone on to define urban poverty as the deficiency of three basic amenities, viz. electricity, flush toilets and piped water (Ezeh et al., 2010).

Mueller and Parcel (1981) defined socio-economic status as "the relative position of a family or individual on a hierarchical social structure, based on their access to or control over wealth, prestige and power". Socio-economic measures are divided into one of two main categories (Shavers, 2007): material deprivation encompasses a lack of goods and resources

as well as of basic amenities; on the other hand, social deprivation refers to the absence of social cohesion, integration and capital.

Both these types of poverty have been investigated and found to increase the risk of poor health and mortality (Shavers, 2007;Stjärne et al., 2004). Material deprivation can lead directly to sub-optimal health, for example, lack of access to clean water exposes individuals to pathogens in river water (Stjärne et al., 2004). In addition, it can decrease opportunities for people to live healthy lives. Likewise, social deprivation has been shown to decrease levels of social control and collective efficacy in communities leading to higher predispositions to crime and resultant morbidity (e.g., anxiety attacks and stress), mortality and adolescent problem behaviours (Wei et al., 2005).

This present study concentrates on material deprivation, but connections do exist between the two socio-economic categories. I measured material deprivation at household level. Grundy and Holt (2001) advocate for measures at this stratum due to their applicability to most individuals in a population save those residing in institutions. Also, in South Africa basic amenities at this level give a truer reflection of reality as widespread adequate service delivery in urban areas “conceals” pockets of inaccessibility and inequality (Turok et al., 2011). The access to basic amenities is considered a “good indicator of the well-being of households and their overall quality of life” as it is linked to household members’ earnings and health (Richter et al., 2009).

Socio-economic status has been said to affect health in three main ways. The first mechanism relates to material privilege where individuals with higher earnings usually have superior nutrition, better living conditions and good access to healthcare (Grundy and Holt, 2001). The second mechanism considers differences in behaviour and knowledge where higher socio-economic status affects cognitive skills and knowledge leading to the appropriate use of

healthcare. Finally, higher socio-economic status increases empowerment, social status and integration with resultant increased independence in important areas of life such as relationships.

Therefore, regarding teenage pregnancy, individuals from higher socio-economic status households usually have better access to and knowledge of contraceptives as well as a higher ability to negotiate and enforce safe sex with their partners. Studies have shown that teenage women from poor homes are more likely to have premarital births than those from affluent backgrounds (Kwong Wong, 2007;Magadi and Agwanda, 2009;Miller, 2002;Nyakubega, 2010;Willan, 2013). Consequently, Bradshaw et al. (2005) advised that spatial assessments of teenage conception should consider poverty. They found a statistically significant association between the rate of teenage conception rates and a number of deprivation realms. Additionally, deprivation accounted for more than 75% of variation in teenage conception rates.

Specific links of socio-economic status with teenage pregnancy also exist due to the characteristics of families and parents in poor communities. Firstly, Nettle and Cockerill (2010) proposed that individuals whose parents invested less emotional support in them wanted children at younger ages. Poor parents give less positive attention to their children due to their own time and money constraints that keep them stressed (McLanahan and Bumpass, 1988).

Secondly, oblique intergenerational transmission occurred through individuals in communities with younger parents wanting children younger as well. Wilson (1991) clarified that poor areas lack educated, employed and married role models; and the lack perpetuates social welfare reliance and family instability as norms. This leads to poor families giving up hope of ever overcoming economic hardship for themselves or their children. Schooling and

employability may be so weak in such areas that staying in school and avoiding early pregnancy may not be advantageous (Kearney and Levine, 2007). Accordingly, families living in poverty may adopt practices that are less conducive to school and career success while encouraging premarital childbearing (McCulloch, 2001). Also, individuals born to younger parents wanted children younger which is a process termed vertical intergenerational transmission (Nettle and Cockerill, 2010).

Premarital childbearing in poor areas is related to a higher predisposition to mortality. Poverty has been shown to predict adverse health, injury and mortality (Wei et al., 2005). Wilson and Daly (1997) posited that accelerated reproduction motivation occurs through psychological mechanisms in neighbourhoods that experience high mortality. This encourages ideas that the environment is unsafe and lowers the expectations of a long healthy life thereby making premarital reproduction in such areas a subconscious, but rational, survival choice (Nettle, 2011).

Therefore, from an evolutionary perspective, shorter life expectancy, social learning, contextual prompts and high-mortality regimes work together to increase costs and lower benefits in delaying motherhood. However, if the realisation and economic returns of schooling and career advancement are limited, as is the case in poor areas, pre-reproductive accumulation of resources cannot be achieved. Hence the process of attaining children of higher quality is futile (Nettle, 2011). It follows that theory predicts individuals with a short reproductive life span will follow a “fast” life-history of early motherhood, low investment in children and a high fertility rate (Nettle, 2010).

The final mechanism of this association operates through the association of poverty with risky sexual behaviour. Poor environments have less access to opportunities that would decrease the rewards of avoiding unwanted pregnancy and disease. Additionally, high

unemployment and low salaries make females vulnerable to risky behaviour, encouraging them to engage in transactional sex behaviour for survival or to supplement their wages (Greif et al., 2010). This was confirmed in Zembe et al.'s (2013) study in South Africa that showed how young women in dire states of poverty seek monetary assistance in exchange for sex.

Greif et al. (2010) posited that high levels of social isolation found in poor areas guard residents from the possible reproach of a risky lifestyle. However, they went on to contradict themselves in suggesting that these risky practices may be “adopted” from neighbouring peers. In South Africa, social learning may influence adolescent behaviour more than isolation as good communication among neighbours occurs even in poor areas. This is witnessed when neighbourhood children congregate at a single home to watch television and in the ability for township and rural communities to organise themselves for common causes such as lack of access to services and crime prevention. Evidence from previous studies supports the association between poverty and risky behaviour. Kabiru et al. (2010) found that adolescents residing in resource-poor areas transitioned to sex faster than their peers from better communities. Similarly, Greif et al. (2010) found that females from urban poor areas had lower levels of condom use, higher levels of multiple concurrent partners and earlier transition to first sex than non-residents of urban poor settings.

Numerous studies which investigated inaccessibility of amenities focused on informal settlements and urban poor areas (Dodoo et al., 2003; Kabiru et al., 2010; Zulu et al., 2002). This was mainly because increased urbanisation in Africa has been associated with the mushrooming of informal settlements. Such communities are characterised by makeshift houses made of corrugated iron sheets and no access to electricity, sanitation services, refuse removal and piped water. Similarly, in the present study 95% of households without access to

all services and 85% of households with access to only one service were from urban areas. Greif et al. (2010) concluded that residents of urban informal settlements in Africa may suffer more than non-residents from the effects of their residential spaces due to the lower ability of developing country governments to support the health, education and social welfare of individuals. They further stated that greater financial support may mitigate the influence of informal settlement residence on behaviour in such communities. Inequality is said to be highest in African urban areas and by 2025 it is estimated that 60% of young people from developing countries will reside in cities, yet most will be poor (Richter et al., 2009). Therefore, the welfare of urban adolescents is a growing concern for all developing countries, South Africa included.

Levels of service delivery inaccessibility could possibly predict the levels and quality of family planning and health services in areas. Amenity-lacking communities have been shown to also lack important resources such as schools and medical facilities thereby lowering health-promoting conduct (Leventhal and Brooks-Gunn, 2000). Ezeh et al. (2010) confirmed this when they acknowledged that an adequate provision of infrastructure, health and education has not accompanied the growth of urban populations in sub-Saharan Africa. Accordingly, Zulu et al. (2002) found that individuals from low amenity-access areas were more vulnerable to reproductive health challenges with lower levels of understanding and use of contraceptives than other city residents. Further, they advocated the need to allocate sexual and reproductive health resources in urban poor settings. Indeed, females from informal settlements were reported to use contraceptives less and have higher levels of unmet need than non-resident females (Speizer et al., 2012).

A South African study showed that women in the Eastern Cape aged 15-49 years who lived in a household that had access to sanitation, refuse disposal and electricity had a higher

likelihood of using contraceptives than their counterparts lacking such access (Mfenyana et al., 2006). Similarly, a review of demographic and health surveys showed the urban poor as having significantly lower levels in essential fertility markers compared to women in the richest 20 per cent of urban households (Ezeh et al., 2010).

The study by Ezeh et al. (2010) detailed how numerous barriers hindered access to contraceptives in urban poor communities. They acknowledged that informal settlements were usually not considered when planning allocation of public health services because authorities did not identify them as part of cities. As free and accessible family planning programmes are facilitated by government at municipal and national levels in health clinics; this lack of planning constitutes a substantial barrier (Department of Health, 2012).

Secondly, health clinics closest to informal settlements were usually over-utilised, inadequately resourced and in poorer condition than government facilities in better areas (Ezeh et al., 2010; Martin-Storey et al., 2012). Consequently, informal settlement residents were forced to travel outside their communities for better quality, free or affordable family planning services. This decreased the affordability and convenience benefits of such government services. Additionally, the struggle to meet basic needs could result in individuals considering trips to obtain contraceptives as luxuries (Ezeh et al., 2010).

Thirdly, when ill, informal settlement residents usually consult traditional healers due to cultural beliefs, lower costs and flexible payment options (Freeman and Motsei, 1992). Although traditional contraceptive methods do exist, their efficacy is not widely known or trusted and they are hardly ever provided by these practitioners (Centers for Disease Control, 1983). Finally, high levels of misconceptions about contraceptives exist in resource-poor settings, thereby decreasing levels of their use. Levels of knowledge and use among

adolescents and their peers in urban poor areas are very low. This fosters myths and fear, and also restrains the availability of information on accessibility of family planning services.

Service inaccessibility may also indicate limited accessibility to other municipal services besides health facilities. Areas without basic amenities usually have no recreational parks, playgrounds, recreation centres, sports facilities or libraries. Such facilities, if available, would constitute viable sources of entertainment and leisure for young people. In their absence, young people are forced to improvise methods to decrease boredom and have a lot of unstructured time at their disposal. Studies found that higher levels of boredom among young people are related to sexual risky behaviour (Fourie et al., 2011; Miller et al., 2014). Additionally, Oman et al. (2013) provides evidence for the notion that poor-resource communities have fewer safe areas for youth to socialise in public and limited activities available to young people.

Over and above the reasons highlighted above, a lack of access to specific amenities may predispose young females to teenage pregnancy. Of all the participants in the present study, 14% had no access to electricity while 48% of homes with access to one basic amenity had no electricity. Lack of electricity decreases contact with technology such as radio, television and the Internet. Therefore, access to information on the benefits of contraceptive use and on available methods could be less in such households. In a study conducted in Limpopo, the media (television, films and radio) were cited as the main source of sexual health information (Limpopo Population and Development Directorate, 2012). The authors stated that adolescents found television particularly captivating and that it was able to teach sexual responsibility in entertaining manner.

Additionally, it is possible that a lack of electricity can affect an individual's school performance. Studying at night with the illumination of candles or paraffin lamps is more

difficult than studying with electric light; these circumstances may discourage learners from pursuing educational goals. In such instances the costs of dropping out of school and early pregnancy are lowered due to the dreary alternatives of finishing high school without any prospects of further education or employment (Kearney and Levine, 2007). According to Edin and Kefalas (2011), poor adolescents who experience daily hardship possess a burning desire "for something positive to look forward to". It is possible that having no status or being unsuccessful is a great fear and overcomes the fear of being a mother.

More than 70% of people in sub-Saharan Africa lack access to adequate sanitation, and globally two and a half billion individuals globally do not have access to such services (Ki-moon, 2013; UNICEF and World Health Organization, 2014). Approximately 48% of all the study participants had no access to sanitation services and 59% of pregnant teens had no access to sanitation services. Similarly, 97% of homes with access to one basic amenity had no sanitation services. Winter and Barchi (2015) investigated the association between lack of sanitation and violence against women in Kenya. They showed that women who defecate in the open had a 40% higher likelihood of suffering non-partner sexual and/or physical violence in the preceding year. The authors suggested a few pathways to explain this association.

Firstly, in the absence of toilet facilities females in rural areas travel long distances for secluded places to defecate (Winter and Barchi, 2015). Due to cultural and religious beliefs, there may be a preference to undertake these trips at dusk or dawn for adequate isolation. However, if taken alone such travelling may expose young females to sexual harassment, rape and gender-based violence (Mahon and Fernandes, 2010; Pardeshi, 2009; Sommer et al., 2014). Even when communal toilet facilities are constructed in urban poor settings they are usually a way off. Additionally, these facilities have missing doors and/or locks rendering

them unsafe for females because of risks of harassment, physical and sexual assault (Abrahams et al., 2006;Khosla, 2000). Sexual violence can lead to pregnancy at times and this could affect teenage females as much as older women. The Limpopo study investigating factors associated with teenage pregnancy in the province found that sexual violence was a significant contributing factor to teenage pregnancy as 68.9 percent of the teenage mothers had been raped (Limpopo Population and Development Directorate, 2012).

This section has shown that increasing local and national government provision of basic amenities facilitates improvements in general health, as well as lowers teenage pregnancy, as seen in Table 6.4. However, these services will need to accompany supply of social protection, poverty relief and earning-creating opportunities in order to improve the overall quality of life comprehensively in such communities (Richter et al., 2009).

Residential Mobility and Teenage Pregnancy in South Africa

The present study's findings reveal a negative association between residential mobility and teenage pregnancy. This was expected as individuals' residential mobility was categorised based on the municipality they had moved to rather than the municipality they were from. Consequently, the results reflected the new place of residence rather than the former place of residence. After adjusting for individual level factors, teenage females from communities with medium levels of people moving into their communities were 1% less likely to have been pregnant in the past year (Please see Table 5.6-Models 0 and 5 as well as Table 5.7-Model 6). Similarly, girls from municipalities with high levels of people moving in were 32% less likely to have been pregnant in the past year compared to their counterparts from communities with low levels of residential mobility.

My results are contrary to most studies looking at the effects of residential mobility. Nettle et al. (2011) found that frequent family residential moves independently increased the

likelihood of earlier first pregnancy amongst young women in the United Kingdom. Similarly, Jelleyman and Spencer (2008) systematic review found residential mobility to be associated with higher rates of teenage pregnancy. Crowder and Teachman (2004) attributed this positive relationship between residential mobility and teenage pregnancy to the disruption of community-based social capital, adverse effects from changing schools and the general stress associated with residential mobility.

Differences between my results and previous research may be due to a number of reasons. The majority of previous studies investigated the link between the number of residential moves and teenage pregnancy. This contrasts with this study's operationalisation of residential mobility where I investigated the effect of the aggregate level of individuals moving municipalities in the past five years. Additionally, previous research looking at this link has been able to clearly classify the type of internal migration occurring into urban-urban, rural-urban, urban-rural or rural-rural. However, I was unable to determine the type of internal migration occurring due to the lack of classification of the individual's previous residence. In addition, this information could not be deciphered from the municipality that the individual originated from as municipalities in South Africa sometimes contain both rural and urban areas. Therefore, it could not be determined from the census data whether an individual originated from the rural or urban part of a municipality. Finally, previous studies measured residential mobility from the perspective of the community moved away from rather than that moved to. The possible reasons for the results obtained in this study will be clarified next.

The first reason for the negative association found between residential mobility and teenage pregnancy may be related to internal migration being made to better locations. Wentzel et al. (2006) investigated migration patterns and reasons in and around South Africa. Their study established that internal migrants chose to move to new destination areas for employment

opportunities, better housing quality as well as education and training prospects, which together would work to improve the living conditions of individuals. Massey (2009) reiterates this clearly by showing that individuals moving from inner city areas leave for jobs in better and more prosperous areas. Additionally, Richter et al. (2009) found that suburbs that were once predominantly white (with better services and resources) were progressively becoming more diverse areas as population groups that were previously prohibited (such as black and coloured families) moved into such neighbourhoods. Indeed, migration to and within urban areas has the potential to advance living conditions through "better access to education, employment, health care and social services" (Ginsburg et al., 2011).

The quality of a neighbourhood has been shown to influence adolescent behaviour and other outcomes in previous studies. Crane (1991) posited that "social problems should increase as neighbourhood quality declines". Investigating this subject specifically for sexual and reproductive health matters, Hogan et al. (1985) showed that contraceptive use at sexual debut was 50% lower for females from low quality neighbourhoods. Similarly, in the African context migrants to urban destinations had a higher inclination of using condoms at first sex than non-migrants.

Studies have also examined the effect of neighbourhood quality on premarital fertility and pregnancy. The probability of early fertility was highest in the worst communities in an American study (Crane, 1991). Hogan and Kitagawa (1985) found the likelihood of pregnancy was just over 33% higher in low quality neighbourhoods compared to that in high quality neighbourhoods. Community disadvantage and a number of residential moves have also been shown to decrease the effects of childhood living arrangements and family change on the risk of premarital teenage pregnancy (Crowder and Teachman, 2004).

These above findings could be attributed not only to the new neighbourhoods but perhaps even to the type of people that were moving. However, the following are two examples of experimental projects of relocation in the USA that highlight the importance of community characteristics. The first referred to as the "Gautreaux families" project involved the relocation of black families from government-funded homes in disadvantaged areas to predominantly white or non-segregated communities (Rubinowitz and Rosenbaum, 2000). Research findings from the project revealed positive outcomes among children. These included a lower likelihood of dropping out of school, higher probability of attending and completing university undergraduate programmes as well as greater chances of having full time permanent jobs compared to their peers who moved within downtown Chicago (Rubinowitz and Rosenbaum, 2000).

Similarly, the "Moving to Opportunity for Fair Housing Program (MTO)" relocated 2000 families from communities with abject poverty to considerably wealthy areas (Melendez, 2006). Again, research showed convincing positive results on participant behaviour, including a decrease of problem behaviours among teenagers and greater independence of individuals. The MTO experiment rested on the foundational notion that bringing poor families to richer areas would afford them a package of perks such as significantly better health, education, employment opportunities, high levels of law-abiding adults and enhanced behaviour models. Phase two's data analysis went further to show marked improvements in the mental health and education of young people, and that these beneficial effects were much greater amongst females (Melendez, 2006).

Therefore, the question to ask from the above discussion is: What is it about better quality neighbourhoods that ensures such a positive influence on young people's attitudes and behaviour? Sampson et al. (2002) argued that social processes do not occur in isolation, but

are connected to sufficient resources, residential solidarity and stability. Accordingly, adults within good neighbourhoods are more devoted and committed to the well-being of their communities (National Research Council, 1990). This explains the higher levels of social cohesion and collective efficacy found in good neighbourhoods which, as explained earlier, prevent risky behaviour among young people through community adults monitoring and informal social control (Moore and Chase-Lansdale, 2001).

Mberu and White (2011) explain how this may affect newcomers to certain neighbourhoods as they argue that migrants change their behaviour due to feeling compelled to do so by their new environments' economic, social and cultural norms. Evidently, people moving into better areas will adapt conduct, including sexual and reproductive behaviour, to conform to the area's standards. In good neighbourhoods, this would mean less risky sexual behaviour, delayed parenting as well as higher educational, career and income ambitions.

Also, residential mobility may be negatively associated with teenage pregnancy due to people who migrate being those that have the finances to do so. Scholars have shown that migrants normally comprise the young, skilled, productive and middle-class members of society (Kwong Wong, 2007). Correspondingly, Parashar and Mazur (2006) established that skilled, wealthier household heads and working households contemplated migrating more often than their counterparts who lacked resources, skills and employment. Moreover, recent research has found an association between higher educational attainment and relocation for economic opportunities (Ginsburg et al., 2011). Also, Ginsburg et al. (2009) found that residential mobility occurred amongst the highest resourced individuals. Similarly, Wentzel et al.'s (2006) study concluded that internal migrants were expected to be relatively better off than non-migrants as they had a slightly higher employment rate than their stay-at-home counterparts. Therefore, financially able families can migrate across places to improve their

well-being while poorer households "are forced into residential immobility" with few opportunities to progress in life (Parashar and Mazur, 2006).

Consequently, populations in South Africa are unable – despite desiring to do so - to improve their quality of life because they do not possess the means to do so and therefore experience less residential mobility and concomitant limited life options. Kearney and Levine (2012) sought to test the relationship of non-marital fertility to inequality, immobility and limited social and economic opportunities. Their study found that teenage females in areas with high inequality and low residential mobility had an approximately five per cent higher chance of becoming mothers compared to their counterparts from high mobility areas. Income inequality accounted for 10-50% of variations across geographic locations in the study, thereby supporting the notion that "marginalisation and hopelessness" underlie early childbearing (Kearney and Levine, 2012).

Luke et al.'s (2012) study conducted in Kenya also posited other minor mechanisms for a negative association between risky behaviour and residential mobility. The study investigated residential mobility and sexual debut timing amongst young women and showed a 26% decreased likelihood of experiencing sexual debut for each additional residential move. These scholars posited that young females who migrated a number of times during the study period had little time to assimilate to sexual norms of destination areas. As a result, sexual partnering facilitated through peer networks in communities was prevented. Additionally, they argue that multiple moves may represent a circular migration pattern rather than several migrations to distant places. Hence, young women would still have contact, supervision and support from kin and friends that may prevent premarital sexual activity and other risky sexual behaviour.

Finally, Luke et al. (2012) suggested that girls received high levels of community and familial protection immediately after a move which may have prevented sexual activity. Consequently, young females who moved around more would have higher and consistent levels of this protective force operating in their lives with a lower likelihood of sexual interaction let alone pregnancy and other outcomes of such behaviour. This section has shown the links between negative association found between teenage pregnancy and residential mobility. The following section will explore the associations found with community levels of unemployment.

Community Unemployment and Teenage Pregnancy in South Africa

The study investigates the association between community levels of unemployment and teenage pregnancy in South Africa. The results show that community unemployment was significantly associated with teenage pregnancy with the likelihood of teenage pregnancy decreasing as unemployment increased (Please see Table 5.6-Models 0 and 4 as well as Table 5.7-Model 6). These findings confirm results from two previous studies that investigated teenage fertility and community unemployment. The first of these was conducted in the USA and aimed to decompose the decrease in teen birth rates since the great recession of 2008 (Kearney and Levine, 2015). Higher unemployment rates contributed 16% of the 19.3% decrease in teen birth rates between 2007 and 2010, thereby constituting a three per cent decrease in teenage birth rates for every five-point increase in unemployment rates. The second study sought to test a number of socio-economic variables among various race groups in the USA (Kirby et al., 2001). Among Hispanics, male and female unemployment was negatively associated with the teenage birth rate.

In contrast, the majority of studies have shown a positive relationship between teenage pregnancy and community unemployment (Bickel and Weaver, 1997;Colen et al.,

2006; Moore and Chase-Lansdale, 2001; Woodward, 1995). Many of these studies utilised community unemployment as a measure of a neighbourhood's socio-economic status. This is due to unemployment normally proxying poverty: with higher unemployment in poor areas due to low income levels. In the present study community levels of unemployment were not correlated to community poverty. This may be explained in South Africa by the social welfare measures that the government has put in place to relieve poverty levels nationally. Consequently, areas may have high levels of unemployment but also have accessibility to various types of grants (disability, pension and child grants) that households use to ensure survival of all members of a household. If this is indeed the case, then this shows that social grants have helped to improve the quality of life of citizens in South Africa (Mabugu and Chitiga-Mabugu, 2013).

In addition, the current study's results highlight the need to know the major characteristics of unemployed populations in South African communities. The highest levels of unemployment were amongst black people. Unemployed people between the ages of 18 and 65 years had a median age of 31 years. Males made up 41% of unemployed individuals while females constituted 59% of the group.

There are two main pathways that community unemployment could possibly lead to protection against teenage pregnancy in South Africa. The first relates to higher unemployment rates serving as proxies for increased parental and social monitoring. Parental monitoring refers to the supervision of children as well as communication between parents and their children (Li et al., 2000). Li et al. (2000) assert that parental monitoring is effective in two-parented and single-parented homes, decreases risky behaviour among youngsters already engaging in sexual intercourse and postpones the inception of risk behaviours.

According to Kirby et al. (2001) parents who are not engaged in labour are able to spend more time with their children as well as supervise their pursuits and behaviour. Correspondingly, these authors highlighted that studies found earlier sexual debuts among young people from neighbourhoods where rates of full-time working women were high (Billy et al., 1994; Kirby et al., 2001). Chilman (1986) also argued that maternal employment, especially of a single parent, contributed to risky behaviour among young people because the home was not monitored during the day. Similarly, Bonell et al. (2006) showed that girls with a working parent, especially those from single-parented homes, were at higher risk of reporting sex at follow up while there was no association for girls with unemployed parents. This was confirmed in Zelnick and Kanter (1972) study where the likelihood of sexual intercourse was lower at night when parents had returned home from work.

Additionally, an influence of perceived parental monitoring exists as adolescents with a lower perception of parental monitoring had a higher likelihood of multiple sexual partners, sexually transmitted infections as well as a lower likelihood of use of condoms and contraceptives in their last sexual interaction than those with a high perception of being monitored (DiClemente et al., 2001). Additionally, Li et al.'s (2000) study showed perceived parental monitoring halved the likelihood of both current and long-term unprotected sex. The association found between various risky sexual behaviours and perceived or actual parental monitoring demonstrates the importance of parental presence via unemployment in decreasing the likelihood of teenage pregnancy.

I move on from parental monitoring to investigate the presence of unemployed adult community members during the day as a form of social control as their presence may deter young people from engaging in risky behaviour. One of the female respondents in Mkhwanazi's (2010) qualitative study hinted this when they said "*when people on the street*

see me with a boy and then they see me taking the boy home, they will tell my parents that I slept with my boyfriend here in their house”(Mkhwanazi, 2010:351). The effect the presence of unemployed adults may be less protective when outside the home of an adolescent, but they are still existent.

Scientists have investigated the effects of unemployment on the human psyche for decades. Research has found numerous negative psychological effects due to unemployment. According to Eisenberg and Lazarsfeld (1938), unemployment decreased levels of confidence, self-esteem, prestige and morale. Simultaneously, joblessness also led to higher levels of self-doubt, isolation and antisocial behaviour due to feelings of shame (ibid.). Waters and Moore (2002) demonstrated that society consistently viewed males as providers in relationships. Furthermore, various authors attested that masculine egoism centres around self-sufficiency and accomplishment (Porter and Stone, 1995;Tannen, 1991). Therefore, it is seen that income deprivation seems to sober a male's mind to some degree and may decrease a man's capability to pursue a female partner.

A man's ability to impress a woman may also decrease when he has no income due to unemployment. Ku et al. (1993) suggested this as a possible reason in their study that identified employed men as having more sexual partners yet less use of contraception. The authors argued that income may have afforded males an ability to date females and buy alluring material possessions such as cars and fancy clothes. Moreover, agency theory supports the above notions as it posits that access to money allows individuals to retain self-confidence and engage in social interaction (Fryer, 1995). The relevance of power in contemporary relationships is highlighted in the foregoing results. Consequently, males may need a certain level of power to successfully engage in an unprotected sexual relationship

with a female that results in the female's inability to negotiate for safe sex. Childbearing would be a consequence of this.

Males' negative responses regarding unemployment contrast with those of females. Waters and Moore (2002) established that females find value in other social and domestic roles during unemployment periods. This attitude of valuing other roles protects them from feelings of depression. Also, Waters and Moore (2002) description of females taking up domestic roles upon unemployment may also explain the protective nature of community unemployment against teenage pregnancy. Odimegwu and Mkwanaenzi (2016) reached a similar conclusion in their paper on social factors associated with teenage pregnancy in sub-Saharan Africa. Their study found that community levels of female unemployment were associated with a lower likelihood of teenage pregnancy in East Africa. This finding suggests that mothers, female relatives and older female siblings are present within the household. Such women would ensure greater levels of monitoring of the teenage female occur in homes because someone is present during the day.

This chapter has explained the links found between various household and community level factors and teenage pregnancy in South Africa. Understanding these associations helps us determine recommendations and the relevance of the social disorganisation theory in studying teenage pregnancy in South Africa. The following chapter will unpack the contribution of this research in the area of sexual and reproductive health as well as propose some recommendations based on my findings.

CHAPTER 7: CONCLUSION AND RECOMMENDATIONS: Policy, Programmes & Research

Introduction

This chapter summarises the overall findings, highlights the study's contributions, recommends ways to adapt and implement policies and programmes, suggests further research and declares the study's limitations.

Study Conclusion

This study sought to establish the level of teenage pregnancy and identify critical social predictors rooted in social disorganisation in answering the research question: Is social disorganisation at family and societal levels affecting teenage pregnancy in South Africa? This study has established that 3.97% of all teenage females, 0.4% of 12 to 14 year old females and 5.81% of 15 to 19 year old females were pregnant within the preceding year of the 2011 South African census. These incidence levels are generally comparable to those derived from the general household survey of the same year where 3.4% of all teenage females, 0.14% of 10 to 14 year old females and 6.39% of 15 to 19 year old females were pregnant in the previous 12 months (Mkwanzani, Forthcoming).

However, previous documents that recorded teenage pregnancy levels tended to report on the frequency of year-on-year pregnancies without relating these back to the base teenage female populations (Department of Basic Education, 2013; Masondo, 2015). This method of reporting may introduce interpretation errors as results may seem to increase when not necessarily doing so. Therefore, it is advisable that analysis should attempt to include the base population through mid-population estimates and should work out percentages or rates of teenage pregnancy rather than only describing frequencies.

Apart from individual level demographic and socio-economic factors, this study has confirmed the role of social disorganisation on rates of teenage pregnancy. This study investigates the relation of numerous factors to teenage pregnancy in a quantitative manner for the first time, including the community levels of family disruption, service delivery inaccessibility, residential mobility and community unemployment. The concluding thesis is that social disorganisation does affect teenage pregnancy in South Africa. However, these effects are not standard for all social disorganisation-related factors as some factors such as family disruption and service delivery inaccessibility increase its likelihood while others namely residential mobility and community unemployment decrease the odds of teenage pregnancy. Thus, the study has proven that the influence of social disorganization theory-related factors on the likelihood of teenage pregnancy does hold partially in the context of South Africa.

The Study Contributions

The contributions of this study are broadly divided in two: the first category pertains to contributions that further teenage pregnancy knowledge, research and debate surrounding the phenomenon. This study has advanced the investigation of teenage pregnancy in several ways:

This study has shown the incidental level of teenage pregnancy in South Africa in 2011. Such information differs from the classic method of using census data to show the prevailing levels of teenage mothers. This study has drawn a subset of this larger group and depicted recent teenage births (occurring in the preceding year). This aids in relating the outcome to independent variables as they are assumed to occur relatively simultaneously thereby allowing cross-sectional analysis. The level of all teenage pregnancy was just under 4% for the year preceding the 2011 census. However, the pregnancy level for 15 to 19 year old

females was 15 times greater than that of 12 to 14 year old females. Additionally, age-specific teenage pregnancy rates increased with age. This was expected as childbearing is dependent upon age at first sex, age of menarche as well as length of exposure to socio-cultural norms. Although scholars have shown that the age at first sex and the age of menarche have decreased globally over time (see: Buga et al., 1996; Freedman et al., 2002; Mensch et al., 2006; Zaba et al., 2004), this study's results show that this has not changed the overall pattern of childbearing increasing with age.

This study has discovered that family disruption at household and community levels are positively associated with teenage pregnancy in South Africa. The results on the household level version of family disruption extend the knowledge on the effects of cohabiting parenting with regard to teenage pregnancy. Numerous studies have hinted at and explained why a female teenager living with a cohabiting couple has a higher risk of early pregnancy due to higher levels of sexual laxity, but few tested this risk in the local context. This study shows that living with cohabiting couple poses a higher predisposition to teenage pregnancy than even single-parenting. This introduces a new factor for consideration which differs from recent approaches where cohabitation in Africa was grouped with marriage due to the presumption that the two types of households could be treated as the same in local contexts. This may be true in terms of the two parental figures and how they engage, but it is not the case regarding their relationship's effect on children growing up in that home.

Furthermore, the study enlightens researchers about the effect of family disruption contextually. This variable has a wider scope than community rates of divorce or single female headedness as it includes all households where heads are unmarried. This is a truer reflection of familial structure results in South Africa as it combines all unmarried heads

together to show us the consequences of marriage becoming increasingly less popular at a societal level.

3. This investigation has shown that service inaccessibility is positively associated with teenage pregnancy. This has introduced the role of living conditions beyond financial poverty. Individuals who are not necessarily poor by definition, yet reside in households with deficient amenities, could consequently also be at risk of teenage pregnancy.

4. The study has revealed a negative association between residential mobility and teenage pregnancy. This study reveals the relevance of investigating the effects of mobility on sexual and reproductive outcomes in South Africa. Quantifying this association has not occurred in the local context before. Such information helps us in deciding on allocation of sexual and reproductive health resources for preventative measures. From this it is seen that females at higher risk of pregnancy during adolescence are those from communities where there are lower levels of residential mobility (which is presumed to be because of the lack of financial capacity of those households to move residence).

5. Finally, this study's results indicate a negative relationship between community levels of unemployment and teenage pregnancy. Again, this dynamic has not previously been specifically studied with relation to teenage pregnancy in South Africa. However, qualitative and other quantitative studies have referred to it when speaking of poverty and other possible factors that race may intersect with in the local context. The results themselves indicate female teenagers living in areas with higher unemployment are less likely to get pregnant. Further, one potential pathway through which this relationship may occur though is social and household control as well as supervision of young people. This helps us think more laterally about teenage pregnancy and shows us the protective relevance of adult presence in communities due to monitoring of young people during the day.

Hacking (2003) in his work on the social construction of teenage pregnancy argues that the phenomenon could be constructed socially but it is unnecessary and not useful to view it in this way. However, this study has shown that in South Africa it is vital to think of the socially constructed nature of teenage pregnancy. The findings firmly state that teenage pregnancy has been contextually influenced in South African communities. By that I mean that high rates of teenage pregnancy have been generated by the intersections of the familial environment and social milieus that young females find themselves in as well as the pressures of cultural norms that surround young females in these environments. Therefore, without deliberate actions to correct these contextual issues in South Africa, not only will rates of early pregnancy continue but they may even rise. South African society is an evolving one and the changes that occur gradually intensify the social issues that are associated with increased risk of pregnancy. Issues such as rape, gender-based violence, patriarchy, coercion, power dynamics in relationships, and others are major challenges in the lives of ordinary South African girls (Bhana, 2012). Consequently, it is necessary to address the social as well as familial issues occurring within South African society to nationally secure a safe and bright future for young females.

The second category of contributions relates to the scholarship that this study adds to the theory of social disorganisation. This study shows the social disorganisation theory is a useful means of investigating teenage pregnancy in South Africa. Applying the theory using census data has allowed me to investigate numerous macro level dynamics that have not been adequately explored from a quantitative perspective nationally. Nevertheless, the study's results do not support the theory completely and rather show that its appropriateness is limited for the South African context to investigate social factors associated with teenage pregnancy. The adapted theory's claims and explanatory capacity hold true regarding aspects

of household and community levels of family disruption and service inaccessibility. However, with regards to residential mobility and community unemployment the theory's argument is not substantiated. This illustrates that in different contexts phenomena may have similar patterns in specific groups, yet be driven by very dissimilar underlying issues. In addition, the results demonstrate the problem with embracing various international theories and applying their reasoning in a local context without testing them first.

Social disorganisation can be likened to the demographic transition in South Africa as social disorganisation is comprised of several disruptions just as the demographic transition is comprised of number of transitions. In accepting this similarity, it can be argued that as a demographic transition's component transitions have been shown to develop and resolve at different rates in various parts of the world, the development and resolution of social disorganisation's constituent disruptions can also be expected to follow different rates and patterns globally. These differences in development would depend upon contextual circumstances; and, the efforts needed to rectify these disruptions would also differ in degree according to context.

Further, this study has demonstrated that social disorganisation includes disruptions of family, socio-economic equality, service accessibility and residential mobility. However, the underlying factor of all these issues seems to be poverty, as socio-economic wellbeing determines whether one will marry or not, divorce or not, have access to services or not, move residence or not, and so on. Moreover, these results suggest that those that are well off are protected from teenage pregnancy more than those that are poor.

Nevertheless, the processes that underlie the generation of social disorganisation in the USA where the theory originated are fundamentally different from those that preceded the phenomenon in South Africa. This is important in order to understand why some of my

results differ from those of previous international studies. Firstly, social disorganisation was created as a means to explain crime in poorer 'bad' neighbourhoods in America (Shaw et al., 1942), which comprise a minority of neighbourhoods in the USA and mainly contain minority races and newly arrived migrants. However, in South Africa, the majority of neighbourhoods are poorly resourced and disadvantaged neighbourhoods whose residents are mainly black. Apartheid's sustained legacy of inequality is the main reason why the majority of people inhabit areas that are in disarray. Therefore, social disorganisation is a common phenomenon in South Africa. South Africans' lives were wounded so greatly due to apartheid that they may now possibly consider such wounding normal. This is highly irregular and unacceptable. These inequalities need to be addressed urgently. However, correcting the structural factors resolves only half of the problem; the attitudes and perceptions that have developed due to chronic suffering and hardship should also be given attention. This may be more difficult to tackle and will need the solicited assistance of psychologists as they may be able guide the process of provision of mass psychotherapy to resolve some of the problems.

Secondly, family disruption in the USA seems to be driven in modern times in poor black communities by mass incarceration and unemployment of African-American males (Kwong Wong, 2007). This has led to lower rates of marriage with premarital sex leading to childbirth without marriage as a viable option upon discovering a pregnancy. However, in South Africa family disruption began as a result of migrant labour: it was structurally created through the separation of males from their wives seeking means for the survival of their families by leaving their homes to work in the cities and mines (Murray, 1980). With time, the absence of males from the home became normalised while low wages made it difficult for men of colour to marry women they impregnated. Therefore, people turned to cohabitation as an alternative and compromise arrangement, but it is still not widely common as shown in the census data.

Similarly, residential mobility construction is different in the two study settings. In the USA, residential mobility began with migrants moving into affordable communities (Kwong Wong, 2007; Shaw et al., 1942). Levels of social disorganisation, poverty and social ills were high in such areas. In South Africa, current internal migration is generally undertaken by households that can afford to migrate who are seeking to move to better areas with low levels of poverty and social ills.

Included in this discussion of dissimilarity in study contexts is the validity of community unemployment as a proxy for poverty in the USA. This is not the case in South Africa because the country's social welfare system directly – or indirectly – protects unemployed individuals through family members who receive social grants (Neves et al., 2009).

This study has identified some of the familial and social factors associated with teenage pregnancy in South Africa. These results do not exclude individual factors but help us to understand the dynamics underlying or intersecting with these individual-level factors. This explains why the study controlled for adolescent-related variables. The current study has far reaching implications. For a teenage female to become pregnant, unprotected sexual intercourse must have occurred. Therefore, this investigation serves as a recommendation that the relevance and importance of contextual factors should be explored in relation to other sexual and reproductive health outcomes – including the crucial health priorities of HIV and STIs - among young people in South Africa.

Recommendations

This study has shown that the vulnerability of teenage females to pregnancy is rooted in the conditions of their social contexts. Therefore, teenage pregnancy can only be addressed using a multilevel approach of prevention interventions. Consequently, this suggests that

empowering young females and their families to arise out of their household and community conditions would assist in combating teenage pregnancy.

The study has shown that incidental teenage pregnancy occurs among 12 to 14 year olds at rates of 3 to 5 pregnancies per 1000 teenage females in this younger age group. Although these rates are much lower than in the older group of teenage females, prevention of teenage pregnancy among this age group is still pertinent. Therefore, prevention programmes need to target girls at younger ages. I suggest that such programmes should occur at the primary school level and aim to empower and assist younger girls to curb all forms of infringement of their sexual and reproductive health rights. Such efforts may also possibly contribute to decreasing the levels of pregnancy found among older teenage females aged 15 to 19 years.

The following recommendations centre on the importance of raising children to overcome challenges including unwanted pregnancy during adolescence. Consequently, they serve as suggested additions to the South African government's White Paper on Families of 2012. Various studies that are discussed in this thesis have shown the facilitation of parent and child communication in the relationship between family disruption and teenage pregnancy. Therefore, I recommend that programmes aimed at improving the level and quality of parental involvement in children's lives need to be urgently implemented in South Africa. Such programmes need to make adults aware of the importance of communication with their children as well as supply methodologies for the development of such skills if lacking or low among parents. Additionally, programmes need to equip parents with age-appropriate strategies of speaking about sexual matters with their children which will ensure frank engagement between parties on sensitive issues and a freedom to seek clarity regarding information obtained from peers.

As discussed earlier, traditional culture is also important as it underlies the ability of parents and other adults to communicate about sexual and reproductive health to young people. Mkhwanazi (2014) states that black parents do talk to their children about sexuality, but these messages normally involve prohibition and warnings away from such actions completely. To specifically address traditional culture acting as a barrier to frank yet appropriate conversation between parents and children on sexuality, increased education and awareness will be needed to attempt to change people's mindsets. The development of a parent-child sex talk book that clearly shows how to frankly, but age-appropriately, speak to one's child about the matter may assist in this process. Government could possibly supply it for free or at a subsidised cost and have audio, visual and vernacular versions of the book for more rural settings where illiteracy and language differences may hinder access to written materials.

Since early sexual socialisation is linked to earlier sexual debut and possibly teenage pregnancy, as discussed earlier, it is important to try to limit sexual exposure be it in the home, on social media or television. Programmes could stress principles to help protect children from viewing and hearing acts of intimacy. Some parents may already know these principles, but others may not be aware of their relevance. I also recommend workshops on tactics for single fathers and mothers to introduce children to potential partners. Methods on how they could integrate the new partner into the family in ways that would encourage good communication and rapport with children may also assist to maintain clear and open communication between parents and children regarding all matters. The sacrifices involved in raising children optimally may seem difficult initially but are of utmost importance. Therefore, sensitising parents to these and other responsibilities is vital.

Concerning children growing up without one or both parents, it is important to understand and accept that the systematic development of this phenomenon is a result of South Africa's

history. Consequently, the nation needs to take full responsibility in resolving and curbing the effects of such family structures. Programmes need to be set up for such children by NGOs or other stakeholders to ensure father and mother figures are present in such children's lives and if absent that children are paired up with screened and suitable "substitute" parent figures. The "substitute" parent's main function would be to act as a form of support, love, validation and encouragement for the child. This could be facilitated with the aid of relatives. The programmes should also incorporate organisation of periodic mass activities and meetings with these "substitute" parent figures and their "adopted" children in addition to the encouragement of private supportive relationships.

It is essential to foster social capital within communities, but in the absence of appropriate social institutions a means of increasing social capital amongst poorer communities and individuals needs to be encouraged. This nurturing could be developed through school exchange programmes, adoption of government schools by private schools, as well as joint sports or cultural and fun days. A mixing of minds, opinions and experiences by young people may encourage them to aspire to attain greater levels despite their environments.

This study has found that levels of service inaccessibility are linked to rates of teenage pregnancy. From this it is possible to plot areas that are more prone to teenage pregnancy and guarantee that they are targeted for intervention programmes regarding teenage pregnancy. These programmes need to focus on poverty alleviation to ensure any risk due to low socio-economic status is eradicated. Additionally, the programmes should involve assessment of the convenient proximity, quality and quantity of youth-friendly reproductive services in the area and ensure that they are not located too far for ease of access, are not adequately resourced or lacking in quality; and the most optimum results may be yielded if these programmes are provided at schools.

In assessing areas more prone to teenage pregnancy, it is also pertinent to check the presence and quality of recreational activities and centres. Coordinated book clubs, competitive community sport clubs and other recreational activities that are monitored by adults or older youth will be beneficial in increasing involvement among young people in community activities. Obtaining sponsorship for such activities and partnering with NGOs already involved in youth development programmes will assist this process further.

It is crucial that government prioritises the expanded provision of affordable subsidised housing - with all essential services present – in order to transform the environments that young people grow up in. The above recommendation should be followed by demolition of poor urban settlement areas with no amenities to avoid their repopulation. Government should plan adequately to implement the same provision of quality housing in rural areas and develop rural areas to ensure economic activity in these areas as well.

Furthermore, non-governmental organisations (NGOs) could consider setting up programmes of home visits which check living conditions and identify homes needing urgent assistance (for example, financial assistance, social worker intervention, counsellors, or rehabilitation services, etc.). This may ensure that teenagers grow up in safe and encouraging homes and communities. Teenage pregnancy preventative programmes should fortify prevention in a supportive manner for individuals living in amenity-deprived communities. Programmes could consider building parks near informal settlements and townships, providing transport to school and ensuring that nurses visit schools regularly and have information sessions on contraceptive use and access for adolescents.

Because research, including this study, has shown that there are numerous benefits in integration of different classes of individuals as discussed in the residential mobility section there are important lessons to learn from the results obtained from the residential mobility

analysis. South Africans were systematically fragmented during the apartheid era by race, socio-economic status and ethnicity amongst blacks. This has made interaction, integration and the full realisation of the rainbow nation become a dream at best. Although the advantages of the "Gautreaux families" and MOT projects in the USA (which were described earlier) provide valuable lessons, the major difference between the USA and South African experiences is that in the USA, black people make up a minority of the population while in South Africa this is not the case. Therefore, in the USA integration of these minority sections of society into predominately white or non-segregated communities is physically easier. Also, complete integration is possible in the USA because the well-off outnumber the poor. However, the same process applied in South Africa would quickly lead to saturation of predominantly white or mixed communities.

In addition, such integration has already been proposed by government and met with heavy resistance by higher socio-economic status individuals who are white and black, for example in gated communities where individuals have segregated themselves through the use of boom gates and fences (Landman, 2013). Therefore, how these proposed integrated communities are constructed is very important.

I recommend a system to ensure that individuals from different backgrounds learn to live together and hopefully learn from one another. It is imperative for government to continuously educate and explain the reasons for such policies and their implementation.

The results on community unemployment do not advocate for unemployment in our societies. Rather this result emphasises the importance of supervision and monitoring of a child's upbringing in preventing teenage pregnancy. In other words, the results on community unemployment highlight the importance of social control as well as the adverse outcomes that have resulted due to lower parental presence and consequent lack of monitoring, supervision

and guidance of young people. Similarly, the result shows how undertaking employment in order to ensure the survival of families has also come at the cost of those very families. This illustrates the double-edged sword of acquiring employment. On the one hand employment is needed for survival, and yet at the same time it has led to parents spending less time with their children, having less time to communicate and share experiences with their children and generally decreasing levels of quality time available to bond and nurture relationships with their children. This would be even more apparent in single-parented homes where sufficient parental supervision is already lacking due to the other parent's absence.

The structural design of labour deprives children of their parents. This is more acute for lower skilled, primary sector positions where people work 12 hour days for very low wages. The presence of one's parents in preventing teenage pregnancy has been shown by previous scholars, but this has concentrated on paternal presence and on the permanent absence of fathers or mothers. However, this study's results indicate that the amount of time spent with a child to guiding, monitoring and caring for them is vital even for children living with both their parents. This is easier for unemployed individuals as they are present when children return from school. The lesson to learn from this is that in gaining wealth, as a society, we should not lose our children.

Therefore, for the sake of our children's future it may be necessary for us to begin thinking of new models of work. Industry and employers from various spheres should rethink working hours and time in the workplace to accommodate employees' children. New models of work could include places of work allowing employees to work from home on certain days, flexible hours of work to ensure employee's time at work coincides with schooling, allowing children to wait at the workplace for parents to finish work and allowing employees to have longer lunch times to be able to fetch children from school. These issues are all related to the

fact that employers should become cognisant that their employees are parents - and consequently have parental duties and responsibilities that the place of employment should appreciate, support and encourage. The value of employees having good relationships with their families is priceless. Therefore, the employment environment should be revised urgently to accommodate the family responsibilities of employees.

Furthermore, the study's results regarding community unemployment highlight the need of creative ways that monitor and supervise children. This is even more crucial during the teenage years. Therefore, it is imperative that communities begin after-school programmes for school children up to the matriculation year which could ensure that children are assisted with homework, encouraged to play sports and exposed to extra-curricular activities such as drama, ballroom dancing, chess, debating clubs, calligraphy, arts and crafts, flower arranging, interior designing, event decor, computer skills, musical instrument training, ballet, cultural dancing, etc. These activities would be most beneficial in environments which lack recreation halls, public sports facilities and other resources. Supervised learning in such centres would occur and children would be released around 5pm to go home. Unemployed members of the public could be trained and employed to facilitate such centres, thereby decreasing the problem of youth loitering and also creating employment.

In conclusion, the above recommendations advocate for a holistic approach in curbing teenage pregnancy. For too long, early, unplanned and unwanted pregnancies have been made the responsibility of young women and their families. Teenage girls have been forced into motherhood without adequate support for their children and in some cases young females have abandoned their children immediately after giving birth (Blackie, 2015). If stakeholders are to fairly assist young people to curb the risk of sexual activity, it is imperative that government and non-governmental organisations (NGOs) show unbiased initiative. This

study gives guidance in ensuring that factors that prevent sexual and reproductive health amongst such young people in South Africa are addressed.

Frontiers of Research

This study is the first step of many needed to comprehensively investigate factors beyond the individual level that are associated with teenage pregnancy using quantitative methods.

Many of the results discovered in this study need further exploration. I have examined only the superficial aspects of social factors associated with teenage pregnancy. As stated earlier, many of the variables created in this study were mere proxies for various complex issues contained in social disorganisation theory. Some of these deeper dynamics include social capital, collective efficacy and social control. Consequently, research that investigates the link between teenage pregnancies and these issues is needed. Specifically, it is advocated that studies that collect primary data on social interaction and behaviour. Though pathways have been forwarded to explain the links found between the outcome and interest variables, many of these studies are from international settings. Research is needed to verify these pathways through studies in different communities in South Africa. It is possible that the mechanisms underlying association may differ in local settings. This will allow us to refine a map of the pathways of various familial and social factors to teenage pregnancy in South Africa.

The testing of the relevance of the social disorganisation theory has internationally gone through various phases with use of these proxy variables first followed by more in-depth research that measured further social dynamics at play in communities and homes. It is essential that local researchers also be committed to a rigorous testing process in South Africa. However, such investigation will entail much more research. Socially disorganised neighbourhoods are minority cases in the USA whereas they occur for the majority of people in South Africa. In other words, social disorganisation has affected the indigenous citizens of

South Africa who are from different provinces, cultures, backgrounds and traditional influences. Therefore, what may underlie the mechanisms of family disruption in Alexandra in Johannesburg may be completely different compared to those that apply to Umlazi in Durban or Ngangelizwe in the Eastern Cape. They are all townships that are dominated by blacks, but the constituent blacks are very different. It is very important for researchers to remain cognisant of these variations in the South African context. Researchers should not paint all black people with the same brush: people from different contextual groups are not the same. These unique features were further exacerbated during apartheid through separate living spaces for races and for individuals from different ethnic groups. What was created to destroy the African spirit reinforced a pride in one's traditions and culture regardless of their flaws. Therefore, similar studies should be duplicated in numerous local settings to truly understand the array of socio-cultural mechanisms underlying the drivers of teenage pregnancy correctly.

In order to correctly understand the pathways of these dynamics and their links to teenage pregnancy it is imperative to additionally conduct qualitative studies in answering the deeper research questions affiliated with how and why these contextual phenomena are related. I continuously debated the relevance of previous literature while describing the pathways that underlie some of the associations found in this study. For example, the whole notion of socially disorganised and poorer communities having lower levels of social cohesion and collective efficacy may not be the case in South Africa. Many poor South African communities exhibit high levels of social interaction, communitarianism and unity in acting against common problems. Communities that are situated in rural areas and urban townships both display these characteristics. This has resulted in the establishment of communal security groups, addressing government collectively and other community initiatives.

Therefore, it is important to determine what are the other issues at hand in the South African setting that social disorganisation-related factors operate through that international studies have not and cannot highlight because of the different context that South Africa has..

Much research has been done on teenage pregnancy in South Africa but too few of these efforts have translated into monitored and evaluated intervention programmes. Additionally, too few intervention programmes have resulted from an engagement with young females to find out how they think unwanted teenage pregnancy can be curbed. Surely it is pertinent to at least consider the views of young people regarding how teenage pregnancy can be decreased as they face it every day. They know the challenges present due to the numerous dynamics highlighted in this and other studies. Some at least should know how to be resilient, how to succeed despite their environment, how to push back and overcome their backgrounds. Otherwise all teenage females from poor, disrupted families living in disorganized communities would be mothers. However, this is not the case. There is a need to hear the narratives of those that have avoided teenage pregnancy. Their stories are important as well and may help researchers to devise sustainable solutions.

This study is an attempt at testing the social disorganisation in the South African environment. However, the study has not tested certain factors located within this theory such as poverty, racial heterogeneity and community participation. Therefore, further research to investigate the entire complement of these and other factors would be worthwhile as all these issues work together in societies exhibiting disorganisation. I do not even propose that social disorganisation theory in its entirety probes contextual variables. Beyond the social factors related to the theory there are many other social dynamics that need to be explored to determine their contribution in hindering progress and propagating unwanted teenage pregnancy in South Africa. This study is merely the beginning of a larger process that needs

to occur in the local investigation of teenage pregnancy which will ensure that every pregnancy is safe, wanted and beneficial for young females in South Africa.

Although this study has looked at social factors associated with teenage pregnancy, it is important for further research to look into how to support teenage females who have already gone through childbearing to prevent unwanted pregnancy in the future. Therefore, the following research considerations and suggestions are aligned to this notion:

Firstly, it is important to investigate how communities could be included more actively to ensure the sexual and reproductive health of young mothers. For example, researchers could explore how to involve communities to support and encourage teenagers who are already mothers to restore zeal in pursuing their hopes and dreams rather than discouraging and discriminating against them.

Secondly, research needs to look into how teenage pregnancy is monitored and recorded over time. In ensuring the comprehensive analytical investigation of teenage pregnancy, it is suggested that the government starts collecting data on all pregnancies, births and outcomes for all women nationally in a register as opposed to the current national system of only collecting birth data. Labrique et al. (2012) argued that such a system can provide data on anticipated ante-natal and post-natal care needs as accurate population-based enumeration of reproductive age females is generated by the system. They believed that such a system could strengthen and support sexual and reproductive health services thereby improving public health service delivery and guiding policy effectively (Labrique et al., 2012). Specifically with relation to teenage pregnancy, such a pregnancy registration system would allow identification of areas where under-aged pregnancies are prevalent and thereby facilitate the timeous supply of additional human and medical resources. These could include the state

providing counselling services for pregnant teenage females. Counselling may also assist a pregnant teenager in making a decision to continue with a pregnancy or not.

Thirdly, research needs to be conducted on best ways for police and the law to respond to teenage pregnancy and childbirth. For example, I have discussed the link between sexual violence and teenage pregnancy due to power dynamics among partners with larger age gaps or age mixing and presented studies that support this as an important contributor to teenage pregnancy in South Africa. Specifically, the possibility of convicted criminality in the event of sexual assault, coerced sex and statutory rape should be scrutinized more among younger women. Therefore, the process of recourse for young pregnant females should be formalised by law and highly regularised. The judicial process should entail a detailed investigation of the events that led to the pregnancy and presence of coercion, rape or statutory rape. All transgressors should be identified and due process followed with external structures such as special youth wings of police and courts facilitating the process for guaranteed objectivity. Ideally this process should be pro-poor and pro-maternal as the young mother is the vulnerable party in this instance.

Fourthly, it is important for further research to examine ways of engaging the judicial system in the process of childbearing among teenagers more proactively to establish easier ways for females to approach paternal denial and associated challenges. The responsibility of raising a child is immense when conducted by two loving parents with the assistance of their families and relatives. Much greater strain can only be expected when a young teenage woman shoulders raising a child as a single parent with her family and the weight of this responsibility is even heavier. Additionally, in the absence of males admitting to paternity it is unjust that young women are given the responsibility of proving paternity. Not only is it impossible, but it also puts unnecessary immense pressure on a girl. For example Mkhwanazi

(2010) mentions that a great challenge in teenage pregnancy is the denial of paternity by male partners. The legal process of paternal confirmation and ensuring the provision of maintenance is usually pursued by older mothers. However, the need for a formal and structured process of recourse upon pregnancy is needed more when the mother is young and vulnerable. In resolving this issue, a DNA test should become mandatory to establish and confirm paternity through a formal court system for all early, unplanned childbearing. Once paternity is determined, maintenance should be enforced upon the father. This will empower young females to know there are processes in place to assist them in the event of becoming pregnant.

Stoleru et al. (2011) investigated the role that the justice system in Romania played in ensuring the welfare of children from single-parented families, as typified by many teenage pregnancy cases. They found that the criminal justice system was an effective means of securing long-term provision and support for children by noncustodial parents. It was argued that this benefitted the children affected through increasing access and cooperation of both parents, as well as motivating financial commitment from the non-custodial parent. If enforcement of such laws was proven to be effective for single-parented families in Romania, I believe that they could also be useful in the South African setting. Copious judicial processes with the accompaniment of law, such as the health, children's as well as sexual offences and related matters acts, have been created to regularise contraception and sex amongst minors in South Africa. However, these need greater levels of monitoring and enforcement than currently take place.

Study Limitations

The study used census data; as a result, findings were reliant on the quality of data.

The study utilised the 10% sample availed to the public by Statistics South Africa for all its

analysis. Therefore, results may differ from those provided by Statistics South Africa as the latter are based on the full dataset (100%) and not the 10% sample. Though collected randomly, if the 10% sample systematically had higher or lower levels of any characteristics than the total population, this would affect my results.

Variability of rates of teenage pregnancy in communities was measured at municipality levels. This showed certain communities having very high levels and others having very low levels of teenage pregnancy. Although, this variability was statistically significant at the 95% confidence interval, greater interpretation of results could have been achieved if the data was at the neighbourhood or small area level. Future studies should attempt to acquire this lower level data from Statistics South Africa.

It was not possible to obtain information on sexual reproductive health factors for individuals from the census data. Consequently, I did not control for this aspect of individual-level factors, particularly coerced sex, partner age, contraceptive use and age at first sex. This may have limited my findings.

The study would have benefited from the integration of data on gender-based violence and rape in the analysis. However, the data did not allow this integration because the relevant variables were not collected in the years under study and the available survey of victims of crime which contained the necessary data could not be linked at the appropriate community levels to the census and general household surveys.

My results may need to be accepted with caution due to the very large sample size used in this study. On the other hand, the positive outcomes were so few making up just over 3% of the sample, i.e. about 9000 cases among the 300 000 teen girls, that this influence may not be as large as suspected.

REFERENCES

- ABRAHAMSON, N., MATHEWS, S. & RAMELA, P. 2006. Intersections of 'Sanitation, Sexual Coercion and Girls' Safety in Schools'. *Tropical Medicine & International Health*, 11, 751-756.
- ABRAHAMSON, A., MORRISON, P. & WAITE, L. 1987. Single Teenage Mothers: Spotting Susceptible Adolescents in Advance. Presented at Population Association of America Conference. Chicago: Popline.
- ADAMS, G.; ADAMS-TAYLOR, S. & PITTMAN, K. 1989. Adolescent Pregnancy and Parenthood: A Review of the Problem, Solutions, and Resources. *Family Relations*, 38, 223-229.
- AL-SAHAB, B., HEIFETZ, M., TAMIM, H., BOHR, Y. & CONNOLLY, J. 2012. Prevalence and Characteristics of Teen Motherhood in Canada. *Maternal and Child Health Journal*, 16, 228-234.
- ALEMAYEHU, T., HAIDER, J. & HABTE, D. 2010. Determinants of Adolescent Fertility in Ethiopia. *Ethiopian Journal of Health Development*, 24, 30-38.
- ALLEN, E., BONELL, C., STRANGE, V., COPAS, A., STEPHENSON, J., JOHNSON, A. & OAKLEY, A. 2007. Does the UK Government's Teenage Pregnancy Strategy Deal with the Correct Risk Factors? Findings from a Secondary Analysis of Data from a Randomised Trial of Sex Education and their Implications for Policy. *Journal of Epidemiology and Community Health*, 61, 20-27.
- AMOBI, I. & IGWEGBE, A. 2004. Unintended Pregnancy among Unmarried Adolescents and Young Women in Anambra State, South East Nigeria. *African Journal of Reproductive Health*, 8, 92-102.
- AMORAN, O. 2012. A Comparative Analysis of Predictors of Teenage Pregnancy and its Prevention in a Rural Town in Western Nigeria. *International Journal for Equity in Health*, 11, 1-7.
- ANGELI, A., MAZZOCCHETTI, A., RETTAROLI, R. & PEZZULO, C. 2010. *Adolescent Childbearing Experiences in Kenya: Geographical and Socioeconomic Determinants*, Bologna, Italy: University of Bologna Press.
- ANTEGHINI, M., FONSECA, H., IRELAND, M. & BLUM, R. 2001. Health Risk Behaviors and Associated Risk and Protective Factors among Brazilian Adolescents in Santos, Brazil. *Journal of Adolescent Health*, 28, 295-302.
- ARDELT, M. & DAY, L. 2002. Parents, Siblings, and Peers: Close Social Relationships and Adolescent Deviance. *The Journal of Early Adolescence*, 22, 310-349.
- AXINN, W.G. & THORNTON, A. 1993. Mothers, Children and Cohabitation: The Intergenerational Effects of Attitudes and Behavior. *American Sociological Review*, 58, 233-246.
- BANDURA, A. 1986. *Social Foundations of Thought and Action: A social cognitive theory*, Englewood Cliffs, New Jersey: Prentice-Hall, Inc.
- BANGSER, M. 2006. Obstetric fistula and stigma. *The Lancet*, 367, 535-536.
- BÄRNIGHAUSEN, T., HOSEGOOD, V., TIMAEUS, I. & NEWELL, M. 2007. The Socioeconomic Determinants of HIV Incidence: Evidence from a Longitudinal, Population-based Study in Rural South Africa. *AIDS*, 21, S29.
- BATHGATE, K & BIRD, J. 2013. Identifying Young People at Risk of becoming 'Not in Employment, Education or Training'. Number: 60/2013. Cardiff, Wales: Welsh Government Social Research -Analysis for Policy.
- BEAL, A., AUSIELLO, J. & PERRIN, J. 2001. Social Influences on Health-risk Behaviors

- among Minority Middle School Students. *Journal of Adolescent Health*, 28, 474-480.
- BEGUY, D., NDUGWA, R. & KABIRU, C. 2013. Entry into Motherhood among Adolescent Girls in Two Informal Settlements in Nairobi, Kenya. *Journal of Biosocial Science*, 45, 721-742.
- BENEFO, K. 2008. Determinants of Zambian Men's Extra-marital Sex: A Multi-level Analysis. *Archives of Sexual Behavior*, 37, 517-529.
- BERNARD, T. 1992. *Cycle of Juvenile Justice*, New York, , Oxford University Press, .
- BERNARD, T. & SNIPES, J. 1996. Theoretical Integration in Criminology. *Crime and Justice*, 20, 301-348.
- BEZUIDENHOUT, F. (ed.) 2008. *A Reader on Selected Social Issues*, Pretoria: Van Schaik Publishers.
- BHANA, D. 2012. "Girls are not free"—In and out of the South African School. *International Journal of Educational Development*, 32, 352-358.
- BHANA, D. & MCAMBI, S. J. 2013. When schoolgirls become mothers: Reflections from a selected group of teenage girls in Durban. *Perspectives in Education*, 31, 11-19.
- BICKEL, R. & WEAVER, S. 1997. Opportunity, Community, and Teen Pregnancy in an Appalachian State. *Journal of Educational Research*, 90, 175.
- BIDDECOM, A. & BAKILANA, A. Transitions into Sex, Parenthood and Unions among Adolescents and Young Adults in South Africa. Presented at Population Association of America Conference 2003 Minneapolis.
- BILLY, J. 1983. *Community-level Effects on Adolescent Sexual Behavior*. PhD in Sociology, University of North Carolina.
- BILLY, J., BREWSTER, K. & GRADY, W. 1994. Contextual Effects on the Sexual Behavior of Adolescent Women. *Journal of Marriage and the Family*, 56, 387-404.
- BILLY, J. & MOORE, D. 1992. A Multilevel Analysis of Marital and Nonmarital Fertility in the US. *Social Forces*, 70, 977-1011.
- BLUM, R., ASTONE, N., DECKER, M. R. & MOULI, V. 2014. A conceptual framework for early adolescence: a platform for research. *International Journal of Adolescent Medical Health*, 1-11.
- BLUM, R., HALCÓN, L., BEUHRING, T., PATE, E., FORRESTER, S. & VENEMA, A. 2003. Adolescent Health in the Caribbean: Risk and Protective Factors. *American Journal of Public Health*, 93, 456-460.
- BLUM, R. & JOHN HOPKINS BLOOMBERG SCHOOL OF PUBLIC HEALTH 2013. A Global Look at Adolescent Pregnancy Prevention: Strategies for Success. In: OFFICE OF ADOLESCENT HEALTH (ed.) *Webcast*. Washington, DC: US Department of Health and Human Services,.
- A Global Look at Adolescent Pregnancy Prevention: Strategies for Success*, 2013. Directed by BLUM, R. & JOHNS HOPKINS BLOOMBERG SCHOOL OF PUBLIC HEALTH. Washington, DC: US Department of Health and Human Services,.
- BOLKER, B., BROOKS, M., CLARK, C., GEANGE, S., POULSEN, J., STEVENS, M. & WHITE, J. 2009. Generalized Linear Mixed Models: a Practical Guide for Ecology and Evolution. *Trends in Ecology & Evolution*, 24, 127-135.
- BOND, L., PATTON, G., GLOVER, S., CARLIN, J., BUTLER, H., THOMAS, L. & BOWES, G. 2004. The Gatehouse Project: Can a Multilevel School Intervention Affect Emotional Wellbeing and Health Risk Behaviours? *Journal of Epidemiology and Community Health*, 58, 997-1003.
- BONELL, C., ALLEN, E., STRANGE, V., OAKLEY, A., COPAS, A., JOHNSON, A. & STEPHENSON, J. 2006. Influence of Family Type and Parenting Behaviours on Teenage Sexual Behaviour and Conceptions. *Journal of Epidemiology and Community Health*, 60,

502-506.

BOOTH, A., BRINKERHOFF, D. & WHITE, L. 1984. The Impact of Parental Divorce on Courtship. *Journal of Marriage and the Family*, 46, 85-94.

BORST, J. 2015. *A Systematic Review of the Effects of Family Conflict: Focusing on Divorce, Infidelity, and Attachment Style*. Master of Social Work Clinical Research Papers, St. Catherine University.

BOULT, B. & CUNNINGHAM, P. 1993. *Some Aspects of Obstetrics in Black Teenage Pregnancy: A Comparative Study of Three Age Groups*, Port Elizabeth, University of Port Elizabeth.

BOWEN, N., BOWEN, G. & WARE, W. 2002. Neighborhood Social Disorganization, Families, and the Educational Behavior of Adolescents. *Journal of Adolescent Research*, 17, 468-490.

BOYD, D. & BEE, H. 2012. *The Developing Child*, New Jersey: Pearson

BRADSHAW, J., FINCH, N. & MILES, J. 2005. Deprivation and Variations in Teenage Conceptions and Abortions in England. *Journal of Family Planning and Reproductive Health Care*, 31, 15-19.

BRANSON, N. & BYKER, T. 2016. Youth Friendly Clinics Make Inroads in Reducing Unintended Teen Births in South Africa. In: SALDRU, University of Cape Town. (ed.) *SALDRU Policy Briefs*. Cape Town.

BREWSTER, K., BILLY, J. & GRADY, W. 1993. Social Context and Adolescent Behavior: The Impact of Community on the Transition to Sexual Activity. *Social Forces*, 71, 713-740.

BRONFENBRENNER, U. 1977. Toward an Experimental Ecology of Human Development. *American Psychologist*, 32, 513.

BROOKS, G. 2015. Kids with condoms: It's not government that's sick – it's us. Johannesburg: Styli Charalambous.

BROWNE, W., SUBRAMANIAN, S., JONES, K. & GOLDSTEIN, H. 2005. Variance Partitioning in Multilevel Logistic Models that Exhibit Overdispersion. *Journal of the Royal Statistical Society*, 168, 599-613.

BROWNING, C. & OLINGER-WILBON, M. 2003. Neighborhood Structure, Social Organization, and Number of Short-Term Sexual Partnerships. *Journal of Marriage and Family*, 65, 730-745.

BUGA, G., AMOKO, D. & NCAYIYANA, D. 1996. Sexual Behaviour, Contraceptive Practice and Reproductive Health among School Adolescents in Rural Transkei. *South African Medical Journal*, 86, 523-527.

BUNTING, B. 1964. *The Rise of the South African Reich*, London: Penguin Books

BURGESS, E. 1928. The Growth of the City,. In: PARK, R.;BURGESS, E. & MCKENZIE, R. (eds.) *The City*,. Chicago: University of Chicago Press.

BURSIK, R. J. 1988. Social disorganization and theories of crime and delinquency: Problems and prospects*. *Criminology*, 26, 519-552.

CAMPBELL, E.;ADAMS, G. & DOBSON, W. 1984. Familial Correlates of Identity Formation in Late Adolescence: A Study of the Predictive Utility of Connectedness and Individuality in Family Relations. *Journal of Youth and Adolescence*, 13, 509-525.

CANTILLON, D.;DAVIDSON, W. & SCHWEITZER, J. 2003. Measuring Community Social Organization: Sense of Community as a Mediator in Social Disorganization Theory. *Journal of Criminal Justice*, 31, 321-339.

CARLSON, B. & DAVIS, L. 1977. Prevention of Domestic Violence: An Ecological Analysis. *Social Service Review*, 58, 569-587.

CATALANO, R. & HAWKINS, J. 1996. A Theory of Antisocial Behavior. In: HAWKINS, J. (ed.) *Delinquency and Crime: Current theories* New York: Cambridge University.

- CATANIA, J., COATES, T., GREENBLATT, R., DOLCINI, M., KEGELES, S., PUCKETT, S., CORMAN, M. & MILLER, J. 1989. Predictors of Condom Use and Multiple Partnered Sex among Sexually-active Adolescent Women: Implications for AIDS-related Health Interventions. *Journal of Sex Research*, 26, 514-524.
- CENSUS BUREAU USA. 1997. *Population Analysis Spreadsheets for Excel* [Online]. Washington, DC: US Bureau of the Census. Available: <http://www.census.gov/population/international/software/pas/> [Accessed 5/5/2015 2015].
- CENTERS FOR DISEASE CONTROL 1983. *Family Planning Methods and Practice: Africa*, Atlanta: United States Department of Health and Human Services.
- CHEN, X.-K., WEN, S. W., FLEMING, N., DEMISSIE, K., RHOADS, G. G. & WALKER, M. 2007. Teenage pregnancy and adverse birth outcomes: a large population based retrospective cohort study. *International Journal of Epidemiology*, 36, 368-373.
- CHEN, Y., STIFFMAN, A., CHENG, L. & DORE, P. 1997. Mental health, social environment and sexual risk behaviors of adolescent service users: A gender comparison. *Journal of Child and Family Studies*, 6, 9-25.
- CHILMAN, C. 1983. *Adolescent Sexuality in a Changing American Society: Social and Psychological Perspectives for the Human Services Professions*, New York, John Wiley & Sons.
- CHILMAN, C. 1985. Feminist Issues in Teenage Parenting. *Child Welfare*, 54, 225-234.
- CHILMAN, C. 1986. Some Psychosocial Aspects of Adolescent Sexual and Contraceptive Behaviors in a Changing American Society. In: LANCASTER, J. & HAMBURG, B. (eds.) *School-age pregnancy and parenthood: Biosocial dimensions*. New Brunswick, New Jersey: Transaction Publishers.
- CHOHAN, Z. & LANGA, M. 2011. Teenage mothers talk about their experience of teenage motherhood. *Agenda*, 25, 87-95.
- CHRISTOFIDES, N. J., JEWKES, R. K., DUNKLE, K. L., NDUNA, M., SHAI, N. J. & STERK, C. 2014. Early adolescent pregnancy increases risk of incident HIV infection in the Eastern Cape, South Africa: a longitudinal study. *Journal of the International AIDS Society*, 17:18585
- CLIFTON, D. & HERVISH, A. 2013. The World's Youth 2013 Data Sheet. *Washington DC: Population Reference Bureau*.
- COETZEE, S. 2012. Pregnant learners' sexual rights: a constitutional perspective. *Southern African Public Law*, 27, 487-507.
- COLEN, C., GERONIMUS, A. & PHIPPS, M. 2006. Getting a piece of the pie? The economic boom of the 1990s and declining teen birth rates in the United States. *Social Science & Medicine*, 63, 1531-1545.
- COLLINS, W. A. & STEINBERG, L. 2006. Adolescent Development in Interpersonal Context. In: EISENBERG, N., DAMON, W. & LERNER, R. (eds.) *Handbook of Child Psychology*. 6 ed. Hoboken, New Jersey: John Wiley & Sons Inc.
- COPPING, L., CAMPBELL, A. & MUNCER, S. 2013. Violence, Teenage Pregnancy, and Life History. *Human Nature*, 24, 137-157.
- CORCORAN, J. 1999. Ecological Factors Associated with Adolescent Pregnancy: A Review of the Literature. *Adolescence*, 34, 603.
- CRANE, J. 1991. The Epidemic Theory of Ghettos and Neighborhood Effects on Dropping Out and Teenage Childbearing. *American Journal of Sociology*, 96, 1226-1259.
- CROSBY, R., DICLEMENTE, R., WINGOOD, G., HARRINGTON, K., DAVIES, S. & OH, M. 2002. Activity of African-American female teenagers in black organisations is associated with STD/HIV protective behaviours: a prospective analysis. *Journal of*

Epidemiology and Community Health, 56, 549-550.

CROSBY, R., DICLEMENTE, R., WINGOOD, G., LANG, D. & HARRINGTON, K. 2003. Infrequent Parental Monitoring Predicts Sexually Transmitted Infections among Low-income African American Female Adolescents. *Archives of Pediatrics & Adolescent Medicine*, 157, 169-173.

CROWDER, K. & TEACHMAN, J. 2004. Do Residential Conditions Explain the Relationship Between Living Arrangements and Adolescent Behavior? *Journal of Marriage and Family*, 66, 721-738.

CUBBIN, C.; SANTELLI, J.; BRINDIS, C. & BRAVEMAN, P. 2005. Neighborhood Context and Sexual Behaviors among Adolescents: Findings from the National Longitudinal Study of Adolescent Health. *Perspectives on Sexual and Reproductive Health*, 37, 125-134.

CUNNINGHAM, P. W. & BOULT, B. E. 1996. Black teenage pregnancy in South Africa: Some considerations. *Adolescence*, 31, 691-700.

DAVIS, E. & FRIEL, L. 2001. Adolescent Sexuality: Disentangling the Effects of Family Structure and Family Context. *Journal of Marriage and Family*, 63, 669-681.

DELIUS, P. & GLASER, C. 2002. Sexual Socialisation in South Africa: A Historical Perspective. *African Studies*, 61, 27-54.

DEMISSIE, T. 2008. *Levels, Trends and Differentials of Adolescent Motherhood in Ethiopia*. Master of Science, Addis Ababa University.

DEPARTMENT OF BASIC EDUCATION 2013. General Household Survey GHS (2011): Focus on schooling. In: EDUCATION, B. (ed.). Pretoria: Department of Basic Education.

DE WET, N. 2016. Pregnancy and Death: An Examination of Pregnancy-related Deaths among Adolescents in South Africa. *South African Journal of Child Health*, 10, 151-155.

DICLEMENTE, R., WINGOOD, G., CROSBY, R. C., S, BRENDA, K., HARRINGTON, K., DAVIES, S., HOOK, E. & OH, M. 2001. Parental Monitoring: Association with Adolescents' Risk Behaviors. *Pediatrics*, 107, 1363-1368.

DODOO, F., SLOAN, M. & ZULU, E. 2003. Space, Context, and Hardship: Socializing Children into Sexual Activity in Kenyan Slums. In: AGYEI-MENSAH, S. & CASTERLINE, J. (eds.) *Reproduction and Social Context in Sub-Saharan Africa: A Collection of Micro-Demographic Studies*. Westport, Connecticut: Greenwood Press.

DOMENICO, D. & JONES, K. H. 2007. Adolescent Pregnancy in America: Causes and Responses. *Journal for Vocational Special Needs Education*, 30, 4-12.

DUFLO, E., DUPAS, P. & KREMER, M. 2014. Education, HIV, and early fertility: Experimental evidence from Kenya. National Bureau of Economic Research.

DUNKLE, K., JEWKES, R., BROWN, H., MCINTYRE, J., GRAY, G. & HARLOW, S. 2003. Gender-based violence and HIV infection among pregnant women in Soweto. *Gender and Health Group, Men on relationships with and abuse of women, Medical Research Council Technical Report, Medical Research Council, Tygerberg*.

DUROJAYE, E. 2011. Access to Contraception for Adolescents in Africa: a Human Rights Challenge. *Comparative and International Law Journal of Southern Africa*, 44, 1-29.

EATON, D., KANN, L., KINCHEN, S., SHANKLIN, S., FLINT, K., HAWKINS, J., HARRIS, W., LOWRY, R., MCMANUS, T. & CHYEN, D. 2012. Youth Risk Behavior Surveillance-United States, 2011. *Morbidity and mortality weekly report*, 61, 1-162.

EDIN, K. & KEFALAS, M. 2011. *Promises I can keep: Why Poor Women Put Motherhood Before Marriage*, California: University of California Press.

EDIN, K. & TACH, L. 2012. Becoming a Parent: The Social Contexts of Fertility during Young Adulthood. In: BOOTH, A. & MANNING, W. (eds.) *Early Adulthood in a Family Context*. New York: Springer.

EISENBERG, P. & LAZARSELD, P. 1938. The Psychological Effects of Unemployment.

Psychological Bulletin, 35, 358.

ELLIOT, M. & MERRILL, F. 1961. *Social Disorganization*, New York: Harper & Brothers.

ELLIS, B., BATES, J., DODGE, K., FERGUSON, D., HORWOOD, J., PETTIT, G. & WOODWARD, L. 2003. Does Father Absence Place Daughters at Special Risk for Early Sexual Activity and Teenage Pregnancy? *Child Development*, 74, 801-821.

ELLIS, B., FIGUEREDO, A., BRUMBACH, B. & SCHLOMER, G. 2009. Fundamental dimensions of environmental risk. *Human Nature*, 20, 204-268.

EMMETT, T. 2003. Social Disorganisation, Social Capital and Violence Prevention in South Africa: Original Contribution. *African Safety Promotion*, 1, p. 4-18.

ERIKSON, E. 1959. Identity and the Life Cycle: Selected papers. *Psychological Issues*, 1, 1-171.

EYAKUZE, A. & SALIM, A. 2012. *The state of East Africa 2012: Deepening integration, intensifying challenges*, Society for International Development, Regional Office for Eastern Africa.

EZEH, A., KODZI, I. & EMINA, J. 2010. Reaching the Urban Poor with Family Planning Services. *Studies in Family Planning*, 41, 109-116.

FALL, C.;SACHDEV, H.;OSMOND, C.;RESTREPO-MENDEZ, M.;VICTORA, C.;MARTORELL, R.;STEIN, A.;SINHA, S.;TANDON, N. & ADAIR, L. 2015. Association between Maternal Age at Childbirth and Child and Adult Outcomes in the Offspring: A Prospective Study in Five Low-income and Middle-income Countries (COHORTS collaboration). *The Lancet Global Health*, 3, e366-e377.

FASULA, A. M. & MILLER, K. S. 2006. African-American and Hispanic adolescents' intentions to delay first intercourse: Parental communication as a buffer for sexually active peers. *Journal of Adolescent Health*, 38, 193-200.

FEIXA, C. 2011. Past and present of adolescence in society: The 'teen brain' debate in perspective. *Neuroscience & Biobehavioral Reviews*, 35, 1634-1643.

FLANAGAN, P. 1998. Teen Mothers: Countering the Myths of Dysfunction and Developmental Disruption. In: COLL, C.;SURREY, J. & WEINGARTEN, K. (eds.) *Mothering Against the Odds: Diverse Voices of Contemporary Mothers*. New York: The Guilford Press.

FLAY, B., GRAUMLICH, S., SEGAWA, E., BURNS, J. & HOLLIDAY, M. 2004. Effects of 2 prevention programs on high-risk behaviors among African American youth: A randomized trial. *Archives of Pediatrics & Adolescent Medicine*, 158, 377-384.

FOMBY, P., MOLLBORN, S. & SENNOTT, C. 2010. Race/Ethnic Differences in Effects of Family Instability on Adolescents' Risk Behavior. *Journal of Marriage and Family*, 72, 234-253.

FORD, C., PENCE, B., MILLER, W., RESNICK, M., BEARINGER, L., PETTINGELL, S. & COHEN, M. 2005. Predicting adolescents' longitudinal risk for sexually transmitted infection: results from the National Longitudinal Study of Adolescent Health. *Archives of Pediatrics & Adolescent Medicine*, 159, 657-664.

FOSNOT, C. 2013. *Constructivism: Theory, Perspectives, and Practice*, New York: Teachers College Press.

FOURIE, J., SLABBERT, E. & SAAYMAN, M. 2011. The Leisure and Sport Participation Patterns of High School Learners in Potchefstroom. *South African Journal for Research in Sport, Physical Education and Recreation*, 33, 65-80.

FRANCIS, G. 2008. *The Effect of Household Characteristics on Adolescent Childbearing in Lesotho*. Master of Arts, University of the Witwatersrand.

FRANKLIN, D. 1988. Race, class, and adolescent pregnancy: An ecological analysis. *American Journal of Orthopsychiatry*, 58, 339.

- FREEDMAN, D., KHAN, L., SERDULA, M., DIETZ, W., SRINIVASAN, S. & BERENSON, G. 2002. Relation of age at menarche to race, time period, and anthropometric dimensions: the Bogalusa Heart Study. *Pediatrics*, 110, e43-e43.
- FREEMAN, M. & MOTSEI, M. 1992. Planning Health Care in South Africa--Is There a Role for Traditional Healers? *Social Science & Medicine*, 34, 1183-1190.
- FURSTENBERG, F. 1976. *Unplanned Parenthood: The Social Consequences of Teenage Childbearing*, New York, Free Press,.
- FURSTENBERG JR, F. 1991. As the Pendulum Swings: Teenage Childbearing and Social Concern. *Family Relations*, 40, 127-138.
- FRYER, D. 1995. Labour-Market Disadvantage, Deprivation and Mental-health Benefit Agency. *Psychologist*, 8, 265-272.
- GAKIDOU, E., COWLING, K., LOZANO, R. & MURRAY, C. 2010. Increased educational attainment and its effect on child mortality in 175 countries between 1970 and 2009: A systematic analysis. *The Lancet*, 376, 959-974.
- GAUDIE, J., MITROU, F., LAWRENCE, D., STANLEY, F., SILBURN, S. & ZUBRICK, S. 2010. Antecedents of teenage pregnancy from a 14-year follow-up study using data linkage. *BMC Public Health*, 10, 63.
- GEARY, R.;GÓMEZ-OLIVÉ, F.;KAHN, K.;TOLLMAN, S. & NORRIS, S. 2014. Barriers to and Facilitators of the Provision of a Youth-friendly h]Health Services Programme in Rural South Africa. *BMC Health Services Research*, 14, 259.
- GEARY, C., WEDDERBURN, M., MCCARRAHER, D., CUTHBERTSON, C. & POTTINGER, A. 2006. Sexual violence and reproductive health among young people in three communities in Jamaica. *Journal of Interpersonal Violence*, 21, 1512-1533.
- GERONIMUS, A. 1991. Teenage Childbearing and Social and Reproductive Disadvantage: The Evolution of Complex Questions and the Demise of Simple Answers. *Family Relations*, 40, 463-471.
- GIEDD, J., BLUMENTHAL, J., JEFFRIES, N., CASTELLANOS, F., LIU, H., ZIJDENBOS, A., PAUS, T., EVANS, A. & RAPOPORT, J. 1999. Brain development during childhood and adolescence: a longitudinal MRI study. *Nature neuroscience*, 2, 861-863.
- GILLIAM, M. 2007. The role of parents and partners in the pregnancy behaviors of young Latinas. *Hispanic Journal of Behavioral Sciences*, 29, 50-67.
- GINSBURG, C., NORRIS, S., RICHTER, L. & COPLAN, D. 2009. Patterns of residential mobility amongst children in greater Johannesburg--Soweto, South Africa: Observations from the Birth to Twenty Cohort. *Urban Forum, Springer*, 397-413.
- GINSBURG, C., STEELE, F., RICHTER, L. & NORRIS, S. 2011. Modelling residential mobility: factors associated with the movement of children in Greater Johannesburg, South Africa. *Population, Space and Place*, 17, 611-626.
- GLADWELL, D.;POPLI, G. & TSUCHIYA, A. 2016. A Dynamic Analysis of Skill Formation and NEET status. *Sheffield Economic Research Paper Series*. Sheffield, UK: The University of Sheffield.
- GODLEY, S. 2012. Building a Healthier Community for Teens: Environmental Strategies to Prevent Teenage Pregnancy. *Expanding our Experience and Expertise: implementing Effective Teenage Pregnancy Prevention Programs*. Baltimore, MD.
- GOICOLEA, I., MARIANNE, W., ÖHMAN, A. & SAN SEBASTIAN, M. 2009. Risk factors for pregnancy among adolescent girls in Ecuador's Amazon basin: a case-control study. *Revista Panamericana de Salud Publica*, 26, 221-228.
- GOLDSTEIN, H. 2011. *Multilevel Statistical Models*, Hoboken, New Jersey, John Wiley & Sons.
- GOTTLIEB, S. L., LOW, N., NEWMAN, L. M., BOLAN, G., KAMB, M. & BROUTET, N.

2014. Toward global prevention of sexually transmitted infections (STIs): The need for STI vaccines. *Vaccine*, 32, 1527-1535.
- GREIF, M., DODOO, F. & JAYARAMAN, A. 2010. Urbanisation, poverty and sexual behaviour: the tale of five African cities. *Urban Studies*, 48, 947-957.
- GRESH, A. & MAHARAJ, P. 2014. Termination of Pregnancy: Perspectives of Female Students in Durban, South Africa. *Etude de la Population Africaine*, 28, 681.
- GRUNDY, E. & HOLT, G. 2001. The socioeconomic status of older adults: How should we measure it in studies of health inequalities? *Journal of Epidemiology and Community health*, 55, 895-904.
- GURMU, E. & DEJENE, T. 2012. Trends and differentials of adolescent motherhood in Ethiopia: evidences from 2005 Demographic and Health Survey. *African journal of reproductive health*, 16, 162-174.
- HACKING, I. 2003. What is social construction? The teenage pregnancy example. *Philosophies of Social Science*, 421-428.
- HALDRE, K., RAHU, K., RAHU, M. & KARRO, H. 2009. Individual and familial factors associated with teenage pregnancy: an interview study. *The European Journal of Public Health*, 19, 266-270.
- HARWOOD-LEJEUNE, A. 2001. Rising age at marriage and fertility in Southern and Eastern Africa. *European Journal of Population/Revue Européenne de Démographie*, 17, 261-280.
- HANNA, B. 2001. Adolescent Parenthood: A costly mistake or a search for love? *Reproductive Health Matters*, 9, 101-107.
- HAYNIE, D., PETTS, R., MAIMON, D. & PIQUERO, A. 2009. Exposure to Violence in Adolescence and Precocious Role Exits. *Journal of Youth and Adolescence*, 38, 269-286.
- HESLOP, J. & BANDA, R. 2013. Moving Beyond the “male perpetrator, female victim” Discourse in Addressing Sex and Relationships for HIV Prevention: Peer Research in Eastern Zambia. *Reproductive Health Matters*, 21, 225-233.
- HOGAN, D., ASTONE, N. & KITAGAWA, E. 1985. Social and environmental factors influencing contraceptive use among black adolescents. *Family Planning Perspectives*, 165-169.
- HOGAN, D. & KITAGAWA, E. 1985. The impact of social status, family structure, and neighborhood on the fertility of black adolescents. *American journal of Sociology*, 825-855.
- HOGBEN, M. & LEICHLITER, J. 2008. Social Determinants and Sexually Transmitted Disease Disparities. *Sexually Transmitted Diseases*, 35, 13-18.
- HOLBORN, L. & EDDY, G. 2011. First steps to healing the South African family. *Johannesburg: South African Institute of Race Relations*.
- HOQUE, M., HOQUE, E., ANWAR, M. & KADER, S. 2013. Assessment and Comparison of Obstetric Characteristics and Perinatal Outcomes of Rural Population of South Africa. *Tropical Journal of Obstetrics and Gynaecology*, 26, 60-67.
- HUNTER, M. 2010. *Love in the Time of AIDS: Inequality, Gender, and Rights in South Africa*, Bloomington, Indiana: Indiana University Press.
- HUTCHINSON, M. K., JEMMOTT, J. B., JEMMOTT, L. S., BRAVERMAN, P. & FONG, G. T. 2003. The role of mother–daughter sexual risk communication in reducing sexual risk behaviors among urban adolescent females: a prospective study. *Journal of Adolescent Health*, 33, 98-107.
- IBISOMI, L. & ODIMEGWU, C. 2007. Predictors of Unintended Pregnancy among South African Youth. *Eastern Africa Social Science Research Review*, 23, 61-80.
- INAZU, J. & FOX, L. 1980. Maternal Influence on the Sexual Behavior of Teen-age Daughters: Direct and Indirect Sources. *Journal of Family Issues*, 1, 81.

- INTEGRATED PUBLIC USE MICRODATA SERIES. 2013. *IPUMS-I: Sample characteristics: South Africa* [Online]. Available: https://international.ipums.org/international-action/sample_details/country/za#tab_za2011afiles/5/za.html.
- ISA, A. & GANI, I. 2012. Socio-demographic determinants of teenage pregnancy in the Niger Delta of Nigeria. *Open Journal of Obstetrics and Gynecology*, 2, 239.
- ISARANURUG, S., MO-SUWAN, L. & CHOPRAPAWON, C. 2006. Differences in Socio-economic Status, Service Utilization, and Pregnancy Outcomes between Teenage and Adult Mothers. *Journal of the Medical Association of Thailand*, 89, 145-51.
- JACCARD, J., BLANTON, H. & DODGE, T. 2005. Peer influences on risk behavior: An analysis of the effects of a close friend. *Developmental Psychology*, 41, 135.
- JELILI, M., AKINDELE, O. & AKINTAYO, O. 2013. Teenage Pregnancy and Home Environment Factors in Ogbomoso, Nigeria. *Research on Humanities and Social Sciences*, 3, 69-77.
- JELLEYMAN, T. & SPENCER, N. 2008. Residential mobility in childhood and health outcomes: a systematic review. *Journal of Epidemiology and Community Health*, 62, 584-592.
- JESSOR, R., TURBIN, M. & COSTA, F. 1998. Protective Factors in Adolescent Health Behavior. *Journal of Personality and Social Psychology*, 75, 788.
- JEWKES, R., DUNKLE, K., NDUNA, M. & SHAI, N. 2010a. Intimate partner violence, relationship power inequity, and incidence of HIV infection in young women in South Africa: A cohort study. *The Lancet*, 376, 41-48.
- JEWKES, R., MORRELL, R. & CHRISTOFIDES, N. 2009. Empowering Teenagers to Prevent Pregnancy: Lessons from South Africa. *Culture, Health & Sexuality*, 11, 675-688.
- JEWKES, R., NDUNA, M., LEVIN, J., JAMA, N., DUNKLE, K., PUREN, A. & DUVVURY, N. 2008. Impact of Stepping Stones on Incidence of HIV and HSV-2 and Sexual Behaviour in Rural South Africa: Cluster Randomised Controlled Trial. *BMJ: British Medical Journal*, 337, a506.
- JEWKES, R., PENN-KEKANA, L. & ROSE-JUNIUS, H. 2005. "If they rape me, I can't blame them": Reflections on gender in the social context of child rape in South Africa and Namibia. *Social Science & Medicine*, 61, 1809-1820.
- JEWKES, R., VUNDULE, C., MAFORAH, F. & JORDAAN, E. 2001. Relationship dynamics and teenage pregnancy in South Africa. *Social Science & Medicine*, 52, 733-744.
- JEWKES, R. K., DUNKLE, K., NDUNA, M., JAMA, P. N. & PUREN, A. 2010b. Associations between childhood adversity and depression, substance abuse and HIV and HSV2 incident infections in rural South African youth. *Child abuse & neglect*, 34, 833-841.
- JOHNS, S. 2011. Perceived environmental risk as a predictor of teenage motherhood in a British population. *Health & place*, 17, 122-131.
- KABIRU, C., BEGUY, D., UNDE, C., ZULU, E. & EZEH, A. 2010. Transition into first sex among adolescents in slum and non-slum communities in Nairobi, Kenya. *Journal of Youth Studies*, 13, 453-471.
- KAPHAGAWANI, N. 2006. *Risk factors for unwanted/ unplanned teenage pregnancy in Zomba District, Malawi*. Master of Public Health, University of the Witwatersrand.
- KAUFMAN, C., DE WET, T. & STADLER, J. 2001. Adolescent Pregnancy and Parenthood in South Africa. *Studies in Family Planning*, 32, 147-160.
- KAWACHI, I. & SUBRAMANIAN, S. 2007. Neighbourhood influences on health. *Journal of Epidemiology and Community Health*, 61, 3-4.
- KEARNEY, M. 2009. Teen and Non-marital Childbearing, NBER Reporter Online. Cambridge: National Bureau of Economic Research (NBER).
- KEARNEY, M. & LEVINE, P. 2007. Socioeconomic disadvantage and early childbearing.

The problems of disadvantaged youth: An economic perspective. Chicago: University of Chicago Press.

KEARNEY, M. & LEVINE, P. 2012. Why is the teen birth rate in the United States so high and why does it matter? *The Journal of Economic Perspectives*, 26, 141-166.

KEARNEY, M. & LEVINE, P. 2015. Investigating recent trends in the US Teen birth rate. *Journal of Health Economics*, 41, 15-29.

KHOSLA, R. 2000. Women and sanitation: urban reality experiences of government programmes, NGOs and CBOs. *Social Change*, 30, 192-207.

KI-MOON, B. 2013. The Millennium Development Goals Report 2013. In: UNITED NATIONS (ed.) *United Nations Publications*. Geneva, Switzerland: United Nations.

KINGDON, G. G. & KNIGHT, J. 2004. Race and the incidence of unemployment in South Africa. *Review of Development Economics*, 8, 198-222.

KIOLI, F. 2008. *Sexual Behaviour of Adolescents among the Akamba People of Machakos District, Kenya*. PhD in Sociology, Jawaharlal Nehru University.

KIRBY, D. 2001. Emerging answers: Research findings on programs to reduce teen pregnancy (summary). *American Journal of Health Education*, 32, 348-355.

KIRBY, D. 2002. Antecedents of adolescent initiation of sex, contraceptive use, and pregnancy. *American Journal of Health Behavior*, 26, 473-485.

KIRBY, D., COYLE, K. & GOULD, J. 2001. Manifestations of poverty and birthrates among young teenagers in California zip code areas. *Family planning perspectives*, 63-69.

KISHINDO, P. 1994. Family Planning and the Malawian Male. *Journal of Social Development in Africa*, 9, 61-69.

KLASEN, S. & WOOLARD, I. 2009. Surviving Unemployment Without State Support: Unemployment and Household Formation in South Africa. *Journal of African Economies*, 18, 1-51.

KNIGHT, R. 2006. South Africa 2006: Challenges for the Future. New York: Shared Interest Organisation.

KOELBLE, T. & LIPUMA, E. 2010. Institutional Obstacles to Service Delivery in South Africa. *Social Dynamics*, 36, 565-589.

KRAVDAL, Ø. 2002. Education and fertility in sub-Saharan Africa: Individual and community effects. *Demography*, 39, 233-250.

KRUGER, L.; OAKES, A. & SHEFER, T. 2015. 'I could have done everything and why not?': Young Women's Complex Constructions of Sexual Agency in the Context of Sexualities Education in Life Orientation in South African Schools. *Perspectives in Education*, 33, 30-48.

KU, L., SONENSTEIN, F. & PLECK, J. 1993. Neighborhood, family, and work: Influences on the premarital behaviors of adolescent males. *Social Forces*, 72, 479-503.

KUBRIN, C. 2009. Social Disorganization Theory: Then, Now and in the Future. In: KROHN (ed.) *Handbook on Crime and Deviance*. Springer: Science and Business Media.

KWONG WONG, S. 2007. Disorganization precursors, the family and crime: A multi-year analysis of Canadian municipalities. *Western Criminology Review*, 8, 48.

KYOKWIJUKA, M. 2009. *Risk Factors of Adolescent Pregnancy in Kabale District-Uganda*. Master of Science, Makerere University.

LABRIQUE, A., PEREIRA, S., CHRISTIAN, P., MURTHY, N., BARTLETT, L. & MEHL, G. 2012. Pregnancy registration systems can enhance health systems, increase accountability and reduce mortality. *Reproductive health matters*, 20, 113-117.

LAMB, M. 2004. *The role of the father in child development*, Hoboken, New Jersey, John Wiley & Sons.

LANDMAN, K. 2013. Gated communities in South Africa: Tensions between the planning

- ideal and practice. *Town and Regional Planning*, 61, 1-9.
- LARSEN, K. & MERLO, J. 2005. Appropriate assessment of neighborhood effects on individual health: integrating random and fixed effects in multilevel logistic regression. *American journal of epidemiology*, 161, 81-88.
- LARSON, R. 2006. Positive youth development, wilful adolescents, and mentoring. *Journal of Community Psychology*, 34, 677-689.
- LEBESE, R., MAPUTLE, M., MABUNDA, J. & CHAUKE, P. 2015. Knowledge, Attitudes and Perception of Students on Teenage Pregnancy: A Case Study of Rural Based University Students in South Africa. *Journal of Human Ecology*, 51, 55-65.
- LECLERC-MADLALA, S. 2003. Transactional sex and the pursuit of modernity. *Social dynamics*, 29, 213-233.
- LECLERC-MADLALA, S. 2008. Intergenerational/Age-disparate Sex and Young Women's Vulnerability in Southern Africa. Pretoria: HSRC
- LEE, D. 2010. The early socioeconomic effects of teenage childbearing: A propensity score matching approach. *Demographic Research*, 23, 697-736.
- LEE, M. 2001. Family and adolescent childbearing. *Journal of adolescent health*, 28, 307-312.
- LESSER, J. & POPE, D. 2007. *Human Behavior and the Social Environment: Theory and Practice*, Boston, Massachusetts, Pearson Allyn & Bacon.
- LEVENTHAL, T. & BROOKS-GUNN, J. 2000. The neighborhoods they live in: the effects of neighborhood residence on child and adolescent outcomes. *Psychological bulletin*, 126, 309.
- LI, B., LINGSMA, H., STEYERBERG, E. & LESAFFRE, E. 2011. Logistic random effects regression models: a comparison of statistical packages for binary and ordinal outcomes. *BMC Medical Research Methodology*, 11, 1-11.
- LI, X., STANTON, B. & FEIGELMAN, S. 2000. Impact of perceived parental monitoring on adolescent risk behavior over 4 years. *Journal of adolescent health*, 27, 49-56.
- LIMPOPO POPULATION AND DEVELOPMENT DIRECTORATE 2012. Factors Associated with Teenage Pregnancy in Limpopo Province. Polokwane: Department of Population and Development,.
- LOAIZA, E. & LIANG, M. 2013. Adolescent Pregnancy: A Review of Evidence. New York: United Nations Population Fund.
- LUDWIG, J.;SANBONMATSU, L.;GENNETIAN, L.;ADAM, E.;DUNCAN, G.;KATZ, L.;KESSLER, R.;KLING, J.;LINDAU, S. & WHITAKER, R. 2011. Neighborhoods, Obesity, and Diabetes—A Randomized Social Experiment. *New England Journal of Medicine*, 365, 1509-1519.
- LUKE, N. 2003. Age and Economic Asymmetries in the Sexual Relationships of Adolescent Girls in sub-Saharan Africa. *Studies in Family Planning*, 34, 67-86.
- LUKE, N., XU, H., MBERU, B. & GOLDBERG, R. 2012. Migration experience and premarital sexual initiation in urban Kenya: An event history analysis. *Studies in family planning*, 43, 115-126.
- LUKER, K. 1996. *Dubious Conceptions: The Politics of Teenage Pregnancy*, Cambridge, MA, Harvard University Press.
- LUO, J., WANG, L. G. & GAO, W. B. 2012. The influence of the absence of fathers and the timing of separation on anxiety and self-esteem of adolescents: a cross-sectional survey. *Child: care, health and development*, 38, 723-731.
- MABUGU, R. & CHITIGA-MABUGU, M. 2013. Are Social Grants a Threat to Fiscal Sustainability? Pretoria: HSRC.
- MACKENBACH, J., STIRBU, I., ROSKAM, A., SCHAAP, M., MENVIELLE, G.,

- LEINSALU, M. & KUNST, A. 2008. Socioeconomic inequalities in health in 22 European countries. *New England Journal of Medicine*, 358, 2468-2481.
- MACINTYRE, S. & CUNNINGHAM-BURLEY, S. 1993. Pregnancy as a Social Problem: A Perspective from the U.K. In: LAWSON, A. & RHODE, D. (eds.) *The Politics of Pregnancy*. New Haven: Yale University Press.
- MACLEOD, C. 1999. The 'causes' of teenage pregnancy: Review of South African research—Part 2. *South African Journal of Psychology*, 29, 8-16.
- MACLEOD, C. 1999. *The Governmentality of Teenage Pregnancy: Scientific Literature and Professional Practice in South Africa*. Doctor of Philosophy in the School of Psychology, University of Natal.
- MACLEOD, C. 2002. Economic Security and the Social Science Literature on Teenage Pregnancy in South Africa. *Gender & Society*, 16, 647-664.
- MACLEOD, C. 2011. *'Adolescence', Pregnancy and Abortion-Constructing a Threat of Degeneration*, New York: Routledge, Taylor & Francis Group.
- MACLEOD, C. & DURRHEIM, K. 2002. Racializing Teenage Pregnancy: 'Culture' and 'Tradition' in the South African Scientific Literature. *Ethnic and Racial Studies*, 25, 778-801.
- MACLEOD, C. & TRACEY, T. 2009a. Review of South African Research and Interventions in the Development of a Policy Strategy on Teen-aged Pregnancy. Grahamstown: Department of Psychology, Rhodes University.
- MACLEOD, C. & TRACEY, T. 2010. A decade later: follow-up review of South African research on the consequences of and contributory factors in teen-aged pregnancy. *South African Journal of Psychology*, 40, 18-31.
- MAGADI, M. & AGWANDA, A. 2009. Determinants of transitions to first sexual intercourse, marriage and pregnancy among female adolescents: Evidence from South Nyanza, Kenya. *Journal of Biosocial Sciences*, 409-427.
- MAHON, T. & FERNANDES, M. 2010. Menstrual hygiene in South Asia: a neglected issue for WASH (water, sanitation and hygiene) programmes. *Gender & Development*, 18, 99-113.
- MAKATJANE, T. 2002. Pre-marital Sex and Childbearing in Lesotho. *African Population Studies*, 17, 99-112.
- MAKIWANE, M. 1998. Adolescent pregnancy and reproductive health in Transkei (rural South Africa). *African Journal of Reproductive Health*, 2, 41-48.
- MAKIWANE, M. 2010. The Child Support Grant and Teenage Childbearing in South Africa. *Development Southern Africa*, 27, 193-204.
- MAKIWANE, M. & KWIZERA, S. 2009. Youth and Well-being: A South African Case Study. *Social Indicators Research*, 91, 223-242.
- MAKIWANE, M. & UDJO, E. 2006. Is the child support grant associated with an increase in teenage fertility in South Africa? Evidence from national surveys and administrative data. *Pretoria: Human Sciences Research Council*.
- MAKOLA, M. 2011. *Teenage pregnancy: Views of parents/caregivers, teenagers and teachers at two high schools in Soweto, Gauteng*. Masters of Arts, University of the Witwatersrand, Johannesburg.
- MAKUBALO, L. 2008. Response: Youth Policy Initiative roundtable on teenage pregnancy. *5th Youth Policy Initiative Roundtable on Teenage Pregnancy*. Cape Town.
- MAKUSHA, T., RICHTER, L., KNIGHT, L., VAN ROOYEN, H. & BHANA, D. 2013. "The good and the bad?" Childhood experiences with fathers and their influence on women's expectations and men's experiences of fathering in rural Kwazulu-Natal, South Africa. *Fathering*, 11, 138.
- MALEMA, R. 2000. *Risk Factors Associated with Teenage Pregnancy at Ga-Dikgale Villages in the Northern Province of South Africa*. Master of Science, University of Pretoria.

- MAMBOLEO, N. 2012. *Unwanted Pregnancy and Induced Abortion Among Female Youths: A Case Study of Temeke District*. Masters in Public Health, Muhimbili University of Health and Allied Sciences.
- MANGIATERRA, V., PENDOSE, R., MCCLURE, K. & ROSEN, J. 2008. Adolescent Pregnancy. In: HEINE, M. (ed.) *Making Pregnancy Safer Notes*. Geneva: World Health Organisation.
- MANZINI, N. 2001. Sexual initiation and childbearing among adolescent girls in KwaZulu Natal, South Africa. *Reproductive health matters*, 9, 44-52.
- MARKHAM, C., LORMAND, D., GLOPPEN, K., PESKIN, M., FLORES, B., LOW, B. & HOUSE, L. 2010. Connectedness as a predictor of sexual and reproductive health outcomes for youth. *Journal of Adolescent Health*, 46, 23-41.
- MARMOT, M. 1999. Epidemiology of socioeconomic status and health: are determinants within countries the same as between countries? *Annals of the New York Academy of Sciences*, 896, 16-29.
- MARTELETO, L., LAM, D. & RANCHHOD, V. 2008. Sexual behavior, pregnancy, and schooling among young people in urban South Africa. *Studies in family planning*, 39, 351-368.
- MARTIN-STOREY, A., TEMCHEFF, C., RUTTLE, P., SERBIN, L., STACK, D., SCHWARTZMAN, A. & LEDINGHAM, J. 2012. Perception of neighborhood disorder and health service usage in a Canadian sample. *Annals of Behavioral Medicine*, 43, 162-172.
- MASONDO, S. 2015. Teen pregnancies hit 99000 a year. *City Press*, 6 September.
- MASSEY, D. 2009. The age of extremes: Concentrated affluence and poverty in the twenty-first century. *Urban health: Readings in the social, built, and physical environments of US cities*, 5-36.
- MASSEY, D. & SHIBUYA, K. 1995. Unravelling the tangle of pathology: The effect of spatially concentrated joblessness on the well-being of African Americans. *Social Science Research*, 24, 352-366.
- MBERU, B. & WHITE, M. 2011. Internal migration and health: Premarital sexual initiation in Nigeria. *Social Science & Medicine*, 72, 1284-1293.
- MCCULLOCH, A. 2001. Teenage childbearing in Great Britain and the spatial concentration of poverty households. *Journal of Epidemiology and Community Health*, 55, 16-23.
- MCHUNU, G., PELTZER, K., TUTSHANA, B. & SEUTLWADI, L. 2012. Adolescent Pregnancy and Associated Factors in South African youth. *African Health Sciences*, 12, 426-434.
- MCLANAHAN, S. & BUMPASS, L. 1988. Intergenerational consequences of family disruption. *American Journal of Sociology*, 130-152.
- MCNULTY, T. & BELLAIR, P. 2003. Explaining Racial And Ethnic Differences in Serious Adolescent Violent Behavior*. *Criminology*, 41, 709-747.
- MEADE, C., KERSHAW, T. & ICKOVICS, J. 2008. The intergenerational cycle of teenage motherhood: an ecological approach. *Health Psychology*, 27, 419.
- MELLENDEZ, M. 2006. Moving to Opportunity & Mending Broken Windows. *Journal of Legislation*, 32, 238.
- MENSCH, B., GRANT, M. & BLANC, A. 2006. The Changing Context of Sexual Initiation in sub-Saharan Africa. *Population and Development Review*, 32, 699-727.
- MERLO, J. 2003. Multilevel Analytical Approaches in Social Epidemiology: Measures of Health Variation Compared with Traditional Measures of Association. *Journal of Epidemiology and Community Health*, 57, 550-552.
- MERSKY, J. & REYNOLDS, A. 2007. Predictors of early childbearing: evidence from the Chicago longitudinal study. *Children and Youth Services Review*, 29, 35-52.

- MFENYANA, K., GRIFFIN, M., YOGESWARAN, P., MODELL, B., MODELL, M., CHANDIA, J. & NAZARETH, I. 2006. Socio-economic inequalities as a predictor of health in South Africa-the Yenza cross-sectional study. *South African Medical Journal-Cape Town-Medical Association of South Africa*, 96, 323.
- MILLER, S. 1983. *Children as Parents: A Final Report on a Study of Childbearing and Childrearing Among 12 to 15 Year-Olds*, New York, Research Center, Child Welfare League of America.
- MILLER, B. 2002. Family influences on adolescent sexual and contraceptive behavior. *Journal of Sex Research*, 39, 22-26.
- MILLER, B. & MOORE, K. 1990. Adolescent sexual behavior, pregnancy, and parenting: Research through the 1980s. *Journal of Marriage and the Family*, 52, 1025-1044.
- MILLER, J., CALDWELL, L., WEYBRIGHT, E., SMITH, E., VERGNANI, T. & WEGNER, L. 2014. Was Bob Seger right? Relation between boredom in leisure and [risky] sex. *Leisure sciences*, 36, 52-67.
- MILLER, K., FOREHAND, R. & KOTCHICK, B. 1999. Adolescent sexual behavior in two ethnic minority samples: The role of family variables. *Journal of Marriage and the Family*, 85-98.
- MKHWANAZI, N. 2009. Teenage Pregnancy and HIV in South Africa. In: SCHLYTER, A. (ed.) *Body Politics and Women Citizens: African Experiences*. Stockholm, Sweden: Swedish International Development Cooperation Agency (SIDA).
- MKHWANAZI, N. 2010. Understanding Teenage Pregnancy in a Post-Apartheid South African Township. *Culture, Health & Sexuality*, 12, 347-358.
- MKHWANAZI, N. 2011. Developing and Expanding our Ideas About Teenage Desire and Fertility. *Agenda*, 25, 2-8.
- MKHWANAZI, N. 2012. A Tough Love Approach Indeed: Demonising Early Childbearing in the Zuma Era. *Agenda*, 26, 73-84.
- MKHWANAZI, N. 2014. "An African way of doing things": Reproducing Gender and Generation. *Anthropology Southern Africa*, 37, 107-118.
- MKWANANZI, S. Forthcoming. Teenage Moms and Dads: A Demographic Perspective. In: BHANA, D. & MKHWANAZI, N. (eds.) *Young Families*. Pretoria: TBA.
- MKWANANZI, S. & DE WET, N. 2014. School Dropout among African Adolescents in South Africa: Is there any gender differential? *Gender & Behaviour*, 12.
- MKWANANZI, S. & ODIMEGWU, C. 2015. Family Disruption-A Possible Explanation for Teenage Pregnancy in South Africa. Johannesburg: University of the Witwatersrand.
- MMARI, K. & BLUM, R. 2009. Risk and Protective Factors that Affect Adolescent Reproductive Health in Developing Countries: a Structured Literature Review. *Global Public Health*, 4, 350-366.
- MMARI, K. & SABHERWAL, S. 2013. A Review of Risk and Protective Factors for Adolescent Sexual and Reproductive Health in Developing Countries: An Update. *Journal of Adolescent Health*, 53, 562-572.
- MNGOMEZULU, K. Forthcoming. *The Maternal Healthcare as an International Human Right: A qualitative study on the influence of culture and religion in access to maternal health care in Southern African countries*. PhD in International Relations, University of the Witwatersrand.
- MOKGOKOLO, J. 2011. Challenges Experienced with the Demarcation of Enumeration Areas for Census 2011. Pretoria: Statistics South Africa
- MOLOSIWA, S. & MOSWELA, B. 2012. Girl-Pupil Dropout in Secondary Schools in Botswana: Influencing Factors, Prevalence and Consequences. *International Journal of Business and Social Science*, 3, 265-271.

- MOORE, M. & CHASE-LANSDALE, P. 1999. Sexual Intercourse and Pregnancy among African-American Adolescent Girls in High-Poverty Neighborhoods: The Role of Family and Perceived Community Environment. *JCPR Working Paper*. Chicago, Illinois: University of Chicago.
- MOORE, M. & CHASE-LANSDALE, P. 2001. Sexual Intercourse and Pregnancy among African American Girls in High-Poverty Neighborhoods: The Role of Family and Perceived Community Environment. *Journal of Marriage and Family*, 63, 1146-1157.
- MORISON, T. 2013. Heterosexual Men and Parenthood Decision Making in South Africa: Attending to the Invisible Norm. *Journal of Family Issues*, 34, 1125-1144.
- MOSLEY, E.;KING, E.;SCHULZ, A.;HARRIS, L.;DE WET, N. & ANDERSON, B. 2016. Racial and Socioeconomic Differences in Abortion Attitudes from a Nationally Representative South African Sample in 2013. *Population Association of America*. Washington DC.
- MOTHIBA, T. & MAPUTLE, M. 2012. Factors Contributing to Teenage Pregnancy in the Capricorn District of the Limpopo Province. *Curationis*, 35, 1-5.
- MTURI, A. 2015. Why Young Unmarried Women Bear Children? A case Study of North West Province, South Africa. In: OXFORD INSTITUTE OF POPULATION AGEING, U. O. O. (ed.) *Population Horizons Working Paper* Oxford, UK: University of Oxford.
- MTURI, A. & MOERANE, W. 2001. Premarital Childbearing among Adolescents in Lesotho. *Journal of Southern African Studies*, 27, 259-275.
- MUELLER, C. & PARCEL, T. 1981. Measures of Socioeconomic Status: Alternatives and Recommendations. *Child Development*, 13-30.
- MUFTIĆ, L. 2009. Macro-Micro Theoretical Integration: An Unexplored Theoretical Frontier. *Journal of Theoretical & Philosophical Criminology*, 1, 33-71.
- MUINDI, K. 2007. *Adolescent Sexual Behaviour in Navrongo: Does Family Count?* Master of Science, University of the Witwatersrand.
- MURRAY, C. 1980. Migrant Labour and Changing Family Structure in the Rural Periphery of Southern Africa. *Journal of Southern African Studies*, 6, 139-156.
- NALENGA, G. 2012. *Causes of Unintended Pregnancy among Adolescents in Addis Abeba, Ethiopia*. Master of Science Masters, Norwegian University of Life Sciences.
- NATIONAL DEPARTMENT OF HEALTH (NDOH);STATISTICS SOUTH AFRICA;SOUTH AFRICAN MEDICAL RESEARCH COUNCIL (SAMRC) & ICF 2017. South African Demographic and Health Survey 2016: Key Indicators. Pretoria, South Africa. Rockville, Maryland, USA.: NDoH, Stats SA, SAMRC, ICF.
- NATIONAL RESEARCH COUNCIL 1990. The Social Consequences of Growing up in a Poor Neighborhood. In: JENCKS, C. & MAYER, S. (eds.) *Inner-City Poverty in the United States*. Washington, DC: The National Academies Press.
- NATSAYI, Z., CHIMBINDI, N., MCGRATH, N., HERBST, K., SAN TINT, K. & NEWELL, M. 2010. Socio-Demographic Determinants of Condom Use among Young Adults in Rural KwaZulu-Natal, South Africa. *Open AIDS Journal*, 4, 88-95.
- NEAL, S. E., CHANDRA-MOULI, V. & CHOU, D. 2015. Adolescent first births in East Africa: disaggregating characteristics, trends and determinants. *Reproductive health*, 12, 13.
- NEMUTANZHELA, T. 2007. *Traumatic Experience of Teenage Pregnancies by Married Men: A challenge to Pastoral Care*. Master of Arts, University of Pretoria.
- NETTLE, D. 2010. Dying Young and Living Fast: Variation in Life History Across English Neighborhoods. *Behavioral Ecology*, 21, 387-395.
- NETTLE, D. 2011. Flexibility in Reproductive Timing in Human Females: Integrating Ultimate and Proximate Explanations. *Philosophical Transactions of the Royal Society of*

London B: Biological Sciences, 366, 357-365.

NETTLE, D., COALL, D. & DICKINS, T. 2011. Early-life Conditions and Age at First Pregnancy in British Women. *Proceedings of the Royal Society of London B: Biological Sciences*, 278, 1721-1727.

NETTLE, D. & COCKERILL, M. 2010. Development of Social Variation in Reproductive Schedules: A Study from an English Urban Area. *PLoS One*, 5, e12690.

NEVES, D.;SAMSON, M.;VAN NIEKERK, I.;HLATSHWAYO, S. & DU TOIT, A. 2009. The Use and Effectiveness of Social Grants in South Africa. Cape Town,: Institute for Poverty, Land and Agrarian Studies, Economic Policy Research Institute.

NKANI, N. & BHANA, D. 2016. Sexual and Reproductive Well-being of Teenage Mothers in a South African Township School. *South African Journal of Education*, 36, 01- 10.

NLEYA, N. 2011. Linking Service Delivery and Protest in South Africa: An Exploration of Evidence from Khayelitsha. *Africanus*, 41, 3-13.

NOBREGA, C. 2014. *The Labour Market: Teen Pregnancy and Unemployment* [Online]. Rio de Janeiro: The Guardian. [Accessed 15 June 2017].

NWOGWUGWU, N. 2013. *Socio-Demographic Determinants of Adolescent Fertility in Zambia*. Masters of Arts, University of the Witwatersrand.

NYAKUBEGA, P. 2010. Factors associated with adolescent pregnancies among secondary school students. a study from Tanga-Tanzania. *Dar Es Salaam Medical Students' Journal*, 16, 31-34.

ODIMEGWU, C. & MKWANANZI, S. 2016. Factors Associated with Teen Pregnancy in sub-Saharan Africa: A Multi-country Cross-Sectional Study. *African Journal of Reproductive Health*, 20, 94 - 107.

OGUNLESI, T., AYENI, V., JAGUN, E. & OGUNFOWORA, O. 2013. Socio-clinical Factors Related to the Perinatal Outcome of Teenage Pregnancies in a Nigerian Teaching Hospital. *Nigerian Journal of Paediatrics*, 40, 290-294.

OMAN, R., VESELY, S. & ASPY, C. 2005. Youth Assets and Sexual Risk Behavior: The Importance Of Assets for Youth Residing in One-Parent Households. *Perspectives on Sexual and Reproductive Health*, 37, 25-31.

OMAN, R., VESELY, S., ASPY, C., TOLMA, E., GAVIN, L., BENSYL, D., MUELLER, T. & FLUHR, J. 2013. A Longitudinal Study of Youth Assets, Neighborhood Conditions, and Youth Sexual Behaviors. *Journal of Adolescent Health*, 52, 779-785.

OMAR, K., HASIM, S., MUHAMMAD, N., JAFFAR, A., HASHIM, S. & SIRAJ, H. 2010. Adolescent pregnancy outcomes and risk factors in Malaysia. *International Journal of Gynecology & Obstetrics*, 111, 220-223.

OPEN SOCIETY INITIATIVE FOR SOUTHERN AFRICA (OSISA) 2011. Inequality in Southern Africa: Options for Redress. South Africa: OSISA.

OTOR, S. & PANDEY, A. 1999. Adolescent Transition to Coitus and Premarital Childbearing in Sudan: a Biosocial Context. *Journal of Biosocial Science*, 31, 361-374.

OUTWATER, A.;ABRAHAMS, N. & CAMPBELL, J. 2005. Women in South Africa: Intentional Violence and HIV/AIDS: Intersections and Prevention. *Journal of Black Studies*, 35, 135-154.

OYEFARA, J. 2011. Determinants of adolescent fertility in contemporary Yoruba society: a multivariate analysis. *Gender and Behaviour*, 9, 3979-4004.

PALAMULENI, M. & ADEBOWALE, A. 2014. Patterns of premarital childbearing among unmarried female youths in sub-Saharan Africa: Evidence from demographic health survey. *Scientific Research and Essays*, 9, 421-430.

PALERMO, T. & PETERMAN, A. 2009. Are Female Orphans at Risk for Early Marriage,

- Early Sexual Debut, and Teen Pregnancy? Evidence from Sub-Saharan Africa. *Studies in Family Planning*, 40, 101-112.
- PANDAY, S., MAKIWANE, M., RANCHOD, C. & LETSOALO, T. 2009. *Teenage Pregnancy in South Africa: With a Specific Focus on School-going Learners*, Pretoria: Department of Basic Education.
- PARASHAR, S. & MAZUR, R. 2006. From segregation to intraurban residential mobility among Black Africans in post-apartheid Cape Town. [Unpublished]. Presented at the 2006 Annual Meeting of the Population Association of America, March 30-April 1, Los Angeles, California
- PARDESHI, G. 2009. Women in total sanitation campaign: a case study from Yavatmal District, Maharashtra, India. *Journal of Human Ecology*, 25, 79-85.
- PARK, R. 1936. Human Ecology. *American Journal of Sociology*, 42.
- PATON, D. 2006. Random Behaviour or Rational Choice? Family Planning, Teenage Pregnancy and Sexually Transmitted Infections. *Sex Education*, 6, 281-308.
- PETTIFOR, A., REES, H., KLEINSCHMIDT, I., STEFFENSON, A., MACPHAIL, C., HLONGWA-MADIKIZELA, L., VERMAAK, K. & PADIAN, N. 2005. Young people's sexual health in South Africa: HIV prevalence and sexual behaviors from a nationally representative household survey. *AIDS* 19, 1525-1534.
- PHOENIX, A. 1988. Narrow Definitions of Culture: The Case of Early Motherhood. In: BHACHU, P. & WESTWOOD, S. (eds.) *Enterprising Women: Ethnicity, Economy and Gender Relations*. London: Routledge.
- PIANTADOSI, S.;BYAR, D. & GREEN, S. 1988. The Ecological Fallacy. *American Journal of Epidemiology*, 127, 893-904.
- PORTER, L. & STONE, A. 1995. Are there really gender differences in coping?: A reconsideration of previous data and results from a daily study. *Journal of Social and Clinical Psychology*, 14, 184.
- POSEL, D., RUDWICK, S. & CASALE, D. 2011. Is marriage a dying institution in South Africa? Exploring changes in marriage in the context of ilobolo payments. *Agenda*, 25, 102-111.
- POWERS, D. 2005. Effects of family structure on the risk of first premarital birth in the presence of correlated unmeasured family effects. *Social Science Research*, 34, 511-537.
- PRESTON-WHYTE, E. & ALLEN, J. 1992. Teenage pregnancy in the Coloured Community. In: BURMAN, S. & PRESTON-WHYTE, E. (eds.) *Questionable Issue: Illegitimacy in South Africa*. Cape Town: Oxford University Press.
- PRESTON-WHYTE, E.;ZONDI, M.;MAVUNDLA, G. & GUMEDE, H. 1990. Teenage Pregnancy, Whose Problem?: Realities and Prospects for Action in KwaZulu/Natal. *Southern African Journal of Demography*, 3, 11-20.
- RAMATHUBA, D. 2013. Secondary school girls' knowledge, attitudes and sexual behaviour regarding teenage pregnancy, emergency contraception and sexuality in Thulamela municipality, Limpopo Province, South Africa. *African Journal for Physical Health Education, Recreation and Dance: Contemporary Issues in Healthcare*, 19, 1-9.
- REDDY, S., JAMES, S., SEWPAUL, R., KOOPMAN, F., FUNANI, N., SIFUNDA, S., JOSIE, J., MASUKA, P., KAMBARAN, N. & OMARDIEN, R. 2010. Umthente Uhlaba Usamila-The 2nd South African National Youth Risk Behaviour Survey 2008. *National Youth Risk Behaviour Survey*. Cape Town: South African Medical Research Council.
- REDWOOD, T.;PYER, M. & ARMSTRONG-HALLAM, S. 2012. Exploring Attitudes and Behaviour Towards Teenage Pregnancy. *Community Practitioner*, 85, 20.
- RESNICK, M., BEARMAN, P., BLUM, R., BAUMAN, K., HARRIS, K., JONES, J., TABOR, J., BEUHRING, T., SIEVING, R. & SHEW, M. 1997. Protecting adolescents from

- harm: findings from the National Longitudinal Study on Adolescent Health. *JAMA*, 278, 823-832.
- REYNOLDS, H., WONG, E. & TUCKER, H. 2006. Adolescents' Use of Maternal and Child Health Services in Developing Countries. *International Family Planning Perspectives*, 32.
- RICHTER, L. & MORRELL, R. 2006. *Baba: Men and Fatherhood in South Africa*, Pretoria: Human Sciences Research Council (HSRC) Press.
- RICHTER, L., PANDAY, S., SWART, T. & NORRIS, S. 2009. Adolescents in the city: material and social living conditions in Johannesburg–Soweto, South Africa. *Urban Forum*, Springer, 319-334.
- ROCHE, K., MEKOS, D., ALEXANDER, C., ASTONE, N., BANDEEN-ROCHE, K. & ENSMINGER, M. 2005. Parenting Influences on Early Sex Initiation Among Adolescents How Neighborhood Matters. *Journal of Family Issues*, 26, 32-54.
- RODRIGUEZ, G. & GOLDMAN, N. 2001. Improved Estimation Procedures for Multilevel Models with Binary Response: a Case-Study. *Journal of the Royal Statistical Society: Series A (Statistics in Society)*, 164, 339-355.
- RUBINOWITZ, L. & ROSENBAUM, J. 2000. *Crossing the Class and Color Lines: from Public Housing to White Suburbia*, Chicago: University of Chicago Press.
- RUDDICK, S. 1991. Educating for Procreative Choice: The "Case" of Adolescent Women. *Women's Studies Quarterly*, 19, 102-120.
- RUNSEWE-ABIODUN, T. & BONDI, S. 2013. Teenage pregnancy and implications on child survival amongst mothers attending a clinic in the East-End, Freetown, Sierra Leone. *Open Journal of Pediatrics*, 3, 294.
- SALAZAR, L., SANTELLI, J., CROSBY, R. & DICLEMENTE, R. 2009. Sexually Transmitted Disease Transmission and Pregnancy among Adolescents. In: DICLEMENTE, R., SANTELLI, J. & CROSBY, R. (eds.) *Adolescent Health: Understanding and Preventing Risk Behaviors*. Hoboken, New Jersey: Jossey Bass.
- SAMPSON, R. & GROVES, W. 1989. Community Structure and Crime: Testing Social Disorganization Theory. *American Journal of Sociology*, 94, 774-802.
- SAMPSON, R., MORENOFF, J. & GANNON-ROWLEY, T. 2002. Assessing "Neighborhood Effects": Social Processes and New Directions in Research. *Annual Review of Sociology*, 28, 443-478.
- SANTELLI, J. & MELNIKAS, A. 2010. Teen Fertility in Transition: Recent and Historic Trends in the United States. *Annual Review of Public Health*, 31, 371-383.
- SANTOS, M. & ROSÁRIO, F. 2011. A score for assessing the risk of first-time adolescent pregnancy. *Family Practice*, 28, 482-488.
- SAWYER, S. M., AFIFI, R. A., BEARINGER, L. H., BLAKEMORE, S.-J., DICK, B., EZEH, A. C. & PATTON, G. C. 2012. Adolescence: a foundation for future health. *The Lancet*, 379, 1630-1640.
- SAYAGUES, M. 2007. South Africa: Teenage Pregnancy Figures Cause Alarm. *Integrated Regional Information Networks (IRIN) News*, 6 March 2007.
- SCHALET, A. 2011. Beyond Abstinence and Risk: A New Paradigm for Adolescent Sexual Health. *Women's Health Issues*, 21, 5-7.
- SEAMARK, C. & GRAY, D. 1998. Teenagers and Risk-taking: Pregnancy and Smoking. *British Journal of General Practice*, 48, 985-986.
- SHAVERS, V. 2007. Measurement of Socioeconomic Status in Health Disparities Research. *Journal of the National Medical Association*, 99, 1013.
- SHAW, C. & MCKAY, H. 1942. *Juvenile Delinquency and Urban Areas*, Chicago, University of Chicago Press.
- SHAW, C. & MCKAY, A. 2009. The Chicago School and Cultural/Subcultural Theories of

- Crime. In: TIBBETTS & HEMMENS (eds.) *Criminological Theory: A Text/Reader*. Washington DC: SAGE.
- SHAW, C., MCKAY, H. & HAYNER, N. 1942. *Juvenile Delinquency and Urban Areas: A Study of Rates of Delinquents in Relation to Differential Characteristics of Local Communities in American Cities*, Chicago: University of Chicago Press
- SHEFER, T., BHANA, D. & MORRELL, R. 2013. Teenage pregnancy and parenting at school in contemporary South African contexts: deconstructing school narratives and understanding policy implementation. *Perspectives in Education*, 31, 1-10.
- SHEFER, T., MORRELL, R. & BHANA, D. 2012. *Books and Babies: Pregnancy and Young Parents in Schools*, Pretoria, HSRC Press.
- SHRYOCK, H. 2004. *The Methods and Materials of Demography*, San Diego, Elsevier, Academic Press.
- SMALL, S. & LUSTER, T. 1994. Adolescent Sexual Activity: An Ecological, Risk-Factor Approach. *Journal of Marriage and the Family*, 56, 181-192.
- SMITH, T. 1993. Influence of Socioeconomic Factors on Attaining Targets for Reducing Teenage Pregnancies. *BMJ: British Medical Journal*, 306, 1232.
- SMITHBATTLE, L. 2013. Reducing the Stigmatization of Teen Mothers. *MCN: The American Journal of Maternal/Child Nursing*, 38, 235-241.
- SOMMER, M., FERRON, S., CAVILL, S. & HOUSE, S. 2014. Violence, Gender and WASH: Spurring Action on a Complex, Under-Documented and Sensitive Topic. *Environment and Urbanization*, 27, 105- 116.
- SOUTH AFRICA DEPARTMENTS OF BASIC EDUCATION & HEALTH. 2012. Integrated School Health Policy. Pretoria: Government Press.
- SOUTH AFRICA DEPARTMENT OF HEALTH 1996. Choice on Termination of Pregnancy Act, 92 of 1996. Pretoria: Government gazette 17602, November 22.
- SOUTH AFRICA DEPARTMENT OF HEALTH 2012a. National Contraception and Fertility Planning Policy and Service Delivery Guidelines. Pretoria: Government Press.
- SOUTH AFRICA DEPARTMENT OF HEALTH 2012b. National Contraception Clinical Guidelines: A Companion to the National Contraception and Fertility Planning Policy and Service Delivery Guidelines. Pretoria: Department of Health.
- SOUTH AFRICA DEPARTMENT OF SOCIAL DEVELOPMENT 2012. White Paper on Families in South Africa. Pretoria: Government Printer.
- SOUTH AFRICA DEPARTMENT OF WOMEN AND CHILDREN 2005. Children's Act, 38 of 2005. Pretoria: Government gazette 28944, June 19.
- SOUTH AFRICA MINISTRY IN THE OFFICE OF THE PRESIDENT 1994. White Paper on Reconstruction and Development. Cape Town: Government gazette 16085, November 15.
- SOUTH, S. & CROWDER, K. 1997. Residential Mobility between Cities and Suburbs: Race, Suburbanization, and Back-to-the-city Moves. *Demography*, 34, 525-538.
- SPEIZER, I., NANDA, P., ACHYUT, P., PILLAI, G. & GUILKEY, D. 2012. Family Planning Use among Urban Poor Women from Six Cities of Uttar Pradesh, India. *Journal of Urban Health*, 89, 639-658.
- SPJELDNÆS, I. O. 2013. Family values of young people in Limpopo, South Africa: A sociocultural psychological study on perceptions and experiences of reproduction and parenthood. Department of Psychosocial Science, University of Bergen
- STACK, S. 1994. The Effect of Geographic Mobility on Premarital Sex. *Journal of Marriage and the Family*, 56, 204-208.
- STAPLETON, H. 2010. *Surviving Teenage Motherhood: Myths and Realities*, New York, Palgrave Macmillan.
- STARK, R. 1987. Deviant Places: A Theory of the Ecology of Crime. *Criminology*, 25, 893-

913.

STATISTICS SOUTH AFRICA 2010. Millennium Developments Goals: Goal 5-Improve Maternal Health. *Millennium Development Goals*. Pretoria: Statistics South Africa.

STATISTICS SOUTH AFRICA 2011. Census 2011 Metadata. Pretoria: Statistics South Africa.

STATISTICS SOUTH AFRICA 2012a. Census 10% Sample Metadata. Pretoria: Statistics South Africa, .

STATISTICS SOUTH AFRICA 2012b. Census 2011. *Statistical Release*. Pretoria: Statistics South Africa.

STATISTICS SOUTH AFRICA 2015. Mid-year Population Estimates. Pretoria: Statistics South Africa,.

STATISTICS SOUTH AFRICA, SCHULTZ, D. & LEHOHLA, P. 2013. The World of Work-Supplement. *Mail and Guardian*.

STJÄRNE, M., DE LEON, A. & HALLQVIST, J. 2004. Contextual effects of social fragmentation and material deprivation on risk of myocardial infarction—results from the Stockholm Heart Epidemiology Program (SHEEP). *International Journal of Epidemiology*, 33, 732-741.

STOLERU, M., RADU, N., SZIGETI, J. & ANTAL, I. 2011. The Support Role of the Criminal Justice System in Providing the Welfare of the Children from Single-Parent Families. *Revista de Asistență Socială*, 153-162.

SUBRAMANIAN, S. 2004. The Relevance of Multilevel Statistical Methods for Identifying Causal Neighborhood Effects. *Social Science & Medicine*, 58, 1961-1967.

SWART, L.-A., SEEDAT, M., STEVENS, G. & RICARDO, I. 2002. Violence in adolescents' romantic relationships: findings from a survey amongst school-going youth in a South African community. *Journal of Adolescence*, 25, 385-395.

TAFFA, N., KLEPP, K., SUNDBY, J. & BJUNE, G. 2002. Psychosocial Determinants of Sexual Activity and Condom Use Intention among Youth in Addis Ababa, Ethiopia. *International Journal of STD & AIDS*, 13, 714-719.

TALASHEK, M., ALBA, M. & PATEL, A. 2006. Untangling the Health Disparities of Teen Pregnancy. *Journal for Specialists in Pediatric Nursing*, 11, 14-27.

TANNEN, D. 1991. *You just don't understand: Women and Men in Conversation*, London: Ballantine

TAWIAH, E. 2002. Adolescent fertility and reproductive health in four sub-Saharan African countries.

THOMSON, E., MCLANAHAN, S. & CURTIN, R. 1992. Family structure, gender, and parental socialization. *Journal of Marriage and the Family*, 54, 368-378.

THORNTON, A. & CAMBURN, D. 1987. The Influence of the Family on Premarital Sexual Attitudes and Behavior. *Demography*, 24, 323-340.

TIBBETTS & HEMMENS 2009. *Criminological Theory: A Text/Reader*, Washington DC, Sage.

TIMÆUS, I. & MOULTRIE, T. 2012a. Teenage childbearing and dropout from school in South Africa: Evidence from a Household Panel. Cape Town: University of Cape Town & London School of Hygiene and Tropical Medicine.

TIMÆUS, I. & MOULTRIE, T. 2015. Teenage Childbearing and Educational Attainment in South Africa. *Studies in Family Planning*, 46, 143-160.

TOLAN, P., GORMAN-SMITH, D. & HENRY, D. 2003. The Developmental Ecology of Urban Males' Youth Violence. *Developmental Psychology*, 39, 274.

TOMBROS, A. 2005. Integrating efforts to prevent HIV other STIs and pregnancy among teens in developing countries: three case studies. *Issues at a Glance*. Washington, D.C:

Advocates for Youth

- TOSKA, E., CLUVER, L., BOYES, M., PANTELIC, M. & KUO, C. 2015. From 'Sugar Daddies' to 'Sugar Babies': Exploring a Pathway among Age-Disparate Sexual Relationships, Condom Use and Adolescent Pregnancy in South Africa. *Sexual Health*, 12, 59-66.
- TRAD, P. 1993. The Ability of Adolescents to Predict Future Outcome Part I: Assessing Predictive Abilities. *Adolescence*, 28, 533.
- TSHEOLA, J. 2012. Theorising a democratic developmental state: Issues of public service delivery planning and violent protests in South Africa. *Journal of Public Administration*, 47, 161-179.
- TSUI, A., CREANGA, A. & AHMED, S. 2007. The Role of Delayed Childbearing in the Prevention of Obstetric Fistulas. *International Journal of Gynecology & Obstetrics*, 99, 98-107.
- TUCKER, C., PERREIRA, K. & TUCKER HALPERN, C. 2011. Parenting Strategies and Teenage Pregnancy. Presented at Population Association of America. Washington DC: PAA.
- TUROK, I., HUNTER, R., ROBINSON, B., SWILLING, M. & VAN RYNEVELD, P. 2011. State of the cities report 2011. In: DAVIDSON, K. (ed.) *State of Cities* Johannesburg: South African Cities Network.
- UGOJI, F. 2011. Parental marital status and peer influence as correlates of teenage pregnancy among female teens in south-South Nigeria. *Gender and Behaviour*, 9, 4125-4138.
- UNGER, J.;MOLINA, G. & TERAN, L. 2000. Perceived Consequences of Teenage Childbearing among Adolescent Girls in an Urban Sample. *Journal of Adolescent Health*, 26, 205-212.
- UNICEF & WORLD HEALTH ORGANIZATION 2014. *Progress on Sanitation and Drinking Water: 2014 Update*, Geneva: World Health Organization.
- UNITED NATIONS 2013. Fertility Levels and Trends as Assessed in the 2012 Revision of the World Population Prospects. New York: United Nations.
- UNITED NATIONS POPULATION FUND. 2013. Motherhood in Childhood: Facing the Challenge of Adolescent Pregnancy. New York: UNFPA.
- UNITED NATIONS STATISTICS DIVISION. 2017. *Households and Families* [Online]. New York, NY: United Nations.
- VARGA, C. 2003. How Gender Roles Influence Sexual and Reproductive Health Among South African Adolescents. *Studies in Family Planning*, 34, 160-172.
- VINER, R., OZER, E., DENNY, S., MARMOT, M., RESNICK, M., FATUSI, A. & CURRIE, C. 2012. Adolescence and the social determinants of health. *The Lancet*, 379, 1641-1652.
- VOLD, G.;BERNARD, T. & SNIPES, J. 2002. *Theoretical Criminology*, New York, , Oxford University Press.
- VUNDULE, C., MAFORAH, F., JEWKES, R. & JORDAAN, E. 2001. Risk Factors for Teenage Pregnancy among Sexually Active Black Adolescents in Cape Town. *South African Medical Journal*, 91, 73-80.
- WADDINGTON, D. 2007. *Teenage pregnancy: Risk-taking, Contraceptive use and Risk Factors*. International Master of Science in Social Work Masters of Arts, University of Gothenburg.
- WAHN, E. & NISSEN, E. 2008. Sociodemographic background, lifestyle and psychosocial conditions of Swedish teenage mothers and their perception of health and social support during pregnancy and childbirth. *Scandinavian Journal of Public Health*, 36, 415-423.
- WALBY, S. 1990. *Theorizing Patriarchy*, Lancaster, UK: Basil Blackwell.
- WALKER, J.-A. 2012. Early Marriage in Africa–Trends, Harmful Effects and Interventions.

African journal of reproductive health, 16, 231-240.

WALKER, J.-A. 2013. Why Ending Child Marriage Needs to Be an Education Goal. *Improving Learning Opportunities and Outcomes for Girls in Africa*, 6.

WATERS, L. & MOORE, K. 2002. Predicting self-esteem during unemployment: the effect of gender, financial deprivation, alternate roles, and social support. *Journal of Employment Counselling*, 39, 171.

WEI, E., HIPWELL, A., PARDINI, D., BEYERS, J. & LOEBER, R. 2005. Block observations of neighbourhood physical disorder are associated with neighbourhood crime, firearm injuries and deaths, and teen births. *Journal of Epidemiology and Community Health*, 59, 904-908.

WENTZEL, M., VILJOEN, J. & KOK, P. 2006. *Contemporary South African Migration Patterns and Intentions*, Cape Town: HSRC Press.

WERE, M. 2007. Determinants of teenage pregnancies: The case of Busia District in Kenya. *Economics & Human Biology*, 5, 322-339.

WHO, UNICEF, UNFPA & THE WORLD BANK 2010. *Trends in maternal mortality: 1990 to 2010*, Geneva: World Health Organisation.

WHO COMMISSION ON SOCIAL DETERMINANTS OF HEALTH & WORLD HEALTH ORGANIZATION 2008. *Closing the Gap in a Generation: Health Equity Through Action on the Social Determinants of Health: Commission on Social Determinants of Health Final Report*, Geneva: World Health Organization.

WILDSMITH, E., MANLOVE, J., JEKIELEK, S., MOORE, K. & MINCIELI, L. 2012. Teenage Childbearing among Youth Born to Teenage Mothers. *Youth & Society*, 44, 258-283.

WILLAN, S. 2013. A Review of Teenage Pregnancy in South Africa—Experiences of Schooling, and Knowledge and Access to Sexual & Reproductive Health Services. Cape Town: Partners in Sexual Health.

WILSON, F. 2012. Gender based violence in South African schools. Citeseer.

WILSON, J. & KELLING, G. 1982. Broken Windows: The Police and Neighborhood Safety. *The Atlantic*. Boston, Massachusetts: Hayley Romer.

WILSON, M. & DALY, M. 1997. Life expectancy, economic inequality, homicide, and reproductive timing in Chicago neighbourhoods. *British Medical Journal*, 314, 1271.

WILSON, W. 1991. Studying Inner-City Social Dislocations: The Challenge of Public Agenda Research: 1990 Presidential Address. *American Sociological Review*, 56, 1-14.

WINTER, S. & BARCHI, F. 2015. Access to Sanitation and Violence against Women: Evidence from Demographic Health Survey (DHS) Data in Kenya. *International Journal of Environmental Health Research*, 26, 291-305.

WOOD, D., HALFON, N., SCARLATA, D., NEWACHECK, P. & NESSIM, S. 1993. Impact of Family Relocation on Children's Growth, Development, School Function, and Behavior. *JAMA*, 270, 1334-1338.

WOOD, K. & JEWKES, R. 2006. Blood Blockages and Scolding Nurses: Barriers to Adolescent Contraceptive Use in South Africa. *Reproductive Health Matters*, 14, 109-118.

WOOD, K., MAFORAH, F. & JEWKES, R. 1998. "He forced me to love him": putting violence on adolescent sexual health agendas. *Social Science & Medicine*, 47, 233-242.

WOODWARD, L., FERGUSON, D. & HORWOOD, L. 2001. Risk Factors and Life Processes Associated with Teenage Pregnancy: Results of a Prospective Study from Birth to 20 Years. *Journal of Marriage and Family*, 63, 1170-1184.

WOODWARD, V. 1995. Psychosocial factors influencing teenage sexual activity, use of contraception and unplanned pregnancy. *Midwifery*, 11, 210-216.

WORLD HEALTH ORGANISATION, UNICEF, UNFPA & THE WORLD BANK 2014.

- Trends in Maternal Mortality: 1990-2010. In: WHO, UNICEF, UNFPA & THE WORLD BANK (eds.). New York.
- WORLD HEALTH ORGANIZATION. 2014. *Adolescent Pregnancy* [Online]. Available: http://www.who.int/maternal_child_adolescent/topics/maternal/adolescent_pregnancy/en/ [Accessed 2 April 2014].
- XU, H., MBERU, B., GOLDBERG, R. & LUKE, N. 2013. Dimensions of rural-to-urban migration and premarital pregnancy in Kenya. *The Annals of the American Academy of Political and Social Science*, 648, 104-119.
- XU, J. & SHTARKSHALL, R. 2004. Determinants, Outcomes and Interventions of Teenage Pregnancy-An International Perspective. *生殖与避孕*, 15.
- YAHAYA, I., UTHMAN, O., SOARES, J. & MACASSA, G. 2013. Social Disorganization and history of child sexual abuse against girls in sub-Saharan Africa: a multilevel analysis. *BMC International Health and Human Rights*, 13, 8.
- YOUNG, E., JENSEN, L., OLSEN, J. & CUNDICK, B. 1991. The Effects of Family Structure on the Sexual Behavior of Adolescents. *Adolescence*, 26, 977.
- ZABA, B., PISANI, E., SLAYMAKER, E. & BOERMA, J. 2004. Age at First Sex: Understanding Recent Trends in African Demographic Surveys. *Sexually Transmitted Infections*, 80, 28-35.
- ZELNICK, M. & KANTER, J. 1972. Sexuality, contraception and pregnancy among young unwed females in the United States. In: COMMISSION ON POPULATION GROWTH AND THE AMERICAN FUTURE (ed.) *EthxWeb: Literature in Bioethics*. Washington DC: Georgetown University.
- ZEMBE, Y., TOWNSEND, L., THORSON, A. & EKSTRÖM, A. 2013. "Money talks, bullshit walks" Interrogating Notions of Consumption and Survival Sex among Young Women Engaging in Transactional Sex in Post-Apartheid South Africa: a Qualitative Enquiry. *Globalization and Health*, 9, 1.
- ZHOU, X., PERKINS, A. & HUI, S. 1999. Comparisons of Software Packages for Generalized Linear Multilevel Models. *The American Statistician*, 53, 282-290.
- ZITO, R. 2012. *Family Structure History, Family Process, and Adolescent Role Exits: Gendered Pathways to Sexual Debut, Delinquency, and Teenage Cohabitation*. PhD in Criminology, North Carolina State University.
- ZULU, E., DODOO, F. & CHIKA-EZEH, A. 2002. Sexual Risk-Taking in the Slums of Nairobi, Kenya, 1993-98. *Population Studies*, 56, 311-323.
- ZULU, X., ARCANGELI, J. & MOODLEY, R. 2014. *Government unveils free contraceptive device for women* [Online]. Pretoria: SAnews.gov.za. Available: <http://www.sanews.gov.za/> [Accessed 29 April 2014].
- ZWANG, J. & GARENNE, M. 2009. Social Context of Premarital Fertility in Rural South-Africa. *African Journal of Reproductive Health*, 12, 98-110.

APPENDIX A:

DISSEMINATION PLAN

Table A.1: Conferences for the dissemination of research findings

S/N	Proposed Conferences	Date	Title of paper	Action
1.	Annual conference of Population Association of America (PAA), San Diego, USA	30 April - 2 May, 2015	Teenage Pregnancy in Sub-Saharan Africa: The application of Social disorganisation theory	Abstract accepted and paper was presented at the conference
2.	Annual conference of PAA, San Diego, USA	30 April - 2 May, 2015	The Social disorganization Theory and Community Effects on teenage Pregnancy in South Africa	Abstract accepted and paper was presented at the conference
3.	22 nd Annual South African Sociological Association (SASA) Congress	28 June-1 July, 2015	The Investigation of Teenage Pregnancy in South Africa: Past Approach and Progressing into the Future	Abstract accepted and paper was presented at the conference
4.	3 rd . World Social Science Forum Conference	13- 16 September 2015	Poverty: An Explanation for Teenage Pregnancy in South Africa?	Abstract accepted and paper was presented at the conference
5.	School of Public Health Research Conference	30 September 2015	The Effect of Service Delivery in Different Residential Areas on Teenage Pregnancy in South Africa	Abstract accepted and paper was presented at the conference
6.	7 th Wits Cross-Faculty Graduate Symposium	October 29-30, 2015	Socio-Structural Analysis of Teenage Pregnancy in South Africa- Does poverty Matter?	Abstract accepted and paper was presented at the conference
7	7th African Population Conference	30 November-4 December, 2015	The Social disorganization Theory and Community Effects on teenage Pregnancy in South Africa	Abstract accepted and paper was presented at the conference

8.	Annual conference of PAA, San Diego, USA	31 March - 2 April, 2016	Poverty: An Explanation for Teenage Pregnancy in South Africa?	Abstract accepted and paper was presented at the conference
9.	Family Demography in Africa and Post-2015 Development Agenda Conference	25-28 June, 2016	Family Structure and the Risk of Teenage Pregnancy in South Africa	Abstract accepted and paper was presented at the conference
10.	3 rd . International Sociological Association (ISA) Forum	10-14 July, 2016	Teenage Pregnancy and Racial Heterogeneity in South Africa	Abstract accepted and paper was presented at the conference
11.	Faculty of Health Sciences Biennial Research Day and Postgraduate Expo	1 September, 2016	Where Is My Father?.....The Association Between Single Female Headedness and Teenage Pregnancy in South Africa	Abstract accepted and paper was presented at the conference
12.	Public Health Association of Southern Africa (PHASA) Conference	19-22 September, 2016	Determinants of adolescent maternal mortality and the importance of pregnancy complication awareness: Evidence from Zimbabwe	Abstract accepted and paper was presented at the conference
13.	PHASA Conference	19-22 September, 2016	Paternal absence and teenage pregnancy in SA	Abstract accepted and paper was presented at the conference
14.	PHASA Conference	4-7 September, 2017	The Relationship between Community Unemployment and Teenage Pregnancy: Evidence from South Africa	Abstract accepted and paper was presented at the conference
15.	International Union for the Scientific Study of Population (IUSSP) International Population Conference	29 October- 4 November 2017	Residential Mobility in Post-apartheid South Africa: Its Trend and Association with Teenage Fertility	Abstract accepted
16.	International Union for the Scientific Study of Population (IUSSP) International Population Conference	29 October- 4 November 2017	Service Delivery Inequalities as a Predictor of Adolescent Pregnancy in South Africa	Abstract accepted

PUBLICATIONS ACCEPTED:

Year	Authors	Title	Journal / Book	Status
2017	Mkwanaenzi, S	Teenage Pregnancy in South Africa: Setting a new research agenda	South African Review of Sociology	Published
2016	Odimegwu, CO and Mkwanaenzi, S	Social disadvantage and teen pregnancy in sub-Saharan Africa: A multi-country cross-sectional study	Journal of African Reproductive Health	Published

COPY OF ANY PUBLICATIONS:



South African Review of Sociology

ISSN: 2152-8586 (Print) 2072-1978 (Online) Journal homepage: <http://www.tandfonline.com/loi/rssr20>

Teenage pregnancy in South Africa: Setting a new research agenda

Sibusiso Mkwanzani

To cite this article: Sibusiso Mkwanzani (2017) Teenage pregnancy in South Africa: Setting a new research agenda, South African Review of Sociology, 48:1, 42-66

To link to this article: <http://dx.doi.org/10.1080/21528586.2016.1216801>

© 2016 The Author(s) Published by Unisa Press and Informa UK Limited, [trading as Taylor & Francis Group]



Published online: 08 May 2017.

Submit your article  to this journal 



View related articles 



View Crossmark data 

Full Terms & Conditions of access and use can be found at
<http://www.tandfonline.com/action/journalInformation?journalCode=rssr20>

TEENAGE PREGNANCY IN SOUTH AFRICA: SETTING A NEW RESEARCH AGENDA

Sibusiso Mkwanzani

Demography and Population Studies Programme

University of the Witwatersrand

Sibusiso.Mkwanzani@wits.ac.za

ABSTRACT

The advent of democracy in South Africa in 1994 was coincidentally accompanied by an avalanche of research on the nation-wide risk factors of teenage pregnancy. Today, such research remains, yet the quantitative investigation of factors beyond the individual level has been limited. This study documents the statistical associations found in previous research between teenage pregnancy and key independent variables, namely: age, educational level, socio-economic status and forced sex/gender based violence, as well as a few household and community variables. It goes on to explain the fundamental shortcomings of this approach and proposes an alternative quantitative approach to examining the phenomenon of teenage pregnancy through an adaptation of Bronfenbrenner's ecology theory and Blum et al.'s multilevel and life course framework for early adolescent health and development, and from the perspective of social determinants of health. This will extend the extant knowledge of teenage pregnancy determinants and open up avenues of programme interventions and policy changes to help reduce teenage pregnancy in South Africa.

Keywords: adolescence, teenage pregnancy, sexual and reproductive health, South Africa, multilevel investigation

INTRODUCTION

In South Africa, scholars of sexual and reproductive health have traditionally assessed the proximate and underlying determinants of early unwanted pregnancy and fertility through characteristics of the teenage female. Such studies investigated the use of



South African Review of Sociology
Volume 48 | Number 1 | 2017 | pp. 42–66

DOI: 10.1080/21528586.2016.1216801
Print ISSN 2152-8586 | Online ISSN 2072-1978
© 2016 The Author(s) Published by Unisa Press and
Informa UK Limited, [trading as Taylor & Francis Group]



contraception; age of sexual debut; prevalence of and attitudes towards abortion; and the effects of marriage as potential risk factors of teenage pregnancy. More recently, studies have looked at the influence of the demographic and socio-economic factors of the teenage female with some reference to cultural influence (see Ibisomi and Odimegwu 2007; Macleod and Tracey 2010; Mchunu et al. 2013; Mothiba and Maputle 2012; Panday et al. 2009; Reddy et al. 2010; Timaeus and Moultrie 2012; Willan 2013). This approach to investigating teenage pregnancy has had enormous consequences on teenage females in South Africa with the lawful age of marriage increasing to 18 years; the consensual age for sex increasing to 16 years; and the independent acquisition age for contraceptives and abortion decreasing to 12 years (Department of Health 2012; Republic of South Africa 1996, 2005). There are limited policy interventions in this area because the framing of early unwanted pregnancy is slanted towards interest in the teenage female.

Various non-governmental organisations (NGOs), such as Soul City and loveLife, organise peer education, multimedia campaigns, counselling and other awareness initiatives to address teenage pregnancy (Macleod and Tracey 2009). However, many of the interventions aim to address wider sexual and reproductive health risks such as HIV and other sexually transmitted infections (STIs). Accordingly, Pettifor et al. (2005) investigated the effects of the loveLife programmes and found that females who had participated in at least one programme were at a lower risk of HIV infection. More specifically, Jewkes et al. (2008) assessed the Stepping Stones programme, which is intended 'to improve sexual health by using participatory learning approaches to build knowledge, risk awareness, and communication skills and to stimulate critical reflection' and found that the programme was unable to lower the incidence of HIV, nor was it successful in reducing sexual risky behaviour among young females. In fact, females who participated in the programme reported more transactional sex at 12 months. However, the study showed that the Stepping Stones programme decreased HSV-2 infection and the occurrence of male violence against intimate partners. Consequently, these efforts have had limited effects with teenage pregnancy continuing to rise year on year and teenage fertility incidence having decreased by 16% in the decade between 2001 and 2011: an average decrease of 1.6% per year (Masondo 2015; Mkwananzi forthcoming). Additionally, this emphasis on the teenage female has resulted in the policing of young women's bodies; politicians shaming pregnant teens on public platforms; and more recently specific initiatives 'to help wean young girls from sugar daddies' and 'scholarships for virgins' (Mkhwanazi 2012).

But the teenage female involved is not the only factor in teenage pregnancy. There is also the father of the conceived child; the peers with whom she spends time; and the school that she attends. Further, there is the family that she comes from and the community that she lives in. All these relationships and environments have an ability to affect her and the choices she makes regarding her sexual and reproductive health. This article aims to show the importance of contextual analysis of teenage pregnancy in South

Africa. It explores this issue through charting recent teenage pregnancy levels; showing statistical differences in provincial levels of teenage pregnancy; critically assessing past literature of teenage pregnancy in South Africa; and proposing a new approach to investigating teenage pregnancy nationally. Specifically, it validates teenage pregnancy differences by time and location and reviews past quantitatively based national research to establish the inconsistencies and gaps in the research strategy to date. This positions us to suggest a more suitable approach to teenage pregnancy enquiry going forward. The exploration of factors beyond the individual level should help to decrease demonisation and stigmatisation of pregnant teen females as well as open up greater avenues of redressing and preventing teenage pregnancy. The ultimate aim is to ensure that every pregnancy is planned and wanted, even among teenage females.

Teenage pregnancy remains a key challenge to the sexual and reproductive health of young women in South Africa and the world over. Recent studies have reported pregnancy to occur among a third of females by the age of 19 in South Africa (Shefer, Bhana and Morrell 2013; Willan 2013).

It is of concern that teenage pregnancy is associated with numerous adverse obstetric, biological, social and demographic consequences for both mother and child (Hoque et al. 2013; Lee 2010; Mangiaterra et al. 2008). In South Africa, adolescent fertility contributes 36% to the maternal mortality ratio which was 300 maternal deaths per 100 000 live births in 2010 (WHO 2014). In South Africa, teenage pregnancies account for 80 000 unplanned babies annually as termination of pregnancy is frowned upon in indigenous cultures (Zulu, Arcangeli and Moodley 2014). This has led to many girls attempting illegal termination of their pregnancy, with dire consequences (Cunningham and Boulton 1996; Mkwanaenzi 2010).

Further to obstetrically related issues, teenage pregnancy has other health consequences. Recently, scientists discovered that it is associated with a higher risk of acquiring HIV (Christofides et al. 2014). Also, there are long-term outcomes for the teenage mother due to lower educational attainment and school dropout resulting in lower income-earning potential and perpetuation of poverty (Lee 2010).

There is limited information on the levels of poor outcomes for the pregnant teenage female and her unborn child. Nevertheless, international research has shown that children born to teenagers experience higher levels of birth complications, poor health outcomes and social poverty (Chen et al. 2007; Hoque et al. 2013). Consequently, teenage pregnancy is a critical issue in South Africa.

LEVELS OF TEENAGE PREGNANCY IN SOUTH AFRICA

Levels of teenage pregnancy in South Africa (2009–2013)

The national incidence of teenage pregnancy rates from 2009 to 2013 from the general household survey (GHS) is depicted in Figure 1. Standard error bars are included to

determine whether the recorded levels were statistically different or not. Also, a forward prediction segment was added to the current trend of pregnancy to project into the future. Overall, the level of teenagers who had become pregnant in the previous year increased over time by 12% from 2009 to 2013, and was expected to continue increasing into the future. The levels of teenage pregnancy were statistically different for most of the years, except between 2012 and 2013, according to the standard error lines.

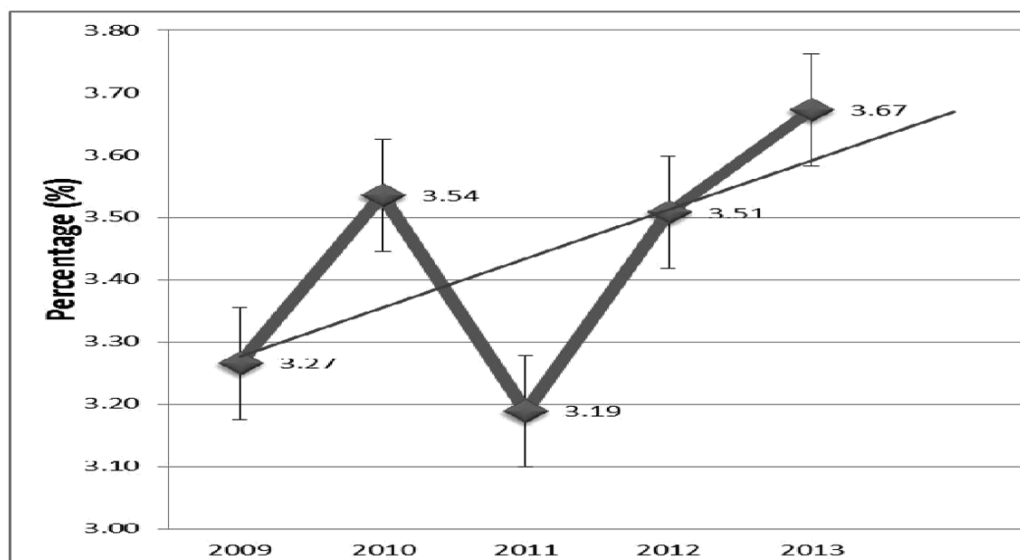


Figure 1: Incidence of teenage pregnancy in South Africa

Source: Author computation from GHS (2009–2013)

As seen from the graph, 3.27% of teenage females became pregnant in 2009. This rose by approximately 8% to 3.54% in 2010, dropped to 3.19% in 2011, and rose again by 15% to reach 3.67% in 2013. The trend line showed that across the years teenage pregnancy was increasing and based on the projected levels was expected to continue increasing into the future. The results from the chi-squared test of linear trend showed that there was a statistically significant linear increase in teenage pregnancy between 2009 and 2013 nationally.

Levels of teenage pregnancy across South African provinces (2009–2013)

Table 1 shows the provincial incidence of teenage pregnancy rates for 2009 to 2013 from GHS data. The table shows that some provinces had more than double the incidence of

teenage pregnancy than others. For example, in 2009, Northern Cape had a teenage pregnancy rate that was 2.7 times greater than Free State's rate.

Table 1: Provincial incidence of teenage pregnancy rates in South Africa

Year	Western Cape	Eastern Cape	Northern Cape	Free State	KwaZulu-Natal	North West	Gauteng	Mpumalanga	Limpopo	χ^2 Test
2009	38.32	37.76	52.77	19.43	37.66	43.62	20.26	24.46	34.14	0.00
2010	18.51	27.87	39.79	31.37	35.73	32.15	37.79	43.74	50.15	0.00
2011	21.01	38.68	19.43	19.87	38.16	35.41	25.66	33.77	35.29	0.00
2012	22.46	33.47	52.34	36.70	32.12	53.50	23.04	46.09	35.76	0.00
2013	22.95	43.17	43.17	33.43	38.48	59.85	31.35	40.83	31.04	0.00

In 2010, Limpopo followed by Mpumalanga had the uppermost rates of teenage pregnancy at 50.15 and 43.74 pregnancies per 1 000 10–19-year-old females, respectively. Eastern Cape and KwaZulu-Natal had the highest rates in 2011, while Northern Cape had the lowest rate. In 2012, North West and Northern Cape had rates above 50 pregnancies per 1 000 teenage females, and Western Cape had the lowest rate at 22.46 pregnancies per 1 000 teenage females. Finally, North West had the highest rate in 2013 at 59.85 pregnancies per 1 000 teenage females (the highest rate reported over the five years), while Western Cape had the lowest rate for the year.

Overall, the teenage pregnancy rates were not uniform across provinces of South Africa from 2009 to 2013. The chi-squared test was statistically significant across provinces for all the years under investigation. These results prove the variation of teenage pregnancy by location. If such variations can be seen at provincial level, the disparity of teenage pregnancy levels at municipality level is expected to be even greater. This suggests reasons beyond the individual circumstances predisposing young women to higher levels of risk of teenage pregnancy in certain areas. A critical review of South African research studies on teenage pregnancy follows to show the extent of investigation that has occurred and what gaps and inconsistencies still exist.

HISTORICAL INVESTIGATION OF TEENAGE PREGNANCY IN SOUTH AFRICA

Researchers have attempted to establish the main factors increasing the likelihood of adverse sexual and reproductive outcomes, especially unintended pregnancy and early childbearing (Macleod and Tracey 2010). Previous studies on teenage pregnancy have tended to focus on individual-level risk factors of teenage pregnancy and few have attempted to measure the influence of the contextual environment (Macleod and Durrheim 2002; Makubalo 2008; Mkhwanazi 2009). These community environments form the background upon which all the proximate and underlying determinants exist. Therefore, the levels of both these groups of determinants are heavily influenced by the

environments that young females live in at both household and community level (Blum et al. 2014; Godley 2012).

Consequently, it is necessary to determine what has already been established from previous studies and then chart the best path forward to ensure that teenage pregnancy is optimally addressed in South Africa. Accordingly, a description of these areas substantiated through research is given below followed by a critique of the studies conducted thus far and recommendations on how to progress henceforth.

Extensive investigation has occurred in response to the level of teenage pregnancy. Such research has encompassed establishing the association of key variables with teenage pregnancy, namely, age, education level, race and socio-economic status.

Demographic factors

Age

The likelihood of pregnancy among teenagers in South Africa has repeatedly been seen to rise as age increases (Jewkes, Morrell and Christofides 2009; Malema 2000). Panday et al. (2009) attributed the majority of teenage pregnancies to females aged 17 to 19, while the National Youth Risk Behaviour Survey reported that a third of these pregnancies occurred among 19-year-olds, yet all the other individual ages, from 13 to 18, had far lower levels of pregnancy, ranging from 12.5% to 17.7% (Reddy et al. 2010). Age differences were seen even at provincial level in the study conducted in Limpopo, though not significantly so (Limpopo Population and Development Directorate 2012).

Race

Teenage pregnancy race differentials have been studied extensively owing to South Africa's past and the persistent desire to abolish all forms of inequality. Nonetheless, higher levels of teenage pregnancy have been shown to occur consistently among Africans and coloureds in South Africa (Jewkes et al. 2009; Marteleto, Lam and Ranchhod 2008; Panday et al. 2009). Pettifor et al. (2005) found that black teenage females had an eight times higher risk of pregnancy than girls from other races. Panday et al. (2009) went on to generate race-specific rates of teenage pregnancy with significantly higher rates occurring among African (71 per 1 000) and coloured (60 per 1 000) adolescents, while fertility among white (14 per 1 000) and Indian (22 per 1 000) adolescents approximated those of developed countries. These racial differences were explained to be as a result of differences in socio-economic status. This is due to poverty and unemployment being higher among Africans and coloureds in South Africa, which leads to much higher levels of teenage pregnancy in these population groups.

Marital status

Pregnancy is classically known to occur within marriage, but this norm was violated from about the 1980s with greater numbers of premarital births (Macleod 2011). Such births included even early childbearing and this phenomenon continues to the present day, with the majority of pregnant teenagers being unmarried (Ibisomi and Odimegwu 2007; Macleod and Tracey 2010).

Socio-economic factors

Education

Lower levels of education have been shown to increase the likelihood of teenage pregnancy (Jewkes et al. 2009; Malema 2000; Manzini 2001; Marteleto et al. 2008; Timæus and Moultrie 2012). This effect from previous studies has ranged from a 30% to a three-fold greater risk (Jewkes et al. 2009; Marteleto et al. 2008). Nevertheless, there are some studies that have not found an association between education levels and teenage pregnancy in South Africa (Mchunu et al. 2013; Reddy et al. 2010).

Socio-economic status

Teenage pregnancy has been consistently associated with the individual's socio-economic background (Macleod 1999; Macleod and Tracey 2010; Mchunu et al. 2013; Mothiba and Maputle 2012; Ramathuba 2013; Timæus and Moultrie 2012; Willan 2013). Timæus and Moultrie (2012) showed that girls living in the 20% highest income group were less likely to become pregnant. The study by Marteleto et al. (2008) quantified this issue showing a 41% higher likelihood of pregnancy in the presence of temporary or permanent socio-economic hardship.

Moreover, great disparities in teenage pregnancy based on location exist in South Africa, with lower levels of 0–5% occurring in affluent areas as opposed to levels as high as 60–80% of teenage females having ever been pregnant in deprived areas (Macleod and Tracey 2010; Sayagues 2007).

Forced sex and gender-based violence

Coercive sex and gender-based violence have been associated with higher levels of teenage pregnancy (Macleod 1999; Macleod and Tracey 2010; Willan 2013). Jewkes et al. (2010) found that 23% of women aged 15 to 26 had experienced more than one episode of physical or sexual intimate partner violence in South Africa. This has been found to occur more commonly within intergenerational relationships. The likelihood of teenage pregnancy increases when a teenage female's partner is more than five years older than her (Macleod and Tracey 2010; Vundule et al. 2001). In the study by Mothiba and Maputle (2012), almost half (48%) of pregnant teenagers had partners above the

age of 21. Vundule et al. (2001) found that partners of pregnant teenagers had a higher mean age difference of 5.1 years compared to non-pregnant teenagers. Toska et al. (2015) showed that ever having engaged in age-disparate sex increased the likelihood of teenage pregnancy by almost three times (2.98) compared to not having done so.

The large age gap is said to decrease the ability of young women to negotiate for safe sex (Mkhwanazi 2011). In their Cape Town study, Jewkes et al. (2001) showed that pregnant girls had significantly older partners. In addition, experiencing coercive sex and a greater frequency of beatings increased the likelihood of teenage pregnancy by 76% and 85%, respectively. The authors argued that these findings were mediated through power inequality within relationships which was reinforced through violence (Jewkes et al. 2001). Jewkes et al. (2001) attested that teenage pregnancy reveals sexual activity practice that places young females at risk of HIV infection as well. Accordingly, Pettifor et al. (2005) showed that having an older partner tripled the risk of HIV infection.

Household factors

Very few studies have investigated household variables as possible predictors of teenage pregnancy in South Africa (Limpopo Population and Development Directorate 2012; Malema 2000; Vundule et al. 2001). Nevertheless, household size and parental absence have been associated with teenage pregnancy (Limpopo Population and Development Directorate 2012; Vundule et al. 2001). The matched case-control study conducted by Vundule et al. (2001) in Cape Town identified paternal absence; higher household size; not owning a television set; and not living in a brick house as the most significant determinants of teenage pregnancy. In particular, not living with one's biological father almost tripled the risk of teenage pregnancy while larger household size doubled the risk. Ownership of a television set and residence in a brick house were proxies for socio-economic status.

The Limpopo Population and Development Directorate (2012) study constituted a component of the national study commissioned by the South African government 'to identify and understand the psychosocial, economic, cultural and household factors associated with teenage pregnancies' in South Africa. It showed that the larger the household size, the more a teenage female would want to be pregnant, with teenage females being 63% more likely to get pregnant for every unit increase in household size (Limpopo Population and Development Directorate 2012). However, parental survival; population group; the child support grant; housing type; access to water and electricity; and being in an intergenerational relationship were all found not to be significantly associated with teenage pregnancy and motherhood. These non-significant findings are rather concerning and may be due to the application of simple binary logistic regression used for this particular study instead of multilevel binary logistic regression to account for the hierarchical data. Also, the findings may have been greatly affected by the location of the study and the resultant average socio-economic status; race pattern;

levels of service provision; and intergenerational relationships. If these factors occurred among most teenage females regardless of pregnancy status, their effects might be insignificant, as the study found.

Community factors

Community-level factors have not been widely studied in South Africa. Nevertheless, the few studies conducted have found culture, gender inequality and gender stereotyping to be significant community-level predictors of teenage pregnancy (Varga 2003; Willan 2013). The cross-sectional study by Varga (2003) used triangulation of focus group discussions, narrative role playing, questionnaires and in-depth interviews. The study was conducted in KwaZulu-Natal and examined societal gender ideology, gender roles and the social impact of teenage childbearing. The study found gender stereotyping to reinforce females' inability to negotiate for safer sex, and other disadvantageous sexual dynamics. These issues as well as double-standard treatment based on gender placed adolescent girls at risk of falling pregnant. Likewise, the literature review by Willan (2013) concluded that societal levels of gender inequality, gender-based violence and poverty were the major issues needing attention for teenage pregnancy to be curbed in South Africa.

The above literature critique highlights the inconsistencies in previous research findings. These discrepancies can be attributed to differences in sample sizes, as well as the analytical methods used and the intersections between certain variables. Particularly, in the South African context, there is great intersection among race, socio-economic status (class) and education attainment. Different social realities exist in South Africa based on race that overspill to teenage pregnancy profiles varying by race and socio-economic status. Consequently, dynamics that would be accounted for by class may seem race related if socio-economic status is not controlled for. Similarly, cultural dynamics and contextual factors, such as social perceptions, norms and beliefs, may underlie the effects of gender-based violence and sexual coercion locally. Numerous and complex family orientations, behaviours and features continue to occur in South African society today that entrench violence, strain social relations and demolish authority and social institutions (Delius and Glaser 2002).

OVERSIGHT OF HISTORICAL INVESTIGATION

The behaviour of young people is heavily influenced by context (Godley 2012). In particular, the teenage years are a self-formative and self-awareness phase. Therefore, certain skills, such as self-control, risk assessment and resistance to peer pressure, have not yet been fully developed. This makes young people particularly vulnerable to external influence from their peers as well as from the environment in which they live. Accordingly, Makubalo (2008) endorsed the opinion that a clearer comprehension of

teenage pregnancy in South Africa will only be achieved upon establishing the local, social and contextual drivers of the phenomenon. Hence, much remains to be done in areas beyond the individual level, such as household and community variables, which have received very little attention to date.

Studies on teenage pregnancy by Mkhwanazi (2009), Jewkes et al. (2009) and Panday et al. (2009) have recommended the need to study social factors leading to teenage pregnancy due to cultural views, the dynamics of families and communities as well as racial differences. They argue that the neglect of social and structural predictors of teenage pregnancy has led to its continued persistence. Past studies looking at household and community variables have had methodological constraints. Both the Limpopo and Cape Town studies used a simple version of binary logistic regression to investigate factors occurring at household and community level. Such factors should be investigated using multilevel binary logistic regression to account for multiple level occurring parameters. Additionally, the data was not disaggregated by the age of the mother thus restricting deeper analysis (Limpopo Population and Development Directorate 2012; Vundule et al. 2001). Finally, the Limpopo study used a qualitative approach to investigate some of the factors, which means the associations found were more descriptive than inferential in nature.

Previous studies in South Africa have cited some community effects on teenage pregnancy, but these have not encompassed the possible full scope of factors, such as social-disorganisation elements, service deprivation, community structures, cultural dynamics and others detailed in the following section (Limpopo Population and Development Directorate 2012; Varga 2003; Vundule et al. 2001; Willan 2013). The study by Panday et al. (2009) attests to this as trade-offs between health and survival were noted in pregnant teenagers from disadvantaged communities. It is postulated that women who are part of socially disorganised communities fail to exercise their individual rights and desires due to forces imposed by the environment.

Thus, teenage pregnancy is not merely a reproductive health matter that can be reduced through making contraceptives available (Willan 2013). Rather, responses should address socio-structural factors, thereby empowering girls through optimisation of their communities. Indeed, creating safer and more organised societies has been seen to encourage healthier risk perception and behaviour (Godley 2012). Local exploration of teenage pregnancy has hinted at the importance of dysfunction in relationships and communities, yet this has not been analysed in-depth (Macleod 1999). Studies investigating teenage pregnancy in this way have been sparse and superficial. It is believed that the deficient application of robust methodologies, unavailability of data and possible challenges in comprehensive measurement of these factors led to this past approach.

Hence, there is a need to explore further factors existing at household and community levels that may be driving teenage pregnancy locally. South Africa lends a distinct setting for the study of teenage pregnancy as there are considerable gaps in standards of living, resources, community structures and general communal characteristics based on

previous political demarcations (Emmett 2003). These gaps did not materialise recently, but are the construct of decades of colonial and apartheid rule. Despite the democratic government's efforts to equalise them, great disparities still exist structurally, socially and psychologically (Emmett 2003; Knight 2006).

Research has shown that South Africa is still engulfed by the effects of dysfunctional families and social breakdown (Holborn and Eddy 2011). Holborn and Eddy (2011) reported a total of 30 763 divorces nationally with 56% of these involving families with children. The study showed that more than 60% of urban families in all race groups were headed by female single parents. Additionally, an estimated 1.4 million children had lost their care-giving parents to AIDS nationally, 7% of whom were living in child-headed households. Only 34% of children lived in households with an employed adult. At community level, South Africa also exhibits social disorganisation with high levels of unemployment, gender-based violence and service-delivery protests. The unemployment rate has been found to range from 20–30% depending on location in the country (Kingdon and Knight 2004; Klasen and Woolard 2009). South Africa is known to have one of the highest levels of gender-based violence in the world (Durojaye 2011).

Wilson (2012) reported that 15% of learners had experienced being forced to have sex, and Swart et al. (2002) found that half of all adolescents in romantic relationships had experienced gender-based violence. The incidence of service-delivery protests in disadvantaged localities seems to have increased in South Africa in the years following independence (Tsheola 2012). A study by Nleya (2011) found that the occurrence of protests decreased as service-delivery improved and inadequate service-delivery directly and indirectly led to protest action because of the way the community perceived it and experienced poor living standards. Additionally, Nleya (2011) showed that half of the population in informal settlements were involved in protests, as opposed to only 36% of the population in formal settlements.

PROPOSED INVESTIGATION OF TEENAGE PREGNANCY IN SOUTH AFRICA

Globally, scientists have attempted to establish the differences between individual subjects that result in teenage pregnancy while considering differences of contexts. The relevance of the inter-subjectal space, commonly known as the context or environment of social phenomena, has been considered vital by theorists for the past two decades (Viner et al. 2012). Conversely, this stance has only recently been embraced locally among scientists studying biological phenomena. This is in spite of such biological phenomena being a result of societal behaviour.

Consequently, it is necessary to study empirically the effects and contribution of household as well as community factors – over and above those of individuals – on teenage pregnancy in a setting such as South Africa. We propose a new approach to investigating teenage pregnancy in South Africa, which rests on the premise of

constructivism, that is, a theory about how people learn and acquire knowledge (Fosnot 2013). Constructivism is ‘a philosophical viewpoint which posits that social phenomena and their meanings are accomplished by social actors’ (Mngomezulu 2016). The theory states that ‘people construct their own understanding and knowledge of the world, through experiencing things and reflecting on those experiences’ and implies that social phenomena are constructed differently in various contexts depending on the individual’s internalisation and understanding of their environment. Therefore, to avoid misrepresentation of socially occurring issues phenomena should be studied with reference to their context based on this theory.

A number of theories could assist in charting a possible way of investigating teenage pregnancy holistically. Bronfenbrenner (1977) was one of the first theorists to suggest an ecological approach to studying human development and behaviour. He posited the need for ‘a broader approach’ to research individuals that considered their immediate background and greater social context. He named this approach the ecological theory and identified four main hierarchy levels at which phenomena at the individual level had to be investigated. He defined these as follows:

- The microsystem is the complex relations between the developing person and environment in an immediate setting containing that person (e.g. home, school)
- The mesosystem comprises the interrelations among major settings containing the developing person at a particular point in his or her life. For example, for a South African teenage female, the mesosystem typically encompasses interactions among family, school, peer group and church if religious.
- The exosystem is an extension of the mesosystem that embraces other social structures that do not themselves contain the developing person but impinge upon or encompass the immediate settings in which that person is found. These structures include major institutions of the society such as the neighbourhood, mass media, communication and transport facilities, distribution of goods and services, informal social networks and agencies of government.
- The macrosystem refers to the overarching institutional patterns of the culture or subculture such as economic, social, educational, legal and political systems of which the above systems are the concrete manifestations. Applied to teenage pregnancy, the ecological theory holds that we would expect independent variables at the microsystem, mesosystem, exosystem and macrosystem levels to explain it.

A very similar theory that was specifically designed to explain the health of adolescents is the multilevel and life course framework for early adolescent health and development posited by Blum and Johns Hopkins Bloomberg School of Public Health (2013). The United Nations Population Fund (UNFPA) recently acknowledged and promoted this environmental model in its global adolescent pregnancy report (Loaiza and Liang 2013). The multilevel and life course framework for early adolescent health and development

indicates the principles of the ecological model where macro-level factors all set the contexts that influence community, family, school and peer factors, which all in turn influence the adolescent (Blum et al. 2014).

Blum et al. (2013) suggested five levels at which to investigate teenage pregnancy, encompassing: the macro level; the community level; the family level; the school/peer level; as well as the individual adolescent level. They proposed national wealth; norms and priorities; political events; income inequality; economic forces; racism or discrimination levels; and war conflict as populating the macro level. Factors included at the community level were community assets; gender norms; levels of safety and violence; cultural beliefs and attitudes; poverty; incarceration levels; collective socialisation; education opportunities; neighbourhood deprivation; social contagion; and epidemic effects. At the family level, they suggested the investigation of conflict or violent behaviours; parental monitoring; connectedness; communication; financial and social capital; family mobility; birth spacing; and family expectations. Variables included at the school/peer level were teachers' support and academic expectations; school safety levels; academic performance; pro-social peer networks; schooling and connectedness at schools. We think the issues of academic performance and actual schooling (i.e. school attendance) are individual-level factors unless class averages and community or national levels of schooling are considered. Finally, the individual adolescent level incorporates neuromaturation levels, puberty and genetics (Blum and Johns Hopkins Bloomberg School of Public Health 2013). We believe this last level should also include characteristics of the teenage female, as well as her perception of and attitudes to issues surrounding pregnancy, such as sexual risky behaviour; contraception; termination of pregnancy; early mothering; and others. As applied to teenage pregnancy, the theory holds that we would expect independent variables at the macro level, the community level, the family level, the school/peer level, as well as the individual adolescent level to explain teenage pregnancy, as human behaviour is a construct of the societies in which people live. These demographic and socio-economic indicators directly affect teenage pregnancy and are associated indirectly with teenage pregnancy through social factors.

Copping, Campbell and Muncer (2013) recognise the ecological perspective as a useful means of investigating teenage pregnancy, yet criticise it for its inability to indicate the weighting that should be given to different levels. They admit that the ecological perspective has allowed researchers to investigate characteristics of the individual as well as those beyond her. Consequently, we endorse the ecological perspective for the investigation of teenage pregnancy in South Africa. Closely affiliated with the ecological perspective is a conceptualisation of health that acknowledges social determinants. The World Health Organization (WHO) Commission on Social Determinants of Health (2008: 3) defines social determinants as 'the conditions in which people are born, grow, live, work and age'. These economic, social, political, environmental and cultural conditions are influenced by families and the social environment as well as by the

designation of resources, power, policies and money at local, national and global levels (Viner et al. 2012).

In the following section, we suggest a framework with the broad levels needing investigation and hint at the scope of individual and structural factors that researchers could consider when investigating teenage pregnancy. We used Viner et al.'s (2012) review and investigation of the most applicable social determinants to adolescent health to assist in this process. Our assumption is that a framework of this nature will result in programmes and research projects that are more effective in preventing teenage pregnancy in South Africa.

The concepts of the framework

Figure 2 presents a relatively simple framework for analysing the determinants of teenage pregnancy. It includes the broad levels of investigation proposed in addition to the individual level.

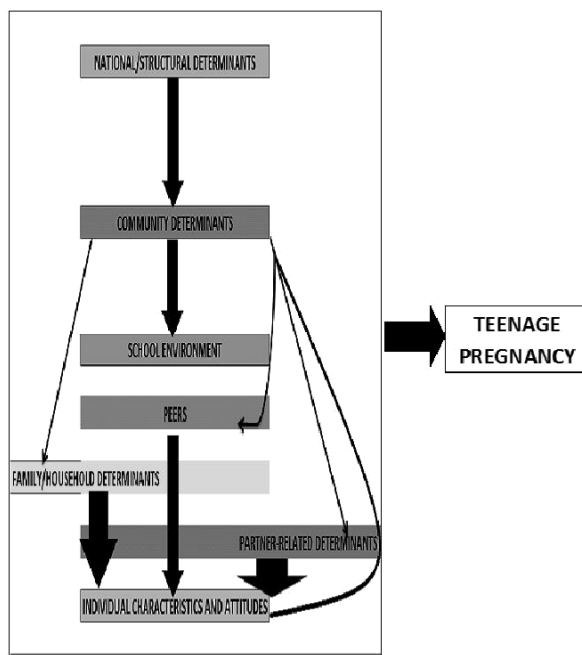


Figure 2: A framework for analysing the determinants of teenage pregnancy

Source: Author computation from GHS (2009–2013)

The framework has been structured to suggest that national or structural determinants affect community factors that influence families, the environment of schools in the area, peers and partners from that community. Thus, all four entities affect the individual

teenage female. We shall now consider why the four levels should affect teenage pregnancy and offer some examples of factors that could be studied using the framework.

National or structural determinants

Countries provide young people with institutions of opportunity as they develop (Viner et al. 2012). Important structural issues include: economic and political systems; wealth and its allocation across communities nationally; access to health services; and the dynamics of the education system.

In terms of national wealth, country budgets and expenditure for sexual and reproductive health could affect the health and well-being of young females (WHO 2008).

With regard to national levels of education, within countries, studies have shown that secondary schooling completion improves the health and well-being of young females and gives them the ability and incentive to prevent pregnancy (Gakidou et al. 2010; Kravdal 2002). Viner et al. (2012) reported that higher national levels of high-school participation were associated with lower HIV prevalence and fewer teenage births.

War and conflict-national economic, educational and social organisations are disrupted by war and internal conflict (Viner et al. 2012).

Community determinants

Increased independence and time spent outside the home environment increases the importance of community environments during adolescence (Viner et al. 2012). Researchers suggest three mechanisms by which community factors influence individual behaviour. Firstly, community factors may signify local values and social norms that influence behaviour (Ku, Sonenstein and Pleck 1993). For example, a teenage female growing up in a community with high levels of out-of-wedlock births and high levels of single female-headed households may perceive that her community finds this socially acceptable and, therefore, may be more inclined to have an early pregnancy and not to think it wrong to raise her child alone without its father. Such norms are strongly entrenched if they have prevailed over a few generations.

Secondly, community factors may be associated with perceived economic and social opportunities that individuals respond to on the basis of perceived costs or benefits in the environment (Ku et al. 1993). Therefore, in an environment that appears to offer low-skill jobs, teenage females may perceive that there are few incentives to excel in high school and instead drop out, which increases their risk of becoming pregnant.

Thirdly, community factors may reflect or influence the choice of partners and potential partners (Ku et al. 1993). This could possibly explain why, although teenage pregnancy is such a negative experience for girls, it persists, as it is a reflection of the attitudes of male partners and potential partners who are usually not held accountable

beyond paying *inhlawulo*, that is, damages or compensation to the girl's family, if at all. This breeds a view that for males, impregnating a young female, paying damages and moving on with their life is possible and easy, thus allowing them to continue impregnating young females and encouraging others to do the same.

At community level, we could consider levels of poverty, migration, homelessness, cultural factors, sex equality, ethnic equality, race heterogeneity, access to resources and services, social norms, collective efficacy, social control/supervision and the level of connection to community members all potentially to affect teenage pregnancy.

School environment

Studies of high-income countries have shown strong evidence that a stronger connection of adolescents with their schools as well as leadership and safety within the school environment positively affect health outcomes for young people (Flay et al. 2004; Resnick et al. 1997). Similarly, middle-income and low-income countries show evidence that connections within school protect young people against numerous health risk behaviours (Anteghini et al. 2001; Blum et al. 2003). Accordingly, programmes that improve connectedness in the school environment display the most promising results for improving adolescent health outcomes (Bond et al. 2004; Flay et al. 2004).

Family or household determinants

Family factors are consistently shown to be a determinant of adolescent health across many cultures. Parents who are in the know about their children's activities have adolescents who are at lower risk of teenage pregnancy (Crosby et al. 2003) and higher parental monitoring protects young females against sexual risky behaviour (Catalano and Hawkins 1996). Parental behaviour and family norms and attitudes also affect adolescent sexual behaviour (Bandura 1986; Ford et al. 2005). Viner et al. (2012) found that countries with greater family connection had adolescents with fewer behavioural and mental health problems, especially young women. Some familial and household factors that could be considered in teenage pregnancy investigation include: family structure; parental supervision; parent-child closeness; the type of work that either parent is involved in; parental education level; family demographic composition (household sex composition, household average age); household size or density; household poverty levels; service inaccessibility; household assets present; media exposure; household head characteristics; and the relationship to the household head.

Peers

Strong peer relationships are developed during adolescence and peers can influence young people's health either positively or negatively (Jaccard, Blanton and Dodge 2005). Strong relationships with prosocial peers support positive health and protect

adolescents against a host of health-risk behaviours, according to international studies (Anteghini et al. 2001; Resnick et al. 1997). Progressive peer norms and modelling, like those at family level, can be protective against sexual risks (Beal, Ausiello and Perrin 2001; Jessor, Turbin and Costa 1998; Salazar et al. 2009). Peer factors work together with parental influence during adolescence (Collins and Steinberg 2006). Less is known about the importance of peer factors relative to family factors in low-income and middle-income countries, particularly in more sociocentric (i.e. family-centred) societies (Viner et al. 2012).

Partners

Levels of partner power, communication and the ability to negotiate for safe sex affect the sexual and HIV risk of young females (Catania et al. 1989; Salazar et al. 2009; Taffa et al. 2002). In relationships where the male partner has more power due to his age or finances, a teenage female may be less able to speak up and against things she may want to oppose. Factors to consider for investigation here are: age gap; financial gap; transactional relationships; levels of dependence; and empowerment in the relationship.

Individual characteristics and attitudes

Mackenbach et al. (2008) declare that adolescence is the key developmental stage for adopting sexual and reproductive health behaviours. Cultural, economic and social forces shape these behaviours which are determinants of disease and health inequalities (Marmot 1999). Factors related to the national social, economic, political and cultural norms can hinder adolescents' access to, adoption of and maintenance of healthy behaviours (Mackenbach et al. 2008). We propose that the teenage female's demographic, socio-economic, contraceptive use, reproductive health, sexual behaviour and related characteristics be studied, as well as protective factors and the mechanisms underlying resilience be interrogated. Over and above these factors, the teenage female's perceptions and attitudes regarding sexual behaviour, the value of children, contraception and its use, abortion, early mothering and related issues could be explored.

Methodological implications

Data

Studies using an ecological and social determinant approach need data that can be ascribed to levels beyond the individual. These can either be collected through primary data collection or constructed from secondary data sources. Any data source which identifies strata above the individual and below the provincial or state level can be used. Examples of such secondary data sources include the census and the demographic and health surveys (DHSs). The South African census identifies individuals by their

households as well as their municipalities and municipal districts. Similarly, DHSs identify individuals belonging to the same household and community cluster.

Additionally, the South African GHS possesses information of recent pregnancy and birth outcomes and identifies individuals in the same households and provinces. Although community levels below the provincial and above the household levels are not identified, it is possible to construct variables to distinguish the community level using the primary sampling unit (PSU) number. This PSU variable consists of 11 numbers. The first number denotes the province of residence; the second to fourth numbers identify local municipalities; and the final seven numbers correspond to the area unit. As an example, for an individual whose PSU number is 17121057017, the first 1 specifies the province as Western Cape – all individuals in the dataset who are from Western Cape have PSUs starting with the number 1. The next three numbers, being 712, identify the municipality. We determined this as there were approximately 30 combinations of these three-digit numbers for individuals from Western Cape, which corresponded to the number of municipalities, which cannot be distinguished by name. This is a good compromise as anonymity remains intact and community levels established. The final seven numbers, 1057017, identify the sub-areas in the municipality. These last seven digits can be divided further, but the numbers of households in these areas are too few for adequate analysis. Concerns may arise regarding the non-representativity of data below the PSU level, being the province in this case. However, for regression purposes, the data need not be at a representative level as it investigates associations rather than applies weights to determine numbers at population level. Therefore, researchers can extract the community level using the generate command in Stata and the three numbers identifying municipalities.

Household and community-level variables

Household variables are created through aggregation of individual-level data or through using individual-level data to represent the home. Examples of these variables are the household average age calculated from all household members' ages and describing the household as a single female-headed household if the head of the household is single and female. Community-level variables need more caution. Certain variables need to be aggregated from household-level data while others can be aggregated from individual-level data. Examples of these two variables are community levels of divorced household heads, which should be created from the household-level data as opposed to community-levels of unemployment, which needs aggregation from individual-level data. The first variable community levels of divorced household heads, if aggregated from individual-level, assumes that everyone in the household is divorced, thereby overestimating the levels of household-head divorce. However, unemployment occurs at the individual level and can affect all members of the household. Such a factor needs to have age limits, such as 18–60 or 65 years, so that individuals pursuing education and pensioners do not obscure the results substantially. Community-level variables can be represented

as percentages of phenomena or further categorised into two to five equal groups for easier comparison.

Analysis

Regression analysis of hierarchical data needs the application of multilevel modelling when significant clustering occurs in order to establish the variation between households as well as the variation between communities in the risk of outcome. Statistical procedures that ignore clustering, such as simple logistic regression, tend to underestimate the variance of the estimated coefficients and can lead to the mistaken identification of 'statistically significant' effects (Rodriguez and Goldman 2001). Simple logistic regression fails to capture this accurately as members within households as well as households within communities are similar, thereby violating the logistic regression assumption of residual independence (Kawachi and Subramanian 2007; Merlo 2003; Subramanian 2004). This would result in underestimation of standard errors and very small p -values.

Numerous statistical programmes are able to perform multilevel modelling through frequentist approaches by MLwiN, Stata, R, SAS, and MIXOR or Bayesian methods using WinBUGS, MLwiN, and SAS (Li et al. 2011). Li et al. (2011) compared these various available software packages on their parameter estimates, flexibility, computation time and ease of usability. The authors concluded that results from the frequentist and Bayesian approaches were slightly different, and all the software packages differed greatly in flexibility, computation time, usability and availability of diagnostic testing and model-evaluation tools. Specifically, Li et al. (2011) named MLwiN, R and SAS as the superior programmes for multilevel modelling and recommended their use over the other options.

Implications for future research

The framework is designed as a tool to guide the exploration of teenage pregnancy using quantitative or mixed methods. It is organised around four levels and seven categories of influence from which determinants could emanate to influence teenage pregnancy. We would expect the individual-level factors to have the greatest bearing on the teenage female, but we cannot hypothesise the weighting of effect for each level of determinants. Several areas of enquiry with related research questions and appropriate analyses, as detailed above, can be drawn from the framework. Also, the mediation of individual-level factors by higher-level variables can be investigated. The results from such research could give greater clarity on important elements associated with teenage pregnancy and help advance current interventions. Also, the findings from any future research and interventions will contribute to refining the framework presented here.

CONCLUSION

The current study has shown a steady increase in teenage pregnancy levels through charting recent teenage pregnancy levels and showing statistical differences in provincial levels of teenage pregnancy. This reflects differences beyond the individual level. Although investigating the adolescent's individual-level characteristics has substantial value, it often gives little attention to the fact that subjective behaviours take place in a contextual environment that can either amplify or diminish their effect (DiClemente et al. 2001). A major limitation of examining variables at the individual level alone is that the relative explanatory power of variables occurring at individual and social levels cannot be examined (Chen et al. 1997). The necessity to identify and research critical predictors of teenage pregnancy rooted in a social determinants and ecological approach for correct adaptation of policy is seen. Bickel and Weaver (1997) argue that teenage pregnancy intervention programmes aimed at nominally at-risk females may be constrained in ways that are typically unpredictable. Further, Viner et al (2012) believe that the worldwide and systematic collection of social factors would result in the most appropriate and cost-effective service developments and intervention targeting.

Additionally, the study has critically assessed past quantitative literature of teenage pregnancy in South Africa and proposed a new approach to investigating the phenomenon. The framework presented in Figure 2 provides a contextual approach which addresses a large scope of the possible factors needing research in relation to teenage pregnancy. Also, the methodological issues surrounding this task have been outlined to assist researchers in this mammoth endeavour. Chen et al. (1997) insist that 'to generate additional avenues of intervention in adolescents' sexual and risk behaviours, one must understand the contextual and social variables'. Thus, we advocate for studies that draw upon a combination of the factors discussed above at various levels of influence. This will assist in the journey of ensuring that every pregnancy becomes planned and wanted even among teenage females.

REFERENCES

- Anteghini, M., Fonseca, H., Ireland, M. & Blum, R. 2001. Health risk behaviors and associated risk and protective factors among Brazilian adolescents in Santos, Brazil. *Journal of Adolescent Health* 28(4): 295–302.
- Bandura, A. 1986. *Social foundations of thought and action: A social cognitive theory*. Englewood Cliffs, NJ: Prentice-Hall.
- Beal, A. C., Ausiello, J. & Perrin, J. M. 2001. Social influences on health-risk behaviors among minority middle school students. *Journal of Adolescent Health* 28(6): 474–480.
- Bickel, R. & Weaver, S. 1997. Opportunity, community, and teen pregnancy in an Appalachian state. *Journal of Educational Research* 90(3): 175–181.
- Blum, R. W., Astone, N., Decker, M. R. & Mouli, V. 2014. A conceptual framework for early adolescence: A platform for research. *International Journal of Adolescent Medical Health* 1–11. doi: 10.1515/ijamh-2013-0327

- Blum, R. W., Halcón, L., Beuhring, T., Pate, E., Campell-Forrester, S. & Venema, A. 2003. Adolescent health in the Caribbean: Risk and protective factors. *American Journal of Public Health* 93(3): 456–460.
- Blum, R. W. & Johns Hopkins Bloomberg School of Public Health. 2013. A global look at adolescent pregnancy prevention: Strategies for success. Office of Adolescent Health, webcast. Washington, DC: US Department of Health and Human Services.
- Bond, L., Patton, G., Glover, S., Carlin, J. B., Butler, H., Thomas, L. & Bowes, G. 2004. The Gatchouse Project: Can a multilevel school intervention affect emotional wellbeing and health risk behaviours? *Journal of Epidemiology and Community Health* 58(12): 997–1003.
- Bronfenbrenner, U. 1977. Toward an experimental ecology of human development. *American psychologist* 32(7): 513–531.
- Catalano, R. F. & Hawkins, J. D. 1996. A Theory of Antisocial Behavior. In J. D. Hawkins (ed.), *Delinquency and crime: Current theories (1996)*, 149–197. New York: Cambridge University Press.
- Catania, J. A., Coates, T. J., Greenblatt, R. M., Dolcini, M. M., Kegeles, S. M., Puckett, S., Corman, M. & Miller, J. 1989. Predictors of condom use and multiple partnered sex among sexually-active adolescent women: Implications for aids-related health interventions. *Journal of Sex Research* 26(4): 514–524.
- Chen, X-K., Wen, S. W., Fleming, N., Demissie, K., Rhoads, G. G. & Walker, M. 2007. Teenage pregnancy and adverse birth outcomes: A large population based retrospective cohort study. *International Journal of Epidemiology* 36(2): 368–373. doi: 10.1093/ije/dyl284
- Chen, Y-W., Stiffman, A. R., Cheng, L-C. & Dore, P. 1997. Mental health, social environment and sexual risk behaviors of adolescent service users: A gender comparison. *Journal of Child and Family Studies* 6(1): 9–25.
- Christofides, N. J., Jewkes, R. K., Dunkle, K. L., Nduna, M., Shai, N.J. & Sterk, C. 2014. Early adolescent pregnancy increases risk of incident HIV infection in the Eastern Cape, South Africa: A longitudinal study. *Journal of the International AIDS Society* 17(1): 18585. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3962027/>
- Collins, W. A. & Steinberg, L. 2006. Adolescent development in interpersonal context. In N. Eisenberg, W. Damon & R. M. Lerner (eds.), *Handbook of child psychology*, 1003–1067. Hoboken, NJ: John Wiley.
- Copping, L. T., Campbell, A. & Muncer, S. 2013. Violence, teenage pregnancy, and life history. *Human Nature* 24(2): 137–157.
- Crosby, R. A., DiClemente, R. J., Wingood, G. M., Lang, D. L. & Harrington, K. 2003. Infrequent parental monitoring predicts sexually transmitted infections among low-income African American female adolescents. *Archives of Pediatrics and Adolescent Medicine* 157(2): 169–173.
- Cunningham, P. W. & Boulton, B. E. 1996. Black teenage pregnancy in South Africa: Some considerations. *Adolescence* 31(123): 691–700.
- Delius, P. & Glaser, C. 2002. Sexual socialisation in South Africa: A historical perspective. *African Studies* 61(1): 27–54.
- Department of Health. 2012. *National contraception clinical guidelines*. Pretoria: Department of Health.
- DiClemente, R. J., Wingood, G. M., Crosby, R., Sionean, C., Cobb, B. K., Harrington, K., Davies, S., Hook, E. W. & Oh, M. K. 2001. Parental monitoring: Association with adolescents' risk behaviors. *Pediatrics* 107(6): 1363–1368.
- Durojaye, E. 2011. Access to contraception for adolescents in Africa: A human rights challenge. *Comparative and International Law Journal of Southern Africa* 44(1): 1–29.
- Emmett, T. 2003. Social disorganisation, social capital and violence prevention in South Africa: Original contribution. *African Safety Promotion* 1(2): 4–18.
- Flay, B. R., Graumlich, S., Segawa, E., Burns, J. L. & Holliday, M. Y. 2004. Effects of 2 prevention programs on high-risk behaviors among African American youth: A randomized trial. *Archives of Pediatrics and Adolescent Medicine* 158(4): 377–384.
- Ford, C. A., Pence, B. W., Miller, W. C., Resnick, M. D., Bearinger, L. H., Pettingell, S. & Cohen, M. 2005. Predicting adolescents' longitudinal risk for sexually transmitted infection: Results from the National

- Longitudinal Study of Adolescent Health. *Archives of Pediatrics and Adolescent Medicine* 159(7): 657–664.
- Fosnot, C. T. 2013. *Constructivism: Theory, perspectives, and practice*. New York: Teachers College Press.
- Gakidou, E., Cowling, K., Lozano, R. & Murray, C. J. 2010. Increased educational attainment and its effect on child mortality in 175 countries between 1970 and 2009: A systematic analysis. *Lancet* 376(9745): 959–974.
- Godley, S. 2012. Building a healthier community for teens: Environmental strategies to prevent teenage pregnancy. Expanding our Experience and Expertise: implementing Effective Teenage Pregnancy Prevention Programs, 12–14 March, Baltimore, MD.
- Holborn, L. & Eddy, G. 2011. *First steps to healing the South African family*. Johannesburg: South African Institute of Race Relations.
- Hoque, M., Hoque, E., Anwar, M. & Kader, S. 2013. Assessment and comparison of obstetric characteristics and perinatal outcomes of rural population of South Africa. *Tropical Journal of Obstetrics and Gynaecology* 26(1): 60–67.
- Ibisoni, L. D. & Odimegwu, C. O. 2007. Predictors of unintended pregnancy among South African youth. *Eastern Africa Social Science Research Review* 23 (1): 61–80.
- Jaccard, J., Blanton, H. & Dodge, T. 2005. Peer influences on risk behavior: An analysis of the effects of a close friend. *Developmental Psychology* 41(1): 135–147.
- Jessor, R., Turbin, M. S. & Costa, F. M. 1998. Protective factors in adolescent health behavior. *Journal of personality and social psychology* 75(3): 788–800.
- Jewkes, R., Dunkle, K., Nduna, M. & Shai, N. 2010. Intimate partner violence, relationship power inequity, and incidence of HIV infection in young women in South Africa: A cohort study. *Lancet* 376 (9734): 41–48. doi: [http://dx.doi.org/10.1016/S0140-6736\(10\)60548-X](http://dx.doi.org/10.1016/S0140-6736(10)60548-X)
- Jewkes, R., Morrell, R. & Christofides, N. 2009. Empowering teenagers to prevent pregnancy: lessons from South Africa. *Culture, Health and Sexuality* 11(7): 675–688. doi: 10.1080/13691050902846452
- Jewkes, R., Nduna, M., Levin, J., Jama, N., Dunkle, K., Puren, A. & Duvvury, N. 2008. Impact of stepping stones on incidence of HIV and HSV-2 and sexual behaviour in rural South Africa: Cluster randomised controlled trial. *Bmj* 337: a506.
- Jewkes, R., Vunduc, C., Maforah, F. & Jordaan, E. 2001. Relationship dynamics and teenage pregnancy in South Africa. *Social Science and Medicine* 52(5): 733–744.
- Kawachi, I. & Subramanian, S. V. 2007. Neighbourhood influences on health. *Journal of Epidemiology and Community Health* 61(1): 3–4. doi: 10.1136/jech.2005.045203
- Kingdon, G. G. & Knight, J. 2004. Race and the incidence of unemployment in South Africa. *Review of Development Economics* 8(2): 198–222.
- Klasen, S. & Woolard, I. 2009. Surviving unemployment without state support: Unemployment and household formation in South Africa. *Journal of African Economies* 18(1): 1–51. doi: 10.1093/jac/ejn007
- Knight, R. 2006. South Africa 2006: Challenges for the future. <http://richardknight.homestead.com/files/SouthAfrica2006-ChallengesfortheFuture.pdf>
- Kravdal, Ø. 2002. Education and fertility in sub-Saharan Africa: Individual and community effects. *Demography* 39(2): 233–250.
- Ku, L., Sonenstein, F. L. & Pleck, J. H. 1993. Neighborhood, family, and work: Influences on the premarital behaviors of adolescent males. *Social forces* 72 (2): 479–503.
- Lee, D. 2010. The early socioeconomic effects of teenage childbearing: A propensity score matching approach. *Demographic Research* 23(25): 697–736.
- Li, B., Lingsma, H. F., Steyerberg, E. W. & Leisaffre, E. 2011. Logistic random effects regression models: A comparison of statistical packages for binary and ordinal outcomes. *BMC Medical Research Methodology* 11(1): 1–11. doi: 10.1186/1471-2288-11-77
- Limpopo Population and Development Directorate. 2012. Factors associated with teenage pregnancy in Limpopo province. Polokwane: Department of Population and Development.

- Loaiza, E. & Liang, M. 2013. *Adolescent pregnancy: A review of evidence*. New York: United Nations Population Fund.
- Mackenbach, J. P., Stirbu, I., Roskam, A-JR., Schaap, M. M., Menvielle, G., Leinsalu, M. & Kunst, A. E. 2008. Socioeconomic inequalities in health in 22 European countries. *New England Journal of Medicine* 358(23): 2468–2481.
- Macleod, C. 1999. The 'causes' of teenage pregnancy: Review of South African research – Part 2. *South African Journal of Psychology* 29(1): 8–16.
- Macleod, C. 2011. Adolescence, pregnancy and abortion – constructing a threat of degeneration. In J. Ussher (ed.), *Women and psychology*. London and New York: Routledge.
- Macleod, C. & Durrheim, K. 2002. Racializing teenage pregnancy: 'Culture' and 'tradition' in the South African scientific literature. *Ethnic and Racial Studies* 25(5): 778–801.
- Macleod, C. I. & Tracey, T. 2010. A decade later: Follow-up review of South African research on the consequences of and contributory factors in teen-aged pregnancy. *South African Journal of Psychology* 40(1): 18–31.
- Makubalo, L. 2008. Response: Youth Policy Initiative Roundtable on Teenage Pregnancy. 5th Youth Policy Initiative Roundtable on Teenage Pregnancy, Cape Town.
- Malema, R. N. 2000. *Risk factors associated with teenage pregnancy at Ga-Dikgale villages in the Northern Province of South Africa*. Pretoria: University of Pretoria.
- Mangiaterra, V., Pendose, R., McClure, K. & Rosen, J. 2008. Adolescent pregnancy. In M. A. Heine (ed.), *Making pregnancy safer notes*, 4. Geneva: World Health Organization.
- Manzini, N. 2001. Sexual initiation and childbearing among adolescent girls in KwaZulu-Natal, South Africa. *Reproductive Health Matters* 9(17): 44–52.
- Marmot, M. 1999. Epidemiology of socioeconomic status and health: are determinants within countries the same as between countries? *Annals of the New York Academy of Sciences* 896(1): 16–29.
- Marteletto, L., Lam, D. & Ranchhod, V. 2008. Sexual behavior, pregnancy, and schooling among young people in urban South Africa. *Studies in Family Planning* 39(4): 351–368.
- Masondo, S. 2015. Teen pregnancies hit 99 000 a year. *City Press*, 6 September.
- Mchunu, G., Peltzer, K., Tutshana, B. & Seutlwadi, L. 2013. Adolescent pregnancy and associated factors in South African youth. *African Health Sciences* 12(4): 426–434.
- Merlo, J. 2003. Multilevel analytical approaches in social epidemiology: measures of health variation compared with traditional measures of association. *Journal of Epidemiology and Community Health* 57(8): 550–552.
- Mkhwanazi, N. 2009. Teenage pregnancy and HIV in South Africa. In A. Schlyter (ed.), *Body politics and women citizens: African experiences*, 83–92. Stockholm: Sida.
- Mkhwanazi, N. 2010. Understanding teenage pregnancy in a post-apartheid South African township. *Culture, Health and Sexuality* 12(4): 347–358. doi: 10.1080/13691050903491779
- Mkhwanazi, N. 2011. Developing and expanding our ideas about teenage desire and fertility. *Agenda* 25(3): 2–8. doi: 10.1080/10130950.2011.617509
- Mkhwanazi, N. 2012. A tough love approach indeed: Demonising early childbearing in the Zuma era. *Agenda* 26(4): 73–84.
- Mkwananzi, S. forthcoming. Teen moms and dads: A demographic perspective. In D. Bhana & N. Mkhwanazi (eds.), *Young families*.
- Mngomezulu, K. 2016. The maternal healthcare as an international human right: A qualitative study on the influence of culture and religion in access to maternal health care in Southern African countries.
- Mothiba, T. M. & Mapule, M. S. 2012. Factors contributing to teenage pregnancy in the Capricorn district of the Limpopo Province: Original research. *Curationis* 35(1): 1–5.
- Nleya, N. 2011. Linking service delivery and protest in South Africa: An exploration of evidence from Khayelitsha. *Africanus* 41(1): 3–13.
- Panday, S., Makiwane, M., Ranchhod, C. & Letsoalo, T. 2009. *Teenage pregnancy in South Africa – with a specific focus on school-going learners*. Child, Youth, Family and Social Development, Human Sciences Research Council. Pretoria: Department of Basic Education.

- Pettifor, A. E., Rees, H. V., Kleinschmidt, I., Steffenson, A. E., MacPhail, C., Hlongwa-Madikizela, L., Vermaak, K. & Padian, N. S. 2005. Young people's sexual health in South Africa: HIV prevalence and sexual behaviors from a nationally representative household survey. *Aids* 19(14): 1525–1534.
- Ramathuba, D. U. 2013. Secondary school girls' knowledge, attitudes and sexual behaviour regarding teenage pregnancy, emergency contraception and sexuality in Thulamela municipality, Limpopo Province, South Africa. *African Journal for Physical Health Education, Recreation and Dance: Contemporary Issues in Healthcare Supplement* 1 (19): 1–9.
- Reddy, S., James, S., Sewpaul, R., Koopman, F., Funani, N., Sifunda, S., Josie, J., Masuka, P., Kambaran, N. & Omdien, R. 2010. Umthente Uhlaba Usamila. The 2nd South African National Youth Risk Behaviour Survey 2008. Cape Town: South African Medical Research Council.
- Republic of South Africa. 1996. *Choice on Termination of Pregnancy Act (Act no. 92 of 1996)*. Cape Town: Government Printer.
- Republic of South Africa. 2005. *Children's Act (Act no. 38 of 2005)*. Cape Town: Government Printer.
- Resnick, M. D., Bearman, P. S., Blum, R. W., Bauman, K. E., Harris, K. M., Jones, J., Tabor, J., Beuhring, T., Sieving, R. E. & Shew, M. 1997. Protecting adolescents from harm: Findings from the National Longitudinal Study on Adolescent Health. *Journal of the American Medical Association* 278(10): 823–832.
- Rodriguez, G. & Goldman, N. 2001. Improved estimation procedures for multilevel models with binary response: A case-study. *Journal of the Royal Statistical Society: Series A (Statistics in Society)* 164(2): 339–355.
- Salazar, L. F., Santelli, J. S., Crosby, R. A. & DiClemente, R. J. 2009. Sexually transmitted disease transmission and pregnancy among adolescents. In R. J. DiClemente, J. S. Santelli & R. A. Crosby (eds.), *Adolescent health: Understanding and preventing risk behaviors*, 275–302. Hoboken, NJ: Jossey Bass.
- Sayagues, M. 2007. South Africa: Teenage pregnancy figures cause alarm. <http://www.irinnews.org/news/2007/03/06/teenage-pregnancy-figures-cause-alarm>
- Shefer, T., Bhana, D. & Morrell, R. 2013. Teenage pregnancy and parenting at school in contemporary South African contexts: Deconstructing school narratives and understanding policy implementation. *Perspectives in Education* 31(1): 1–10.
- Subramanian, S. 2004. The relevance of multilevel statistical methods for identifying causal neighborhood effects. *Social Science and Medicine* 58(10): 1961–1967.
- Swart, L-A., Seedat, M., Stevens, G. & Ricardo, I. 2002. Violence in adolescents' romantic relationships: Findings from a survey amongst school-going youth in a South African community. *Journal of Adolescence* 25(4): 385–395. doi: <http://dx.doi.org/10.1006/jado.2002.0483>
- Taffa, N., Klepp, K., Sundby, J. & Bjune, G. 2002. Psychosocial determinants of sexual activity and condom use intention among youth in Addis Ababa, Ethiopia. *International Journal of STD and AIDS* 13(10): 714–719.
- Timæus, I. M. & Moultrick, T. A. 2012. *Teenage childbearing and dropout from school in South Africa: Evidence from a household panel*. University of Cape Town and London School of Hygiene and Tropical Medicine.
- Toska, E., Cluver, L. D., Boyes, M., Pantelic, M. & Kuo, C. 2015. From 'sugar daddies' to 'sugar babies': Exploring a pathway among age-disparate sexual relationships, condom use and adolescent pregnancy in South Africa. *Sexual Health* 12(1): 59–66.
- Tsheola, J. 2012. Theorising a democratic developmental state: Issues of public service delivery planning and violent protests in South Africa. *Journal of Public Administration* 47(1): 161–179.
- Varga, C. A. 2003. How gender roles influence sexual and reproductive health among South African adolescents. *Studies in Family Planning* 34(3): 160–172. doi: 10.1111/j.1728-4465.2003.00160.x
- Viner, R. M., Ozer, E. M., Denny, S., Marmot, M., Resnick, M., Fatusi, A. & Currie, C. 2012. Adolescence and the social determinants of health. *Lancet* 379(9826): 1641–1652.
- Vundule, C., Maforah, F., Jewkes, R. & Jordaan, E. 2001. Risk factors for teenage pregnancy among sexually active black adolescents in Cape Town. *South African Medical Journal* 91(1): 73–80.

- Willan, S. 2013. *A review of teenage pregnancy in South Africa – experiences of schooling, and knowledge and access to sexual and reproductive health services*. Partners in Sexual Health. Retrieved from: <http://www.hst.org.za/sites/default/files/Teenage-%20Pregnancy%20in%20South%20Africa%20Final%2010%20May%202013.pdf>.
- Wilson, F. 2012. *Gender based violence in South African schools*. Paris: International Institute for Educational Planning.
- World Health Organization (WHO). 2008. *Closing the gap in a generation: Health equity through action on the social determinants of health. Final report of the Commission on Social Determinants of Health*. Geneva: WHO.
- World Health Organization (WHO). 2014. *Trends in maternal mortality: 1990–2010. Estimates by WHO, UNICEF, UNFPA, the World Bank and the United Nations Population Division*. New York: WHO.
- Zulu, X., Arcangeli, J. & Moodley, R. 2014. Government unveils free contraceptive device for women. Retrieved from <http://www.sanews.gov.za/> (accessed 29 April 2016).

BIOGRAPHICAL NOTE

SIBUSISO MKWANANZI is an associate lecturer and PhD candidate in the Demography and Population Studies Programme. She holds a master's degree in Epidemiology and Biostatistics as well as a Bachelor of Dental Science from the University of the Witwatersrand (Wits), Johannesburg, South Africa. She was a recipient of the National Research Foundation Innovation and Scarce Skills Fellowship, Oppenheimer Memorial Trust Foundation Scholarship and Wits University Postgraduate Merit Scholarship from 2013 to 2015. She is currently a South African Humanities Deans' Association (SAHUDA) Fellow and is involved in an international collaborative research project funded by the British Academy that links scholars from Wits, the University of Johannesburg, the University of Hong Kong and Southampton University, which investigates adolescent risk perception. Her research interests include adolescent sexual and reproductive health; health of vulnerable populations; and development.

Publication 2:

ORIGINAL RESEARCH ARTICLE

Factors Associated with Teen Pregnancy in sub-Saharan Africa: A Multi-Country Cross-Sectional Study

Clifford Odimegwu and Sibusiso Mkwanzani*

Demography and Population Studies Programme, Schools of Public Health and Social Sciences, University of the Witwatersrand, Johannesburg, South Africa

*For Correspondence: Email: Sibusiso.Mkwanzani@wits.ac.za; Phone: +27741818618

Abstract

This study aimed to assess the contextual factors associated with teenage pregnancy in sub-Saharan Africa. Using DHS data we modelled females aged 15-19 with multilevel logistic regression to establish the independent influence of social disadvantage on teenage pregnancy in West, East and Southern Africa with aid of the MLwiN programme. Results showed teenage pregnancy decreased in East Africa, plateaued in West Africa and increased slightly in Southern Africa between 1992 and 2011. Multilevel multivariate regression revealed teenage pregnancy was associated with family disruption (0.39; 0.40: $P < 0.05$), community-levels of female unemployment (1.01; 0.99: $P < 0.05$) and community poverty (1.01; 1.02: $P < 0.05$) in Southern and East Africa, while only community poverty (1.01; $P < 0.05$) independently predicted the outcome in West Africa. Our findings emphasise the necessity of creating regional-specific interventions and prevention campaigns to address multilevel factors such as family disruption as well as the need for governments to address issues of unemployment, poverty and inequality. (*Afr J Reprod Health 2016 (Special Edition);20[3]: 94-107*).

Keywords: Teenage pregnancy, sub-Saharan Africa, multilevel modelling, family disruption, poverty, unemployment

Résumé

Cette étude visait à évaluer les facteurs contextuels associés à la grossesse chez les adolescentes en Afrique sub-saharienne. En nous servant des données EDS, nous avons modélisé les femmes âgées de 15-19 ans avec la régression logistique multiniveaux pour établir l'influence indépendante de désavantage social sur la grossesse chez les adolescentes de l'Afrique : de l'Ouest, de l'Est et de l'Afrique du Sud à l'aide du programme MLwiN. Les résultats ont montré que la grossesse chez les adolescentes a diminué en Afrique Orientale, a atteint un palier en Afrique Occidentale et a légèrement augmenté en Afrique du Sud entre 1992 et 2011. La régression multivariée à plusieurs niveaux a révélé que la grossesse chez les adolescentes a été associée à une perturbation de la famille (0,39; 0,40: $P < 0,05$), les niveaux communautaires du chômage au féminin (1,01; 0,99: $P < 0,05$) et la pauvreté de la communauté (1,01; 1,02: $P < 0,05$) en Afrique australe et orientale, tandis que la pauvreté communautaire (1,01; $P < 0,05$) a prédit indépendamment le résultat en Afrique de l'Ouest. Nos résultats soulignent la nécessité de créer des interventions spécifiques régionales et des campagnes de prévention pour traiter les facteurs à plusieurs niveaux tels que la perturbation de la famille, ainsi que la nécessité pour les gouvernements de résoudre les problèmes du chômage, de la pauvreté et de l'inégalité. (*Afr J Reprod Health 2016 (Edition Spéciale); 20[3]: 94-107*).

Mots clés: grossesse adolescente, Afrique sub-saharienne, modélisation niveaux multiples, perturbation de la famille, pauvreté, chômage

Introduction

Teenage pregnancy remains a challenge requiring urgent resolution the world over¹. In 2014 the World Health Organization reported that 11% of all births were due to women aged 15-19 years, an estimated 16 million women globally². Approximately 95% of teenage pregnancies happen in developing countries with 36.4 million women becoming mothers before age 18 and 5.6 million having a live birth before age 15 in 2010¹. Sub-Saharan Africa had the highest prevalence of

teenage pregnancy in the world in 2013¹. Births to teenage mothers account for more than half of all the births in this region: an estimated 101 births per 1000 women aged 15 to 19. This is almost double the global average^{1,3}. Fourteen of the fifteen countries worldwide that had more than 30% of 20-24 year olds giving birth before age 18 are in sub-Saharan Africa and include Niger, Mozambique, Malawi, Uganda and Cameroon⁴. Consequences of teenage pregnancy are numerous encompassing obstetric, health, economic and social problems. Firstly, teenage

mothers are at higher risk of obstetric complications such as: incontinence from obstetric fistulae, eclampsia, post-partum haemorrhage, sepsis and a five-fold increased risk of maternal mortality^{2,5-7}. Additionally, disadvantageous prospects exist for the teenage mother, including lower educational attainment and school dropout resulting in lower income-earning potential and perpetuation of poverty⁸. Secondly, the children that teenagers bear experience higher levels of birth complications, poor health outcomes and deprivation⁹⁻¹¹. Therefore, curbing teenage pregnancy has become an urgent health and social matter, particularly in sub-Saharan Africa.

To address the challenge of teenage pregnancy, national governments and non-governmental organisations (NGOs) have adopted various strategies that target adolescents. Numerous governments have also refined their policies since the 1994 international conference on population and development (ICPD). This has mainly involved the advocating of abstinence before marriage, keeping girls in school beyond primary school, preventing early marriage and coerced sex as well as increasing the use of contraceptives as encouraged by the World Health Organisation guidelines of 2011 on preventing early pregnancy¹². In Kenya, intervention programmes training teachers in HIV and providing education subsidies for girls resulted in a slight reduction of teenage pregnancy and dropout levels¹³. Moreover, some African countries have attempted an integrated approach to sexual health promotion among young people where sexually transmitted infection, HIV and pregnancy prevention information and services are provided together¹⁴. For example, in Madagascar provision and mass awareness of youth-friendly clinics was implemented since 2001. These clinics ensured inexpensive and confidential access to contraceptives as well as diagnosis and treatment of sexually transmitted infections and counselling for sexual and reproductive health concerns. Additionally, Cameroon undertook peer education to empower youth on issues such as dating, peer-pressure, sexuality as well as prevention of pregnancy and disease¹⁴.

However, despite these efforts, teenage pregnancy continues to reach crisis proportions in

many African countries collectively representing the highest proportion of the phenomenon globally⁴. Such rates are a regional concern.

Evaluations of prevention programmes are few and have shown mixed results^{13,14}. Additionally, most interventions have not considered the influence of the social context in which young people are in that may impact on their behaviour thereby preventing the reduction of teenage pregnancy. This is highly urgent as teenage pregnancy in the sub-continent has led to sub-Saharan African countries not meeting numerous millennium development goals surrounding education, fertility and maternal mortality. Therefore, if we are to meet the newly established sustainable development goals associated with gender equity, education, health and wellbeing it is of extreme importance to address teenage pregnancy timeously in the sub-continent¹⁵.

Recent studies on teenage pregnancy in sub-Saharan Africa have looked at individual level demographic, socio-economic and reproductive health knowledge and behaviour parameters¹⁶⁻²⁸. This research has identified education and socio-economic status as consistent determinants of teenage pregnancy. Other studies have explored the effect of household variables on teenage pregnancy in Nigeria, Kenya, and Lesotho and showed household size and parents' marital status as household predictors of teenage pregnancy^{18,29-32}. Nevertheless, previous studies have failed to comprehensively investigate factors beyond the individual level.

Disparities in teenage pregnancy based on location exist in sub-Saharan Africa. In 2013, birth rates ranged from 150 or higher to less than 50 births per 1000 women of ages 15 to 19 in the sub-continent, with Central Africa displaying the highest levels and Southern Africa having the lowest³. These vast disparities in birth rates among teenagers across the sub-continent indicate that factors beyond the individual level may possibly influence teenage pregnancy. Previous studies on teenage pregnancy by Mkhwanazi (2010), Jewkes et al. (2009) and Panday et al. (2009) have recommended the need to study the social factors leading to teenage pregnancy due to cultural views, the dynamics of families and communities as well as existing racial differences³³⁻

³⁵. Research by

Mkwanaazi (2011) as well as Chohan and Langa (2011) further states that previous studies overlook the social predictors of teenage pregnancy and this inconsideration of the socio-political and structural factors has led to its continued persistence^{36,37}. Therefore, it is important to test the influence of household- and community-level factors.

Social disadvantage encompassing poverty and unemployment has plagued sub-Saharan Africa over time. In 2010, an estimated 53 million East Africans were living under the poverty line³⁸. This represented more than a third (38%) of the region's population. Similarly, in Southern Africa 33% of people live in severe poverty and in West Africa approximately 36% of the region's population are poor^{39,40}. Unemployment rates are also rather high in these regions ranging from 21% in East Africa to 40% in Southern Africa^{38,39}.

Concerningly, poverty and unemployment have become more common and severe among young people and female-headed households across the sub-continent with dire consequences³⁹.

In trying to understand teenage pregnancy, some macro-level theories have been suggested to test the influence of contextual factors in international studies. These include the socio-cognitive theory, ecological model as well as the social disorganisation theory. Of these theories, the most studied in sub-Saharan Africa has been social disorganisation at the household-level through family disruption where female single headed households have been proven to consistently predispose teenage females to pregnancy^{18,31,32}. In addition, Jelili (2013) examined whether residential density and heterogeneity are predictive of teenage pregnancy in Nigeria and found an association with the former, but not the latter variable²⁹. However, other studies have not investigated contextual factors with aid of a relevant theory.

In the present study we examined the applicability of the social disorganisation theory in explaining regional variations in the levels of teenage pregnancy as well as to study the household and community-level factors associated with teenage pregnancy. A regional comparison of teenage pregnancy is valuable in understanding patterns and determinants that are exceptional and to establish where further in-depth studies are

necessitated. Therefore, this study aimed to compare the level of teenage pregnancy across different regions of Africa as well as to identify the independent social disorganisation (household and community) predictors of teenage pregnancy in the West, East and Southern regions of sub-Saharan Africa. Two major questions arose in this comparison: What are the levels of teenage pregnancy across SSA regions? and Does social disadvantage play a similar role across regional levels of teenage pregnancy? Answering these questions will increase understanding of the observed patterns of teenage pregnancy in sub-Saharan Africa.

Theoretical framework

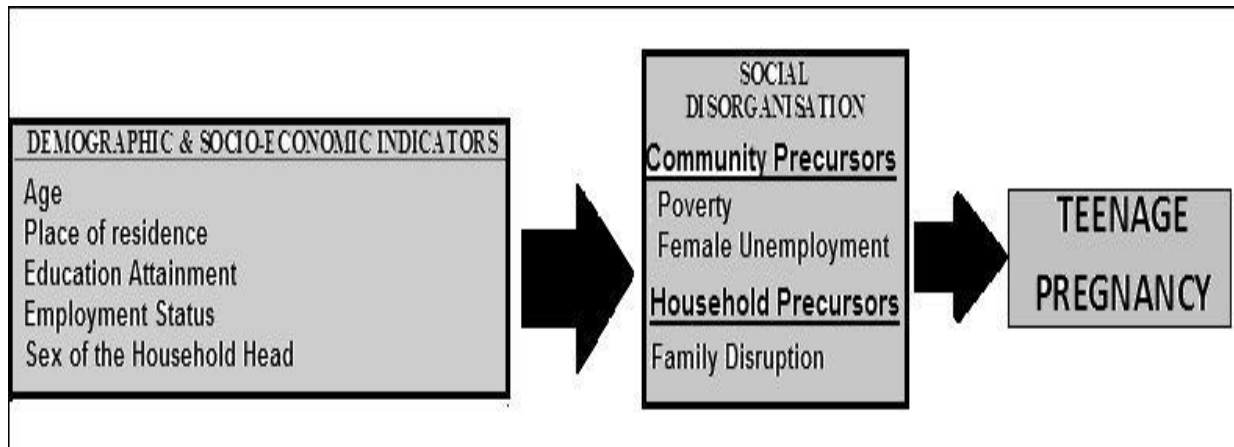
The study used an adaptation of the social disorganisation theory to explain teenage pregnancy. The social disorganisation theory was developed by Shaw and McKay in 1942 and classically explains the levels of crime in different contexts^{41,42}. The theory posits that crime is not randomly distributed occurring equally in all areas, but occurs more frequently in 'bad' neighbourhoods than in 'good' neighbourhoods⁴¹. The theory has been used to study violence, crime levels, educational behaviour of adolescents and childhood sexual abuse⁴³⁻⁴⁶.

As applied to this study, this theory holds that the independent variables household-level family disruption, community poverty, and community female unemployment will explain the dependent variable teenage pregnancy because individual behaviour is a construct of the contextual environments that people live in. Deriving from the foregoing theory, the conceptual framework below shows how structural analysis at the household and community level leads to teenage pregnancy. The framework will identify the association between independent variables, social disadvantage and teenage pregnancy in sub-Saharan Africa.

Methods

Data source

Data on teenage pregnancy were compiled for 11 countries from Demographic and Health Surveys

Figure 1: Conceptual Framework of Association Between Social Disorganisation and Teenage Pregnancy

Source: Adapted from Shaw and McKay, 1942

(DHSs). The DHS Program conducts household surveys approximately every five years in various developing countries throughout the world. Its primary aim is to collect and disseminate nationally representative health and population data for monitoring and evaluation of existing policies as well as to aid in the development of new ones. The surveys gather information on fertility, health, mortality and other related issues together with socio-economic and demographic characteristics of individuals.

Country inclusion criteria

Countries included in the study were all located in sub-Saharan Africa and had three or more DHS surveys conducted between the years 1990 and 2013 with the most recent survey being conducted in or after 2010.

For the purposes of this study countries were divided into regions along traditional geographic boundaries. A total of eleven countries fit this criteria and were included in the study to represent East, Southern and West Africa. The countries were Tanzania, Ethiopia, Rwanda and Uganda from East Africa, Malawi, Mozambique and Zimbabwe from Southern Africa as well as Senegal, Nigeria, Niger and Cote d'Ivoire from West Africa. Only one country from Central Africa (Cameroon) met the above criteria. Therefore, central Africa was omitted from the analysis as not enough countries qualified to represent the region adequately.

Study population

Females, aged 15 to 19 years old were selected for the analysis. From this group all ever pregnant individuals were compared with those that had never been pregnant at the time of the survey.

Outcome variable

The outcome variable for this study is ever pregnancy – This included teenage females who were currently pregnant at the time of the survey, those that had one or more children as well as who had ever terminated a pregnancy in the past. All female respondents aged 15-49 were asked questions on current pregnancy status, dates and survival status of all births as well as previous termination of pregnancies. The study considered all females aged 15-19 who answered affirmatively to any of the three areas as the ever pregnant sample and compared them to 15-19 year old girls who had never been pregnant at the time of the survey.

Predictor variables

The independent variables in this paper encompassed characteristics at the individual level, familial level (household level) and community level. The selection of variables was guided by previous studies and the theoretical foundation. The socio-demographic individual and household level factors included age, place of residence, education attainment, employment

status and sex of the household head. The social disadvantage factors at household and community levels were family disruption, community level of poverty and community level of female unemployment. Individual and household-level variables were aggregated at the level of the primary sampling unit to generate the community-level variables of interest. The variables are clearly shown in Table 1 below.

Statistical analysis

National levels of teenage pregnancy in the 11 countries included in the study were collected with the aid of StatsCompiler, organised by region namely East Africa, West Africa and Southern

Africa and graphed to show trends in teenage pregnancy levels per region from the years 1992 to 2011. The most recent demographic and health surveys from all included countries were used for descriptive and inferential statistics. Descriptive statistics showed the distribution of respondents as well as ever pregnant teenagers by individual, household and community variables. Values for categorical variables were shown as absolute numbers and percentages while the mean and standard deviations or median and inter-quartile ranges of the continuous variables were recorded depending on normality status. Ranges of the continuous variables were recorded depending on normality status. To establish the predictors of

Table 1: Variable Identification for the Study

Variables	Operational Definition and Coding
Individual and Household Socio-demographic	
Age	Self-reported age of respondent at time of the survey (15, 16, 17, 18, 19)
Place of Residence	Current Place of Residence (Rural, Urban)
Education Attainment	Highest level of education attained (None, Primary, Secondary, Higher)
Employment Status	Employment Status of individual respondent (Employed, Unemployed)
Marital Status	Marital Status of respondent (Never Married, Ever Married)
Partner's Age	Age of male partner of teenage female: 15-40 years
Sex of Household Head	Sex of the household head (Male, Female)
Household and Community Social Disorganisation	
Family Disruption	Single Female Headed Household (Yes, No)
Community level of Poverty	Community poverty percentages into three tertiles (high, medium and low)
Community Percentage of Female Unemployment	Percentage of unemployed adult females (18 years+) who are unemployed per PSU
Community level of Female Unemployment	Female unemployment percentages divided into four levels (high, medium, low and none)

teenage pregnancy, inferential statistical analysis involved correlation testing then multilevel binary logistic regression with a random intercept. Teenage pregnancy was fitted to the models. This is a dichotomous outcome with possible responses of 'yes' or 'no'. Representation of the model is as follows:

$$\log\left(\frac{\pi_{ij}}{1-\pi_{ij}}\right) = \delta_{0ij} + \sum_{i,j=1}^{\omega} \delta_{ij} z_{ij} + \varepsilon_{ij}$$

.....(1)

Where: π_{ijk} =probability of having a positive event for the i^{th} individual in the j^{th} community, δ s are parameters of the model z s are regressors, ε_{ij} are

the residuals model adjusted for individual, household and community level variables yet allowed for heterogeneity between individuals and communities only. Results were presented as odds ratios for ease of interpretation through exponentiation of parameter coefficient estimates. The two-level model established variation between individuals as well as between communities in the risk of the outcome. Simple logistic regression would fail to capture this accurately as members within communities are similar therefore violating the assumption of independence of residuals and underestimating standard errors⁴⁷⁻⁴⁹. Teenage pregnancy was regressed on independent variables

using three models: one for each region in sub-Saharan Africa. STATA 13.0 was used for data cleaning, storage and all inferential analysis.

Results

Descriptive outcome

The general characteristics of the study population are shown in Table 2. Frequency distribution as well as column percentages are given per variable among all participants for each region. Across all three regions fewer teenage females were ever pregnant compared to those that were not. The study population from all three regions had a mean age of 17 years with a standard deviation of two years. Participants were mainly from rural areas in East and Southern Africa yet only a slightly higher proportion was from a rural setting in West Africa. The majority of African teenage females were never married, but West Africa had the largest percentage of ever married females at 30%. The distribution shows that most study participants were attending primary or secondary schooling in all three regions yet the highest levels of teenage females without schooling as well as with secondary school attainment were from West Africa. Most teenage females across Africa were unemployed though a surprisingly high proportion (42%) of girls from East Africa was employed.

Table 2 shows that most girls were living in households headed by males and in homes without family disruption. The majority of teenage females were from communities with high levels of community poverty and this was greatest in Southern Africa followed by East Africa. Finally, the majority of study participants resided in communities with low levels of female unemployment with West Africa having the most girls from communities with low female unemployment while Southern Africa had the most girls with high levels of community female unemployment.

Levels of teenage pregnancy in sub-Saharan Africa by the three regions are shown in Figure 2. As seen from the graph though Southern Africa began with the lowest levels of teenage pregnancy in 1992, by 2011 it had the highest levels compared to the other two regions. However, this was the opposite occurrence in East Africa where

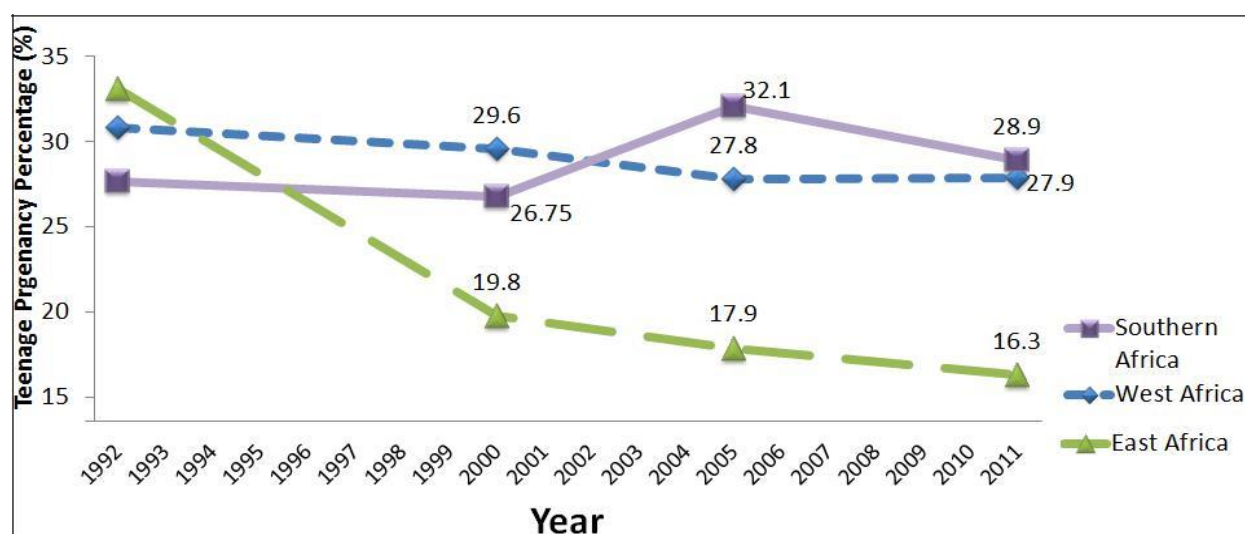
the percentage of teenagers pregnant was the highest in 1992 yet had halved by 2011 to 16.3%. At this point the level of teenage pregnancy was the lowest among all three regions. Finally levels of teenage pregnancy in West Africa had remained fairly constant over time at over 25%. This rendered the region's level of teenage pregnancy to remain in the middle but closely align with that of Southern Africa. Teenage females who had ever been pregnant had an average age of 18 across all regions and were mainly ever married in West (83%) and East Africa (65%) yet mostly never married in Southern Africa. They were also generally unemployed, mostly primary school graduates in East and Southern Africa and living in households without family disruption. Most teenage females that had ever been pregnant regardless of region came from communities with high levels of poverty. Likewise, most girls regardless of region lived in communities with low community levels of female unemployment.

Inferential outcome

Results of multilevel multivariate logistic regression are shown in Table 3. Certain individual characteristics had similar effects on the likelihood of teenage pregnancy across region such as age, education attainment levels and employment status while others differed by region. Notably as age increased by one year the likelihood of teenage pregnancy more than doubled in all three regions, significantly so. Rural residence increased the likelihood of teenage pregnancy in West Africa and East Africa, while it had no effect in Southern Africa compared to urban residence. Individual respondent's employment increased the likelihood of pregnancy by 15 percentage points in West and Southern Africa while it increased the likelihood by 30 percentage points in East Africa and significantly so. Increasing levels of education attainment were associated with a significant decrease in the average odds of teenage pregnancy in all three regions compared to girls with no education. The sex of household head was uniformly associated with teenage pregnancy across regions. In particular, teenagers from households with female heads had a lower likelihood of teenage pregnancy than those from male headed households.

Table 2: Distribution of Study Participants by Socio-Demographic and Social Disorganisation Characteristics

	West Africa n=15 102	East Africa n=11 174	Southern Africa n=10 010
Ever Pregnant n(%)			
Yes	3952 (26%)	1715 (15%)	3004 (30%)
No	11150 (74%)	9459 (85%)	7006 (70%)
Age mean; sd	17;2	17;2	17;2
Place of Residence n(%)			
Urban	6633 (44%)	2527 (23%)	2841 (28%)
Rural	8469 (56%)	8647 (77%)	7169 (72%)
Marital Status n(%)			
Never Married	10334 (70%)	9253 (89%)	3246 (95%)
Ever Married	4350 (30%)	1157 (11%)	182 (5%)
Education Attainment n (%)			
None	5492 (36%)	1022 (9%)	530 (5%)
Primary	2578 (17%)	7515 (67%)	5852 (58%)
Secondary	6894 (46%)	2511 (23%)	3572 (36%)
Higher	136 (1%)	125 (1%)	55 (1%)
Employment Status n (%)			
Unemployed	10954 (73%)	6497 (58%)	7199 (72%)
Employed	4072 (27%)	4649 (42%)	2803 (28%)
Sex of Household Head n(%)			
Male	12042 (80%)	7708 (69%)	6427 (64%)
Female	3060 (20%)	3466 (31%)	3583 (36%)
Family Disruption n (%)			
No	14989 (99%)	11005 (98%)	9863 (99%)
Yes	113 (1%)	169 (2%)	147 (1%)
Community Poverty n (%)			
Low	2342 (16%)	92 (1%)	59 (0.6%)
Medium	1794 (12%)	517 (5%)	239 (2.4%)
High	10965 (73%)	10564 (95%)	9712 (97%)
Community Female Unemployment n (%)			
None	35 (0.2%)	415 (4%)	26 (0.3%)
Low	12219 (81%)	7950 (71%)	5482 (55%)
Medium	1282 (8%)	1205 (11%)	1908 (19%)
High	1565 (10%)	1604 (14%)	2594 (26%)

Figure 2: Teenage Pregnancy Levels in sub-Saharan African regions over time, (DHS: 1992-2011).

Source: Author computation from DHS, StatsCompiler

Table 3: Multilevel Adjusted Logistic Regression of Ever Pregnant Teenage Females by SSA Region

	West Africa		East Africa		Southern Africa	
	OR	SE	OR	SE	OR	SE
Age	2.30*	0.020	2.61*	0.031	2.48*	0.022
Urban residence (RC)	1		1		1	
Rural residence	2.30*	0.065	1.18	0.118	0.99	0.075
No education (RC)	1		1		1	
Primary education	0.71*	0.065	0.42*	0.106	0.75*	0.126
Secondary education	0.15*	0.067	0.13*	0.140	0.26*	0.134
Higher education	0.02*	0.501	0.04*	0.568	0.02*	0.737
Unemployed (RC)	1		1		1	
Employed	1.15*	0.057	1.31*	0.084	1.15*	0.063
Male Head of Household (RC)	1		1		1	
Female Head of Household	0.73*	0.068	0.69*	0.082	0.79*	0.057
No Family Disruption (RC)	1		1		1	
Family Disruption	1.01	0.313	0.40*	0.365	0.39*	0.257
Comm. Female Unemployment (%)	1.00	0.002	0.99*	0.003	1.01*	0.002
Community Poverty Percentage (%)	1.01*	0.002	1.02*	0.005	1.01*	0.003

Abbreviation: -OR: Odds ratio, SE: standard error, RC: reference category, *p<0.05

With respect to social disorganization, related characteristics regions displayed different associations except in the area of community levels of poverty which was consistently and statistically significantly associated with a higher likelihood of teenage pregnancy across regions. In particular, with every increased percentage in the community level of poverty, the likelihood of teenage pregnancy also increased by one percent in West and Southern Africa and by 2 percentage points in East Africa. Surprisingly, family disruption decreased the odds of pregnancy in both East and Southern Africa while it had no effect on teenage pregnancy in West Africa. The odds of pregnancy increased as community levels of female unemployment increased in Southern Africa with the likelihood of teenage pregnancy increasing by one percentage point for every 1% increase in the level of female unemployment and decreased the odds of teenage pregnancy in East Africa by one percentage point for every 1% increase in the level of community female unemployment, but had no effect in West Africa.

Discussion

In this study, we examined whether social disadvantage at household and community levels were associated with teenage pregnancy in selected African countries. Using the theory of social disorganisation, we argue that teen pregnancy is likely to be associated with social disadvantage at household and community levels.

This means that teenage pregnancy is likely to occur in household and community social disadvantage.

West Africa

Results showed that teenage pregnancy levels in West Africa had consistently remained high above 25% over the period 1992 to 2011. The prevalence of teenage pregnancy in 2011 had stagnated at 27.9% and this was possibly associated with a number of factors. The report on world fertility levels and trends corresponds with this finding⁵⁰. It showed very little change in the adolescent fertility rates of many countries in Africa including Niger from 1990 to 2010 as progress in the decline of adolescent fertility had been very slow. Possible reasons for the plateauing of teenage pregnancy at the high level of above 25% and the associations found include culture and religion which increase the value of marriage and patriarchy in this region⁵¹.

The community-level of poverty was the only social disadvantage factor found to be independently associated with teenage pregnancy in West Africa. Multilevel regression showed that for every percentage increase in community levels of poverty, the likelihood of teenage pregnancy significantly increased by 1%. A number of international and regional studies found similar results.

The global study by Blum et al (2013) aimed to present the social determinants of

adolescent pregnancy through the review of previous literature and found that at community level neighbourhood deprivation as well as poverty increased the likelihood of adolescent pregnancy⁵². Likewise, the longitudinal study conducted by Meade et al (2008) followed up girls from early adolescence for six years and found poverty to be among the strongest factors associated with teenage pregnancy⁵³. Turning to studies in sub-Saharan Africa, poverty levels have been previously researched at the individual-level not at community-level. For example, the descriptive study conducted in Nigeria by Isa et al (2009) aimed to establish the socio-demographic determinants of teenage pregnancy using hospital records²⁶. The study found that most 14 to 19 year old girls who had been pregnant were from a low social class. Finally, the multi-country study by Palermo and Peterman (2009) investigated teenage pregnancy in ten African countries over the time period 2003 to 2006²⁶. The study revealed that low socio-economic status was associated with teenage pregnancy across all the countries.

Consequently, this study goes further to show that it is not only the status of individuals that poses a risk to getting pregnant while a teenager, but the contextual environment in which one is in as well. Reasons for the association of community-levels of poverty and an increased risk of teenage pregnancy may be related to such areas being rural areas. These residential zones are commonly associated with greater adherence to culture and traditional beliefs which may exacerbate levels of child marriage. Child marriage in poor settings is justified as a means of lowering the economic burden within the household through marrying off female children that decreases the household size as well as increasing provision through the dowry obtained from the groom upon marriage⁵⁴. To this end, an urgent need for the awareness of risks associated with child marriage leading to a total abolishment of the phenomenon is seen in West Africa.

East Africa

In East Africa results showed that teenage pregnancy levels had decreased consistently first rapidly then at a slower pace from the year 2000. This had led to the 2011 prevalence of teenage

pregnancy being approximately half of what it was in 1991 constituting the greatest decrease in teenage pregnancy among the three regions. The study by Harwood-Lejeune (2001) suggested a similar pattern in declining adolescent fertility in East Africa as this study's findings⁵⁵. Explanations given for this included a rising age of marriage as well as age at first birth leading to lower levels of premarital teenage childbearing.

Family disruption and community female unemployment levels were inversely related to teenage pregnancy in East Africa. The study by Nyakubega (2010) found high levels of awareness of contraceptives among Tanzanian adolescents²⁴. Additionally, the greatest source of information was said to be from parents and health centres at 82.6% followed by school and finally peers. It is possible that the various programmes initiated to decrease HIV and AIDS in East Africa have influenced learners as well as their parents positively. In single parented households, communication on reproductive health matters with children may be increased as a method to hopefully dissuade them from risky sexual behaviour. Nevertheless, the provision of education in boarding facilities may also be protective for girls as they are less exposed to the opposite sex and are brought up in a safe environment where teachers can engage, influence and keep an eye on developing teenagers more often.

However, community poverty was positively and significantly associated with teenage pregnancy in East Africa. This finding was not surprising as some local previous studies have hinted at this though having used poverty data at the individual or household level. In particular, the study by Were (2007) investigated determinants of teenage pregnancy in Kenya and concluded that overall widespread poverty

predisposed young females to teenage pregnancy²⁸. Therefore, the author suggested the need to study teenage pregnancy in light of the broader socio-cultural and socio-economic environment that adolescents resided in. Still, three other studies conducted in various countries of East Africa found higher socio-economic status to be strongly associated with a delayed transition to pregnancy^{20, 34, 56}.

In addition, numerous international studies have attested to this being the case^{57,58}. In particular the studies show that neighbourhoods characterised by poverty have higher levels of teenage pregnancy as teens living in poor communities with less opportunities are more likely to engage in sex at earlier ages and to eventually become pregnant. Additionally, in localities where poverty is rife young people may also turn to transactional sex as an economic survival strategy with pregnancy resulting if contraception fails or is unemployed⁵⁹. Therefore, it is paramount that quality levels of education continue being advocated more vigorously especially in poor settings where government schooling prevails to equip young women with greater levels of agency, choice and empowerment to decide on their own future.

Southern Africa

Teenage pregnancy levels in Southern Africa were initially the lowest among the three regions at approximately 27% in 1992. This level remained consistent until the year 2000 when it began to rise reaching a peak of 32.1% in 2005. From here, the prevalence of teenage pregnancy decreased slightly to 28.9% where it settled as the highest prevalence among the three regions. Southern Africa is classically known as the region with the lowest levels of adolescent fertility as well as fertility in sub-Saharan Africa.

However, this study demarcated regions based on geographical borders and included only three countries to represent Southern Africa. Two of these countries namely, Malawi and Mozambique have been shown to have high rates of adolescent births in previous studies^{3,4}. Additionally, other past studies have found other Southern African countries such as Zambia and Namibia to have higher levels of premarital childbearing than some West African countries^{60,61}. This shows that differences can occur in levels of teenage pregnancy not only across, but even within regions.

Family disruption was significantly protective against teenage pregnancy in Southern Africa. The study by Speldnaes (2013) highlights the vast differences in the conceptualisation of motherhood and fatherhood in the Southern

African region where the former is associated with responsibility and sacrificial caring for children single-handedly so if needs be despite the circumstances⁶². Consequently, young females growing up with single mothers would be more conscientised of the various sacrifices accompanying being a single parent. This may dissuade them from predisposing themselves to situations that would result in early childbirth. Closely related to this, single mothers may desire their children to avoid their own regrets of the past and thereby repeatedly encourage them to pursue educational paths and other constructive endeavours in order to ensure a better future than their own.

Additionally, single mothers may raise their daughters to be more aware of the negative repercussions of early childbirth due to having been through the experience themselves. Previous literature has shown the importance of mother-daughter communication in being able to delay and limit sexual activity as well as increase levels of contraception and other forms of protection during intercourse among adolescents⁶³. Additionally, higher levels of maternal understanding, openness and reasoning regarding sexual matters have been shown to dissuade sexual activity as well as influence the intentions of youngsters to delay sexual intercourse to later years⁶⁴. This shows the importance of creating teenage pregnancy intervention strategies that incorporate parents to equip them to freely communicate with their children about sexual issues.

For every percentage increase in community female unemployment and community poverty the likelihood of teenage pregnancy increased by one percentage point. These factors may be closely associated as poorer communities would have higher levels of female unemployment due to decreased levels of community resources and opportunities. This association was clearly seen upon cross-tabulating the community levels of female unemployment by community levels of poverty as all the ever pregnant female teenagers from communities with high community levels of female unemployment were from the poorest communities while all pregnant teenagers from

communities with low poverty were also from communities with low levels of community female unemployment.

Additionally, a greater proportion of teenage females from communities with medium levels of community poverty had low or medium levels of female unemployment. Therefore, the degree of community levels of female unemployment correlated with the levels of poverty in communities. Communities which had high levels of female unemployment and poverty would also predispose women, both young and old, to engage in transactional sex. The engagement of older women in this practice might actually increase its frequency among younger generations as it would then be considered socially acceptable due to it being common. Additionally, in the absence of contraceptive use among younger females transactional sex would increase the likelihood for sexually transmitted infections as well as early childbearing. As a result it is necessary to improve levels of development within communities throughout Africa to ensure a decrease in poverty, unemployment as well as teenage pregnancy as shown in this study.

The following limitations should be considered while interpreting the findings of this study. First, the quality of individual and household-level social disadvantage-related and socioeconomic indicators were reliant on the underlying datasets as this was a secondary analysis of demographic and health survey data. Other important community-level characteristics such as socio-political and cultural issues were not covered as they were unavailable in the datasets. This may have possibly influenced the differences in teenage pregnancy across communities in the various regions of sub-Saharan Africa. The cross-sectional nature of this study also rendered it impossible to determine the temporal order of teenage pregnancy and social disadvantage factors. Therefore, the relationships established in the study merely indicate association between the variables and not causality. Nevertheless, the use of this cross-sectional data is useful as a primary step in testing the possible link between teenage

pregnancy and social disadvantage statistically.

Conclusion

This study has shown the vast differences in teenage pregnancy across sub-Saharan Africa. These differences span from the trends in teenage pregnancy prevalence to the various social disadvantage-related determinants of teenage pregnancy on the sub-continent. Taken together, our findings suggest the importance of understanding the influence of social disadvantage on pregnancy among teenage females in sub-Saharan Africa. It is important to note that sub-Saharan African regions are not homogenous yet all battle with community-level inequality that leads to reproductive health disparities among young females. Social disadvantage factors at household level influence the likelihood of teenage pregnancy differently in the various regions of the sub-continent due to the regional mechanisms in place to raise the girl child as well as to address the phenomenon of early pregnancy. These fundamentals are important to consider in implementing specific interventions that would address teenage pregnancy throughout the sub-continent uniquely yet appropriately. Therefore, it is hoped that this study will be utilised to guide the process of acquiring region-specific interventions to decrease the levels of unintended teenage pregnancy in sub-Saharan Africa.

In conclusion, our findings support the usefulness of the social disorganisation theory in understanding African sexual and reproductive health dynamics and show how social disadvantage characterised by community conditions may play a role in teenage pregnancy among female adolescents. Our findings also suggest the need for teenage pregnancy intervention programmes to address multilevel factors such as family disruption as well as the need for governments to address issues of unemployment, poverty and inequality. Until these are addressed, focusing only on individual factors will not be sufficient to address the challenge of teenage pregnancy and its consequences in sub-

Saharan Africa.

Acknowledgements

An earlier version of this paper was presented at the Population Association of America Annual Meeting held in San Diego, USA from the 30th of April to the 2nd of May 2015. Astute comments from conference participants are gratefully acknowledged. Additionally, the authors would like to thank Measure DHS for providing them with data from Senegal, Nigeria, Niger, Ivory Coast, Tanzania, Ethiopia, Rwanda, Uganda, Malawi, Mozambique and Zimbabwe for this study.

References

- United Nations Population Fund. Motherhood in Childhood: Facing the challenge of adolescent pregnancy. New York: UNFPA, 2013.
- World Health Organization. Adolescent Pregnancy. Secondary Adolescent Pregnancy 2014. http://www.who.int/maternal_child_adolescent/topics/maternal/adolescent_pregnancy/en/.
- Clifton D, Hervish A. The World's Youth 2013 Data Sheet. Washington DC: Population Reference Bureau 2013.
- Loaiza E, Liang M. Adolescent Pregnancy: A Review of Evidence. New York: United Nations Population Fund, 2013.
- Macleod CI, Tracey T. A decade later: follow-up review of South African research on the consequences of and contributory factors in teen-aged pregnancy. *South African Journal of Psychology* 2010; 40(1):18-31.
- Mangiaterra V, Pendose R, McClure K, et al. Adolescent Pregnancy. In: Heine M, ed. Making Pregnancy Safer Notes. Geneva: World Health Organisation, 2008:4.
- Tsui A, Creanga A, Ahmed S. The role of delayed childbearing in the prevention of obstetric fistulas. *International Journal of Gynecology & Obstetrics* 2007;99:S98-S107.
- Lee D. The early socioeconomic effects of teenage childbearing: A propensity score matching approach. *Demographic Research* 2010;23(25):697-736.
- Chen X-K, Wen SW, Fleming N, et al. Teenage pregnancy and adverse birth outcomes: a large population based retrospective cohort study. *International Journal of Epidemiology* 2007; 36(2):368-73.
- Hoque M, Hoque E, Anwar M, et al. Assessment and Comparison of Obstetric Characteristics and Perinatal Outcomes of Rural Population of South Africa. *Tropical Journal of Obstetrics and Gynaecology* 2013;26(1):60-67.
- Reynolds HW, Wong EL, Tucker H. Adolescents' use of maternal and child health services in developing countries. *International family planning perspectives* 2006;32(1).
- Organization WH. WHO guidelines on preventing early pregnancy and poor reproductive health outcomes among adolescents in developing countries. 2011.
- Duflo E, Dupas P, Kremer M. Education, HIV, and early fertility: Experimental evidence from Kenya: National Bureau of Economic Research, 2014.
- Tombros A. Integrating efforts to prevent HIV other STIs and pregnancy among teens in developing countries: three case studies. 2005.
- Neal SE, Chandra-Mouli V, Chou D. Adolescent first births in East Africa: disaggregating characteristics, trends and determinants. *Reproductive health* 2015;12(1):13.
- Amoran OE. A comparative analysis of predictors of teenage pregnancy and its prevention in a rural town in Western Nigeria. *International journal for equity in health* 2012;11(1):1-7.
- Demissie T. Levels, trends and differentials of adolescent motherhood in Ethiopia. Addis Ababa University, 2008.
- Francis GF. The effect of household characteristics on adolescent childbearing in Lesotho. University of the Witwatersrand, 2008.
- Isa AI, Gani IOO. Socio-demographic determinants of teenage pregnancy in the Niger Delta of Nigeria. *Open Journal of Obstetrics and Gynecology* 2012;2:239.
- Kaphagawani N. Risk factors for unwanted/ unplanned teenage pregnancy in Zomba District, Malawi. University of the Witwatersrand, 2006.
- Kyokwijuka MBG. Risk Factors of Adolescent Pregnancy in Kabale District-Uganda. Makerere University, 2009.
- Molosiwa S, Moswela B. Girl-pupil dropout in secondary schools in Botswana: Influencing factors, prevalence and consequences. *International Journal of Business and Social Science* 2012;3(7):265-71.
- Nwogwugwu NC. Socio-demographic determinants of adolescent fertility in Zambia. University of the Witwatersrand, 2013.
- Nyakubega P. Factors associated with adolescent pregnancies among secondary school students. a study from Tanga-Tanzania. *Dar Es Salaam Medical Students' Journal* 2010;16(1):31-34.
- Ogunlesi T, Ayeni V, Jagun E, et al. Socio-clinical factors related to the perinatal outcome of teenage pregnancies in a Nigerian teaching hospital. *Nigerian Journal of Paediatrics* 2013;40(3):290-94.
- Palermo T, Peterman A. Are Female Orphans at Risk for Early Marriage, Early Sexual Debut, and Teen Pregnancy? Evidence from Sub-Saharan Africa. *Studies in Family Planning* 2009;40(2):101-12.
- Runsewe-Abiodun TI, Bondi SF. Teenage pregnancy and

- implications on child survival amongst mothers attending a clinic in the East-End, Freetown, Sierra Leone. *Open Journal of Pediatrics* 2013;3:294.
- Were M. Determinants of teenage pregnancies: The case of Busia District in Kenya. *Economics & Human Biology* 2007;5(2):322-39.
- Jelili M, Akindele O, Akintayo O. Teenage Pregnancy and Home Environment Factors in Ogbomoso, Nigeria. *Research on Humanities and Social Sciences* 2013;3(18):69-77.
- Magadi MA, Agwanda AO. Determinants of transitions to first sexual intercourse, marriage and pregnancy among female adolescents: Evidence from South Nyanza, Kenya. *Journal of Biological Sciences* 2009(41):409-27.
- Oyefara JL. Determinants of adolescent fertility in contemporary Yoruba society: a multivariate analysis. *Gender and Behaviour* 2011;9(2):3979-4004.
- Ugoji F. Parental marital status and peer influence as correlates of teenage pregnancy among female teens in south-South Nigeria. *Gender and Behaviour* 2011;9(2):4125-38.
- Jewkes R, Morrell R, Christofides N. Empowering teenagers to prevent pregnancy: lessons from South Africa. *Culture, Health & Sexuality* 2009;11 (7): 675-88.
- Mkhwanazi N. Understanding teenage pregnancy in a post-apartheid South African township. *Culture, Health & Sexuality* 2010;12(4):347-58.
- Panday S, UNICEF. Teenage Pregnancy in South Africa: With a Specific Focus on School-going Learners: Executive Summary: Department of Basic Education, 2009.
- Chohan Z, Langa M. Teenage mothers talk about their experience of teenage motherhood. *Agenda* 2011;25(3):87-95.
- Mkhwanazi N. Developing and expanding our ideas about teenage desire and fertility. *Agenda* 2011;25(3):2-8.
- Eyakuze A, Salim A. The state of East Africa 2012: Deepening integration, intensifying challenges: Society for International Development, Regional Office for Eastern Africa, 2012.
- Open Society Initiative for Southern Africa. Inequality in Southern Africa: Options for Redress. South Africa: OSISA, 2011.
- StatsCompiler. SatsCompiler Computations. In: Survey DaH, ed., 2015.
- Kubrin C. Social Disorganization Theory: Then, Now and in the Future. In: Krohn, ed. *Handbook on Crime and Deviance*: Springer Science and Business Media, 2009.
- Shaw CR, McKay HD. Juvenile delinquency and urban areas: A study of rates of delinquents in relation to differential characteristics of local communities in American cities: University of Chicago Press Chicago, 1942.
- Bowen NK, Bowen GL, Ware WB. Neighborhood Social Disorganization, Families, and the Educational Behavior of Adolescents. *Journal of Adolescent Research* 2002;17(5):468-90.
- McNulty TL, Bellair PE. Explaining Racial And Ethnic Differences In Serious Adolescent Violent Behavior*. *Criminology* 2003;41(3):709-47.
- Tolan PH, Gorman-Smith D, Henry DB. The developmental ecology of urban males' youth violence. *Developmental psychology* 2003; 39(2):274.
- Yahaya I, Uthman O, Soares J, et al. Social Disorganization and history of child sexual abuse against girls in sub-Saharan Africa: a multilevel analysis. *BMC International Health and Human Rights* 2013;13(33):8.
- Kawachi I, Subramanian SV. Neighbourhood influences on health. *Journal of Epidemiology and Community Health* 2007;61(1):3-4.
- Merlo J. Multilevel analytical approaches in social epidemiology: measures of health variation compared with traditional measures of association. *Journal of epidemiology and community health* 2003;57(8):550-52.
- Subramanian S. The relevance of multilevel statistical methods for identifying causal neighborhood effects. *Social science & medicine* 2004;58 (10):1961-67.
- United Nations. Fertility Levels and Trends as Assessed in the 2012 Revision of the World Population Prospects. New York: United Nations, 2013.
- Walker J-A. Early Marriage in Africa—Trends, Harmful Effects and Interventions. *African journal of reproductive health* 2012;16(2):231-40.
- Blum R, John Hopkins Bloomberg School of Public Health. A Global Look at Adolescent Pregnancy Prevention: Strategies for Success. In: Office of Adolescent Health, ed. Webcast. Washington, DC: US Department of Health and Human Services, 2013.
- Meade CS, Kershaw TS, Ickovics JR. The intergenerational cycle of teenage motherhood: an ecological approach. *Health Psychology* 2008;27 (4):419.
- Walker J-A. Why Ending Child Marriage Needs to Be an Education Goal. Improving Learning Opportunities and Outcomes for Girls in Africa 2013:6.
- Harwood-Lejeune A. Rising age at marriage and fertility in Southern and Eastern Africa. *European Journal of Population/Revue Européenne de Démographie* 2001;17(3):261-80.
- Nalenga GZ. Causes of unintended pregnancy among adolescents in Addis Abeba, Ethiopia. 2012.
- Kirby D. Antecedents of adolescent initiation of sex, contraceptive use, and pregnancy. *American Journal of Health Behavior* 2002;26(6):473-85.
- Miller BC. Family influences on adolescent sexual and contraceptive behavior. *Journal of Sex Research* 2002;39(1):22-26.
- Leclerc-Madlala S. Transactional sex and the pursuit of

modernity. *Social dynamics* 2003;29(2):213-33.
 Palamuleni M, Adebawale A. Patterns of premarital childbearing among unmarried female youths in sub-Saharan Africa: Evidence from demographic health survey. *Scientific Research and Essays* 2014;9(10):421-30.
 Tawiah E. Adolescent fertility and reproductive health in four sub-Saharan African countries. 2002.
 Spjeldnæs IO. Family values of young people in Limpopo, South Africa: A sociocultural psychological study on perceptions and experiences

of reproduction and parenthood. 2013.
 Hutchinson MK, Jemmott JB, Jemmott LS, et al. The role of mother–daughter sexual risk communication in reducing sexual risk behaviors among urban adolescent females: a prospective study. *Journal of adolescent health* 2003;33(2):98-107.
 Fasula AM, Miller KS. African-American and Hispanic adolescents' intentions to delay first intercourse: Parental communication as a buffer for sexually active peers. *Journal of Adolescent Health* 2006;38(3):193-200.

Personal Self-Assessment:

Funding Awards

2016: South African Humanities Deans' Association (SAHUDA) Doctoral Scholarship

2013-2015: National Research Foundation Innovation Scholarship

2013-2015: Oppenheimer Memorial Trust Scholarship

2013: Postgraduate Merit Scholarship from the University of the Witwatersrand

Capacity-building workshop(s) attended:

2016 Workshops

Young Families: Gender, Sexuality and Care Workshop- 4-5/3/2016

NIHSS Doctoral 'Writing-Up' Workshop- 1-3/6/2016

DPS Mid-Year Workshop: Multilevel Models, Event History Analysis, Reviewing manuscripts for journals and conferences- 23- 24/6/2016

2015 Workshops

Multilevel approaches to the Analysis of Repeated Measures Data-Prof. Madise, Southampton University (SOTON), UK- 9-13/2/2015

Migration and Health- Prof. P. Bocquier-15/4/2015

Integration of Theory and Mixed Methods Approaches in Demographic Research-Prof. W. Avogo-14/5/2015

Qualitative Research Methods for Doctoral students, Prof. W. Avogo-18/6/2015

Data Pooling, Dr. S. Adedini- 19/6/2015

Abstract Writing Workshop, Dr. N. De Wet- 16/7/2015

How to write a policy brief: Thesis to policy-Dr. Fayoyin- 7/8/2015

Fertility Estimation Techniques, Prof. Michel Garenne- 17 and 18/11/2015

Nuffic Supervision Course, Prof. T. Shefer- 1-3/6/2015 and 14-16/7/2015

2014 Workshops:

SuperCross Training- Statistics SA-Johannesburg branch, January 2014

PhD Meeting-University Corner, DPS Programme- 21/2/2014

Revision and Argument I-Wits Writing Centre, Postgraduate (PG) Office-10/3/2014

Revision and Argument II-Wits Writing Centre, PG Office- 17/3/2014

Data Management using Qualitative Research Software, PG Office- 7/4/2014

Preliminary Processing of Qualitative Data, PG Office- 10/4/2014
 Statistics South Africa 10% Sample Launch-Pretoria, Stats SA- 15/4/2014
 Constructing an Argument, PG Office- 16/4/2014
 Using Mixed methods in Social Science Research, PG Office-17/4/2014
 Analysis of Qualitative Research, PG Office- 23/4/2014
 A guide to getting published by Sibule Zondi, PG Office- 9/5/2014
 Research Writing Course, CLTD, PG Office -12-14 /5/2014
 Converting Research into Publications, PG Office -27/5/2014
 Data Pooling-Prof. A. Channon- 11/7/2014
 Abstract Writing for Wits Research Symposium, SHB1- 21/7/2014
 Writing your thesis report, DPS Programme-Prof Odimegwu- 24/7/2014
 Multilevel Modelling Workshop, DPS Programme- 21-22/8/2014
 Translating research to policy: Communicating Research Findings- Dr. Fayoyin- 11/9/2014
 Interpreting and theorising your results: How to write research results and discussion, Prof. van Zyl- 15/9/2014
 Research report planning and writing for humanities- 22/10/2014

2013 Workshops:

Writing an Abstract for Wits Research Symposium 3 & 10/4/2013 (Lunchtime)
 Starting To Think About Your Masters or PhD Research: Prof Eric Worby -12/3/2013
 Proposal writing workshop for Humanities students by Prof Susan van Zyl-11/4/2013
 Zotero I-30/4/2013
 Assessing the impact of researchers and specialist journals-7/5/2013
 Intermediate endnote-9/5/2013
 Zotero II-10/5/2013
 Conferencing-14/5/2013
 Incites citation based research evaluation tool-21/5/2013
 Revision and Argument-23/5/2013
 Making a Poster (1 lecture): (Lunchtime) 15/7/2013

Conferences to attend:

Reproductive Health and Medicine: June 26-27, 2017, London, UK, Presenter-Abstract under review

Manuscripts Submitted

Year	Authors	Title	Journal / Book	Status
2015	Mkwanzani, S and Odimegwu, CO	“Family Disruption- A Possible Explanation for Teenage Pregnancy in South Africa”	SAHARA-J	Under Review

Manuscripts Published

Year	Authors	Title	Journal / Book
2016	Odimegwu, CO and Mkwanzani, S	Social disadvantage and teen pregnancy in sub-Saharan Africa: A multi-country cross-sectional study	African Journal of Reproductive Health, (Special Edition), Volume 20, no.3
2017	Mkwanzani, S	Teenage Pregnancy in South Africa: Setting a new research agenda	South African Review of Sociology, January 2017, Volume 48, no.1
2014	Mkwanzani, S and De Wet, N	School Dropout among African Adolescents in South Africa: Is there any gender differential?	Gender and Behaviour, Volume 12, no.4

Contribution to the Department

2016 Assistance:

DPS Orientation Week Organisation

Lectured Basic demographic Methods-1st semester 2016

Lectured Health Demography-2nd Semester 2016

Supervision of 1 Honours and 1 Masters Student

Internal examiner for 2 Masters Research reports from 2015

Internal examiner for 2 Masters Research proposals from 2016

Compiled Award application for DPS to enter Wits academia awards

Assisted in NRF funding application for departmental attendance of 2017 IUSSP Conference
Representative of DPS Programme on School of Social Science Transformation Committee
Representative of DPS Programme on Epidemiology and Biostatistics Committee
Population Association of Southern Africa (PASA) Additional Member
Organised PASA 2016 Conference at Wits University
Acting Head of Department- October 2016
Assessment of UNFPA Country Programme in South Africa- fieldwork and collection of qualitative data, July- October 2016

2015 Assistance:

DPS Orientation Week Organisation
Associate Lecturer from March 2015
Lectured Introduction to Population Studies-1st semester 2015
Lectured Demography and Development-2nd Semester 2015
Coordinated and Lectured for Introduction to demographic methods 2015-MSc (Epidemiology and Biostatistics) course
Honours Programme Coordinator
Supervision of 3 Honours Students
Representative of DPS Programme on School of Social Science Transformation Committee
Representative of DPS Programme on School of Public Health Committee
Representative of DPS Programme on Epidemiology and Biostatistics Committee
Representative of DPS Programme on School of Social Science Library Committee
Representative of the University of Witwatersrand on national organising committee of African Population (UAPS) Conference 2015
Population Association of Southern Africa (PASA) Additional Member-facilitated Wits student assistance in PASA and UAPS activities

2014 Assistance:

Assistance of DPS Orientation Week Organisation
Teaching Assistant-Introduction to Population Studies-1st semester 2014
Teaching Assistant-Demography and Development-2nd Semester 2014
Supervision of 3 Honours Students
Internal examiner for 2 honours research reports
Assistance of SOTON visit organisation

Compilation of DPS statistics of qualified honours, masters and PhD graduates, publications and other achievements for vice chancellor pack

Compilation of DPS statistics of qualified demographers for Department of Social Development

Organisation of Multilevel Modelling Workshop, August 2014

Organisation of 2014 PopStudies Mini Conference

Organisation and lecturing for Ugandan Bureau of Statistics (UBOS) workshops

Representative of the University of Witwatersrand on national organising committee of African Population (UAPS) Conference 2015

2013 Assistance:

DPS @ 10-Ten Year Anniversary Organisation Team

Assistance with logistics

Isibalo Annual Lecture Programme Director

Gala Dinner Programme Director

PopStudies Mini Conference designing of advert and planning for event

Compilation of Vice-chancellor Packs (DPS publication, graduate and achievement history for guests) and Biographies

DPS @10 Year end Braai Organisation

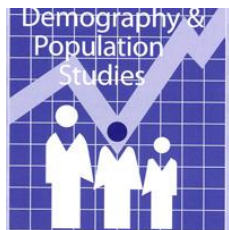
British Academy Project participation

BIOSKETCH

Sibusiso Mkwanzani is a former associate lecturer in the Demography and Population Studies (DPS) Programme. She holds a Masters in Epidemiology and Biostatistics as well as a Bachelor of Dental Science from the University of the Witwatersrand. As an associate lecturer, she coordinated the Honours Programme, taught Basic Demographic Methods, Introduction to Population Studies, and Introduction to Demographic Methods and Health Demography to postgraduates students as well as Demography and Development to undergraduates. Sibusiso is a recipient of the National Institute for the Humanities and Social Sciences (NIHSS) and South African Humanities Deans' Association (SAHUDA) Scholarship and has previously held the National Research Foundation Innovation and Scarce Skills Fellowship, Oppenheimer Memorial Trust Foundation Scholarship and Wits University Postgraduate Merit Scholarship. Her research interests include adolescent sexual and reproductive health, health of vulnerable populations as well as development. Sibusiso envisions contributing to the improvement of developing nations, especially in Africa.

APPENDIX B

**Policy Brief
August 2017**



Addressing Teenage Pregnancy in South Africa: Socio-Structural Considerations

Sibusiso Mkwanzani

Problem

Pregnancy among teenage females in South Africa remains a nexus of concern and alarm socially as well as to public health practitioners. It accounts for 80,000 unplanned babies annually and studies have reported that it occurs among 30% of females by the age of 20 in South Africa (Branson and Byker, 2016, Shefer et al., 2012, Willan, 2013). The phenomenon has adverse health, social and economic consequences for both mother and child making it a critical issue requiring urgent address (Hoque et al., 2013, Lee, 2010, Mangiaterra et al., 2008).

Understanding Teenage Pregnancy –A Conundrum of Events

Scholars of sexual and reproductive health (SRH) have assessed the determinants of teenage pregnancy in attempting to establish adequate intervention and risk prevention communication (Ibisomi and Odimegwu, 2007, Macleod and Tracey, 2010, Mchunu et al., 2012, Panday et al., 2009, Willan, 2013). These efforts have consistently concentrated on characteristics of the teenage female, but such research has resulted in interventions showing little or no effects nationally (Jewkes et al., 2008, Pettifor et al., 2005). Teenage pregnancy continues to rise year on year and teenage fertility incidence decreased by 16 percentage points in the decade between 2001 and 2011: an average decline of 1.6 percentage points per year (Masondo, 2015, Mkwanzani, Forthcoming).

There are few studies showing the quantitative significance of context and investigating the independent value of meso- and macro-level factors. However, the behaviour of young people, particularly sexual behaviour and ideology, is heavily influenced by their

environment and interrelationships (Goldstein, 2011, Muindi, 2007). The study aimed to determine some of the common factors in South African households and societies that could be driving teenage pregnancy.

To better understand the underlying causes behind teenage pregnancy, the study examined the possible effects of household and community environments of young women. The study focused on meso- and macro-level factors rooted in Shaw and McKay's (1942) theory of social disorganisation. The social disorganisation theory was classically used to explain the levels of crime in different American communities and this was posited to be due to elevated levels of family disruption, socio-economic deprivation, ethnic heterogeneity, residential mobility and urbanization (Shaw et al., 1942). It has since been used to study violence, crime levels, educational behaviour of adolescents and child sexual abuse (Bowen et al., 2002, McNulty and Bellair, 2003a, Tolan et al., 2003, Yahaya et al., 2013).

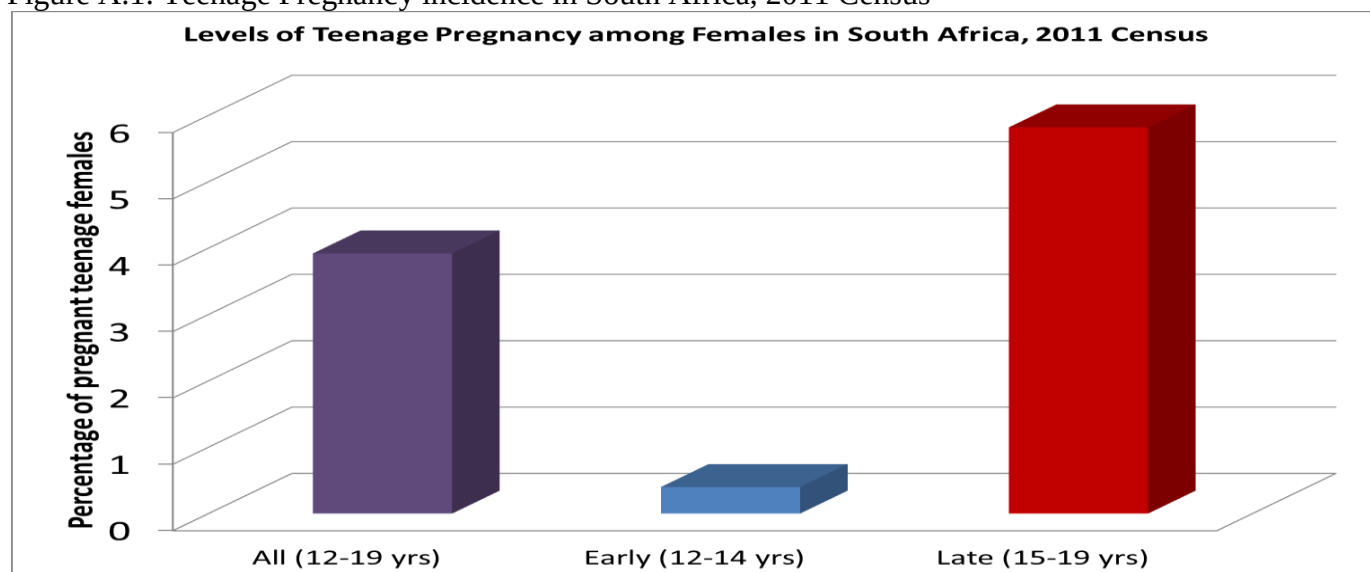
Methodology

From the foregoing, this enquiry hypothesised that teenage pregnancy may be driven by social disorganisation-related factors in South Africa due to contextual disparities of the phenomenon as in the case of crime or delinquency. The study specifically established the association of family disruption at household and community levels, household service delivery inaccessibility, community unemployment and residential mobility. The study was based on the 10% sample of the 2011 South African census with a sample size of 300858 12-19-year old females. Data analysis involved the application of descriptive statistics and multilevel binary logistic regression.

Findings

Results indicate that teenage pregnancy remains at critical levels with 3.97% of teenage females giving birth in the preceding year yet incidence among 15-19 year olds was 15 times higher than that of 12-14 year olds. Figure 1 presents the levels of teenage pregnancy among all teenage females, 12-14 and 15-19 year olds.

Figure A.1: Teenage Pregnancy incidence in South Africa, 2011 Census



The findings also reveal that all social-disorganisation-related factors were determinants of teenage pregnancy in South Africa. Particularly, family forms other than two-parented marriage and communities with high levels of family disruption increased the likelihood of teenage pregnancy. Similarly, increasing household service delivery inaccessibility predisposed teenage females to higher risk of pregnancy, as expected. However, higher community unemployment was negatively associated with teenage pregnancy as were higher levels of residential mobility, which is contrary to previous international research findings. To this end, the study provides empirical evidence of the social disorganisation determinants of teenage pregnancy in South Africa and shows the contribution of household and community environments in pregnancy risk among young women locally. Therefore, the study adds to the investigation of structural derivatives to determine issues of pertinence in the journey of addressing teenage pregnancy in South Africa.

Policy Implications

The level of teenage pregnancy incidence in South Africa is high and this will negatively affect the country meeting sustainable development goal targets. Specifically, South Africa is most likely not to achieve the targets related to SDG3 (Good health and wellbeing) that include the adolescent birth rate, SDG4 (Quality education) and SDG5 (Gender equality).

Furthermore, the results of this study demonstrate that addressing teenage pregnancy in South Africa is closely associated with achieving targets for SDGs 1, 2, 6, 7 and 10. Family disruption at household and community-levels are positively associated with teenage pregnancy and intersect with higher poverty, time constraints and stress displayed through

lower monitoring and emotional presence for children. Supporting single and cohabiting parent households becomes essential. The risk of teenage pregnancy increased with rising service inaccessibility confirming the importance of universal access to basic amenities beyond poverty reduction. The relevance of investigating the effects of mobility on sexual and reproductive outcomes in South Africa is also seen as populations that remain behind were shown to be at higher risk of pregnancy during adolescence possibly due to their financial inability to move to better protective communities. Finally, the negative relationship found between community levels of unemployment and teenage pregnancy signifies the importance of social control as well as the adverse outcomes that have resulted due to lower parental presence and subsequently monitoring, supervision and guidance of youth by adults in our communities with development.

Recommendations

Teenage pregnancy prevention programmes need to target girls at younger ages. Such programmes should preferably occur at the primary school level and aim to empower and assist younger females to curb all forms of infringement on their sexual and reproductive health rights.

Most importantly, findings from this study show the importance of investigating the effects of contextual factors on risk of teenage pregnancy while controlling for individual level factors among young females in South Africa. This has implications on data collection and study design for census and surveys going forward.

Programmes need to be set up for children growing up without one or both parents to ensure father and mother figures are present in such children's lives and if absent paired up with screened suitable "substitute" parent figures. The "substitute" parent would act as a source of support, love, validation and encouragement to decrease a girl-child's vulnerability of idealising older 'father-figure' partners and to lower her predisposition to delinquency during adolescence.

From the service inaccessibility results, we can identify areas that are more prone to teenage pregnancy and ensure that they are targeted for intervention programs against teenage pregnancy. These programmes need to focus on the provision of basic service as well as poverty alleviation to ensure any risk due to low socio-economic status is eradicated.

The residential mobility results show that moving to better, more mixed communities is

protective. Methods to ensure social cohesion and individuals from different backgrounds living together and learning from one another is vital. Government should work with the business sector and NGOs to create a comprehensive programme of integrating and upgrading South African communities after wide consultation nationally to ensure adequate buy-in.

Results on community unemployment highlight the need of creative ways to monitor and supervise children, especially during adolescence. It is imperative that government and NGOs begin supervised after school programmes for learners up to the matriculation year. These programmes could ensure that children are assisted with homework, encouraged to play sports and exposed to extra-curricular activities such as drama, ballroom dancing, chess, debating clubs, calligraphy, arts and crafts, flower arranging, interior designing, event decor, computer skills, musical instrument training, ballet, cultural dancing, etc. These activities would be most beneficial in environments where teens lack recreation halls, public sports facilities and other resources. Unemployed members of the public could be trained and employed to facilitate in such centres decreasing the problem of youth loitering yet creating employment.

Closely associated with the above recommendation, there remains the burning necessity of government to permit the provision of contraceptives within schools in South Africa. Without this fundamental sexual and reproductive health right, young females will continuously experience adverse SRH outcomes, including teenage pregnancy.

Potential Users

This policy brief is intended to guide policy and programmatic planning related to teenage pregnancy prevention. Therefore, such information would be useful for the following government departments and non-governmental organisations:

Ministry in the Presidency responsible for Women
Department of Social Development
Department of Health
Department of Planning, Monitoring and Evaluation
Department of Basic Education
National Youth Development Agency
Partners in Sexual Health (PSH)
United Nations Population Fund (UNFPA)-South Africa office
United Nations Children's Fund (UNICEF)- South Africa office

loveLife
SANAC
Save the Children

References

- ADAMS, G.;ADAMS-TAYLOR, S. & PITTMAN, K. 1989. Adolescent Pregnancy and Parenthood: A Review of the Problem, Solutions, and Resources. *Family Relations*, 38, 223-229.
- AMORAN, O. 2012. A Comparative Analysis of Predictors of Teenage Pregnancy and its Prevention in a Rural Town in Western Nigeria. *International Journal for Equity in Health*, 11, 1-7.
- ANTEGHINI, M.;FONSECA, H.;IRELAND, M. & BLUM, R. 2001. Health Risk Behaviors and Associated Risk and Protective Factors among Brazilian Adolescents in Santos, Brazil. *Journal of Adolescent Health*, 28, 295-302.
- BANDURA, A. 1986. *Social Foundations of Thought and Action: A social cognitive theory*, Englewood Cliffs, New Jersey, Prentice-Hall, Inc.
- BEAL, A.;AUSIELLO, J. & PERRIN, J. 2001. Social Influences on Health-risk Behaviors among Minority Middle School Students. *Journal of Adolescent Health*, 28, 474-480.
- BENEFO, K. 2008. Determinants of Zambian Men's Extra-marital Sex: A Multi-level Analysis. *Archives of Sexual Behavior*, 37, 517-529.
- BERNARD, T. 1992. *Cycle of Juvenile Justice*, New York, , Oxford University Press, .
- BERNARD, T. & SNIPES, J. 1996. Theoretical Integration in Criminology. *Crime and justice*, 20, 301-348.
- BHANA, D. 2012. "Girls are not free"—In and out of the South African School. *International Journal of Educational Development*, 32, 352-358.
- BICKEL, R. & WEAVER, S. 1997. Opportunity, Community, and Teen Pregnancy in an Appalachian State. *Journal of Educational Research*, 90, 175.
- BILLY, J.;BREWSTER, K. & GRADY, W. 1994. Contextual Effects on the Sexual Behavior of Adolescent Women. *Journal of Marriage and the Family*, 56, 387-404.
- BLUM, R.;ASTONE, N.;DECKER, M. R. & MOULI, V. 2014. A conceptual framework for early adolescence: a platform for research. *International Journal of Adolescent Medical Health*, 1-11.
- BLUM, R.;HALCÓN, L.;BEUHRING, T.;PATE, E.;FORRESTER, S. & VENEMA, A. 2003. Adolescent Health in the Caribbean: Risk and Protective Factors. *American Journal of Public Health*, 93, 456-460.
- BLUM, R. & JOHN HOPKINS BLOOMBERG SCHOOL OF PUBLIC HEALTH 2013. A Global Look at Adolescent Pregnancy Prevention: Strategies for Success. In: OFFICE OF ADOLESCENT HEALTH (ed.) *Webcast*. Washington, DC: US Department of Health and Human Services,.
- A Global Look at Adolescent Pregnancy Prevention: Strategies for Success*, 2013. Directed by BLUM, R. & JOHNS HOPKINS BLOOMBERG SCHOOL OF PUBLIC HEALTH. Washington, DC: US Department of Health and Human Services,.
- BOND, L.;PATTON, G.;GLOVER, S.;CARLIN, J.;BUTLER, H.;THOMAS, L. & BOWES, G. 2004. The Gatehouse Project: Can a Multilevel School Intervention Affect Emotional Wellbeing and Health Risk Behaviours? *Journal of Epidemiology and Community Health*, 58, 997-1003.
- BOULT, B. & CUNNINGHAM, P. 1993. *Some Aspects of Obstetrics in Black Teenage Pregnancy: A Comparative Study of Three Age Groups*, Port Elizabeth, University of Port Elizabeth.
- BOWEN, N.;BOWEN, G. & WARE, W. 2002. Neighborhood Social Disorganization, Families, and the Educational Behavior of Adolescents. *Journal of Adolescent Research*, 17, 468-490.
- BRANSON, N. & BYKER, T. 2016. Youth Friendly Clinics Make Inroads in Reducing

Unintended Teen Births in South Africa. In: SALDRU, U. O. C. T. (ed.) *SALDRU Policy Briefs*. Cape Town.

BREWSTER, K.;BILLY, J. & GRADY, W. 1993. Social Context and Adolescent Behavior: The Impact of Community on the Transition to Sexual Activity. *Social Forces*, 71, 713-740.

BRONFENBRENNER, U. 1977. Toward an Experimental Ecology of Human Development. *American Psychologist*, 32, 513.

BROOKS, G. 2015. Kids with condoms: It's not government that's sick – it's us. Johannesburg: Styli Charalambous.

BROWNING, C. & OLINGER-WILBON, M. 2003. Neighborhood Structure, Social Organization, and Number of Short-Term Sexual Partnerships. *Journal of Marriage and Family*, 65, 730-745.

BURGESS, E. 1928. The Growth of the City,. In: PARK, R.;BURGESS, E. & MCKENZIE, R. (eds.) *The City*,. Chicago: University of Chicago Press.

BURSIK, R. J. 1988. Social disorganization and theories of crime and delinquency: Problems and prospects*. *Criminology*, 26, 519-552.

CAMPBELL, E.;ADAMS, G. & DOBSON, W. 1984. Familial Correlates of Identity Formation in Late Adolescence: A Study of the Predictive Utility of Connectedness and Individuality in Family Relations. *Journal of Youth and Adolescence*, 13, 509-525.

CANTILLON, D.;DAVIDSON, W. & SCHWEITZER, J. 2003. Measuring Community Social Organization: Sense of Community as a Mediator in Social Disorganization Theory. *Journal of Criminal Justice*, 31, 321-339.

CATALANO, R. & HAWKINS, J. 1996. A Theory of Antisocial Behavior. In: HAWKINS, J. (ed.) *Delinquency and Crime: Current theories* New York: Cambridge University.

CATANIA, J.;COATES, T.;GREENBLATT, R.;DOLCINI, M.;KEGELES, S.;PUCKETT, S.;CORMAN, M. & MILLER, J. 1989. Predictors of Condom Use and Multiple Partnered Sex among Sexually-active Adolescent Women: Implications for AIDS-related Health Interventions. *Journal of Sex Research*, 26, 514-524.

CHEN, X.-K.;WEN, S. W.;FLEMING, N.;DEMISSIE, K.;RHOADS, G. G. & WALKER, M. 2007. Teenage pregnancy and adverse birth outcomes: a large population based retrospective cohort study. *International Journal of Epidemiology*, 36, 368-373.

CHEN, Y.;STIFFMAN, A.;CHENG, L. & DORE, P. 1997. Mental health, social environment and sexual risk behaviors of adolescent service users: A gender comparison. *Journal of Child and Family Studies*, 6, 9-25.

CHILMAN, C. 1983. *Adolescent Sexuality in a Changing American Society: Social and Psychological Perspectives for the Human Services Professions*, New York, John Wiley & Sons.

CHILMAN, C. 1985. Feminist Issues in Teenage Parenting. *Child Welfare*, 54, 225-234.

CHOHAN, Z. & LANGA, M. 2011. Teenage mothers talk about their experience of teenage motherhood. *Agenda*, 25, 87-95.

CHRISTOFIDES, N. J.;JEWKES, R. K.;DUNKLE, K. L.;NDUNA, M.;SHAI, N. J. & STERK, C. 2014. *Early adolescent pregnancy increases risk of incident HIV infection in the Eastern Cape, South Africa: a longitudinal study*.

CLIFTON, D. & HERVISH, A. 2013. The World's Youth 2013 Data Sheet. *Washington DC: Population Reference Bureau*.

COLLINS, W. & STEINBERG, L. 2006. Adolescent Development in Interpersonal Context. In: EISENBERG, N.;DAMON, W. & LERNER, R. (eds.) *Handbook of Child Psychology*. 6 ed. Hoboken, New Jersey: John Wiley & Sons Inc.

COPPING, L.;CAMPBELL, A. & MUNCER, S. 2013. Violence, Teenage Pregnancy, and Life History. *Human Nature*, 24, 137-157.

- CROSBY, R.;DICLEMANTE, R.;WINGOOD, G.;LANG, D. & HARRINGTON, K. 2003. Infrequent Parental Monitoring Predicts Sexually Transmitted Infections among Low-income African American Female Adolescents. *Archives of Pediatrics & Adolescent Medicine*, 157, 169-173.
- CUBBIN, C.;SANTELLI, J.;BRINDIS, C. & BRAVEMAN, P. 2005. Neighborhood Context and Sexual Behaviors among Adolescents: Findings from the National Longitudinal Study of Adolescent Health. *Perspectives on Sexual and Reproductive Health*, 37, 125-134.
- CUNNINGHAM, P. W. & BOULT, B. E. 1996. Black teenage pregnancy in South Africa: Some considerations. *Adolescence*, 31, 691-700.
- DE WET, N. 2016. Pregnancy and Death: An Examination of Pregnancy-related Deaths among Adolescents in South Africa. *South African Journal of Child Health*, 10, 151-155.
- DELIUS, P. & GLASER, C. 2002. Sexual Socialisation in South Africa: A Historical Perspective. *African Studies*, 61, 27-54.
- DEMISSIE, T. 2008. *Levels, Trends and Differentials of Adolescent Motherhood in Ethiopia*. Master of Science, Addis Ababa University.
- DICLEMANTE, R.;WINGOOD, G.;CROSBY, R. C., S;BRENDA, K.;HARRINGTON, K.;DAVIES, S.;HOOK, E. & OH, M. 2001. Parental Monitoring: Association with Adolescents' Risk Behaviors. *Pediatrics*, 107, 1363-1368.
- DUFLO, E.;DUPAS, P. & KREMER, M. 2014. Education, HIV, and early fertility: Experimental evidence from Kenya. National Bureau of Economic Research.
- DUROJAYE, E. 2011. Access to Contraception for Adolescents in Africa: a Human Rights Challenge. *Comparative and International Law Journal of Southern Africa*, 44, 1-29.
- EMMETT, T. 2003. Social Disorganisation, Social Capital and Violence Prevention in South Africa: Original Contribution. *African Safety Promotion*, 1, p. 4-18.
- EYAKUZE, A. & SALIM, A. 2012. *The state of East Africa 2012: Deepening integration, intensifying challenges*, Society for International Development, Regional Office for Eastern Africa.
- FALL, C.;SACHDEV, H.;OSMOND, C.;RESTREPO-MENDEZ, M.;VICTORA, C.;MARTORELL, R.;STEIN, A.;SINHA, S.;TANDON, N. & ADAIR, L. 2015. Association between Maternal Age at Childbirth and Child and Adult Outcomes in the Offspring: A Prospective Study in Five Low-income and Middle-income Countries (COHORTS collaboration). *The Lancet Global Health*, 3, e366-e377.
- FASULA, A. M. & MILLER, K. S. 2006. African-American and Hispanic adolescents' intentions to delay first intercourse: Parental communication as a buffer for sexually active peers. *Journal of Adolescent Health*, 38, 193-200.
- FLANAGAN, P. 1998. Teen Mothers: Countering the Myths of Dysfunction and Developmental Disruption. In: COLL, C.;SURREY, J. & WEINGARTEN, K. (eds.) *Mothering Against the Odds: Diverse Voices of Contemporary Mothers*. New York: The Guilford Press.
- FLAY, B.;GRAUMLICH, S.;SEGAWA, E.;BURNS, J. & HOLLIDAY, M. 2004. Effects of 2 prevention programs on high-risk behaviors among African American youth: A randomized trial. *Archives of Pediatrics & Adolescent Medicine*, 158, 377-384.
- FORD, C.;PENCE, B.;MILLER, W.;RESNICK, M.;BEARINGER, L.;PETTINGELL, S. & COHEN, M. 2005. Predicting adolescents' longitudinal risk for sexually transmitted infection: results from the National Longitudinal Study of Adolescent Health. *Archives of Pediatrics & Adolescent Medicine*, 159, 657-664.
- FOSNOT, C. 2013. *Constructivism: Theory, Perspectives, and Practice*, New York, Teachers College Press.
- FRANCIS, G. 2008. *The Effect of Household Characteristics on Adolescent Childbearing in*

- Lesotho. Master of Arts, University of the Witwatersrand.
- FREEMAN, M. & MOTSEI, M. 1992. Planning Health Care in South Africa--Is There a Role for Traditional Healers? *Social Science & Medicine*, 34, 1183-1190.
- FURSTENBERG, F. 1976. *Unplanned Parenthood: The Social Consequences of Teenage Childbearing*, New York, Free Press,.
- FURSTENBERG JR, F. 1991. As the Pendulum Swings: Teenage Childbearing and Social Concern. *Family Relations*, 40, 127-138.
- GAKIDOU, E.;COWLING, K.;LOZANO, R. & MURRAY, C. 2010. Increased educational attainment and its effect on child mortality in 175 countries between 1970 and 2009: A systematic analysis. *The Lancet*, 376, 959-974.
- GEARY, R.;GÓMEZ-OLIVÉ, F.;KAHN, K.;TOLLMAN, S. & NORRIS, S. 2014. Barriers to and Facilitators of the Provision of a Youth-friendly h]Health Services Programme in Rural South Africa. *BMC Health Services Research*, 14, 259.
- GERONIMUS, A. 1991. Teenage Childbearing and Social and Reproductive Disadvantage: The Evolution of Complex Questions and the Demise of Simple Answers. *Family Relations*, 40, 463-471.
- GODLEY, S. 2012. Building a Healthier Community for Teens: Environmental Strategies to Prevent Teenage Pregnancy. *Expanding our Experience and Expertise: implementing Effective Teenage Pregnancy Prevention Programs*. Baltimore, MD.
- GOLDSTEIN, H. 2011. *Multilevel Statistical Models*, Hoboken, New Jersey, John Wiley & Sons.
- HANNA, B. 2001. Adolescent Parenthood: A costly mistake or a search for love? *Reproductive Health Matters*, 9, 101-107.
- HARWOOD-LEJEUNE, A. 2001. Rising age at marriage and fertility in Southern and Eastern Africa. *European Journal of Population/Revue Européenne de Démographie*, 17, 261-280.
- HAYNIE, D.;PETTS, R.;MAIMON, D. & PIQUERO, A. 2009. Exposure to Violence in Adolescence and Precocious Role Exits. *Journal of Youth and Adolescence*, 38, 269-286.
- HESLOP, J. & BANDA, R. 2013. Moving Beyond the “male perpetrator, female victim” Discourse in Addressing Sex and Relationships for HIV Prevention: Peer Research in Eastern Zambia. *Reproductive Health Matters*, 21, 225-233.
- HOGBEN, M. & LEICHLITER, J. 2008. Social Determinants and Sexually Transmitted Disease Disparities. *Sexually Transmitted Diseases*, 35, 13-18.
- HOLBORN, L. & EDDY, G. 2011. First steps to healing the South African family. *Johannesburg: South African Institute of Race Relations*.
- HOQUE, M.;HOQUE, E.;ANWAR, M. & KADER, S. 2013. Assessment and Comparison of Obstetric Characteristics and Perinatal Outcomes of Rural Population of South Africa. *Tropical Journal of Obstetrics and Gynaecology*, 26, 60-67.
- HUTCHINSON, M. K.;JEMMOTT, J. B.;JEMMOTT, L. S.;BRAVERMAN, P. & FONG, G. T. 2003. The role of mother–daughter sexual risk communication in reducing sexual risk behaviors among urban adolescent females: a prospective study. *Journal of adolescent health*, 33, 98-107.
- IBISOMI, L. & ODIMEGWU, C. 2007. Predictors of Unintended Pregnancy among South African Youth. *Eastern Africa Social Science Research Review*, 23, 61-80.
- INAZU, J. & FOX, L. 1980. Maternal Influence on the Sexual Behavior of Teen-age Daughters: Direct and Indirect sources. *Journal of Family issues*, 1, 81.
- ISA, A. & GANI, I. 2012. Socio-demographic determinants of teenage pregnancy in the Niger Delta of Nigeria. *Open Journal of Obstetrics and Gynecology*, 2, 239.
- JACCARD, J.;BLANTON, H. & DODGE, T. 2005. Peer influences on risk behavior: An

- analysis of the effects of a close friend. *Developmental Psychology*, 41, 135.
- JELILI, M.; AKINDELE, O. & AKINTAYO, O. 2013. Teenage Pregnancy and Home Environment Factors in Ogbomoso, Nigeria. *Research on Humanities and Social Sciences*, 3, 69-77.
- JESSOR, R.; TURBIN, M. & COSTA, F. 1998. Protective Factors in Adolescent Health Behavior. *Journal of Personality and Social Psychology*, 75, 788.
- JEWKES, R.; DUNKLE, K.; NDUNA, M. & SHAI, N. 2010. Intimate partner violence, relationship power inequity, and incidence of HIV infection in young women in South Africa: A cohort study. *The Lancet*, 376, 41-48.
- JEWKES, R.; MORRELL, R. & CHRISTOFIDES, N. 2009. Empowering Teenagers to Prevent Pregnancy: Lessons from South Africa. *Culture, Health & Sexuality*, 11, 675-688.
- JEWKES, R.; NDUNA, M.; LEVIN, J.; JAMA, N.; DUNKLE, K.; PUREN, A. & DUVVURY, N. 2008. Impact of Stepping Stones on Incidence of HIV and HSV-2 and Sexual Behaviour in Rural South Africa: Cluster Randomised Controlled Trial. *BMJ: British Medical Journal*, 337, a506.
- JEWKES, R.; VUNDULE, C.; MAFORAH, F. & JORDAAN, E. 2001. Relationship dynamics and teenage pregnancy in South Africa. *Social Science & Medicine*, 52, 733-744.
- KAPHAGAWANI, N. 2006. *Risk factors for unwanted/ unplanned teenage pregnancy in Zomba District, Malawi*. Master of Public Health, University of the Witwatersrand.
- KAWACHI, I. & SUBRAMANIAN, S. 2007. Neighbourhood influences on health. *Journal of Epidemiology and Community Health*, 61, 3-4.
- KEARNEY, M. 2009. Teen and Non-marital Childbearing, NBER Reporter Online. Cambridge: National Bureau of Economic Research (NBER).
- KINGDON, G. G. & KNIGHT, J. 2004. Race and the incidence of unemployment in South Africa. *Review of Development Economics*, 8, 198-222.
- KIOLI, F. 2008. *Sexual Behaviour of Adolescents among the Akamba People of Machakos District, Kenya*. PhD, Jawaharlal Nehru University.
- KIRBY, D. 2002. Antecedents of adolescent initiation of sex, contraceptive use, and pregnancy. *American Journal of Health Behavior*, 26, 473-485.
- KLASEN, S. & WOOLARD, I. 2009. Surviving Unemployment Without State Support: Unemployment and Household Formation in South Africa. *Journal of African Economies*, 18, 1-51.
- KNIGHT, R. 2006. *South Africa 2006: Challenges for the Future*. New York: Shared Interest Organisation.
- KRAVDAL, Ø. 2002. Education and fertility in sub-Saharan Africa: Individual and community effects. *Demography*, 39, 233-250.
- KRUGER, L.; OAKES, A. & SHEFER, T. 2015. 'I could have done everything and why not?': Young Women's Complex Constructions of Sexual Agency in the Context of Sexualities Education in Life Orientation in South African Schools. *Perspectives in Education*, 33, 30-48.
- KU, L.; SONENSTEIN, F. & PLECK, J. 1993. Neighborhood, family, and work: Influences on the premarital behaviors of adolescent males. *Social Forces*, 72, 479-503.
- KUBRIN, C. 2009. Social Disorganization Theory: Then, Now and in the Future. In: KROHN (ed.) *Handbook on Crime and Deviance*. Springer Science and Business Media.
- KYOKWIJUKA, M. 2009. *Risk Factors of Adolescent Pregnancy in Kabale District-Uganda*. Master of Science, Makerere University.
- LECLERC-MADLALA, S. 2003. Transactional sex and the pursuit of modernity. *Social dynamics*, 29, 213-233.
- LECLERC-MADLALA, S. 2008. Intergenerational/Age-disparate Sex and Young Women's

- Vulnerability in Southern Africa. Pretoria: HSRC
- LEE, D. 2010. The early socioeconomic effects of teenage childbearing: A propensity score matching approach. *Demographic Research*, 23, 697-736.
- LI, B.; LINGSMA, H.; STEYERBERG, E. & LESAFFRE, E. 2011. Logistic random effects regression models: a comparison of statistical packages for binary and ordinal outcomes. *BMC Medical Research Methodology*, 11, 1-11.
- LIMPOPO POPULATION AND DEVELOPMENT DIRECTORATE 2012. Factors associated with teenage pregnancy in Limpopo province. In: DEPARTMENT OF POPULATION AND DEVELOPMENT (ed.) *Factors Associated with Teenage Pregnancy in South Africa*. Polokwane: Department of Population and Development.
- LOAIZA, E. & LIANG, M. 2013. Adolescent Pregnancy: A Review of Evidence. New York: United Nations Population Fund.
- LUDWIG, J.; SANBONMATSU, L.; GENNETIAN, L.; ADAM, E.; DUNCAN, G.; KATZ, L.; KESSLER, R.; KLING, J.; LINDAU, S. & WHITAKER, R. 2011. Neighborhoods, Obesity, and Diabetes—A Randomized Social Experiment. *New England Journal of Medicine*, 365, 1509-1519.
- LUKE, N. 2003. Age and Economic Asymmetries in the Sexual Relationships of Adolescent Girls in sub-Saharan Africa. *Studies in Family Planning*, 34, 67-86.
- LUKER, K. 1996. *Dubious Conceptions: The Politics of Teenage Pregnancy*, Cambridge, MA, Harvard University Press.
- MABUGU, R. & CHITIGA-MABUGU, M. 2013. Are Social Grants a Threat to Fiscal Sustainability? Pretoria: HSRC.
- MACINTYRE, S. & CUNNINGHAM-BURLEY, S. 1993. Pregnancy as a Social Problem: A Perspective from the U.K. In: LAWSON, A. & RHODE, D. (eds.) *The Politics of Pregnancy*. New Haven: Yale University Press.
- MACKENBACH, J.; STIRBU, I.; ROSKAM, A.; SCHAAP, M.; MENVIELLE, G.; LEINSALU, M. & KUNST, A. 2008. Socioeconomic inequalities in health in 22 European countries. *New England Journal of Medicine*, 358, 2468-2481.
- MACLEOD, C. 1999a. The 'causes' of teenage pregnancy: Review of South African research—Part 2. *South African Journal of Psychology*, 29, 8-16.
- MACLEOD, C. 1999b. *The Governmentality of Teenage Pregnancy: Scientific Literature and Professional Practice in South Africa*. Doctor of Philosophy in the School of Psychology, University of Natal.
- MACLEOD, C. 2002. Economic Security and the Social Science Literature on Teenage Pregnancy in South Africa. *Gender & Society*, 16, 647-664.
- MACLEOD, C. 2011. *'Adolescence', Pregnancy and Abortion—Constructing a Threat of Degeneration*, New York, Routledge, Taylor & Francis Group.
- MACLEOD, C. & DURRHEIM, K. 2002. Racializing Teenage Pregnancy: 'Culture' and 'Tradition' in the South African Scientific Literature. *Ethnic and Racial Studies*, 25, 778-801.
- MACLEOD, C. & TRACEY, T. 2010. A decade later: follow-up review of South African research on the consequences of and contributory factors in teen-aged pregnancy. *South African Journal of Psychology*, 40, 18-31.
- MAGADI, M. & AGWANDA, A. 2009. Determinants of transitions to first sexual intercourse, marriage and pregnancy among female adolescents: Evidence from South Nyanza, Kenya. *Journal of Biological Sciences*, 409-427.
- MAKIWANE, M. 2010. The Child Support Grant and Teenage Childbearing in South Africa. *Development Southern Africa*, 27, 193-204.
- MAKIWANE, M. & KWIZERA, S. 2009. Youth and Well-being: A South African Case Study. *Social Indicators Research*, 91, 223-242.

- MAKIWANE, M. & UDJO, E. 2006. Is the child support grant associated with an increase in teenage fertility in South Africa? Evidence from national surveys and administrative data. *Pretoria: Human Sciences Research Council*.
- MAKUBALO, L. 2008. Response: Youth Policy Initiative roundtable on teenage pregnancy. *5th Youth Policy Initiative Roundtable on Teenage Pregnancy*. Cape Town.
- MALEMA, R. 2000. *Risk Factors Associated with Teenage Pregnancy at Ga-Dikgale Villages in the Northern Province of South Africa*. Master of Science, University of Pretoria.
- MANGIATERRA, V.;PENDOSE, R.;MCCLURE, K. & ROSEN, J. 2008. Adolescent Pregnancy. In: HEINE, M. (ed.) *Making Pregnancy Safer Notes*. Geneva: World Health Organisation.
- MANZINI, N. 2001. Sexual initiation and childbearing among adolescent girls in KwaZulu Natal, South Africa. *Reproductive health matters*, 9, 44-52.
- MARMOT, M. 1999. Epidemiology of socioeconomic status and health: are determinants within countries the same as between countries? *Annals of the New York Academy of Sciences*, 896, 16-29.
- MARTELETO, L.;LAM, D. & RANCHHOD, V. 2008. Sexual behavior, pregnancy, and schooling among young people in urban South Africa. *Studies in family planning*, 39, 351-368.
- MASONDO, S. 2015. Teen pregnancies hit 99000 a year. *City Press*, 6 September.
- MCHUNU, G.;PELTZER, K.;TUTSHANA, B. & SEUTLWADI, L. 2012. Adolescent Pregnancy and Associated Factors in South African Youth. *African Health Sciences*, 12, 426-434.
- MCNULTY, T. & BELLAIR, P. 2003a. Explaining Racial And Ethnic Differences In Serious Adolescent Violent Behavior*. *Criminology*, 41, 709-747.
- MCNULTY, T. L. & BELLAIR, P. E. 2003b. Explaining Racial And Ethnic Differences In Serious Adolescent Violent Behavior*. *Criminology*, 41, 709-747.
- MEADE, C.;KERSHAW, T. & ICKOVICS, J. 2008. The intergenerational cycle of teenage motherhood: an ecological approach. *Health Psychology*, 27, 419.
- MERLO, J. 2003. Multilevel Analytical Approaches in Social Epidemiology: Measures of Health Variation Compared with Traditional Measures of Association. *Journal of Epidemiology and Community Health*, 57, 550-552.
- MILLER, B. 2002. Family influences on adolescent sexual and contraceptive behavior. *Journal of Sex Research*, 39, 22-26.
- MILLER, S. 1983. *Children as Parents: A Final Report on a Study of Childbearing and Childrearing Among 12 to 15 Year-Olds*, New York, Research Center, Child Welfare League of America.
- MKHWANAZI, N. 2009a. Teenage pregnancy and HIV in South Africa. *Body Politics and Women Citizens*, 83.
- MKHWANAZI, N. 2009b. Teenage Pregnancy and HIV in South Africa. In: SCHLYTER, A. (ed.) *Body Politics and Women Citizens: African Experiences*. Stockholm, Sweden: Swedish International Development Cooperation Agency (SIDA).
- MKHWANAZI, N. 2010. Understanding Teenage Pregnancy in a Post-Apartheid South African Township. *Culture, Health & Sexuality*, 12, 347-358.
- MKHWANAZI, N. 2011. Developing and Expanding our Ideas About Teenage Desire and Fertility. *Agenda*, 25, 2-8.
- MKHWANAZI, N. 2012. A Tough Love Approach Indeed: Demonising Early Childbearing in the Zuma Era. *Agenda*, 26, 73-84.
- MKHWANAZI, N. 2014. "An African way of doing things": Reproducing Gender and Generation. *Anthropology Southern Africa*, 37, 107-118.

- MKWANANZI, S. Forthcoming. Teenage Moms and Dads: A Demographic Perspective. In: BHANA, D. & MKHWANAZI, N. (eds.) *Young Families*. Pretoria: HSRC Press.
- MKWANANZI, S. & DE WET, N. 2014. School Dropout among African Adolescents in South Africa: Is there any gender differential? *Gender & Behaviour*, 12.
- MNGOMEZULU, K. Forthcoming. *The Maternal Healthcare as an International Human Right: A qualitative study on the influence of culture and religion in access to maternal health care in Southern African countries*. PhD, University of the Witwatersrand.
- MOLOSIWA, S. & MOSWELA, B. 2012. Girl-Pupil Dropout in Secondary Schools in Botswana: Influencing Factors, Prevalence and Consequences. *International Journal of Business and Social Science*, 3, 265-271.
- MOORE, M. & CHASE-LANSDALE, P. 2001. Sexual Intercourse and Pregnancy among African American Girls in High-Poverty Neighborhoods: The Role of Family and Perceived Community Environment. *Journal of Marriage and Family*, 63, 1146-1157.
- MORISON, T. 2013. Heterosexual Men and Parenthood Decision Making in South Africa: Attending to the Invisible Norm. *Journal of Family Issues*, 34, 1125-1144.
- MOTHIBA, T. & MAPUTLE, M. 2012. Factors Contributing to Teenage Pregnancy in the Capricorn District of the Limpopo Province. *Curationis*, 35, 1-5.
- MUFTIĆ, L. 2009. Macro-Micro Theoretical Integration: An Unexplored Theoretical Frontier. *Journal of Theoretical & Philosophical Criminology*, 1, 33-71.
- MUINDI, K. 2007. *Adolescent Sexual Behaviour in Navrongo: Does Family Count?* Master of Science, University of the Witwatersrand.
- MURRAY, C. 1980. Migrant Labour and Changing Family Structure in the Rural Periphery of Southern Africa. *Journal of Southern African Studies*, 6, 139-156.
- NALENGA, G. 2012. *Causes of Unintended Pregnancy among Adolescents in Addis Abeba, Ethiopia*. Master of Science Masters, Norwegian University of Life Sciences.
- NATIONAL DEPARTMENT OF HEALTH (NDOH);STATISTICS SOUTH AFRICA;SOUTH AFRICAN MEDICAL RESEARCH COUNCIL (SAMRC) & ICF 2017. South African Demographic and Health Survey 2016: Key Indicators. Pretoria, South Africa.
- NEAL, S. E.;CHANDRA-MOULI, V. & CHOU, D. 2015. Adolescent first births in East Africa: disaggregating characteristics, trends and determinants. *Reproductive health*, 12, 13.
- NEVES, D.;SAMSON, M.;VAN NIEKERK, I.;HLATSHWAYO, S. & DU TOIT, A. 2009. *The Use and Effectiveness of Social Grants in South Africa*. Cape Town,: Institute for Poverty, Land and Agrarian Studies, Economic Policy Research Institute.
- NKANI, N. & BHANA, D. 2016. Sexual and Reproductive Well-being of Teenage Mothers in a South African Township School. *South African Journal of Education*, 36, 01- 10.
- NLEYA, N. 2011. Linking Service Delivery and Protest in South Africa: An Exploration of Evidence from Khayelitsha. *Africanus*, 41, 3-13.
- NOBREGA, C. 2014. *The Labour Market: Teen Pregnancy and Unemployment* [Online]. Rio de Janeiro: The Guardian. [Accessed 15 June 2017].
- NWOGWUGWU, N. 2013. *Socio-Demographic Determinants of Adolescent Fertility in Zambia*. Masters of Arts, University of the Witwatersrand.
- NYAKUBEGA, P. 2010. Factors associated with adolescent pregnancies among secondary school students. a study from Tanga-Tanzania. *Dar Es Salaam Medical Students' Journal*, 16, 31-34.
- OGUNLESI, T.;AYENI, V.;JAGUN, E. & OGUNFOWORA, O. 2013. Socio-clinical Factors Related to the Perinatal Outcome of Teenage Pregnancies in a Nigerian Teaching Hospital. *Nigerian Journal of Paediatrics*, 40, 290-294.
- OPEN SOCIETY INITIATIVE FOR SOUTHERN AFRICA 2011. *Inequality in Southern*

- Africa: Options for Redress. South Africa: OSISA.
- OUTWATER, A.; ABRAHAMS, N. & CAMPBELL, J. 2005. Women in South Africa: Intentional Violence and HIV/AIDS: Intersections and Prevention. *Journal of Black Studies*, 35, 135-154.
- OYEFARA, J. 2011. Determinants of adolescent fertility in contemporary Yoruba society: a multivariate analysis. *Gender and Behaviour*, 9, 3979-4004.
- PALAMULENI, M. & ADEBOWALE, A. 2014. Patterns of premarital childbearing among unmarried female youths in sub-Saharan Africa: Evidence from demographic health survey. *Scientific Research and Essays*, 9, 421-430.
- PALERMO, T. & PETERMAN, A. 2009. Are Female Orphans at Risk for Early Marriage, Early Sexual Debut, and Teen Pregnancy? Evidence from Sub-Saharan Africa. *Studies in Family Planning*, 40, 101-112.
- PANDAY, S.; MAKIWANE, M.; RANCHOD, C. & LETSOALO, T. 2009. *Teenage Pregnancy in South Africa: With a Specific Focus on School-going Learners*, Pretoria, Department of Basic Education.
- PANDAY, S. & UNICEF 2009. *Teenage Pregnancy in South Africa: With a Specific Focus on School-going Learners: Executive Summary*, Department of Basic Education.
- PARK, R. 1936. Human Ecology. *American Journal of Sociology*, 42.
- PATON, D. 2006. Random Behaviour or Rational Choice? Family Planning, Teenage Pregnancy and Sexually Transmitted Infections. *Sex Education*, 6, 281-308.
- PETTIFOR, A.; REES, H.; KLEINSCHMIDT, I.; STEFFENSON, A.; MACPHAIL, C.; HLONGWA-MADIKIZELA, L.; VERMAAK, K. & PADIAN, N. 2005. Young people's sexual health in South Africa: HIV prevalence and sexual behaviors from a nationally representative household survey. *AIDS* 19, 1525-1534.
- PHOENIX, A. 1988. Narrow Definitions of Culture: The Case of Early Motherhood. In: BHACHU, P. & WESTWOOD, S. (eds.) *Enterprising Women: Ethnicity, Economy and Gender Relations*. London: Routledge.
- PIANTADOSI, S.; BYAR, D. & GREEN, S. 1988. The Ecological Fallacy. *American Journal of Epidemiology*, 127, 893-904.
- PRESTON-WHYTE, E. & ALLEN, J. 1992. Teenage pregnancy in the Coloured Community. In: BURMAN, S. & PRESTON-WHYTE, E. (eds.) *Questionable Issue: Illegitimacy in South Africa*. Cape Town: Oxford University Press.
- PRESTON-WHYTE, E.; ZONDI, M.; MAVUNDLA, G. & GUMEDE, H. 1990. Teenage Pregnancy, Whose Problem?: Realities and Prospects for Action in KwaZulu/Natal. *Southern African Journal of Demography*, 3, 11-20.
- RAMATHUBA, D. 2013. Secondary school girls' knowledge, attitudes and sexual behaviour regarding teenage pregnancy, emergency contraception and sexuality in Thulamela municipality, Limpopo Province, South Africa. *African Journal for Physical Health Education, Recreation and Dance: Contemporary Issues in Healthcare*, 19, 1-9.
- REDDY, S.; JAMES, S.; SEWPAUL, R.; KOOPMAN, F.; FUNANI, N.; SIFUNDA, S.; JOSIE, J.; MASUKA, P.; KAMBARAN, N. & OMARDIEN, R. 2010. Umthente Uhlaba Usamila-The 2nd South African National Youth Risk Behaviour Survey 2008. *National Youth Risk Behaviour Survey*. Cape Town: South African Medical Research Council.
- REDWOOD, T.; PYER, M. & ARMSTRONG-HALLAM, S. 2012. Exploring Attitudes and Behaviour Towards Teenage Pregnancy. *Community Practitioner*, 85, 20.
- RESNICK, M.; BEARMAN, P.; BLUM, R.; BAUMAN, K.; HARRIS, K.; JONES, J.; TABOR, J.; BEUHRING, T.; SIEVING, R. & SHEW, M. 1997. Protecting adolescents from harm: findings from the National Longitudinal Study on Adolescent Health. *JAMA*, 278, 823-832.
- REYNOLDS, H.; WONG, E. & TUCKER, H. 2006. Adolescents' Use of Maternal and Child

Health Services in Developing Countries. *International Family Planning Perspectives*, 32.

RODRIGUEZ, G. & GOLDMAN, N. 2001. Improved Estimation Procedures for Multilevel Models with Binary Response: a Case-Study. *Journal of the Royal Statistical Society: Series A (Statistics in Society)*, 164, 339-355.

RUDDICK, S. 1991. Educating for Procreative Choice: The "Case" of Adolescent Women. *Women's Studies Quarterly*, 19, 102-120.

RUNSEWE-ABIODUN, T. & BONDI, S. 2013. Teenage pregnancy and implications on child survival amongst mothers attending a clinic in the East-End, Freetown, Sierra Leone. *Open Journal of Pediatrics*, 3, 294.

SALAZAR, L.; SANTELLI, J.; CROSBY, R. & DICLEMENTE, R. 2009. Sexually Transmitted Disease Transmission and Pregnancy among Adolescents. In: DICLEMENTE, R.; SANTELLI, J. & CROSBY, R. (eds.) *Adolescent Health: Understanding and Preventing Risk Behaviors*. Hoboken, New Jersey: Jossey Bass.

SAMPSON, R. & GROVES, W. 1989. Community Structure and Crime: Testing Social Disorganization Theory. *American Journal of Sociology*, 94, 774-802.

SAYAGUES, M. 2007. South Africa: Teenage Pregnancy Figures Cause Alarm. *Integrated Regional Information Networks (IRIN) News*, 6 March 2007.

SCHALET, A. 2011. Beyond Abstinence and Risk: A New Paradigm for Adolescent Sexual Health. *Women's Health Issues*, 21, 5-7.

SHAW, C. & MCKAY, A. 2009. The Chicago School and Cultural/Subcultural Theories of Crime. In: TIBBETTS & HEMMENS (eds.) *Criminological Theory: A Text/Reader*. Washington DC: SAGE.

SHAW, C. & MCKAY, H. 1942. *Juvenile Delinquency and Urban Areas*, Chicago, University of Chicago Press.

SHAW, C.; MCKAY, H. & HAYNER, N. 1942. *Juvenile Delinquency and Urban Areas: A Study of Rates of Delinquents in Relation to Differential Characteristics of Local Communities in American Cities*, Chicago, University of Chicago Press

SHEFER, T.; BHANA, D. & MORRELL, R. 2013. Teenage pregnancy and parenting at school in contemporary South African contexts: deconstructing school narratives and understanding policy implementation. *Perspectives in Education*, 31, 1-10.

SHEFER, T.; MORRELL, R. & BHANA, D. 2012. *Books and Babies: Pregnancy and Young Parents in Schools*, Pretoria, HSRC Press.

SOUTH AFRICA DEPARTMENT OF HEALTH 1996. Choice on Termination of Pregnancy Act, 92 of 1996. In: GOVERNMENT, S. A. (ed.). Pretoria: Government gazette 17602, November 22.

SOUTH AFRICA DEPARTMENT OF HEALTH 2012. National Contraception Clinical Guidelines: A Companion to the National Contraception and Fertility Planning Policy and Service Delivery Guidelines In: DEPARTMENT OF HEALTH (ed.) *Contraception Policy*. Pretoria: Department of Health.

SOUTH AFRICA DEPARTMENT OF WOMEN AND CHILDREN 2005. Children's Act, 38 of 2005. In: DEPARTMENT OF WOMEN AND CHILDREN (ed.). Pretoria: Government gazette 28944, June 19.

SOUTH, S. & CROWDER, K. 1997. Residential Mobility between Cities and Suburbs: Race, Suburbanization, and Back-to-the-city Moves. *Demography*, 34, 525-538.

SPJELDNÆS, I. O. 2013. Family values of young people in Limpopo, South Africa: A sociocultural psychological study on perceptions and experiences of reproduction and parenthood.

STAPLETON, H. 2010. *Surviving Teenage Motherhood: Myths and Realities*, New York, Palgrave Macmillan.

- STARK, R. 1987. Deviant Places: A Theory of the Ecology of Crime. *Criminology*, 25, 893-913.
- STATSCOMPILER 2015. SatsCompiler Computations. In: SURVEY, D. A. H. (ed.).
- SUBRAMANIAN, S. 2004. The Relevance of Multilevel Statistical Methods for Identifying Causal Neighborhood Effects. *Social Science & Medicine*, 58, 1961-1967.
- SWART, L.-A.;SEEDAT, M.;STEVENS, G. & RICARDO, I. 2002. Violence in adolescents' romantic relationships: findings from a survey amongst school-going youth in a South African community. *Journal of Adolescence*, 25, 385-395.
- TAFFA, N.;KLEPP, K.;SUNDBY, J. & BJUNE, G. 2002. Psychosocial Determinants of Sexual Activity and Condom Use Intention among Youth in Addis Ababa, Ethiopia. *International Journal of STD & AIDS*, 13, 714-719.
- TAWIAH, E. 2002. Adolescent fertility and reproductive health in four sub-Saharan African countries.
- TIBBETTS & HEMMENS 2009. *Criminological Theory: A Text/Reader*, Washington DC, Sage.
- TIMÆUS, I. & MOULTRIE, T. 2012. Teenage childbearing and dropout from school in South Africa: Evidence from a Household Panel. Cape Town: University of Cape Town & London School of Hygiene and Tropical Medicine.
- TIMÆUS, I. & MOULTRIE, T. 2015. Teenage Childbearing and Educational Attainment in South Africa. *Studies in Family Planning*, 46, 143-160.
- TOLAN, P.;GORMAN-SMITH, D. & HENRY, D. 2003. The Developmental Ecology of Urban Males' Youth Violence. *Developmental Psychology*, 39, 274.
- TOMBROS, A. 2005. Integrating efforts to prevent HIV other STIs and pregnancy among teens in developing countries: three case studies.
- TOSKA, E.;CLUVER, L.;BOYES, M.;PANTELIC, M. & KUO, C. 2015. From 'Sugar Daddies' to 'Sugar Babies': Exploring a Pathway among Age-Disparate Sexual Relationships, Condom Use and Adolescent Pregnancy in South Africa. *Sexual Health*, 12, 59-66.
- TRAD, P. 1993. The Ability of Adolescents to Predict Future Outcome Part I: Assessing Predictive Abilities. *Adolescence*, 28, 533.
- TSHEOLA, J. 2012. Theorising a democratic developmental state: Issues of public service delivery planning and violent protests in South Africa. *Journal of Public Administration*, 47, 161-179.
- TSUI, A.;CREANGA, A. & AHMED, S. 2007. The Role of Delayed Childbearing in the Prevention of Obstetric Fistulas. *International Journal of Gynecology & Obstetrics*, 99, 98-107.
- UGOJI, F. 2011. Parental marital status and peer influence as correlates of teenage pregnancy among female teens in south-South Nigeria. *Gender and Behaviour*, 9, 4125-4138.
- UNGER, J.;MOLINA, G. & TERAN, L. 2000. Perceived Consequences of Teenage Childbearing among Adolescent Girls in an Urban Sample. *Journal of Adolescent Health*, 26, 205-212.
- UNITED NATIONS 2013. Fertility Levels and Trends as Assessed in the 2012 Revision of the World Population Prospects. New York: United Nations.
- UNITED NATIONS POPULATION FUND 2013. Motherhood in Childhood: Facing the Challenge of Adolescent Pregnancy. New York: UNFPA.
- VARGA, C. 2003. How Gender Roles Influence Sexual and Reproductive Health Among South African Adolescents. *Studies in Family Planning*, 34, 160-172.
- VINER, R.;OZER, E.;DENNY, S.;MARMOT, M.;RESNICK, M.;FATUSI, A. & CURRIE, C. 2012. Adolescence and the social determinants of health. *The Lancet*, 379, 1641-1652.

- VOLD, G.;BERNARD, T. & SNIPES, J. 2002. *Theoretical Criminology*, New York, , Oxford University Press.
- VUNDULE, C.;MAFORAH, F.;JEWKES, R. & JORDAAN, E. 2001. Risk factors for teenage pregnancy among sexually active black adolescents in Cape Town. *South African Medical Journal*, 91, 73-80.
- WALKER, J.-A. 2012. Early Marriage in Africa–Trends, Harmful Effects and Interventions. *African journal of reproductive health*, 16, 231-240.
- WALKER, J.-A. 2013. Why Ending Child Marriage Needs to Be an Education Goal. *Improving Learning Opportunities and Outcomes for Girls in Africa*, 6.
- WERE, M. 2007. Determinants of teenage pregnancies: The case of Busia District in Kenya. *Economics & Human Biology*, 5, 322-339.
- WHO COMMISSION ON SOCIAL DETERMINANTS OF HEALTH & WORLD HEALTH ORGANIZATION 2008. *Closing the Gap in a Generation: Health Equity Through Action on the Social Determinants of Health: Commission on Social Determinants of Health Final Report*, World Health Organization.
- WILLAN, S. 2013. A Review of Teenage Pregnancy in South Africa–Experiences of Schooling, and Knowledge and Access to Sexual & Reproductive Health Services. Cape Town: Partners in Sexual Health.
- WILSON, F. 2012. Gender based violence in South African schools. CiteSeer.
- WOOD, K. & JEWKES, R. 2006. Blood Blockages and Scolding Nurses: Barriers to Adolescent Contraceptive Use in South Africa. *Reproductive Health Matters*, 14, 109-118.
- WORLD HEALTH ORGANISATION;UNICEF;UNFPA & THE WORLD BANK 2014. Trends in Maternal Mortality: 1990-2010. In: WHO;UNICEF;UNFPA & THE WORLD BANK (eds.). New York.
- WORLD HEALTH ORGANIZATION. 2014. *Adolescent Pregnancy* [Online]. Geneva: World Health Organization, . Available: http://www.who.int/maternal_child_adolescent/topics/maternal/adolescent_pregnancy/en/ [Accessed 2 April 2014].
- YAHAYA, I.;UTHMAN, O.;SOARES, J. & MACASSA, G. 2013. Social Disorganization and history of child sexual abuse against girls in sub-Saharan Africa: a multilevel analysis. *BMC International Health and Human Rights*, 13, 8.
- ZULU, X.;ARCANGELI, J. & MOODLEY, R. 2014. *Government unveils free contraceptive device for women* [Online]. Pretoria: SAnews.gov.za. Available: <http://www.sanews.gov.za/> [Accessed 29 April 2014].

APPENDIX C

Correlation Testing

Table C.1: Correlation testing results for study variables, 2011 census

	Family Disruption	HH Service Inaccess	Comm Family Disruption	Comm Residential Mobility	Comm Unemployment	Comm Poverty
Family Disruption	1.0000					
HH Service Inaccess	0.0563	1.0000				
Comm Family Disruption	0.0944	0.0981	1.0000			
Comm Residential Mobility	-0.0524	-0.5399	-0.2679	1.0000		
Comm Unemployment	0.0481	0.4265	0.1835	-0.4581	1.0000	
Comm Poverty	0.0369	0.1427	0.2798	-0.1869	0.3137	1.0000

D

A 123456789 00 A 0 C

F

A 123456789 00



Census 2011: 9 - 30 October 2011



A 123456789 00



A 123456789 00

A 123456789 00

FLAP: PARTICULARS OF ALL INDIVIDUALS

Please write the name and surname of the household head and first names of every person who was present in this household on the census night (midnight 9-10 October 2011). One name on each row. Start with head or acting head of household.

The head or acting head is the person who is the main decision-maker of the household. If people are equal decision-makers, then take the oldest person as the household head.

For babies with no name, write BABY.

Please include babies, small children, old people and visitors who were present in this household on the census night (9-10 October 2011)

F-00 PERSON NUMBER	F-01 PERSON NAME	F-02 AGE IN COMPLETED YEARS	F-03 SEX
Write 0 or 1 in the first box for all persons listed on the flap	Example	Example 1	Example
Example: Row 1	J O H N M A L U	0 3 1	1 Male
Row 10	L E K E	Example 2	2 Female
1 0		Child less than 1 year	Mark the appropriate circle with an X.
1 0		0 0 0	
1			1 Male
			Female
2			1 Male
			2 Female
3			1 Male
			2 Female
4			1 Male
			2 Female
5			1 Male
			Female
6			Male
			Female
7			1 Male
			Female
8			Male
			Female
9			1 Male
			Female
0			Male
			Female

SECTION A: DEMOGRAPHICS - ASK OF EVERYONE LISTED ON THE FLAP

P-01 DATE OF BIRTH	P-02 RELATIONSHIP	P-03 MARITAL STATUS	P-04 SPOUSE OR PARTNER	P-05 POPULATION GROUP	P-06 LANGUAGE
What is (name's) date of birth?	What is (name's) relationship to the head or acting head of the household? The head or acting head is the person listed in row 1 of the first questionnaire, if more than one questionnaire has been completed for this household.	What is (name's) PRESENT marital status?	Who in this household is (name's) spouse or partner?	How would (name) describe him/herself in terms of population group?	Which two languages does (name) speak most often in this household?
Example	01 = Head/Acting Head 02 = Husband/Wife/Partner 03 = Son/Daughter 04 = Adopted Son/Daughter 05 = Stepchild 06 = Brother/Sister 07 = Parent (Mother/Father) 08 = Parent-in-law 09 = Grand/Great Grandchild 10 = Son/Daughter-in-law 11 = Brother/Sister-in-law 12 = Grandmother/Father 13 = Other relative 14 = Non-related person	1 = Married 2 = Living together like married partners 3 = Never married 4 = Widower/widow 5 = Separated 6 = Divorced	Write the person number of the spouse or partner in the appropriate boxes. If the spouse or partner does not reside in the household, write 98. Note: Refer to person on flap e.g. 02	1 = Black African 2 = Coloured 3 = Indian or Asian 4 = White 5 = Other	01 = Afrikaans 02 = English 03 = IsiNdebele 04 = IsiXhosa 05 = IsiZulu 06 = Sepedi 07 = Sesotho 08 = Setswana 09 = Sign language 10 = SiSwati 11 = Tshivenda 12 = Xitsonga 13 = Other
9 4 9 7 9		Write the appropriate code in the box.			Write the appropriate code in the boxes. If no other language, write 00 in the second box.
		If 3-6, Go to P-05			
			First		
			Second		
			First		
			Second		
			First		
			Second		
			First		
			Second		
			First		
			Second		
			First		
			Second		
			First		
			Second		

Write the appropriate code in the boxes.

Census 2011 - A © Statistics South Africa, November 2010



SECTION B: MIGRATION (Continued)

P-10c CITY/TOWN OF USUAL RESIDENCE	P-11 SINCE 2001	P-11a MONTH AND YEAR MOVED	P-11b PROVINCE OF PREVIOUS RESIDENCE	P-11c MUNICIPALITY/MAGISTERIAL DISTRICT OF PREVIOUS RESIDENCE	P-11d CITY/TOWN OF PREVIOUS RESIDENCE
In which city/town does (name) usually live or what is the nearest city/town? <i>Use CAPITAL LETTERS only</i>	Has (name) been living in this place since October 2001? 1 = Yes 2 = No 3 = Born after October 2001 but never moved 4 = Born after October 2001 and moved <i>Write the appropriate code in the box.</i> If 1 or 3, Go to P-12	When did (name) move to this place? <i>Write the month and year in the appropriate boxes.</i> Example 0 4 2 0 0 2 <i>Write the appropriate code in the boxes.</i> <i>If 10, Go to P-12</i>	In which province did (name) live before moving to this place? 01 = Western Cape 02 = Eastern Cape 03 = Northern Cape 04 = Free State 05 = Kwa-Zulu Natal 06 = North West 07 = Gauteng 08 = Mpumalanga 09 = Limpopo 10 = Outside South Africa 11 = Do not know	In which municipality or magisterial district did (name) live before moving to this place? <i>Use CAPITAL LETTERS only</i> Example J O B U R G M E T R O	In which city/town did (name) live before or what was the nearest city/town? <i>Use CAPITAL LETTERS only</i> Example J O H A N N E S B U R G



SECTION C: GENERAL HEALTH AND FUNCTIONING -
ASK OF EVERYONE LISTED ON THE FLAP

P-12 HEALTH AND FUNCTIONING		P-13 ASSISTIVE DEVICES AND MEDICATION		P-14 MOTHER ALIVE	P-14a MOTHER PERSON NUMBER	P-15 FATHER ALIVE
Does (name) have difficulty in the following: A = Seeing even when using eye glasses? B = Hearing even when using a hearing aid? C = Communicating in his/her language (i.e. understanding others or being understood by others)? D = Walking or climbing stairs? E = Remembering or concentrating? F = With self-care such as washing all over, dressing or feeding? 1 = No difficulty 2 = Some difficulty 3 = A lot of difficulty 4 = Cannot do at all 5 = Do not know 6 = Cannot yet be determined		Does (name) use any of the following: A = Eye glasses? B = Hearing aid? C = Walking stick or frame? D = A wheelchair? E = Chronic medication? 1 = Yes 2 = No 3 = Do not know <i>Write the appropriate code in the box.</i>		Is (name's) own biological mother still alive? 1 = Yes 2 = No 3 = Do not know <i>Mark the appropriate circle with an X.</i>	Who in this household is (name's) biological mother? <i>If the person's mother does not reside in the household (not listed on the flap), write 98.</i> Note: Refer to person number on flap e.g. 02	Is (name's) own biological father still alive? 1 = Yes 2 = No 3 = Do not know <i>Mark the appropriate circle with an X.</i>
<i>Write the appropriate code in the box.</i>				If 2-3, Go to P-15		If 2-3, Go to P-16
Seeing (A)	Walking / Climbing (D)	Glasses (A)	Wheelchair (D)	1 Yes		1 Yes
Hearing (B)	Remembering / Concentrating (E)	Hearing aid (B)	Chronic medication (E)	2 No		2 No
Communicating (C)	Self-care (F)	Walking stick / frame (C)		3 Do not know		3 Do not know
Seeing (A)	Walking / Climbing (D)	Glasses (A)	Wheelchair (D)	1 Yes		1 Yes
Hearing (B)						2 No
Communicating (C)						3 Do not know
Seeing (A)						1 Yes
Hearing (B)						2 No
Communicating (C)						3 Do not know
Seeing (A)						1 Yes
Hearing (B)						2 No
Communicating (C)						3 Do not know
Seeing (A)						1 Yes
Hearing (B)						2 No
Communicating (C)						3 Do not know
Seeing (A)						1 Yes
Hearing (B)						2 No
Communicating (C)						3 Do not know
Seeing (A)						1 Yes
Hearing (B)						2 No
Communicating (C)						3 Do not know
Seeing (A)						1 Yes
Hearing (B)						2 No
Communicating (C)						3 Do not know
Seeing (A)						1 Yes
Hearing (B)						2 No
Communicating (C)						3 Do not know
Seeing (A)						1 Yes
Hearing (B)						2 No
Communicating (C)						3 Do not know
Seeing (A)						1 Yes
Hearing (B)						2 No
Communicating (C)						3 Do not know
Seeing (A)						1 Yes
Hearing (B)						2 No
Communicating (C)						3 Do not know
Seeing (A)						1 Yes
Hearing (B)						2 No
Communicating (C)						3 Do not know
Seeing (A)						1 Yes
Hearing (B)						2 No
Communicating (C)						3 Do not know
Seeing (A)						1 Yes
Hearing (B)						2 No
Communicating (C)						3 Do not know
Seeing (A)						1 Yes
Hearing (B)						2 No
Communicating (C)						3 Do not know
Seeing (A)						1 Yes
Hearing (B)						2 No
Communicating (C)						3 Do not know
Seeing (A)						1 Yes
Hearing (B)						2 No
Communicating (C)						3 Do not know
Seeing (A)						1 Yes
Hearing (B)						2 No
Communicating (C)						3 Do not know
Seeing (A)						1 Yes
Hearing (B)						2 No
Communicating (C)						3 Do not know
Seeing (A)						1 Yes
Hearing (B)						2 No
Communicating (C)						3 Do not know
Seeing (A)						1 Yes
Hearing (B)						2 No
Communicating (C)						3 Do not know
Seeing (A)						1 Yes
Hearing (B)						2 No
Communicating (C)						3 Do not know
Seeing (A)						1 Yes
Hearing (B)						2 No
Communicating (C)						3 Do not know
Seeing (A)						1 Yes
Hearing (B)						2 No
Communicating (C)						3 Do not know
Seeing (A)						1 Yes
Hearing (B)						2 No
Communicating (C)						3 Do not know
Seeing (A)						1 Yes
Hearing (B)						2 No
Communicating (C)						3 Do not know
Seeing (A)						1 Yes
Hearing (B)						2 No
Communicating (C)						3 Do not know
Seeing (A)						1 Yes
Hearing (B)						2 No
Communicating (C)						3 Do not know
Seeing (A)						1 Yes
Hearing (B)						2 No
Communicating (C)						3 Do not know
Seeing (A)						1 Yes
Hearing (B)						2 No
Communicating (C)						3 Do not know
Seeing (A)						1 Yes
Hearing (B)						2 No
Communicating (C)						3 Do not know
Seeing (A)						1 Yes
Hearing (B)						2 No
Communicating (C)						3 Do not know
Seeing (A)						1 Yes
Hearing (B)						2 No
Communicating (C)						3 Do not know
Seeing (A)						1 Yes
Hearing (B)						2 No
Communicating (C)						3 Do not know
Seeing (A)						1 Yes
Hearing (B)						2 No
Communicating (C)						3 Do not know
Seeing (A)						1 Yes
Hearing (B)						2 No
Communicating (C)						3 Do not know
Seeing (A)						1 Yes
Hearing (B)						2 No
Communicating (C)						3 Do not know
Seeing (A)						1 Yes
Hearing (B)						2 No
Communicating (C)						3 Do not know
Seeing (A)						1 Yes
Hearing (B)						2 No
Communicating (C)						3 Do not know
Seeing (A)						1 Yes
Hearing (B)						2 No
Communicating (C)						3 Do not know
Seeing (A)						1 Yes
Hearing (B)						2 No
Communicating (C)						3 Do not know
Seeing (A)						1 Yes
Hearing (B)						2 No
Communicating (C)						3 Do not know
Seeing (A)						1 Yes
Hearing (B)						2 No
Communicating (C)						3 Do not know
Seeing (A)						1 Yes
Hearing (B)						2 No
Communicating (C)						3 Do not know
Seeing (A)						1 Yes
Hearing (B)						2 No
Communicating (C)						3 Do not know
Seeing (A)						1 Yes
Hearing (B)						2 No
Communicating (C)						3 Do not know
Seeing (A)						1 Yes
Hearing (B)						2 No
Communicating (C)						3 Do not know
Seeing (A)						1 Yes
Hearing (B)						2 No
Communicating (C)						3 Do not know
Seeing (A)						1 Yes
Hearing (B)						2 No
Communicating (C)						3 Do not know
Seeing (A)						1 Yes
Hearing (B)						2 No
Communicating (C)						3 Do not know
Seeing (A)						1 Yes
Hearing (B)						2 No
Communicating (C)						3 Do not know
Seeing (A)						1 Yes
Hearing (B)						2 No
Communicating (C)						3 Do not know
Seeing (A)						1 Yes
Hearing (B)						2 No
Communicating (C)						3 Do not know
Seeing (A)						1 Yes
Hearing (B)						2 No
Communicating (C)						3 Do not know
Seeing (A)						1 Yes
Hearing (B)						2 No
Communicating (C)						3 Do not know
Seeing (A)						1 Yes
Hearing (B)						2 No
Communicating (C)						3 Do not know
Seeing (A)						1 Yes
Hearing (B)						2 No
Communicating (C)						3 Do not know
Seeing (A)						1 Yes
Hearing (B)						2 No
Communicating (C)						3 Do not know
Seeing (A)						1 Yes
Hearing (B)						2 No
Communicating (C)						3 Do not know
Seeing (A)						1 Yes
Hearing (B)						2 No
Communicating (C)						3 Do not know
Seeing (A)						1 Yes
Hearing (B)						2 No
Communicating (C)						3 Do not know
Seeing (A)						1 Yes
Hearing (B)						2 No
Communicating (C)						3 Do not know
Seeing (A)						1 Yes
Hearing (B)						2 No
Communicating (C)						3 Do not know
Seeing (A)						1 Yes
Hearing (B)						2 No
Communicating (C)						3 Do not know
Seeing (A)						1 Yes
Hearing (B)						2 No
Communicating (C)						3 Do not know
Seeing (A)						1 Yes
Hearing (B)						2 No
Communicating (C)						3 Do not know
Seeing (A)						1 Yes
Hearing (B)						2 No
Communicating (C)						3 Do not know
Seeing (A)						1 Yes
Hearing (B)						2 No
Communicating (C)						3 Do not know
Seeing (A)						1 Yes
Hearing (B)						2 No
Communicating (C)						3 Do not know
Seeing (A)						1 Yes
Hearing (B)						2 No
Communicating (C)						3 Do not know
Seeing (A)						1 Yes
Hearing (B)						2 No
Communicating (C)						3 Do not know
Seeing (A)						1 Yes
Hearing (B)						2 No
Communicating (C)						3 Do not know
Seeing (A)						1 Yes
Hearing (B)						2 No
Communicating (C)						3 Do not know
Seeing (A)						1 Yes
Hearing (B)						2 No
Communicating (C)						3 Do not know
Seeing (A)						1 Yes
Hearing (B)						2 No
Communicating (C)						3 Do not know
Seeing (A)						1 Yes
Hearing (B)						2 No
Communicating (C)						3 Do not know
Seeing (A)						1 Yes
Hearing (B)						2 No
Communicating (C)						3 Do not know
Seeing (A)						1 Yes
Hearing (B)						2 No
Communicating (C)						3 Do not know
Seeing (A)						1 Yes
Hearing (B)						2 No
Communicating (C)						3 Do not know
Seeing (A)						1 Yes
Hearing (B)						2 No
Communicating (C)						3 Do not know
Seeing (A)						1 Yes
Hearing (B)						2 No
Communicating (C)						3 Do not know
Seeing (A)						1 Yes
Hearing (B)						2 No
Communicating (C)						3 Do not know
Seeing (A)						1 Yes
Hearing (B)						2 No
Communicating (C)						3 Do not know
Seeing (A)						1 Yes
Hearing (B)						2 No
Communicating (C)						3 Do not know
Seeing (A)						1 Yes
Hearing (B)						2 No
Communicating (C)						3 Do not know
Seeing (A)						1 Yes
Hearing (B)						2 No
Communicating (C)						3 Do not know
Seeing (A)						1 Yes
Hearing (B)						2 No
Communicating (C)						3 Do not know
Seeing (A)						1 Yes
Hearing (B)						2 No
Communicating (C)						3 Do not know
Seeing (A)						1 Yes
Hearing (B)						2 No
Communicating (C)						3 Do not know
Seeing (A)						1 Yes
Hearing (B)						2 No
Communicating (C)						3 Do not know
Seeing (A)						1 Yes
Hearing (B)						2 No
Communicating (C)						3 Do not know
Seeing (A)						1 Yes
Hearing (B)						2 No
Communicating (C)						3 Do not know
Seeing (A)						1 Yes
Hearing (B)						2 No
Communicating (C)						3 Do not know
Seeing (A)						1 Yes
Hearing (B)						2 No
Communicating (C)						3 Do not know
Seeing (A)						1 Yes
Hearing (B)						2 No
Communicating (C)						3 Do not know
Seeing (A)						1 Yes
Hearing (B)						2 No
Communicating (C)						3 Do not know

SECTION D: PARENTAL SURVIVAL AND INCOME
(Continued)

P-15a FATHER
PERSON NUMBER

Who in this house-
hold is (name's)
biological father?

If the person's father
does not reside in the
household (not listed
on the flap), write 98.

Note: Refer to person
number on flap e.g.
02

Gross income should include **all sources of income**
e.g. Social grants, UIF, remittances, rentals,
investments, sales or products, services, etc.

P-16 INCOME CATEGORY

What is the income category that best
describes the gross monthly or annual income
of (name) before deductions and including all
sources of income?

Monthly	Annual
01= No income	No income
02= R1 - R400	R1 - R4 800
03= R401 - R800	R4 801 – R9 600
04= R801 – R1 600	R9 601 – R19 200
05= R1 601 – R3 200	R19 201 – R38 400
06= R3 201 – R6 400	R38 401 – R76 800
07= R6 401 – R12 800	R76 801 – R153 600
08= R12 801 – R25 600	R153 601 – R307 200
09= R25 601 – R51 200	R307 201 – R614 400
10= R51 201 – R102 400	R614 401 – R1 228 800
11= R102 401 – R204 800	R1 228 801 – R2 457 600
12= R204 801 or more	R2 457 601 or more

SECTION E: EDUCATION - ASK OF ALL PERSONS
AGED 5 YEARS AND OLDER LISTED ON THE FLAP

P-17 SCHOOL
ATTENDANCE

Does (name)
presently attend
an educational
institution?

- 1 = Yes
2 = No
3 = Do not know

Mark the appropriate
circle with an X.

Attendance includes
all part-time and full-
time studies, whether
in person or as a
distance learner.

If 2-3, Go to P-20

P-18 EDUCATIONAL
INSTITUTION

Which of the following
educational institutions
does (name) attend?

- 1 = Pre-school (including day care,
crèche, Grade R and Pre-Grade R in
an ECD centre)
2 = Ordinary school (including Grade R
learners who attend a formal school,
Grade 1-12 learners & learners in
special class)
3 = Special school
4 = Further Education and Training
College (FET)
5 = Other College
6 = Higher Educational Institution
(University/University of Technology)
7 = Adult Basic Education and Training
Centre (ABET Centre)
8 = Literacy classes (e.g. Kha Ri Gude,
SANLI)
9 = Home based education/home
schooling

Write the appropriate code in the box.

P-19 PUBLIC OR
PRIVATE

Is the institution
that (name) is
attending public
or private?

- 1 = Public
(Government)
2 = Private
(Independent)
3 = Do not know

Mark the
appropriate
circle with an X.

Yes

No

Do not know

Public

Private

Do not know

1 Yes

2 No

3 Do not know

Public

Private

Do not know

1 Yes

2 No

3 Do not know

Public

Private

Do not know

1 Yes

2 No

3 Do not know

Public

Private

Do not know

1 Yes

2 No

3 Do not know

Public

Private

Do not know

Yes

No

Do not know

Public

Private

Do not know

Yes

No

Do not know

Public

Private

Do not know

Yes

No

Do not know

Public

Private

Do not know

Yes

No

Do not know

Public

Private

Do not know

Yes

No

Do not know

Public

Private

Do not know



SECTION E: EDUCATION (Continued)

P-20

What is the highest level of education that (name) has completed?

98 = No schooling
00 = Grade 0
01 = Grade 1/Sub A
02 = Grade 2/Sub B

04 = Grade 4/Std 2
05 = Grade 5/Std 3 / ABET 2
06 = Grade 6/Std 4
07 = Grade 7/Std 5 / ABET 3

If 98 or 00-07, Go to P-22

08 = Grade 8/Std 6 / Form 1
09 = Grade 9/Std 7/Form 2/
ABET 4

10 = Grade 10/Std 8/Form 3
11 = Grade 11/Std 9/Form 4
12 = Grade 12/Std 10 /Form 5

If 08-12, Go to P-23

13 = NTC I/N1/ NIC/(V) Level 2
14 = NTCII/N2/ NIC/(V) Level 3

READ OUT: Diploma or certificate should
have been at least six months study
duration full-time (or equivalent).

LEVEL OF EDUCATION

03 = Grade 3/Std 1/ABET 1
(Kha Ri Gude, SANLI)

15 = NTCIII/N3/NIC/(V) Level 4
16 = N4/NTC 4
17 = N5/NTC 5
18 = N6/NTC 6
19 = Certificate with less than Grade 12
/Std 10
20 = Diploma with less than Grade 12/Std 10
21 = Certificate with Grade 12/Std 10
22 = Diploma with Grade 12/Std 10
23 = Higher Diploma
24 = Post Higher Diploma
(Masters, Doctoral Diploma)
25 = Bachelors degree
26 = Bachelors degree and Post graduate
diploma
27 = Honours degree
28 = Higher degree (Masters/PhD)
29 = Other

If 13-28, Go to P-21

If 29, Go to P-22

Write the appropriate
code in the boxes.

P-21 FIELD OF EDUCATION

In which field is (name's) highest post-school qualification?

UNIVERSITY/TECHNIKON/COLLEGE

01 = Agriculture or Renewable Natural
Resources
02 = Architecture or Environmental Design
03 = Arts, Visual or Performing
04 = Business, Commerce or Management
Sciences
05 = Communication
06 = Computer Sciences
07 = Education, Training or Development
08 = Engineering or Engineering Technology
09 = Health Care or Health Sciences
10 = Home Economics
11 = Industrial Arts, Traders or Technology
12 = Languages, Linguistics or Literature
13 = Law
14 = Libraries or Museums
15 = Life Sciences or Physical Sciences
16 = Mathematical Sciences
17 = Military Sciences
18 = Philosophy, Religion or Theology
19 = Physical Education or Leisure
20 = Psychology
21 = Public Administration or Social Services
22 = Social Sciences or Social Studies
23 = Other

FURTHER EDUCATION AND
TRAINING (FET)

24 = Management
25 = Marketing
26 = Information Technology and
Computer Science
27 = Finance, Economics and
Accounting
28 = Office Administration
29 = Electrical Infrastructure
Construction
30 = Civil Engineering and
Building Construction
31 = Engineering
32 = Primary Agriculture
33 = Hospitality
34 = Tourism
35 = Safety in society
36 = Mechatronics
37 = Education and Development
38 = Other

Write the appropriate
code in the boxes.

Any response, Go to P-23



SECTION E: EDUCATION
(Continued)

P-22 LITERACY

Does (name) have difficulty in doing any of the following:

- A = Writing his/her name?
B = Reading (e.g. newspapers, magazines, religious books etc) in any language?
C = Filling in a form (e.g. social grants forms)?
D = Writing a letter in any language?
E = Calculating/working out how much change he/she should receive when buying something?
F = Reading road signs?

- 1 = No difficulty
2 = Some difficulty
3 = A lot of difficulty
4 = Unable to do
5 = Do not know

Write the code in the appropriate box.

SECTION F: EMPLOYMENT - ASK OF ALL PERSONS AGED
15 YEARS AND OLDER LISTED ON THE FLAP

P-23 EMPLOYMENT STATUS

(Answer all three questions and then follow the skip instruction below)

In the SEVEN DAYS before
10 October ...

P-23a
Did (name) work for a wage,
salary, commission or any
payment in kind (including
paid domestic work), even if
it was for only one hour?

- 1 = Yes
2 = No
3 = Do not know

Mark the appropriate circle
with an X.

In the SEVEN DAYS before
10 October ...

P-23b
Did (name) run or do any kind
of business, big or small, for
herself/himself or with one or
more partners, even if it was
for only one hour?

- 1 = Yes
2 = No
3 = Do not know

Mark the appropriate circle
with an X.

In the SEVEN DAYS before
10 October ...

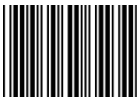
P-23c
Did (name) help without
being paid in any kind of
business run by her/his
household, even if it was
for only one hour?

- 1 = Yes
2 = No
3 = Do not know

Mark the appropriate circle
with an X.

If 1 (Yes) to any of P-23a, P-23b or P-23c, Go to P-29a

Writing his/her name (A)	Writing a letter (D)	1 Yes	1 Yes	1 Yes
Reading (B)	Calculating (E)	2 No	2 No	2 No
Filling a form (C)	Reading road signs (F)	3 Do not know	3 Do not know	3 Do not know
Writing his/her name (A)	Writing a letter (D)	1 Yes	1 Yes	1 Yes
Reading (B)	Calculating (E)	2 No	2 No	2 No
Filling a form (C)	Reading road signs (F)	3 Do not know	3 Do not know	3 Do not know
Writing his/her name (A)	Writing			Yes
Reading (B)	Calculating			No
Filling a form (C)	Reading road signs			Do not know
Writing his/her name (A)	Writing a letter (D)	1 Yes	1 Yes	1 Yes
Reading (B)	Calculating (E)	2 No	2 No	2 No
Filling a form (C)	Reading road signs (F)	3 Do not know	3 Do not know	3 Do not know
Writing his/her name (A)	Writing			Yes
Reading (B)	Calculating			No
Filling a form (C)	Reading road signs (F)	3 Do not know	3 Do not know	3 Do not know
Writing his/her name (A)	Writing a letter (D)	1 Yes	1 Yes	1 Yes
Reading (B)	Calculating (E)	2 No	2 No	2 No
Filling a form (C)	Reading road signs (F)	3 Do not know	3 Do not know	3 Do not know
Writing his/her name (A)	Writing a letter (D)	1 Yes	1 Yes	1 Yes
Reading (B)	Calculating (E)	2 No	2 No	2 No
Filling a form (C)	Reading road signs (F)	3 Do not know	3 Do not know	3 Do not know
Writing his/her name (A)	Writing a letter (D)	1 Yes	1 Yes	1 Yes
Reading (B)	Calculating (E)	2 No	2 No	2 No
Filling a form (C)	Reading road signs (F)	3 Do not know	3 Do not know	3 Do not know
Writing his/her name (A)	Writing a letter (D)	1 Yes	1 Yes	1 Yes
Reading (B)	Calculating (E)	2 No	2 No	2 No
Filling a form (C)	Reading road signs (F)	3 Do not know	3 Do not know	3 Do not know



SECTION F: EMPLOYMENT (Continued)

P-24
ABSENCE FROM WORK

Even though *(name)* did not do any work for pay, profit or did not help without pay in a household business in the SEVEN DAYS before 10 October, did he/she have a paid job or business that he/she would definitely return to?

- 1 = Yes
- 2 = No
- 3 = Do not know

Mark the appropriate circle with an X.

If 1,
Go to P-29a

TEMPORARY	P-25 LOOKING FOR WORK In the four weeks before 10 October was <i>(name)</i> looking for any kind of job or trying to start any kind of business? 1 = Yes 2 = No 3 = Do not know Mark the appropriate circle with an X.	P-26 LIKED TO WORK Would <i>(name)</i> have liked to work in the SEVEN DAYS before 10 October? 1 = Yes 2 = No 3 = Do not know Mark the appropriate circle with an X.	P-27 REASONS FOR NOT WORKING What was the main reason for not trying to find work or starting a business in the last four weeks before 10 October? 01 = Awaiting the season for work 02 = Waiting to be recalled to former job 03 = Health reasons 04 = Pregnancy 05 = Disabled or unable to work (handicapped) 06 = Housewife/homemaker (family considerations/child care) 07 = Undergoing training to help find work 08 = No jobs available in the area 09 = Lack of money to pay for transport to look for work 10 = Unable to find work requiring his/her skills 11 = Lost hope of finding any kind of work 12 = No transport available 13 = Scholar or student 14 = Retired 15 = Too old/young to work 16 = Did not want to work 17 = Other Write the appropriate code in the boxes.	P-28 AVAILABLE TO WORK If a suitable job had been offered or circumstances had allowed, would <i>(name)</i> have been able to start work or a business in the SEVEN DAYS before 10 October? 1 = Yes 2 = No 3 = Do not know Mark the appropriate circle with an X.
	If 1, Go to P-28	If 2 or 3, Go to P-32		Any response, Go to P-32
1 Yes	1 Yes	1 Yes		1 Yes
2 No	2 No	2 No		2 No
3 Do not know	3 Do not know	3 Do not know		3 Do not know
1 Yes	1 Yes	1 Yes		1 Yes
2 No	2 No	2 No		2 No
3 Do not know	3 Do not know	3 Do not know		3 Do not know
1 Yes				1 Yes
2 No				2 No
3 Do not know				3 Do not know
1 Yes				1 Yes
2 No				2 No
3 Do not know				3 Do not know
1 Yes				1 Yes
2 No				2 No
3 Do not know				3 Do not know
1 Yes				1 Yes
2 No				2 No
3 Do not know				3 Do not know
1 Yes				1 Yes
2 No				2 No
3 Do not know				3 Do not know
1 Yes				1 Yes
2 No				2 No
3 Do not know				3 Do not know
1 Yes				1 Yes
2 No				2 No
3 Do not know				3 Do not know
1 Yes				1 Yes
2 No				2 No
3 Do not know				3 Do not know

Census 2011 - A Statistics South Africa, November 2010

A 123456789 00



SECTION F: EMPLOYMENT (Continued)

P-29a INDUSTRY

What is the name of (name's) place of work/organisation/ company/business?

Examples: KOMANIHOSPITAL, RAPELEPRIMARYSCHOOL, HARMONYGOLDMINING

Write OWNHOUSE or NOFIXEDLOCATION, if relevant

Use CAPITAL LETTERS only

P-29b MAIN GOODS OR SERVICES

What are the main goods or services produced at (name's) place of work or its main functions?

Examples: REALESTATE, CONSTRUCTION, CARREPAIRING, HOSPITALITYSERVICES

For domestic workers, write PRIVATEHOUSEHOLD

Use CAPITAL LETTERS only

P-30a OCCUPATION

What kind of work does (name) usually do in his/her main job/business?

Examples: PRIMARYSCHOOLTEACHER, BUSINESSOWNER, OFFICECLEANER

Use CAPITAL LETTERS only

P-30b MAIN TASK/DUTY

What is (name's) main task or duty in this work?

Examples: TEACHINGCHILDREN, SELLINGFRUIT, BOOKKEEPING, FEEDINGCATTLE

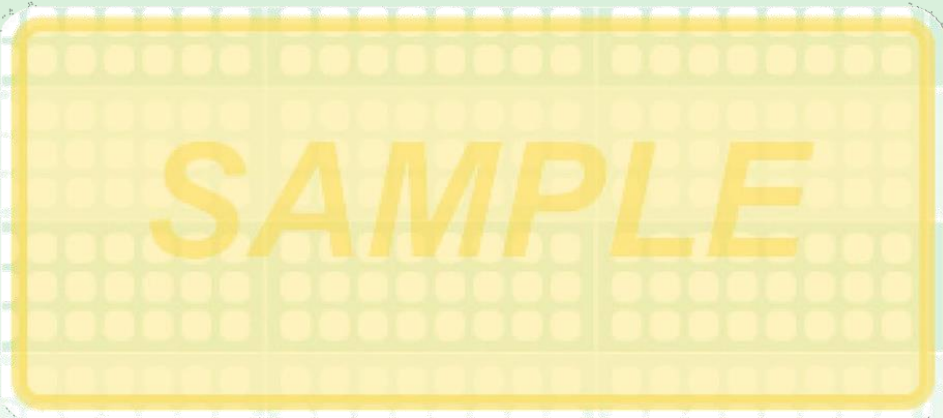
Use CAPITAL LETTERS only

P-31 TYPE OF SECTOR

Is (name's) place of work?

1 = In the formal sector
2 = In the informal sector
3 = Private household
4 = Do not know

Write the appropriate code in the box.



SECTION G: FERTILITY - ASK OF WOMEN AGED 12-50 YEARS LISTED ON THE FLAP

1 Yes
No
Do not know

P-32 CHILDREN EVER BORN	P-33 AGE AT FIRST BIRTH	P-34 CHILDREN EVER BORN	TOTAL P-35 TOTAL SURVIVING AND LIVING IN THE HOUSEHOLD	P-36 TOTAL SURVIVING AND LIVING ELSEWHERE	P-37 TOTAL CHILDREN NO LONGER ALIVE	P-38 LAST CHILD BORN	P-39 SEX OF LAST CHILD BORN	P-40 LAST CHILD BORN ALIVE	P-41 DATE OF DEATH OF LAST CHILD BORN
Has (name) ever given birth to a live child, even if the child died soon after birth? 1 = Yes 2 = No 3 = Do not know	At what age did (name) have her first child born?	How many children has (name) ever had that were born alive?	How many of (name's) children are still alive and living with her in this household, including grown-ups?	How many of (name's) children are still alive and living elsewhere, including grown-ups?	How many of (name's) children are no longer alive?	When was (name's) last child born, even if the child died soon after birth?	Is (name's) last child born male or female? 1 = Male 2 = Female 3 = Do not know	Is (name's) last child born still alive? 1 = Yes 2 = No 3 = Do not know	When did (name's) last child born die?
Mark the appropriate circle with an X.	Example	Example	Example	Example	Example	Example	Mark the appropriate circle with an X.	Mark the appropriate circle with an X.	Example
	2	5	Boys 0 Girls 2 Total 4	Boys 0 Girls 1 Total 3	Boys 0 Girls 0 Total 0	0 1 9 0 1 0 4 0 1 2 0 0 5			1 0 0 3 2 0 0 7
If 2 or 3, Go to H-01		Write the correct number in the boxes below	Write the correct number in the boxes below	Write the correct number in the boxes below	Write the correct number in the boxes below			If 1 or 3, Go to H-01	
1 Yes		Boys	Boys	Boys	Boys	D D	1 Male	1 Yes	D D
2 No		Girls	Girls	Girls	Girls	M M	2 Female	2 No	M M
3 Do not know		Total	Total	Total	Total	Y Y Y	3 Do not know	3 Do not know	Y Y Y Y
		Boys	Boys	Boys	Boys	D D	1 Male	1 Yes	D M
		Girls	Girls	Girls	Girls	M M	2 Female	2 No	M
		Total	Total	Total	Total	Y Y Y	3 Do not know	3 Do not know	Y Y Y Y
1 Yes				1 Male				1 Yes	D D
2 No				2 Female				2 No	M M
3 Do not know				3 Do not know				3 Do not know	Y Y Y Y
1 Yes		Boys	Boys	1 Male	Boys		1 Male	1 Yes	D M
2 No		Girls	Girls	2 Female	Girls		2 Female	2 No	M
3 Do not know		Total	Total	3 Do not know	Total		3 Do not know	3 Do not know	Y Y Y Y
1 Yes		Total	Total		Total	Y Y Y Y	1 Male	1 Yes	D D
2 No							2 Female	2 No	M M
3 Do not know							3 Do not know	3 Do not know	Y Y Y Y
1 Yes	Boys	Boys	Boys	Boys		D D	1 Male	1 Yes	D D
2 No	Girls	Girls	Girls	Girls		M M	2 Female	2 No	M M
3 Do not know	Total	Total	Total	Total		Y Y Y Y	3 Do not know	3 Do not know	Y Y Y Y
1 Yes	Boys	Boys	Boys	Boys		D D	1 Male	1 Yes	D D
2 No	Girls	Girls	Girls	Girls		M M	2 Female	2 No	M M
3 Do not know	Total	Total	Total	Total		Y Y Y Y	3 Do not know	3 Do not know	Y Y Y Y
1 Yes	Boys	Boys	Boys	Boys		D D	1 Male	1 Yes	D D
2 No	Girls	Girls	Girls	Girls		M M	2 Female	2 No	M M
3 Do not know	Total	Total	Total	Total		Y Y Y Y	3 Do not know	3 Do not know	Y Y Y Y
1 Yes	Boys	Boys	Boys	Boys		D D	1 Male	1 Yes	D D
2 No	Girls	Girls	Girls	Girls		M M	2 Female	2 No	M M
3 Do not know	Total	Total	Total	Total		Y Y Y Y	3 Do not know	3 Do not know	Y Y Y Y
1 Yes	Boys	Boys	Boys	Boys		D D	1 Male	1 Yes	D D
2 No	Girls	Girls	Girls	Girls		M M	2 Female	2 No	M M
3 Do not know	Total	Total	Total	Total		Y Y Y Y	3 Do not know	3 Do not know	Y Y Y Y



SECTION H: HOUSING, HOUSEHOLD GOODS AND SERVICES AND AGRICULTURAL ACTIVITIES - ASK OF EVERY HOUSEHOLD

H-01
What is the type of these living quarters?

H-02
Which of the following best describes the MAIN dwelling and OTHER dwelling(s) that this household occupies?

- 01 = House or brick/concrete block structure on a separate stand or yard or on a farm
02 = Traditional dwelling/hut/structure made of traditional materials
03 = Flat or apartment in a block of flats
04 = Cluster house in complex
05 = Townhouse (semi-detached house in a complex)
06 = Semi-detached house
07 = House/flat/room in backyard
08 = Informal dwelling (shack in backyard)
09 = Informal dwelling (shack not in backyard, e.g. in an informal/squatter settlement or on a farm)
10 = Room/flatlet on a property or a larger dwelling/servants' quarters/ granny flat

Write the

H-02a CONSTRUCTION MATERIAL
What is the main material used for the wall of the MAIN dwelling?

- 01 = Brick
02 = Cement block/Concrete
03 = Corrugated iron/zinc
04 = Wood
05 = Plastic
06 = Cardboard
07 = Mud and cement mix

ROOF

Write the appropriate code in the boxes.

H-03
How many rooms are there in the MAIN dwelling of this household?

Total Rooms

Exclude bathrooms and kitchen
Include garages if some members of the household are living in them

TYPE OF LIVING QUARTERS		H-04 TENURE STATUS	
01= Housing unit 02= Converted Hostel (e.g. family unit) 03= Residential Hotel 04= Home for the aged 05= Other		1= Rented 2= Owned but not yet paid off 3= Occupied rent-free 4= Owned and fully paid off 5= Other	
Write the appropriate code in the boxes.		Write the appropriate code in the box.	
If 03-05, Go to H-07		Refers to the MAIN dwelling structure only and NOT to the land that it is situated on.	
TYPE OF MAIN DWELLING		H-05 ESTIMATED VALUE OF PROPERTY	
01 = House or brick/concrete block structure on a separate stand or yard or on a farm 02 = Traditional dwelling/hut/structure made of traditional materials 03 = Flat or apartment in a block of flats 04 = Cluster house in complex 05 = Townhouse (semi-detached house in a complex) 06 = Semi-detached house 07 = House/flat/room in backyard 08 = Informal dwelling (shack in backyard) 09 = Informal dwelling (shack not in backyard, e.g. in an informal/squatter settlement or on a farm) 10 = Room/flatlet on a property or a larger dwelling/servants' quarters/ granny flat		What would you estimate the market value or municipal valuation of this property to be? 1 = Less than R50 000 2 = R50 001 – R100 000 3 = R100 001 – R200 000 4 = R200 001 – R400 000 5 = R400 001 – R800 000 6 = R800 001 – R1 600 000 7 = R1 600 001 – R3 200 000 8 = More than R3 200 001 9 = Do not know	
11= Caravan/tent 12= Other		Write the appropriate code in the box.	
Main dwelling		Other dwelling	
e construction of the roof and		The age of the dwelling refers to when the building was completed, not the time of any later remodelling, additions or conversions. If not known, give the best estimate.	
01 = Brick 02 = Cement block/Concrete 03 = Corrugated iron/zinc 04 = Wood 05 = Plastic 06 = Cardboard 07 = Mud and cement mix		01 = Less than one year 02 = 1 - 5 years 03 = 6 - 10 years 04 = 11 - 20 years 05 = 21 - 30 years 06 = 31 - 40 years 07 = 41 - 50 years 08 = 51 - 60 years 09 = 61 years or older 10 = Do not know	
WALL		H-07 ACCESS TO PIPED WATER	
01 = Wattle and daub 02 = Tile 03 = Mud 04 = Thatch/Grass 05 = Asbestos 06 = Other		In which way does this household mainly get piped water for household use? 1 = Piped (tap) water inside the dwelling 2 = Piped (tap) water inside the yard 3 = Piped (tap) water on community stand: distance less than 200m from dwelling 4 = Piped (tap) water on community stand: distance between 200m and 500m from dwelling 5 = Piped (tap) water on community stand: distance between 500m and 1000m (1 km) from dwelling 6 = Piped (tap) water on community stand: distance greater than 1000m (1 km) from dwelling 7 = No access to piped water	
ROOMS		Write the appropriate code in the box.	
Dining rooms Living rooms Dining/Living room Bedrooms Study Rooms One room with multiple uses Other rooms		H-08 SOURCE OF WATER	
Write the correct number of rooms in the boxes.		What is this household's MAIN source of WATER for household use? 1= Regional/local water scheme (operated by municipality or other water services provider) 2= Borehole 3= Spring 4= Rain water tank 5= Dam/pool/stagnant water 6= River/stream 7= Water vendor 8= Water tanker 9= Other	
Total Rooms		Write the appropriate code in the box.	
Exclude bathrooms and kitchen Include garages if some members of the household are living in them		If 2-9, Go to H-10	



SECTION H: HOUSING, HOUSEHOLD GOODS AND SERVICES AND AGRICULTURE ACTIVITIES (Continued)

H-09

In the last 12 months, has this household had any interruptions in piped water supply?

- 1 = Yes
2 = No
Mark the appropriate circle with an X.

H-09a

Did any specific interruption(s) in piped water supply last longer than two days ?

- 1 = Yes
If 2, Go to H-10
2 = No

Mark the appropriate circle with an X.

H-09b

What alternative water source did the household use during water supply interruption?

ALTERNATIVE WATER SOURCE

- 1= Borehole
2= Spring
3= Rain water tank
4= Dam/pool/stagnant water
5= River/stream
6= Water vendor
7= Water tanker
8= Other
0= None
Write the appropriate code in the box.

H-10

What is the MAIN type

- 1 = Flush toilet (connected to sewerage system)
2 = Flush toilet (with septic tank)
3 = Chemical toilet
4 = Pit toilet with latrine (VIP)
5 = Pit toilet without latrine
6 = Bucket toilet
7 = Other
0 = None

TOILET FACILITIES

What is the MAIN type of TOILET facility used by this household?

- 1 = Flush toilet (connected to sewerage system)
2 = Flush toilet (with septic tank)
3 = Chemical toilet
4 = Pit toilet with latrine (VIP)
5 = Pit toilet without latrine
6 = Bucket toilet
7 = Other
0 = None
Write the appropriate code in the box.

H-11

What type of energy/fuel does this household MAINLY use for cooking, heating and lighting?

ENERGY/FUEL

- | | | |
|----------|--|---|
| COOKING | 1 = Electricity
2 = Gas
3 = Paraffin
4 = Wood
5 = Coal | 6= Candles
7= Animal Dung
8= Solar
9= Other
0= None |
| HEATING | | |
| LIGHTING | | |

Write the appropriate code in the box.

Note
Wood (4), coal (5) and animal dung (7) cannot be used for lighting
Candles (6) cannot be used for heating or cooking

H-12

How is the refuse or rubbish from this household MAINLY disposed of?

- 1 = Removed by local authority/private company at least once a week
2 = Removed by local authority/private company less often
3 = Communal refuse dump
4 = Own refuse dump
5 = No rubbish disposal
6 = Other

REFUSE DISPOSAL

Write the appropriate code in the box.

H-13 HOUSEHOLD GOODS AND SERVICES

Does this household own any of the following in working order?

- 1 = Yes
2 = No
Write the appropriate code in the box.
- | | |
|----------------------|-----------------------|
| Refrigerator | Motorcar |
| Electric/gas stove | Television |
| Vacuum cleaner | Radio |
| Washing machine | Landline/Telephone |
| Computer | Cell phone |
| Satellite television | Mail Post box/bag |
| DVD Player | Mail delivery at home |

H-13a ACCESS TO INTERNET

How does this household MAINLY access internet?

- 1 = From home
2 = From Cell phone
3 = From work
4 = From elsewhere
5 = No access to internet
Write the appropriate code in the box.

H-14 AGRICULTURAL ACTIVITIES

What are the MAIN agricultural activities the household involved in?

- (More than 1 activity can be checked)
- 1 = Livestock production (cattle, goats, sheep, pigs, etc)
2 = Poultry production (chickens, ducks, geese, guinea fowl, ostrich, etc)
3 = Vegetable production
4 = Production of other crops (grains, fruits, etc)
5 = Fodder grazing/pasture for animals
6 = Other
0 = None
Mark the appropriate circle with an X.

If only 2-6, Go to H-14b.

If 0, Go to M-00

H-14a LIVESTOCK

How many of the following does the household own?

- | | | |
|-----------|----------------|-------|
| 0 | 1 - 1011 - 100 | + 100 |
| 1= Cattle | | |
| 2= Sheep | | |
| 3= Goats | | |
| 4= Pigs | | |
| 5= Other | | |

Mark the appropriate circle with an X.

H-14b PLACE OF AGRICULTURAL ACTIVITIES

Where does this household operate its agricultural activities?

- 1 = Farm land
2 = Backyard or school
3 = Communal or tribal land
4 = Other

Mark the appropriate circle with an X.



SECTION I: MORTALITY IN THE LAST 12 MONTHS

M-00
Has any member of this household passed away in the last 12 months (between 10 October 2010 and 9 October 2011)?
1 Yes
Mark the appropriate box with an X.
2 No
3 Do not know

If 2 or 3, Questionnaire completed

M-01
OF DECEASED

What was the first name of (the deceased)?

Use CAPITAL LETTERS only

DEATH OCCURRED				M-00a NUMBER OF DEATHS			
Has any member of this household passed away in the last 12 months (between 10 October 2010 and 9 October 2011)?				How many members of the household passed away in the last 12 months (between 10 October 2010 and 9 October 2011)?			
				ASK ONLY ABOUT DECEASED WOMEN THAT WERE AGED 12 - 50 AT THE TIME OF DEATH			
NAME	M-02 MONTH AND YEAR OF DEATH	M-03 SEX OF THE DECEASED	M-04 AGE OF THE DECEASED	M-05 NATURAL OR UNNATURAL DEATH	M-06 PREGNANT AT TIME OF DEATH	M-07 DEATH DURING BIRTH	M-08 POSTNATAL DEATH
	What was the MONTH and the YEAR of (the deceased's) death?	Was (the deceased) male or female?	What was (the deceased's) age in completed years at the time of death?	Was the death due to a natural or an unnatural cause?	Did (the deceased) die while pregnant?	Did (the deceased) die while giving birth?	Did (the deceased) die within 6 weeks after delivery?
	Write the month and year in the appropriate boxes.	1 = Male 2 = Female	Write the age in the boxes. If age is less than 1 year, write 000.	1 = Natural (e.g. illness) 2 = Unnatural (e.g. accident, assault) 3 = Do not know	1 = Yes 2 = No 3 = Do not know	1 = Yes 2 = No 3 = Do not know	1 = Yes 2 = No 3 = Do not know
				Mark the appropriate circle with an X.	Mark the appropriate circle with an X.	Mark the appropriate circle with an X.	Mark the appropriate circle with an X.
M M	Y Y Y	1 Natural 1 Male 2 Unnatural 2 Female 3 Do not know			1 Yes 2 No 3 Do not know	1 Yes 2 No 3 Do not know	1 Yes 2 No 3 Do not know
M M	Y Y Y	1 Natural 1 Male 2 Female 3 Do not know			1 Yes 2 No 3 Do not know	1 Yes 2 No 3 Do not know	1 Yes 2 No 3 Do not know
M M	Y Y Y						1 Yes 2 No 3 Do not know
M M	Y Y Y	1 Male 2 Female 3 Do not know		1 Natural 2 Unnatural 3 Do not know	1 Yes 2 No 3 Do not know	1 Yes 2 No 3 Do not know	1 Yes 2 No 3 Do not know
M M	Y Y Y						1 Yes 2 No 3 Do not know
M M	Y Y Y	2 Female 3 Do not know			3 Do not know 3 Do not know	3 Do not know 3 Do not know	3 Do not know 3 Do not know
M M	Y Y Y	1 Natural 1 Male 2 Unnatural 2 Female 3 Do not know			1 Yes 2 No 3 Do not know	1 Yes 2 No 3 Do not know	1 Yes 2 No 3 Do not know
M M	Y Y Y	1 Natural 1 Male 2 Unnatural 2 Female 3 Do not know			1 Yes 2 No 3 Do not know	1 Yes 2 No 3 Do not know	1 Yes 2 No 3 Do not know
M M	Y Y Y	1 Natural 1 Male 2 Unnatural 2 Female 3 Do not know			1 Yes 2 No 3 Do not know	1 Yes 2 No 3 Do not know	1 Yes 2 No 3 Do not know

If more than 8 deaths in the household, use a second questionnaire. Write the barcode of the 1st questionnaire below:

THANK YOU FOR YOUR CO-OPERATION



APPENDIX E: Tabular presentation of some of the reviewed articles									
GLOBALLY									
Importance of contextualisation of adolescent pregnancy									
#	TITLE	AUTHORS & YEAR	COUNTRY	RATIONALE	TYPE OF STUDY	ANALYSIS METHODS USED	UNIT OF ANALYSIS	FINDINGS	GAPS
1	Ecological factors associated with adolescent pregnancy: A review of literature	Corcoran, 1999	United States of America	To review the disparate literature on psychosocial factors associated with adolescent pregnancy using Bronfenbrenner's ecological model	Literature review	Literature review		Macrosystem Level-SES-found to be significant in AP are Barnett et al, 1991 and Robbins et al, 1985 and other authors did not find this. Mesosystem level-Education is a frequently examined variable in the AP literature, negative scholastic experiences (completion, achievement and aspirations) were found to be risk factors for pregnancy, which serves as an alternative source of reward and identity. Family structure: growing up in a single-parent family put adolescent at risk for early pregnancy. Family structure tends to be correlated with other factors such as low SES and therefore these may be confounded. Social support investigated as mediating variable-preg teens found to have higher levels of social support compared with non-preg teens. Microsystem-older age is associated with increased likelihood of pregnancy	Did not account for hierarchical position of variables statistically. Had certain elements of social disorganisation not all. Did not account for partner influence.
2	Teen fertility in transition: Recent and historic trends in the United States	Santelli and Melnikas, 2010	United States of America	To examine historical changes in fertility, sexual behaviours, social forces and public policies that may influence teen fertility.	Literature review	Literature review		Possible social explanations for changing teen fertility are distal influences such as economic change, the number of Hispanic teens residing in USA (race heterogeneity), changes in family dynamics, media influence such as access to internet. Poverty is a potent risk factor for teen childbearing and improvement in economic conditions is a suggested cause for the decline in teen fertility in the 1990's, this association did not persist when economic conditions deteriorated after 2000. Finally: It is important to gain a better understanding of the factors driving differences among the 50 states in levels of teen pregnancy. We should examine the racial and ethnic differences in teen birth rates.	Do not account for all elements of social disorganisation. Literature review therefore no statistical analysis.
3	Ecological contexts in adolescent pregnancy: The role of individual, sociodemographic, familial and relational variables in understanding risk of occurrence and adjustment patterns	Pedrosa et al, 2011	Portugal	To examine the associations b/n individual, sociodemographic, familial and relational variables and their impact in the occurrence of pregnancy and adolescents' adjustment to it	Analytical Cross-sectional study. Comparison groups: preg and non-preg adolescent females	Descriptive statistics, ANOVA, logistic regression	adolescent (19 years or less) girls	1. Descriptive Stats: preg adolescents had lived more frequently in single parent families (15.2% vs 5.1%), with extended family (36% vs 15.9%) Chi=p<0.001. Divorce was higher among preg adolescent parents (40.7% vs 23.4%) chi=p<0.001.# of siblings was greater in preg adolescents (M=3.08,SD=2.44 vs M=1.87, SD=1.69 with significant diff b/n groups F=p<0.001.Mean age of preg adolescent fathers (44.79) and mothers(41.47) was lower than for non-preg adolescent fathers (46.29 Fp<0.001) & mothers(43.37 Fp<0.001). Educational attainment was lower among parents of preg adolescents father's chi=62.009,p<0.001 and mothers chi=112.945,p<0.001. Mothers of preg adolescents were more frequently unemployed or inactive than mothers of non-preg adolescents chi=p<0.001. 2. Logistic Regression: variables that significantly predicted the risk of adolescent pregnancy were-less educational attainment, low SES, living with family members other than parents during childhood. Model was statistically significant p<0.001 and predicted 81.3% cases.	Did not account for hierarchical position of variables. Had certain elements of social disorganisation not all and at familial level not at community level. Did not account for school or partner influence. Looked more at relations between individuals rather than taking into account that these may be influenced by household or structural level context and disorganisation. Looked at one area without comparing geographical areas or communities.
4	Teenage Pregnancy in the United Kingdom: A behavioural ecological perspective.	Dickins et al, 2012	United Kingdom	To show the need for a life-history approach to analyse teenage pregnancy taking into account the complex biological nature of reproductive behaviour		Literature review and policy analysis		1. rate of conception change across SES strata: Increasing deprivation is associated with increased rates of tp. In 2011-Dept of Education TP Unit plotted 15-17 year old conception rate for 2007-2009 against local authority in rank order of multiple deprivation index-The least deprived authorities rates:20/1000 & most deprived:50-60's/1000. 2. Childhood experience of paternal investment helps in assessment of local reproductive ecology and the likely strategy of future mates 3. Stressed girls will mature faster and begin reproduction sooner and do so without great paternal investment. Poor socioeconomic circumstances are stressed ecologies with relatively low life expectancy and higher rates of specific forms of morbidity and mortality and increased incidence of psychosocial stressors associated with contextual stress. 4. Females' perceptions of environmental risk are a good predictor of teenage motherhood in a UK population.5. Environmental quality acts as a contributory factor in areas of continued high early pregnancy.	Looked particularly at community deprivation and some aspects of family disruption without considering the full complement of these issues as well as other elements of social disorganisation such as ethnic heterogeneity, residential mobility, urbanisation, access to services, education influence. Failed to also see the moderating effect of school environment and partner influence. Comprehensive statistical analysis was lacking.
5	A Global look at Adolescent Pregnancy Prevention: Strategies for Success	Blum, 2013	Global +/-	To present a social determinants model for understanding adolescent pregnancy risk	webcast	Based on previous literature		Macro-level: national wealth, national norms and priorities, political events, income inequality, economic forces, racism/discrimination, historical events, wars or conflict Community Level: community assets, gender norms, violence, poverty, neighbourhood deprivation , cultural beliefs, collective socialisation, education opportunities, built environment, social contagion/epidemic effects Family level: Violence, family mobility, financial capital , monitoring, connectedness, communication, social capital, birth spacing, expectations School/Peers Level: Teachers support and expectations, academic performance, pro-social peer network, schooling, connectedness at schools, violence Individual Level: Neuromaturation, Puberty, genetics and epigenetics	At initiation stage of hypothesis therefore not really a study, but rather a possible conceptual framework-has not been tested yet and is based on all the previous studies conducted in the developed world. May therefore not be applicable to the African context.
Social Disorganisation at Household Level									
#	TITLE	AUTHORS & YEAR	COUNTRY	RATIONALE	TYPE OF STUDY	ANALYSIS METHODS USED	UNIT OF ANALYSIS	FINDINGS	GAPS
1	Prevalence and Characteristics of Teen Motherhood in Canada	Al-Sahab et al, 2012	Canada	To examine the prevalence and characteristics of adolescent mothers throughout the provinces of Canada	Analytical cross-sectional study	Descriptive statistics & logistic regression	Teen mothers <20 years of age	Teen mothers were more likely to have no partner(OR=2.66; 1.69-4.18),have experienced physical or sexual abuse(OR=2.24;1.53-3.29) compared to average-aged mothers. Household income: Odds of becoming a teenage mother increased as the household income decreased-Odds ratio for income less than \$40000 was 6.66(CI:2.98-14.90) and 2.43;CI: 1.10-5.39 for income b/n \$4000 and \$80000 compared to mothers with income more than \$80000.	Comparative group was older mothers not peers, partner and school influence not considered. Minimal social disorganisation variables-no access, heterogeneity, urbanisation, residential mobility variables

2	Untangling the Health Disparities of Teen Pregnancy	Talashak, Albal and Patel, 2005	United States of America	To determine whether a developmental maturity model differentially predicts pregnancy for African American, Puerto Rican and Mexican inner city teens	Case-control study	t-test, chi squared, Forward step-wise logistic regression	183 pregnant and never-pregnant pairs of teenage girls matched on age, ethnicity and freshman status	African Americans: Pregnant teens had more ppl living in their homes, but were less likely to have older siblings living at home. None of the violence variables differed significantly by pregnancy status. The model for these girls included teens having more people living residing in the household as a significant factor $p<0.0001$. Mexicans: Pregnant teens were less likely to live with their parents and were more likely to live outside of the family. The model did not include any variables related to social disorganisation or partner influence. Puerto Rican: Pregnant teens were more likely to live either with both parents or outside of the home and less likely to have older sisters or older siblings in the household. they were also more likely to be employed and experienced more forced sex. They also exhibited significantly fewer problem-solving skills. The model included no older sister in the home $p<0.0001$	Ethnic groups were analysed separately therefore ethnic differences and ethnic influence was unable to be tested. No geographic variations-all in inner city. Minimal social disorganisation and partner influence and school experience included.
3	Adolescent Pregnancy in America: Causes and Responses	Domenico and Jones, 2007	United States of America	To review the phenomenon of adolescent pregnancy in the USA	Literature review	Literature Review		Family Structure: Growing number of American adolescents live in unstable family situations. Two parent families have been found to lower incidence of adolescent pregnancy and parental influence has been cited as the most significant variable in adolescent pregnancy prevention with absent fathers being the primary factor for teen girls becoming pregnant. Sexual Abuse: authors have speculated that teen pregnancy possibly resulted from unresolved feelings and behaviours associated with earlier sexual abuse. 2/3's of adolescent mothers were previously sexually abused or raped by a father, stepfather or other relative. Studies have found that 65% of adolescent mothers had babies by men who were age 20 or older, implying that a higher number of adolescent pregnancies may result from sexual abuse than previously thought.	Scope of literature review was rather narrow only looking at family structure, age at first intercourse, future expectations and sexual abuse. This fails to establish contextual factors associated with adolescent pregnancy. Social disorganisation is also minimally looked at through sexual abuse and family structure. Partner influences considered are only age and coercive sex. Geographical differences not considered.
4	The Intergenerational Cycle of Teenage Motherhood: An Ecological approach	Meade and Kershaw, 2008	United States of America	To prospectively examine the risk factors for teenage childbearing	National Prospective cohort study	Descriptive statistics, survival analysis and hierarchical cox regression	girls recruited in early adolescence and followed up for 6 years	Hierarchical cox regression model included variables at individual, family, peer and environment levels. All levels significantly contributed to the final model. Strongest risk factors were maternal education, parental marital status at age 2 and poverty, regardless of participants' maternal birth age they all shared the following risk factors lower maternal education, parents not married at age 2, greater number of children in the household and African American race	Few social disorganisation variables, Geographical variation not looked at, Partner influence not looked at, school experience not considered in totality. Only enriching environment variable looked at for community level.
5	Protective and risk factors associated with adolescent sexual and reproductive health in the English-speaking Caribbean: A literature review	Pilgrim and Blum, 2011	Caribbean region	To identify risk factors associated with adolescent sexual and reproductive health	Literature review	Literature review		Youth who had experienced forced sex (sexual assault/abuse) were more likely to have had a pregnancy	Sorely lacking statistical analysis. Absent comprehensive array of social disorganisation variables at all levels, partner and school effects not considered. Geographic variations not considered.
6	Differences in Socio-Economic Status, Service utilisation and Pregnancy outcomes between teenage and adult mothers	saranurug, 2006	Thailand	To explore the relationship of socio-economic status, service utilisation and pregnancy outcomes between teenage mothers and adult mothers	Population based prospective cohort study	Descriptive statistics, chi squared and fisher's exact test	14 to 19 year old girls	a higher proportion of teenage mothers completed secondary school or higher levels of formal education $p<0.001$, had insufficient family income $p<0.001$, were single parents $p<0.001$, seldom consulted with health personnel $p<0.001$ compared with adult mothers.	comprehensive statistical analysis not used, family income measured as sufficient or not therefore very subjective, comparative group was adult mothers not peers,
7	Adolescent pregnancy outcomes and risk factors in Malaysia	Omar et al, 2010	Malaysia	To assess the outcomes and risk factors of adolescent pregnancies in 2 major hospitals in Malaysia	Case -control study	Chi squared and fisher's exact test	adolescent girls 10-19 years	preg adolescents were characterised by a lower education level $p<0.001$, a lower economic status i.e. earned less income $p<0.001$, a higher rate of unemployment $p<0.001$ and more of them were married $p<0.001$. No significant association was found between adolescent pregnancy and ethnicity $p=0.087$. There was a significant association between adolescent pregnancy and being raised by a single-parent $p=0.03$	Basic statistical analysis, very few social disorganisation variables and absent at household, community levels. Partner and school influence moderating effect not considered.
8	Socio-demographic background, lifestyle and psychosocial conditions of Swedish teenage mothers and their perception of health and social support during pregnancy and childbirth	Wahn and Nissen, 2008	Sweden	To describe and compare teenage mothers who were giving birth in hospital with adult mothers as to sociodemographic background, perceptions of health and social support	Descriptive comparative study	Descriptive statistics (frequencies, means and odds ratios), Chi-squared and fisher's exact test used for p-values	15-19 year old teen mothers, compared with 25-29 year old adult mothers	Significantly more teen mothers (18%) than adult mothers (7%) reported feeling uncomfortable with the school situation $OR=3.0$, $ci=1.1-8.4$. Teen mothers were to a greater degree unemployed or on sick leave (61% vs. 25%). 66% of preg teen's parent were divorced compared to 14% of adult mothers' parents. 18% of teen mothers had experienced physical violence versus 9% in the adult group.	Statistical analysis very basic. Few social disorganisation variables, Geographical variation not looked at, Partner influence not looked at, school experience not considered in totality.
9	Individual and familial factors associated with teenage pregnancy: an interview study	Haldre et al, 2009	Estonia	To examine whether teenage girls with unintended pregnancy differed from contraceptive users regarding individual and family characteristics	Analytical cross-sectional study	Descriptive statistics and logistic regression	Girls under 18 years of age	Age of respondent was not associated with teenage pregnancy. Mother's education was not significantly associated with teenage pregnancy in adjusted regression. Dislike of school occurred more often among pregnant teenagers than among those who used contraception $OR=1.96$, $1.08-3.54$. This remained a risk factor for teenage pregnancy even after adjustment for all other variables.	Mother's education measured as university/professional higher and secondary or less categories-ended up not being significant because of classification. Few variables in general, let alone social disorganisation variables. Partner influence and geographic variations not considered.
10	Antecedents of teenage pregnancy from a 14-year follow-up study using data linkage	Gaudie et al, 2010	Australia	To identify possible antecedents of teenage pregnancy using linked data from administrative sources to create a 14-year follow-up cross-sectional survey	Analytical Cross-Sectional Study	Weighted population estimates and cox proportional hazards regression	4 to 16 year old girls and administrative data	The proportion of preg teens decreased with increased combined carer income, 12.3% of girls from low income families became teen mothers vs 2.7% from high income families. Girls living in step-blended (16.8%) or sole parent families were more likely to become pregnant as a teenager than those living in original families (7.5%). 22.3% of Girls whose carer completed year 9 or lower at high school became pregnant vs 8.4% of girls whose carer completed year 10 or higher at high school. Proportional hazards modelling: Teenage pregnancy was significantly and independently associated with living in a step or blended family type ($HR=2.19$; $ci=1.41-3.40$), living in a family with a low carer combined income ($HR=1.72$, $ci=1.01-2.92$), primary carer completing year 9 or lower at high school ($HR=1.71$; $ci=1.14-2.57$) and living in a non-metropolitan area ($HR=1.52$ $ci=1.09-2.11$) TP was not independently and significantly associated with size of the family, type of school the girl had attended and primary carer's marital status.	VERY GOOD STUDY-only does not have partner influence, geographical variations besides urban and rural. Has many household level variables but few individual and community level variables.

11	Risk Factors and Life Processes Associated with Teenage Pregnancy: Results of a Prospective Study from Birth to 20 Years.	Woodward et al, 2001	New Zealand	To examine the extent to which the risk of an early pregnancy was related to a range of social background, family, individual and peer relationship factors measured over the course of childhood and adolescence	Longitudinal prospective study	nonparametric hazard analysis estimation, cox proportional hazard regression analysis	Individuals 13 to 20 years old	Factors Associated with teenage pregnancy risk: teen preg significantly associated with being raised by single mother and families characterised by maternal educational underachievement, socioeconomic disadvantage and contact sexual abuse exposure. Key predictors associated ($p<0.10$) with teen pregnancy were single parent family. Time Dynamic Adolescent Predictors of Early Pregnancy: respondent being born into a single-parent family was significantly associated ($p<0.05$) to teenage pregnancy and this variable continued to significantly predict teenage pregnancy risk up to the age of 20 years	Partner and school influence not considered, social disorganisation variables considered were few. Geographical variations not considered.
12	Does father absence place daughters at special risk for early sexual activity and teenage pregnancy?	Ellis et al, 2003	New Zealand and United States of America	to investigate the impact of father absence on sexual activity and teenage pregnancy	Longitudinal prospective studies -N=242 in America and N=520 in New Zealand	Logistic regression model	individual females followed up from 5 years to 18 years of age	earlier onset of father's absence was associated with teenage pregnancy in both samples USA=OR=3.15 $p<0.0001$, NZOR=3.19= $p<0.0001$. Girls whose fathers were absent from an earlier age were more likely to come from socially disadvantaged backgrounds, young motherhood, minority racial status, lower SES across the two samples. The behavioural, familial and ecological profiles of father absent girls were comparatively disadvantaged. After adjustment there continued to be a linear logistic association between earlier onset of father absence and higher rates of adolescent pregnancy in bot samples. In USA sample association b/n father absence and teenage pregnancy remained largely unchanged, but in NZ this effect substantially reduced caused by family living standards, father's occupational status and maternal education.	Partner influence not considered at all, school experience not adequately addressed only GPA scores added which is achievement more than experience. Geographical variations within countries were not considered. Social disorganisation mainly considered was paternal absence. Sample size power unknown, but may have been small.
13	Family influences on Adolescent Sexual and Contraception Behaviour	Miller, 2002	United States of America	Condensed version of Family Matters for background to call to call to action to promote responsible sexual behaviour. To establish the family influences of adolescent sexual and contraception behaviour	Summary literature review	Literature review	Literature review	Adolescents in single homes are at increased risk of pregnancy due to lesser parental supervision, more permissive sexual attitudes and parents' dating activity. Traumatic experiences especially sexual abuse is related to higher risk of adolescent pregnancy through earlier onset of voluntary sexual intercourse and through less consistent use of contraception. Neighbourhoods characterised by high residential turnover, poverty, crime or perceived as dangerous have higher rates of adolescent pregnancy. Parents SES is related to adolescent pregnancy as adolescents whose parents have higher education and income are more likely both to postpone sexual intercourse and to use contraception.	Partner influence and school influence not considered. Geographical variations not considered. Statistical analysis not done as more of a literature review more than anything. Rather old.
14	Antecedents of Adolescent initiation of sex, contraceptive use and Pregnancy	Kirby, 2002	United States of America	To identify the most important antecedents associated with adolescent initiation of sex, contraceptive use and pregnancy	literature review	Literature Review	Review studies from 1975 onwards looking at United States adolescents of 19 years and younger	Risk factors of pregnancy included greater residential mobility and higher level of unemployment at community level, higher percent of students receiving free lunch at school, larger family size and partial coverage with public health insurance at the household level. A male partner 3 or more years older and at individual level-older age, race, ethnicity, physical abuse, school dropout, being married and sexual abuse. Protective Factors of pregnancy included higher community socioeconomic status as well as higher parental education, higher income and two parents at household level. When teens live in poor communities with less advantage and opportunity and more disorganisation they are more likely to engage in sex at an earlier age and to become pregnant. The older teens become the more likely they are to have sex and to become pregnant which reflects many important changes that come with increasing age.	reported only relationships that were significant and not those that were insignificant-bias introduced. Geographic variation not present. Not all components of social disorganisation present, rather old study. Failed to show relative importance of different antecedents due to lack of statistical analysis.
15	Predictors of early childbearing: Evidence from the Chicago longitudinal study	Mersky and Reynolds, 2007	United States of America	To investigate the effects of early childhood and school-age predictors on female childbearing, including related family and school behaviours	Longitudinal Prospective Study	Descriptive analysis, probit and Poisson regression and survival analysis	Individuals-enrolled into longitudinal study at age 8 and followed up to age 24 thus far	Having a primary guardian (mother) who did not complete high school was the most consistent predictor of early childbearing 36.3% of female with a mother who dropped out were parents by age 18 vs 24.1% whose mothers completed high school-about a 50% increase. Family receipt of public assistance was also significantly associated with having a child prior to 18 years of age. African Americans were at greater risk of having multiple children by age 20 than Latinas. In Cox proportional hazard regression-having a mom who dropped out of high school was significantly associated with earlier childbearing. Wald(12,n=706), $p<0.001$ A higher threshold of aggregate sociodemographic exposure to 4 or more risks was significantly associated with early <20 and earlier <18 childbearing. Public aid receipt was significantly associated with all outcomes replacing parent education as the most consistent predictor of early childbearing when SES risks were measured at age 12 rather than at birth. Parental employment status, family structure and neighbourhood poverty>=40% and having four or more children were all not associated with early childbearing neither were interaction terms that included parent employment or family structure able to cause significant moderation or association to the outcome.	Bulk of participants were from low SES neighbourhoods and not those that were insignificant-bias introduced. Partner influence not captured. Geographical variations not present. Cohort was from same area more or less so probably were very similar in many respects and even differences may have been slight.
16	Influence of family type and parenting behaviours on teenage sexual behaviour and conceptions	Bonelli et al, 2006	United Kingdom	To test theory that parenting deficits among one parent and teenage initiated families increase risk of teenage pregnancy among their children	Secondary analysis of longitudinal panel study	Descriptive statistics and logistic regression	Individuals	Girls with a teenage mother were more likely to conceive during the teenage years, but the confidence interval for the association was wide and substantially reduced when adjustment for SES was done. Lone parent family and Parental employment were not significantly associated with teenage pregnancy.	Partner influence not considered at all, parenting style was main variable of interest and this was found to be insignificant. School experience was not considered only how involved parents are in child's schooling. Geographic variations not considered. Rather old study.
17	Effects of area and family deprivation on risk factors for teenage pregnancy among 13 to 15 year old girls	Smitha and Elander, 2007	United Kingdom	To test the separate and interacting effects of area deprivation and family deprivation on 6 specific proximal risk factors for teenage pregnancy	Cross sectional study	2* 2 Factorial analyses of variance	Individuals	Girls in the more deprived area had significantly higher scores for use of local sexual health services ($p<0.001$).	Geographical variation was based on deprivation levels and not on actual location as well. Other issues of partner influence, school experience and social disorganisation at other levels not explored or controlled for.
18	Risk and Protective factors that affect adolescent reproductive health in developing countries: A structured literature review	Mari and Blum, 2009	Developing Countries	To determine which risk and protective factors are most important to adolescent reproductive health in developing countries	Literature review	Literature Review	Published and unpublished literature from 1990-2004	When adolescents live with both parents they are significantly less likely to be pregnant. In Taiwan adolescents growing up in single-parent homes were almost 5 times more likely to be mothers vs those growing up with 2 parents. Having a father present in the household is particularly associated with less pregnancy-3 studies all consistently said this. When child is living outside the home she is at much higher risk of being pregnant or giving birth at an early age.	No community level factors, no partner influence investigation, no geographical variation analysis, no school investigation. No statistical analysis done due to literature review.

19	A Review of risk and protective factors for adolescent sexual and reproductive health in developing countries: An Update	Mmari and Sabherwal, 2013	Developing Countries: SSA, Latin America, South+SE Asia, Middle East	To conduct a literature review of studies that examined risk and protective factors related to adolescent sexual and reproductive health in developing countries	Literature review	Literature Review	Studies conducted btm 1990 and 2010	17 studies on pregnancy and 9 studies on childbearing were included. Key Risk Factors at individual level-older age, employed, ever experienced sexual violence/abuse, at family level-mother died(orphan status). Key Protective Factors at family level-lives with both parents. Age of partner, household ses, poor,parental education, race, school attendance, marital status and age were all studied, but not found to be consistently associated with pregnancy or childbearing.	No statistical analysis. No community level variables considered, no geographical variation , no school influence and minimal partner influence (partner age).
20	Sexual Violence and Reproductive Health Among Young people in three communities in Jamaica	Geary et al, 2006	Jamaica	To determine relationship btm sexual violence, background variables, sexual risk taking and pregnancy.	Cross sectional study	Chi squared tests, logistic regression and hierarchical regression to evaluate mediation effect	Individuals 15-24 years of age	Females experiencing forced first sex were more likely than non-victims to report pregnancy in Step1 (OR=2.48,95%CI=1.46-4.21) and Step2(OR=2.05,95%CI=1.19-3.52). The background variables predicting pregnancy in both steps were age (OR=9.88,CI=6.23-15.66) and not living in Clarkstown (OR=2.48,CI=1.50-4.12).Education was not associated with pregnancy.	Partner influence not considered. Geographical influence minimally addressed. SES not used to control for association. No social disorganisation variables.
Social Disorganisation at Community Level									
#	TITLE	AUTHORS & YEAR	COUNTRY	RATIONALE	TYPE OF STUDY	ANALYSIS METHODS USED	UNIT OF ANALYSIS	FINDINGS	GAPS
1	Residential mobility in childhood and health outcomes: a systematic review	Jelleyman and Spencer, 2007	Globel developed countries	To assess evidence for residential mobility in childhood having an adverse association with health outcomes through the life course	Literature review	Literature Review	research studies	Residential mobility was found to be associated with teenage pregnancy rates. Teenage premarital pregnancy was correlated with the number of residential moves-particularly number of moves and neighbourhood measures of disadvantage associated with tp while controlling for age, race, SES, single parenthood-study done in 2004 by Crowder and Teachman.	No statistical analysis. No community level variables considered, no geographical variation , no school influence and no partner influence.
2	Family Relationships and Adolescent pregnancy Risk: A research Synthesis	Miller, Benson and Galbraith, 2001	United States of America	To summarise two decades of research about family and especially parental, influences on risk of adolescents becoming pregnant or causing pregnancy.	Literature review	Literature Review	research studies	Residing in disorganized/ dangerous neighbourhoods and in lower ses family, living with a single parent and being a victim of sexual abuse all places teens at elevated risk of adolescent pregnancy-other issues are rather inconsistent in literature	parental influence, geographic variation and social disorganization not comprehensively looked at.
3	Sexual intercourse and Pregnancy among African American girls in high poverty neighbourhoods: the role of family and perceived community environment	Moore and Chase-lansdale, 2001	United States of America	To examine aspects of family and community environment to better understand within-group variation in sexual outcomes among African American female adolescents in disadvantaged urban communities	Cross sectional study	Descriptive statistics and logistic regression	Individuals 15-18 years old.	Age was significantly associated with pregnancy in all models p<0.001, doubling the likelihood of pregnancy. Coming from a household where parents are married decreases the likelihood of falling pregnant in all models at the p<=0.05 by 79 to 82%. However mother's education, receipt of welfare by the family and cohabiting was not significantly associated with pregnancy. When the marital disruption hypothesis was tested single parent, marital disruption was found to be significantly associated with pregnancy p<=0.01.	Old study, geographical variation, school experience, partner influence all absent
4	Teenage Pregnancy among Latinas: Examining risk and protective factors	Dogan-Ates and Carrion-Basham, 2007	United States of America	To investigate the role of three groups of risk and protective factors (individual, familial and extra-familial) that are associated with teen pregnancy.	Case-control study	Descriptive statistics and chi squared test	Individuals-adolescent pregnant and non-pregnant girls	Family size, mother's educational and father's education were all not significantly different between pregnant and non-pregnant adolescents.	No inferential statistical analysis conducted. Geographic variations, school experience and partner influence not considered or controlled for.
5	Exposure of violence in adolescence and precocious role exits	Haynie et al, 2008	United States of America	To apply a life course perspective to evaluate the developmental implications of adolescents' exposure to violence.	Longitudinal prospective study	Descriptive statistics and logistic regression	Individuals in grade 7 through to grade12	Exposure to intimate partner victimisation raises the odds of birth by 17% per unit p<0.01 while increasing levels of school violence increases the risk of experiencing birth of a child p<0.01. Age p<0.001, family SES (negatively associated) p<0.001, two non-biological guardians p<0.001. Other family types p<0.001, Neighbourhood disadvantage p<0.001, were all significantly associated with teenage birth. Indirect violence exposure is associated with greater odds of experiencing a subsequent birth of a child p<0.001, but direct exposure is associated with reduced odds of giving birth to a child though not statistically so. Residential mobility and race were however NOT associated with teenage birth of a child.	partner influence except for violence was not covered neither was school experience, geographical variation and social disorganisation in its purest form.
6	Deprivation and variations in teenage conceptions and abortions in England	Bradshaw et al, 2005	United Kingdom	To find explanations for the variations that exist in the teenage conception rate and the proportion of these conceptions that are aborted in 352 local authorities in England	Cross sectional study	Descriptive statistics, Correlation, Multiple regression and Hierarchical regression	teenage(15-17 year olds)	The areas with higher levels of deprivation all tend to have higher conception rates with exception of geographical access to services which tends to have lower conception rates probably due to association between lack of access to services and rurality. Areas with higher proportions of ethnic minority tend to have higher rates of teenage conceptions. Particularly The community's health score(level of impaired life) was positively asstd with teen conception p<0.001, education score(level of lack of skills) was positively associated with teen conception p<0.001 and access score(access to post office, food shop, GP, and primary school) was negatively associated with teen conception p<0.001. The ethnic scare, child poverty score, employment and income score were all not significantly associated with teen conception.	geographical variation not considered. Study variables at community level mainly without control by individual or household level factors, no school experience, partner influence investigated
7	Does the UK government's teenage pregnancy strategy deal with the correct risk factors? Findings from secondary analysis of data from a randomised trial of sex education and their implications for policy	Allen et al, 2006	United Kingdom	To examine the associations between risk factors identified in the report and pregnancy at or before 16 years of age among young women and partners of young men using the more recent data	Randomised control intervention study	Descriptive statistics and logistic regression	Individuals 13/14 followed up till 15/16	Socioeconomic status(measured by not privately owning own house) [significant in bivariate analysis only] and family structure were not statistically associated with teenage pregnancy upon adjustment for other factors.	Community level, individual level demographics, geographic variations, partner influence were not considered.
8	Perceived environmental risk as a predictor of teenage motherhood in a British population	Johns, 2011	United Kingdom	To explore the predictive value of two methods of assessing the environment	Case-control study	Logistic regression model	teen mothers and non-teen mothers	Perceived environment risk was the only variable significantly associated with teenage motherhood when controlling for effects of ward SES and other variables(OR=1.73, p<0.001). This shows that perceived environment risk may be a more discriminating predictor of teenage motherhood than deprivation itself measured by ward economic and deprivation indicators. Deprivation and family structure (living with both parents or not at age 12) were not significantly associated with teen motherhood.	no individual variables tested, no geographic variations, no partner or school influence.

9	Violence, Teenage pregnancy and life history: Ecological factors and their impact on strategy-driven behaviour	Copping, Campbell and Muncer, 2013	United Kingdom	To test the hypothesis that sexual precocity and violence are influenced by sensitivities to local environment conditions	Cross sectional study	Descriptive statistics, correlation and maximum likelihood estimation for generating structural equation modelling	Local authorities	Model based on direct and indirect perceptions predicted 77% of variance in teenage conception rates, the family mediation model predicted 76% of variance in teenage conception. Teen pregnancy is directly affected by strategy. Strategy is predicted by father absence and education opportunities. Effects of unemployment and population density on strategy are indirect through their impact on father absence making them distal predictors of strategy-driven behaviour. Family breakdown is more likely to occur in environments characterised by dense populations, high unemployment, low educational attainment, low partner availability by females and poorer life expectancy. Unemployment Education, unemployment, Father absence and population density	Very complicated paper-no individual level characteristics. Looked at strategy that then leads to teenage pregnancy OR violence rather than just looking at teenage pregnancy pathways. Geographic variations, school experience and partner influence not considered as was social disorganisation not investigated adequately.
10	Influence of socioeconomic factors on attaining targets for reducing teenage pregnancies	Smith, 1993	Scotland	To determine the rate of pregnancy and outcome in teenagers in areas of different socioeconomic conditions, and to assess the implication for achievement of government and local targets in reducing unwanted pregnancies in teenagers	Cross sectional study	Descriptive statistics and basic calculation of percentages to classify	Teen girls admitted to national health service hospitals for delivery or abortion	Pregnancy rate in girls aged under 16 was three times as high and in girls under 20 six times as high in the most deprived areas as in the most affluent areas, based on a neighbourhood deprivation scale of 1 to 7. The proportion of teenage pregnancies ending in abortion was higher in the affluent areas where two out of three ended in abortion compared with one in four in the deprived areas.	Very old study, entire study was at community level without adjustment for individual or household level factors. Participants taken from national service hospitals-like government hospitals so level of poor/deprived neighbourhoods may have been biased to be more. Geographic variation, partner influence, school experience and even demographic controls were all absent
11	A score for assessing the risk of first-time adolescent pregnancy	Santos and Rosario, 2011	Portugal	To analyse if socio-economic status, family type and mother's age at first pregnancy are risk factors for adolescent pregnancy and to design a risk score of first-time pregnancy.	Case-control study	Odds ratio, multivariate logistic regression	Primiparous adolescents and primiparous adult women	Belonging to a family type other than nuclear or extended types was an independent risk factor of ap(OR=9.37, ci-3.36-38.07). Low socio-economic status was not associated with ap and achieved significance only when simultaneously present with having a mother with history of adolescent pregnancy(OR-6.01,2.36-20.79)	Community level, individual level demographics, geographic variations, partner influence were not considered.
12	Risk factors of pregnancy among adolescent girls in Ecuador's Amazon basin: a case-control study	Goicolea et al,2009	Ecuador	To examine risk factors for pregnancy among adolescent girls in the Amazon basin of Ecuador	Matched case-control study	Descriptive statistics and conditional logistic regression	Individuals 10-19 years old females-preg and non-preg	Factors associated with adolescent pregnancy through multivariate analysis were sexual abuse (OR=3.06,1.08-8.68), living in a very poor household (15.23,1.43-162.45). At this level being married and school non-attendance were not associated though they had been at bivariate level. Other forms of abuse (physical and emotional), adolescent's education, school satisfaction, mother's education, father's education, parental divorce and parents' absence were also not significantly associated with adolescent pregnancy.	Partner influence absent as is geographical variation, community level variables quite few as are social disorganisation variables.
13	How gender roles influence sexual and reproductive health among South African adolescents	Varga, 2003	South Africa	To examine the links between gender ideology or gender roles and the social impact of adolescent childbearing in the lives of rural and urban adolescents in KZN.	Qualitative cross sectional study	Triangulation of focus group discussions, narrative role playing and discussion as well as questionnaires and in-depth interviews.	Rural and urban adolescents in KZN	Gender ideals are grounded in traits that reinforce poor sexual negotiation dynamics and behavioural double standards that place adolescents at risk for early pregnancy and other complications	Only really concentrated on gender norms at societal level, all other factors absent.
SUB-SAHARAN AFRICA									
Individual Level Determinants									
#	TITLE	AUTHORS & YEAR	COUNTRY	RATIONALE	TYPE OF STUDY	ANALYSIS METHODS USED	UNIT OF ANALYSIS	FINDINGS	GAPS
1	Determinants of adolescent fertility in Ethiopia	Alemayehu et al, 2010	Ethiopia	To assess the level and identify proximate and other determinants of adolescent fertility in Ethiopia.	Analytical cross-sectional study	Descriptive statistics and multivariate logistic regression.	Individuals-adolescent women	Major factors associated with adolescent fertility were age, educational status, place of residence, employment, marriage, contraceptive use and postpartum infecundability. The odds for increased adolescent fertility was significantly higher in early adolescents (AOR=7.6; 95% CI=6.0 to 9.9), had lower education (AOR=6.7;95%CI=4.1 to10.9), among rural teens (AOR=3.6; 95%CI=1.9 to 6.9) and currently not working (AOR=1.7; 95%CI=1.3 to 2.2) than their counterparts. The observed fertility rate of 0.52 children per woman obtained from Bongaarts model of fertility indicated about 1.98 births per woman were averted due to non-marriage, delayed marriage, contraceptive use and postpartum infecundability.	No geographical variations, partner influence and school experience and household or community level factors
2	Determinants of teenage pregnancies: The case of Busia District in Kenya	Were,2007	Kenya	Investigates the determinants of teenage pregnancies based on a case study of Busia District in Kenya	Analytical and qualitative cross sectional study	Descriptive statistics, logit modelling, probit modelling and linear probability modelling.	Individuals-adolescent women	Empirical results indicate that girls' education level has significant influence on the probability of teenage birth (p,0.01; -0.74 with logistic and -0.72 with probit modelling), with non-schooling adolescents and those with primary school level education being more vulnerable. Age is positively related to teenage pregnancies, with older adolescents being more predisposed to pregnancies (p<0.01 when age seen as joint effect). Overall widespread poverty predispose girls to teenage pregnancies. The problem of teenage pregnancies should be viewed within the broader socio-economic and socio-cultural environment in which the adolescents operate.	No geographical variations, partner influence and school experience and household or community level factors.
3	Determinants of transitions to sexual intercourse, marriage and pregnancy among female adolescents: Evidence from South Nyaza, Kenya	Magadi et al, 2008	Kenya	To investigate the determinants of adolescent transitions in South Nyanza, a socioeconomically deprived setting in Kenya where adolescent reproductive health is a particular concern.	Analytical cross-sectional study	Descriptive statistics and cox regression	1247 female adolescents aged 12-19	Higher household socioeconomic status and educational attainment are strongly associated with delayed onset of transition to pregnancy (p<0.001). Adolescents from households of higher socioeconomic status or those who had attained at least secondary level education experienced the transition events significantly later than their counterparts from households of lower socioeconomic status or with lower educational attainment. Correspondingly, those from households of higher socioeconomic status or with at least secondary level education were less likely to have experienced the transition events compared with those from households of lower socioeconomic status or with only primary level education. Other significant socioeconomic factors included parents' educational attainment (especially mothers'), urban/rural residence and district of residence. However, discussing sexual matters with boyfriends, high internal locus of control, and gender bias are associated with early onset of the three transition events.	Geographic variations not present and school experience not present. Social disorganisation not considered.

4	Factors associated with adolescent pregnancy among secondary school students: A study from Tanga-Tanzania	Nyakubega,2009	Tanzania	To assess the factors associated with adolescent pregnancies among secondary students at Tanga municipality	Descriptive cross sectional study	Descriptive statistics	individuals-200 female high school girls	Low socioeconomic status was found to be an important cause for adolescent pregnancies as 57.1% of respondents suggested. Other factors responsible were luxury and deprivation of education to girls (43.5% and 16.5% respectively).	No statistical analysis. Geographic variations not present and school experience not present. Social disorganisation not considered.
5	Girl-Pupil Dropout in Secondary Schools in Botswana: Influencing factors, prevalence and consequences	Molosiwa and Moswela, 2012	Botswana	Presents views and literature review on TP and analyses the educational statistics of Botswana dropout du to TP.	Descriptive cross sectional study	Descriptive statistics and literature review	individuals	Overall, teen girls from rural areas tend to drop out of school due to pregnancy than those from the urban areas. Two possible reasons for the difference can be advanced as first, pupils in towns or cities are more exposed to information and therefore are more educated in issues of sexuality such as the use of contraceptives when they become sexually active than those in rural areas. Having better access to information in varied formats such as books, newspapers, the internet, radio, literate people as well as organizations that deal with sexuality issues places them at a huge advantage. This makes them less likely to fall pregnant while still at school. Secondly, pupils in rural are more economically disadvantaged than their peers in urban centres, therefore, they are more prone to sexual abuse by males who earn an income. By falling in love with such an individual, the teenager expects monetary benefit from the relation.	Focus of the paper was really on drop out NOT on TP. Therefore TP just spoken about in passing. No statistical analysis and no descriptive statistics of TP alone or factors related to it.
6	A comparative analysis of predictors of teenage pregnancy and its prevention in a rural town in Western Nigeria	Amoran, 2012	Nigeria	This study was therefore designed to determine the recent prevalence and identify factors associated with teenage pregnancy in a rural town in Nigeria.	comparative cross- sectional study	Descriptive statistics, chi squared and t-tests	individuals	Teenage pregnancy was statistically significantly associated with primary [OR = 9.07, C.I = 2.58-33.07] and secondary level of education [OR = 3.85, C.I = 1.57-9.73] when compared with post secondary education. Those from the low socio-economic background were about 4 times more likely to be pregnant as a teenager when compared to those from high socioeconomic background [OR = 3.81, C.I = 1.35-11.61]. Table 2 also shows the adjusted odds ratio for factors associated with teenage pregnancy among the study population. Low social class (OR = 2.25, C.I = 1.31-3.85], Religion (OR = 0.44, C.I = 0.21-0.91), being a student (OR = 3.27, C.I = 1.02-10.46) increased the probability of being pregnant while having a white collar job (OR = 0.09, C.I = 0.01-0.81) greatly reduce the probability of getting pregnant as a teenager after controlling for the effect of confounders.	School experience, Geographic variation, partner influence not considered. Analytical methods were hodge.
7	Risk factors of adolescent pregnancy in Kabale District, Uganda	Kyokwijuka, 2009	Uganda	To establish the risk factors of adolescent pregnancy in Kabale District, Uganda	cross sectional and qualitative study	qualitative and statistical methods. The statistical methods were used on adolescents born between 1986 and 2004 to estimate the level, trends and differentials in pregnant adolescents.	individuals-10-24 year olds	Results from the above models indicate that the level of education, place of residence, sex and age had significant impact on the dependent variable (adolescent pregnancy) while place of birth, religion and ethnicity were not significantly connected to adolescent pregnancy	No statistical analysis. Geographic variations not present and school experience not present. Social disorganisation not considered.
8	RISK FACTORS FOR UNWANTED / UNPLANNED TEENAGE PREGNANCY IN ZOMBA DISTRICT, MALAWI	Kaphagawanu, 2006	Malawi	To establish the risk factors for unplanned teenage pregnancy in Malawi	Analytical cross sectional study	Descriptive statistics and logistic regression	individuals	Findings reveal that unplanned pregnancy accounted for 76.4% of teenagers attributable to early marriage, educational levels and socio-economic status, physical and sexual violence , transactional sex due to poverty, early school dropout and gender inequalities.	Factors are all at individual level-and do not encompass social disorganisation effects or geographic variations
9	Socio-Demographic Determinants of Adolescent Fertility in Zambia	Nwogwugwu,2013	Zambia	To establish the socio-demographic factors associated with teenage pregnancy in Zambia	Analytical cross sectional study	Descriptive statistics and logistic regression	individuals: 15-19 year old females	Age and marital status were found to be associated with adolescent fertility after controlling for other variables; while education, wealth status, type of place of residence employment and region did not show any association with adolescent fertility in the adjusted multivariate analysis.	no social disorganisation theme-only one variable found to be associated with TP.
10	Socio-clinical factors related to the perinatal outcome of teenage pregnancies in a Nigerian teaching hospital	Ogunlesi et al, 2013	Nigeria	To establish the social and clinical factors related to perinatal outcome of teenage pregnancies	retrospective case-control study	Descriptive analysis-chi squared and t-tests	individuals-women less than 20 years old	The prevalence of teenage pregnancies was 1.3%. The mean age of the cases was 17.8 years (range of 16 - 19 years). Compared to the controls, significantly higher proportions of the cases had less than senior secondary education, were unmarried, with relatively younger spouses who were mainly unemployed or employed as unskilled workers.	No statistical analysis. Geographic variations not present and school experience not present. Social disorganisation not considered.
11	Socio-demographic determinants of teenage pregnancy in the Niger Delta of Nigeria	Isa and Gani, 2012	Nigeria	is to determine the socio-demographic factors associated with teenage pregnancy in our environment, in order to proffer measures that can help curtail this continuing socio- medical problem.	Hospital record -based Cross sectional study	Descriptive	individuals-14-19 years	89.9% had at least secondary education and majority (48%/57.8%) were unbooked, unmarried (60%/72.3%), unemployed (62%/74.7%) and of low social class. It was concluded that teenage mothers in the Niger Delta tend to have unfavourable socio-demographic and obstetric factors. Concrete measures must be put in place to address these.	No statistical analysis. Geographic variations not present and school experience not present. Social disorganisation not considered.
12	Teenage pregnancy and implications on child survival amongst mothers attending a clinic in the East-End, Freetown, Sierra Leone	Runsewe-Abiodun and Bondi,2013	Sierra Leone	To describe the health care seeking behaviours in a cohort-cohort of teenage mothers attending under-5 clinic in a densely populated section of Feetown.	cross-sectional study	Descriptive	individuals, 12-19	Of the 89 teenage mothers in the study population, the majority (95.5%) did not possess the secondary school education, 42.7% were petty traders and more than a half of them (61.8%) were married.	No statistical analysis. Geographic variations not present and school experience not present. Social disorganisation not considered.
13	Levels, trends and differentials of adolescent motherhood in Ethiopia	Demissie, 2008	Ethiopia	To analyse the levels, trends and differentials of adolescent childbearing or motherhood in Ethiopia.	cross sectional and qualitative study	Descriptive and multilevel logistic regression	individuals-from DHS data 2005	As was expected, the level of adolescent motherhood was lower in urban areas and women who have a secondary and above education (p<0.001). The effect of marital status on teenage motherhood was positive and significant (OR=7.77-7.84,p<0.001). The levels of early marriage have declined over time. The decline in the percentage of early marriage are mainly attributed, among other factors, to the increase in education of women. The risk of adolescent motherhood is higher among women who were not working and agricultural worker women (p<0.01). Regions Addis Ababa and Afar had significantly less number of cases (p<0.001)while Amhara and Benishangul-Gumuz had a higher risk of TP.	Partner influence, school experience and social organisation absent from the study.
14	Are Female Orphans (Parental survival) at Risk for Early Marriage, Early Sexual Debut, and Teen Pregnancy? Evidence from Sub-Saharan Africa	Palermo and Peterman, 2009	Sub-Saharan African countries	To examine the relationship between orphanhood status and measures of early marriage, early sexual debut, and teen pregnancy among adolescent girls aged 15 to 17.	Cross sectional population-based household survey	Descriptive statistics and multivariate logit model	individuals-adolescent girls	In multi-countries: Benin (2006), Chad (2005), Congo/Brazzaville (2005), Cote d'Ivoire (2005), Lesotho (2004), Malawi (2004), Mozambique (2003), Tanzania (2004), Uganda (2006), and Zimbabwe (2005-06). Multivariate logit regression revealed that Age, education and wealth/SES were significantly associated with TP across the countries while orphanhood status, religion and place of residence were not	At individual level only- no household level variables, no social disorganisation variables, no geographic variations even among the countries not done.

15	Unintended childbearing in developing countries: levels, trends and determinants	Adetunji, 1998	Developing Countries	To examine the levels, trends and determinants of unintended pregnancy	Cross sectional study	Descriptive statistics and logistic regression	Individuals 15-19 year olds from dhs data	15-19 ASFR's: Ghana-110 b/1000w; Kenya-108b/1000w;Senegal-125b/1000w; Zimbabwe-100b/1000w;Egypt=60b/1000w;Indonesia-60b/1000w;Morocco-40b/1000w;Colombia-90b/1000w;Dominican Republic-90b/1000w; Peru-60b/1000w. In all the countries-few ~0b/1000w are unwanted, while Half are untimed and half are unintended. Socio-economic determinants of unintended childbearing=	VERY OLD STUDY. Looks at Unintended pregnancy and not teenage pregnancy in particular. Determinants therefore do not correspond with those of teenage pregnancy in other studies especially recent ones. No geographical variations, determinants looked at were all at individual level. No social disorganisation.
Household Level Determinants									
#	TITLE	AUTHORS & YEAR	COUNTRY	RATIONALE	TYPE OF STUDY	ANALYSIS METHODS USED	UNIT OF ANALYSIS	FINDINGS	GAPS
1	Teenage Pregnancy and the home environment factors in Ogbomoso, Nigeria	elili et al, 2013	Nigeria	To relate adolescent pregnancy with factors of the home environment using data from household surveys.	Cross sectional study	descriptive statistics, ANOVA , correlation coefficients and chi squared tests	Adolescent girls from household surveys	Teenage pregnancy is related to residential density- high density areas had the highest levels of 5 or more teenage pregnancy cases per household 14.99%,decreased as density decreased- 3.1% for medium density areas and 0% in low density areas-conversely hh's with one or no cases of tp were most frequent in low density areas (84%) the medium density (66.3%) & high density areas(38.5%). Variations observed were statistically significant (f-ratio=22.583, p-value<0.05). Implication is that there are certain factors(home factors or home environment factors) which may underlie incidence of teenage pregnancy and perhaps other social vices requiring consideration. Teenage pregnancy was significantly positively associated with HH size (0.116 @ 0.05 sig level),number of persons in the HH (0.206 @ 0.01 sig level) and number of female occupants (0.263 @ 0.01 sig level). Heterogeneity measured as number of hhs in a house was found to have an insignificant negative relationship with teenage pregnancy.	Partner and school influence not considered, social disorganisation variables considered were few. Geographical variations not considered. Area density was based on household size.
2	The effect of Household characteristics on adolescent childbearing in Lesotho	Ifeoma, 2008	Lesotho	To examine the effect of household characteristics on adolescent childbearing in Lesotho.	Analytical cross-sectional study using secondary data	Descriptive statistics and logistic regression	Never married, female 15-19 year olds	Only 7% of adolescents in the sample had premarital births. The older adolescents (18-19 years old) had the highest rates of births 14% and 19% respectively. This indicated the risk of premarital birth increasing with age, but age was not significantly associated with adolescent childbearing in regression. The odds of births was higher among adolescents that had achieved primary education or less at individual level. At household level adolescents residing with an older woman who was separated or divorced had higher odds of premarital births. adolescent premarital birth was found to be higher in household that were headed by females and in larger households.	No community level factors considered, no geographical variations considered, no partner influence considered. Social disorganisation represented minimally-family disruption not the other dynamics. No school influence considered.
3	Determinants of transitions to sexual intercourse, marriage and pregnancy among female adolescents: Evidence from South Nyaza, Kenya	Magadi et al, 2008	Kenya	To investigates the determinants of adolescent transitions in South Nyanza, a socioeconomically deprived setting in Kenya where adolescent reproductive health is a particular concern.	Analytical cross-sectional study	descriptive statistics and cox regression	1247 female adolescents aged 12-19	higher household socioeconomic status and educational attainment are strongly associated with delayed onset of transition to pregnancy (p<0.001). Adolescents from households of higher socioeconomic status or those who had attained at least secondary level education experienced the transition events significantly later than their counterparts from households of lower socioeconomic status or with lower educational attainment. Correspondingly, those from households of higher socioeconomic status or with at least secondary level education were less likely to have experienced the transition events compared with those from households of lower socioeconomic status or with only primary level education. Other significant socioeconomic factors included parents' educational attainment (especially mothers'),urban/rural residence and district of residence. However, discussing sexual matters with boyfriends, high internal locus of control, and gender bias are associated with early onset of the three transition events.	geographic variations not present and school experience not present. Social disorganisation not considered.
4	Parental marital status and peer influence as correlates of teenage pregnancy among female teens in south-south Nigeria	Ugoji, 2011	Nigeria	To examine the effects of parental marital status and peer influence on the occurrence of teenage pregnancy among 324 female teens in south-south, Nigeria	Cross sectional study	Pearson correlation and Multiple Regression procedures	324 female teen individuals	Results indicated that the two independent variables (parental marital status and peer influence), when taken together and individually were effective in predicting teenage pregnancy among female teens. Single parents were seen to be more associated with teenage pregnancy than intact parents. On the basis of these findings it was suggested that in addition to providing sound sex education, parents should ensure appropriate supervision of the activities of their children particularly the female child and the kind of peer associations they keep and that the government should set up social service agencies to enable them assist single parents and their children particularly the female child to attain proper development.	No community level factors considered, no geographical variations considered, no partner influence considered. Social disorganisation represented minimally-family disruption not the other dynamics. No school influence considered.
5	Determinants of adolescent fertility in contemporary Yoruba society: a multivariate analysis.	Oyefara, 2011	Nigeria	To examine the determinants of adolescent fertility using multivariate analysis and Osun State, Nigeria as study location.	cross-sectional study	logistic regression, while content analysis technique was used to analyse qualitative data	1000 15-49 year old female individuals	Findings showed that educational level, parental marital disruption, marital status and nature of activity which adolescent girls were doing are significant determinants of adolescent fertility in the study location. Religion and activity at first childbirth were not significantly associated with adolescent fertility.	No community level factors considered, no geographical variations considered, no partner influence considered. Social disorganisation represented minimally-family disruption not the other dynamics. No school influence considered.
SOUTH AFRICAN STUDIES									
#	TITLE	AUTHORS & YEAR	COUNTRY	RATIONALE	TYPE OF STUDY	ANALYSIS METHODS USED	UNIT OF ANALYSIS	FINDINGS	GAPS
1	The causes of teenage pregnancy: review of South African research-Part2	Macleod,1999	South Africa	To review SA research on teenage pregnancy	literature review	Literature review	Research articles	Co-ercive sexual relations, dysfunctional family patterns, socio-economic status,	Studies are more than 10 years old
2	Risk Factors for Teenage Pregnancy among sexually active black adolescents in Cape Town	Vundule et al, 2001	Cape Town-South Africa	To undertake an exploratory study to investigate risk factors for teenage pregnancy among sexually active adolescents in an urban and peri-urban context	Matched case-control study	Descriptive statistics and conditional logistic regression	Individuals 19 years and under	Teenage pregnancy was most strongly associated with not owning a television set(RR=10.33), larger household size (RR=2.44), not living in a brick house (RR=5.09) and not living with the biological father (RR=2.62). the current boyfriends of pregnant teenagers had a higher mean age difference of 5.1 years vs 4.0 years for non-preg teens(RR=1.16;1.08-1.24).	Geographic variations not considered, survey only included 600 people to represent the study population-statistical power of sample may be questionable. Study done in Cape Town therefore not very generalisable to the entire country as no cases were from rural areas. Study is 13 years old.

3	Sexual Initiation and childbearing among adolescent girls in Kwa-Zulu Natal, South Africa	Manzini, 2001	Kwa-Zulu Natal-South Africa	To identify some of the main features that characterise the first sexual encounter and childbearing in KZN for in-school and out-of-school girls	Cross-sectional study	Descriptive statistics	796 adolescent girls	Approximately half (51.7%) of the girls that had been sexually active had ever been pregnant-therefore a quarter of the complete sample(1695)-had been pregnant 410. 12.8% of the girls were pregnant at the time of the interview. 71% who had ever been pregnant said their pregnancies were unplanned. Mean age at first birth was 17.9 years-2% had tried to end the pregnancy. # of pregnancies increased with age, African girls had higher pregnancy rates, preg rates were high among girls who were no longer in school and had not completed matric	Statistical analysis lacking, no geographical variations, no social disorganisation variables, no household or community-level variables
4	How gender roles influence sexual and reproductive health among South African adolescents	Varga, 2003	Kwa-Zulu Natal-South Africa	To examine the links between gender ideology or gender roles and the social impact of adolescent childbearing in the lives of rural and urban adolescents in KZN.	Qualitative cross sectional study	Triangulation of focus group discussions, narrative role playing and discussion as well as questionnaires and in-depth interviews.	rural and urban adolescents in KZN	Gender ideals grounded in traits that reinforce poor sexual negotiation dynamics and behavioural double standards place adolescents at risk for early pregnancy and other complications	Only really concentrated on gender norms at societal level, all other factors absent.
5	Transitions into sex, parenthood and unions among adolescents and young adults in South Africa	Biddecom and Bakilana, 2003	Cape Town-South Africa	To describe timing, density and sequencing of transitions for adolescents and young adult females and males in South Africa into sexual activity, pregnancy parenting, unions and school leaving	Longitudinal CAPS study	Survival analysis	individuals	Important gender and population group differences exist in timing of childbearing. By age 19-16% of females have had their first child vs 5% of males. 1% of males and 4% of females have experienced their first marriage or cohabitation by age 19.	No geographical variations, no social disorganisation variables, no household and community-level variables
6	Predictors of Unintended Pregnancy Among South African Youth	Ibisoni and Odimegwu, 2007	South Africa	To examine the distribution of and factors associated with unintended pregnancy among South African youth.	Analytical cross sectional study	Descriptive statistics and logistic regression	1395 individual females aged 15-24 from 1998 DHS	The results show a high level of unintended pregnancy with only 29% of the pregnancies wanted. The level of unintended pregnancy varies by region and some socio-economic variables. Five critical predictors of unintended pregnancy among South African youth were identified. These are: age group, region, marital status, education and relationship to the last sexual partner.	Concentrated on unwanted pregnancies rather than teenage pregnancy-no school experience, no geographical variation, no socio-structural elements
7	Teenage Pregnancy and HIV in South Africa	Mkhwanazi, 2008	Cape Town-South Africa	To examine teenage pregnancy and its links to family and community influence	Qualitative cross sectional study	ethnography	individuals	to community members-teenage pregnancy was an indication of bad parenting and a breakdown of norms surrounding proper conduct. For people living in Nyanga, belonging created personhood. A child was a reflection of the family and the community that they grew up in and it is thus the duty of the parents and community at large to teach children about proper conduct and thus ensure belonging.	This is really an opinions/perceptions study. It is not based on facts, but on what people think. No statistical analysis, no social disorganisation variables/elements considered through household/community issues were explored qualitatively
8	Sexual Behaviour, Pregnancy and Schooling among Young people in Urban South Africa	Marteleto, Lam and Ranchhod, 2008	Cape Town- South Africa	To examine transitions in schooling, sexual activity and pregnancy for adolescent adults in urban South Africa	Longitudinal CAPS study	conditional logistic regression and descriptive stats	individuals 14-22 years old	16% African & 19% Coloured 17 year old girls had been pregnant. 95% of all pregnancies become live births for young African and coloured women-5% become stillbirths or miscarriages. 2% of 14-16 year old females had experienced a pregnancy in 2002. 21% African and coloured females had experienced a pregnancy b/n 2002 and 2005. Factors associated with pregnancy-not being enrolled in school, 30% more likely, being coloured, experiencing economic shocks 14% higher probability of getting pregnant. Income and impact of LNE academic score were not associated with getting pregnant.	No inferential statistics-only contracted on prevalence estimation. No causative factors of TP mentioned only postulated based on prevalence rates. No gender dynamics, school experience-has provincial differences, but not statistically significant variations.
9	A decade later: follow-up review of South African research on the consequences of and contributory factors in teen-aged pregnancy	Macleod & Tracey, 2009	South Africa	To review SA research conducted in the last 10 years on the consequences and contributory factors in teen-aged pregnancy	Literature review	Literature review	Research articles	Coercive sex and violence are consistently risk factors. Partners of pregnant young women were more likely to be older, not in school and have multiple girlfriends than the partners of non-pregnant young women.	Geographical variations, school experience and social disorganisation variables not looked at extensively or consistently
10	Empowering teenagers to prevent pregnancy: lessons from South Africa	Jewkes, Morrell and Christofides, 2009	South Africa		Review	Review of literature	Literature	1998 DHS found that more than a third (35.1%) of 19 year old had been pregnant. 1998 & 2003 DHS-teenage pregnancy displays marked social patterning: higher in rural areas (60% more likely) less educationally attained women (3-fold higher risk), African and Coloured women (7-fold higher risk than White and Indian women) and higher among older teens. Exploration of the social context of Teenage pregnancy is required to understand how to reduce the levels of TP even further and more sustainably. Level of TP shows that although teenagers do use contraception, this is not used consistently. Failure to adequately acknowledge address community-level inequalities and disorganisation renders young women in certain communities more susceptible to teenage pregnancy. Teenage pregnancy is a deeply embedded social phenomenon. teenage women's attitudes and actions are critically shaped by the environment in which they are socialised and the relationships they develop. Placing the burden of responsibility for these factors on their shoulders alone ignores this broader understanding. There needs to be examination within families and communities of other engagement with supporting pregnancy prevention and responses to pregnancies.	No statistical analysis or findings done-basically a compilation of previous research into one body of knowledge. No tests or data analysed at all. Only levels mentioned from previous surveys done-which are very old surveys mind you. No school experience, social disorganisation, no geographic variations, no partner dynamics
11	Review of South African research and interventions in the Development of a Policy Strategy on Teen-aged Pregnancy	Macleod & Tracey, 2009	South Africa	To understand adolescent pregnancy in context. First step in review of youth and adolescent health policy with regards to pregnancy amongst teenagers	Report	Literature review and interviews with key informants	Research articles	Gender-based violence and coercion in sexual relationships are significant factors. Having a partner 5 or more years older than a young woman appears to be a risk factor. Poverty has an over-riding contribution to risk behaviour.	Geographical variations, school experience and social disorganisation variables not looked at extensively or consistently
12	Teenage Pregnancy in South Africa, with specific focus on school-going learners	Panday et al, 2009	South Africa	To document, review and critically analyse literature on teenage pregnancy with a focus on school-going adolescents	Desktop review of literature supported by secondary data analysis to	Literature review and analysis of secondary data	conducted on the HSRC 2003 Status of Youth Survey, a nationally representative study of more than 3 500 young people aged between 18 and 35 years.	Older adolescents aged 17-19 account for the bulk of teenage fertility in SA. While rates are significantly higher among Black (71 per 1000) and Coloured (60 per 1000) adolescents, fertility among White (14 per 1000) and Indian (22 per 1000) adolescents approximates that of developed countries. This difference can in all likelihood be accounted for by the wide variation in the social conditions under which young people grow up, related to disruptions of family structure, inequitable access to education and health services, as well as the concentration of poverty and unemployment in Black and Coloured communities. Analysis of the EMIS data on teenage pregnancy shows an increase in learner pregnancies between 2004 and 2008. However, this trend is contrary to national trends in fertility and is more likely the result of improved reporting, rather than a real increase in fertility.	School based study-only prevalence estimation-causative factors hypothesised without any statistical backing. No inferential statistics. No partner influence, no school experience moderation assessed.

13	Millennium Development Goals: Goal 5, Improve Maternal Health	Statistics South Africa, 2010	South Africa	To present the progress in the improvement of maternal health in South Africa	Report	Descriptive and trend data	Years and Provinces	Percentage of deliveries for women under 18 declined from 9.6% in 2001 to 8.2% in 2009. Percentage of deliveries has declined to 10% and less in 2009 in all provinces of SA. Highest rates are consistently in Mpumalanga, Eastern Cape and Northern Cape while the lowest rates are seen Gauteng and Cape Town. 2002:9.3%; 2003:8.9%; 2004:8.9%; 2005:9.3%; 2006:9.4%; 2007:9.3%; 2008: 9% and 2009: 8.2%.	No statistical analysis, no social disorganisation variables and no household or community-level variables considered
14	The child support grant and teenage childbearing in South Africa	Makiwane, 2010	South Africa	To examine data on teenage fertility and patterns of uptake of the Child Support Grant in South Africa from 1998 to 2005	Use of national administrative statistics on the Child Support Grant and secondary estimates of teenage fertility.	descriptive statistics		The findings of this study do not suggest any significant positive association between the grant and the trend in teenage childbearing in South Africa during the past decade.	NOT based on individual data but data at provincial and yearly levels yet then makes findings to be applicable at the individual level. Ecological fallacy may be present. Study claims that there is no data to test this issue yet GHS has been present since 2002 and has both variables very explicitly.
15	Umthente uhlabi usamila: The 2nd South African National Youth Risk Behaviour Survey 2008	Reddy et al, 2010	South Africa	To examine the levels of risky behaviour among learners in SA	Cross-sectional national prevalence study	Descriptive statistics and prevalence estimation	school learners attending public schools in SA-grade 8,9,10 and 11's from all 9 provinces	Nationally 19% of learners had been pregnant or made someone pregnant. Female learners-24.4% had been made pregnant. Prevalence was significantly higher among females, higher ages: 19yr old-31.4% vs 14.6% among 13 year olds, 12.5%-14yr olds, 14.3%-15yr olds, 15%-16yr olds, 17.7% in 17yr olds. Gauteng had lowest prevalence-13.1% vs Eastern Cape which had highest prevalence-25.4%. No significant variation by race or grade surprisingly.	School based study-only prevalence estimation-no causative factor analysis. No inferential statistics. No partner influence, no school experience impact- no demographic or social disorganisation impact assessed.
16	Learner Pregnancy: The Legal Implications	Marais et al, 2011	Mpumalanga and Limpopo	To investigate the legal issues surrounding learner pregnancy in terms of schooling, access to social grants and pregnancy as a result of rape or sexual assault	Literature Review and Qualitative study	Qualitative and Quantitative methods	individuals	12.9% planned the pregnancy while 66% indicated that it was an unplanned pregnancy. Pregnant girls are discriminated against by peers, teachers, friends and the larger community.24.5% of learners indicated that they fell pregnant to access the social grant.	Focus really on school access of pregnant young women. Therefore, looks at consequence and not causes of teenage pregnancy
17	Developing and expanding our ideas about teenage desire and fertility	Mkhwanazi, 2011	South Africa	To understand the role of teenage desire in the field of teenage fertility	Qualitative cross sectional study	vignettes	10 individuals-3 girls and 7 boys	Majority of lit on TP in SA focuses on young mother, her child, socioeconomic status of teen mother and their knowledge of sex and reproductive health. Overlooks TP as a deeply embedded social phenomenon-occurrence and mx of TP esp. in poor communities is embedded in a web of social relationships. TP is a common occurrence in rural areas, urban informal settlements and in townships. Gender inequality compounded by differences in age, economic status, social position often result in young women being less able to negotiate condom use. A third of young people live in poverty in SA.	Not really a study based on methods and findings, but more an overview of how TP needs to be seen socially more than previously seen. Therefore uses many other articles to build a case-no analysis-no results.
18	Teenage mothers talk about their experience of teenage motherhood	Chohan and Langa, 2011	Johannesburg-South Africa	To explore how teenage mothers talk about their experiences of teenage motherhood and their motivation to complete schooling	Qualitative cross sectional study	Discursive analysis from individual interviews	15-19 year old girls attending a public school in JHB	Teenage pregnancy is still viewed as a major social problem that is escalating in South Africa, despite it decreasing by 10% btm 1996 and 2001 and by a further 10% btm 2001 and 2007. The blame for many social ill in society are shifted onto teenage mothers rather than onto the social structure of poverty, unemployment and inequality(Rolfe,2008). Many studies fail to consider how socio-political and structural factors in the capitalist labour market contribute to poor employment rates, simply attribute all social ills to teenage pregnancy. More studies need to focus on the partners of teenagers who are pregnant.	Looks at experiences of teen mothers not at causative factors of teenage pregnancy, but do tackle important issues of tp being a socially constructed phenomenon.
19	Adolescent pregnancy and associated factors in South African youth	Mchunu et al, 2012	South Africa	To assess the prevalence of adolescent pregnancy and associated factors in the South African context, as part of a population-based household survey	Cross sectional population-based household survey in 4 of the 9 provinces	Descriptive statistics and unconditional multivariate logistic regression		In multivariable analysis among women it was found that being employed (OR=5.74; 2.3115.48) or unemployed (OR=4.05; 1.77-9.26), greater poverty was associated with adolescent pregnancy. Education, lack of relationship control, ever forced sex were not associated with adolescent pregnancy. Education not asstd with AP BUT being a student as opposed to being employed or unemployed was protective against AP-doesn't make sense. Also Education was find. not to be asstd with AP at bivariate stage then not included in the multivariate analysis instead of forcing it into the model.	Sample not nationally representative because only looked at four provinces of the nine. Looked at certain aspects of Social disorganisation, but at individual level not at household or community level and did not look at school experience moderation of provincial variation.
20	Teenage childbearing and dropout from schools in South Africa: Evidence from a household panel	Timaues and Moultrie, 20112	South Africa	To examine the determinants and consequences of teenage childbearing in South Africa using nationally representative data from NIDS	Longitudinal NIDS study	Descriptive and logistic regression	individuals	41% of SA women had borne their first child before the 20th birthday. Academically successful girls from all backgrounds largely avoided early childbearing. SES played little role in determining who became a mother. Girls living in the 20% highest income were less likely to become pregnant.	No social disorganisation-related variables were included. No school experience variables, no household level and community level variables.
21	Factors associated with teenage pregnancy in Limpopo province	Population and Development Directorate, 2012	Limpopo-South Africa	To identify and understand the psycho-social, economic, cultural and household factors associated with teenage pregnancies	Cross sectional study	Descriptive statistics and logistic regression	Pregnant and teenage mothers, teenage learners, parents, teachers, nurses and social workers	Marital status was significantly associated with first pregnancy. Teen mothers who were ever married were 18 times more likely to want a pregnancy (OR=18.15,p=0.03). Incest, sexual abuse, age at first pregnancy and population group were all not significantly associated with teen motherhood/pregnancy. Being in an intergenerational relationship at first pregnancy, the child support grant and money were not significantly associated with teenage pregnancy. Household size was associated with TP: For every unit increase in H/H size teenage mothers are 38% more likely to want a preg (OR=1.38, p=0.01). District was associated with TP. Access to water and electricity, parental survival status and housing type category were all not associated with TP. Finally overall model with all significant psychosocial, economic and household factors revealed that teen mothers who were ever married were 8.47 times more likely to have wanted a pregnancy compared to never married teen mothers (p=0.09), every unit in H/H size increased the likelihood that teen mother would want to be pregnant by 63% p=0.00. The bigger the H/H size the more likely that a teen mother would want to be pregnant.	partner influence was minimally looked at. Social disorganisation was hardly touched and not touched on directly at all. Entire study occurred in Limpopo. School variables focused on source of information and not on actual experience. Results are not generalisable to the entire country.
22	A Review of Teenage Pregnancy in South Africa-Experiences of Schooling and Knowledge and Access to Sexual and Reproductive Health Services	Willan, 2013	South Africa	To review all literature on teenage pregnancy	Literature review	Literature review	Research articles	Gender inequalities, poverty, high levels of gender-based violence. South Africa needs to address teenage pregnancy at an individual and structural level	Was conducted in school context-teen pregnant girls in the community were omitted from the study

24	secondary school girls' knowledge, attitudes and sexual behaviour regarding teenage pregnancy, emergency contraception and sexuality in Thulamela municipality, Limpopo Province, South Africa	Ramathuba, 2013	Limpopo-South Africa	To explore secondary school girls' knowledge, attitudes and behaviour regarding emergency contraception, teenage pregnancy and sexuality among secondary school girls in order to suggest possible interventions	cross-sectional study	Descriptive statistics, chi-squared test	273 individual girls from secondary schools in Limpopo	Factors influencing teenage sexuality and pregnancy were socioeconomic factors, substance abuse and peer pressure, and falling pregnant was viewed negatively in relation to its deleterious consequences.	No household-level or community-level variables, no social disorganisation variables, no geographical variations, no school experience
25	Risk factors associated with teenage pregnancy at Ga-Dikgale villages in the Northern Province of South Africa	Malema, 2000	North West-South Africa	To determine the risk factors associated with teenage pregnancy in Ga-Dikgale	case-control population based study	Descriptive statistics and logistic regression	283 15-19 year old girls	Age of respondent, highest school standard passed, current boyfriend, age peers had 1st sexual intercourse and friend's sexual practices were associated with teenage pregnancy. Parental marital status, religion, mother's education and type of work, CU, ever had forced sex-all not associated with TP	No household-level or community-level variables, no social disorganisation variables, no geographical variations. Did not use multilevel methods

