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THE CONTEXTUAL DETERMINANTS OF RISKY BEHAVIOURS AMONG ADOLESCENT IN SOUTH AFRICA

BY

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A RESEARCH REPORT SUBMITTED TO THE FACULTY OF HUMANITIES, UNIVERSITY OF THE WITWATERSRAND, JOHANNESBURG, IN FULFILMENT OF THE REQUIREMENTS FOR THE AWARD OF MASTER OF ARTS IN DEMOGRAPHY AND POPULATION STUDIES

DECLARATION

I, Tania Gamuchirayi Mazonde, declare that this research report is my original work. This research work is being submitted for the degree of Master of Arts in Demography and Population Studies at the University of the Witwatersrand, Johannesburg. To the best of my knowledge, this work has not been submitted for any degree or examination or to any other university.

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28 August 2017

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I would like to acknowledge the National Research Foundation (NRF) for their financial support towards the realization of this work.

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ABSTRACT

Background: Risky behaviours among adolescents are notably the most important factors contributing to negative health outcomes of this population group. Adolescents in South Africa are at risk of the HIV infection, unintended pregnancies, unintentional injuries (motor vehicle accidents) and substance and drug abuse. South Africa is regarded as one of the countries with nearly half adolescents living with HIV, as a result of unprotected sex. It is also regarded as one of the countries with motor accidents cases and as a result of reckless driving and substance use. To understand this, there is substantial research on the demographic and socio-demographic determinants of risky behaviour amongst adolescents but little research on the household and community factors. The main aim of this study is to determine the contextual determinants of adolescent risky behaviours in South Africa.

Method: This study used data from the South African Youth Life Style Survey of 2008. The study sample size is 3336 adolescents aged 12 to 19 across all nine provinces in South Africa. Risky behaviours are organized using an ecological framework into individual, household, and community levels. Binary- multilevel logistic regression was employed to analyze the data.

Results: The results indicated that age, sex, education, race, living arrangements, number of income earners, were significant, however, the relationship between risky behaviours and community level variables were negatively significant. . 3336 adolescents participated in the study, 934 (28.0%) had sexual intercourse and 158 (4.74%) had two or more sexual partners, and 234 (7.01) did not use a condom during their last sex. In terms of substance use, 34.24 % ever used alcohol and about 24.45% ever been a passenger with a driver under the influence. Adolescents who were living with their grandparents (OR=1.07), living in a household with seven or more members (OR=1.06), while residing in had a higher likelihood of engaging in risky behaviours. Findings demonstrated that community level factors were not associated with reports of risky behaviour among adolescents but were influential in shaping the risky behaviour of adolescents.

Conclusion: Firstly, results from this research will provide a better understanding of the contextual factors that relate to risky behaviours. Secondly, results from this research will help inform polices such as the National Youth Policy in reducing risky behaviours. Lastly,

interventions aimed at reducing risky behaviours among adolescents in South Africa should not only focus on individual level but also on the household and community engagement.

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LIST OF ABBREVIATIONS AND ACRONYMS

CJCP- Centre for Justice and Crime Prevention

DPS- Demography and Population Studies

HIV- Human Immunodeficiency Virus

NRF- National Research Foundation

SA- South Africa

STIs- Sexually Transmitted Infections

Stats SA- Statistics South Africa

UN- United Nations

UNICEF- United Nations International Children's Fund

WHO –World Health Organization

YLS- Youth Lifestyle Survey

CHAPTER 1: INTRODUCTION

1.1 BACKGROUND

Adolescents are defined as young people between the ages of 10 and 19 years of age (WHO, 2016). According to UNICEF, adolescents make up 16 percent of the world's population and sub- Saharan makes up the largest proportion of adolescents in the world with 23 percent of the region's population aged between 10 and 19 years (UNICEF, 2016). In South Africa, adolescents make up 18.5 percent of the total population (Stats SA, 2016). South Africa is plagued by societal problems such as poverty, unemployment, HIV/AIDS, corruption, violent crimes and others. These social ills are even greater amongst adolescents for instance, the national unemployment rate is 27.1% but for the youth it stands at 65.5% ("Stats SA 2016).

Adolescence is marked by considerable existential conflicts as well as exposure and vulnerability to substance abuse (Petit et al, 2013). Adolescents are tomorrow's future and their health is of pivotal importance in South Africa because they grow up to be future leaders and the labour force. Therefore their health is of importance in terms of economic development. It is during adolescence period that adolescents engage in negative lifestyles that usually have impact on their adulthood. Consequently, adolescents are more susceptible to smoking tobacco and marijuana and other drugs, early sexual debut and unprotected sex among other illicit activities (Baldwin, el al., 2013). However, adolescents today die while entering adulthood due to accidents, premature mortality, suicides, violence, preventable and curable diseases and pregnancy related complications (Habibolah, et al 2016, (Shaik, 2014; WHO, 2017)

Risky behaviours usually include; substance use and abuse (drugs, tobacco and alcohol), risky sexual behaviour (unprotected sex, multiple sexual partners), reckless driving, and suicide. Risky behaviours result in adverse negative outcomes (Irwin & Millstein, 1986) and these include; teenage pregnancy, school dropouts, adolescent mortality, and other infectious diseases. Adolescents who engage in one risky behaviour, tend to engage in another risky behaviour (Ali, et al., 2010).

Unsafe/unprotected sex with its consequences is a worldwide problem that affects adults as well as adolescents, as evidenced by adolescent pregnancy, HIV and other STIs (sexually transmitted infections)(Eaton, Flisher, & Aarø, 2003). Globally, 4 million young people ages 15-24 are living with HIV and 29% are adolescents, with South Africa as one of the countries with nearly half adolescents living with HIV (Rehm, 2011;UN, 2015). Young women often form part of the largest proportion living with HIV. .In South Africa, rates of risky sexual behaviours are higher than other countries in the region. A study done in Kwa-Zulu Natal province showed that the 13.1% of men who had sex before the age of 15 were less likely to use condoms and hence were at greater risk of infection than their counterparts that experienced sex for the first time at an older age.

South Africa is regarded as one of the highest per capita volumes of alcohol consumption in the world (Parry, 2005). Studies in South Africa have also shown that substance use is associated with risky sexual behaviours (Morojele et al.,, 2016; Ramsoomar, et al., 2013). Studies conducted globally have shown that alcohol consumption of approximately 6.13 liters of pure alcohol are consumed per annum for each person aged 15 years or older ("WHO 2011). Alcohol is a cause of 3.7% of global mortality and 4.4% of the global burden of disease (Rehm, 2011). Adolescent substance use has a number of adverse consequences and these may include injury, death, school drop outs, declining of grades (Gilaramy, 2000). Drug use and abuse have short-term and long-term consequences, for example tobacco among males is associated with lung cancer esophageal cancer, tuberculosis and other diseases which could cause a strain on the healthcare system of a country (Cooper, 2009).

In Africa, there has been longstanding interest in the research of drinking behaviours among young people. For example in Nigeria, the prevalence rate of alcohol use among adolescents was 14.5 percent (Abdulkarim, et al., 2005). In another study conducted in Zambia and Uganda, the prevalence of current alcohol use was 42.6% and 24.19% respectively (Swahn et al., 2011). However, all these studies paid little attention to the consequences of alcohol use. Prevalence rates in South Africa are relatively high as seen in other African countries in the southern region. In South Africa, a study conducted in Northern Province, concluded that there was a prevalence rate of 39.1% for alcohol consumption among adolescents. In South Africa, rates of substance use among adolescents are high with recent studies reporting that alcohol use ranging between

21.5% and 49.6% for the lifetime use of alcohol and 14.0% to 40.0% for binge-drinking among adolescents in South Africa (Reddy, et al 2008)

Unintentional accidents and injuries cause the largest number of deaths among adolescents aged 10 to 19 years of age (Sleet, Ballesteros, & Borse, 2010) and according to previous research conducted, motor vehicle accidents accounted for 57.9% of unintentional injuries of adolescents aged between 10 and 14 and 72% for adolescents aged 15-19 (Sleet et al., 2010).

1.2 PROBLEM STATEMENT

Risky behaviours among adolescents have been identified as having adverse health outcomes. Behaviours that are adopted during adolescents generally continue into adulthood usually have negative outcomes. Many communicable infections can be avoided through measures such as the use of condoms consistently during sexual intercourse which prevents the contraction and the spread of HIV and other sexual transmitted diseases. Previous research has reported low condom use among adolescents and young people in South Africa.

In South Africa, rates of risky behaviours are high. In KwaZulu Natal, South Africa, study found that the 13.1% of men who had sex before the age of 15 were less likely to use condoms and hence were at greater risk of infection than their counterparts that experienced sex for the first time at an older age (Harrison et al., 2005). South Africa has reported high prevalence rates of substance use among adolescents (Flisher et al., 2006; Onya, et al., 2012). Research reported that alcohol use ranging between 21.5% and 49.6% for the lifetime use of alcohol and 14.0% to 40.0% for binge-drinking among adolescents in South Africa (Reddy, et al 2008). At individual level, drug use has been closely associated with crime, violence, injuries and premature mortality (Lowinson, 2005). Studies have reported the devastating consequences of these behaviours among adolescents.

Risky behaviours have been well documented among adolescents in sub- Saharan Africa. Despite the importance of risky behaviours amongst adolescents and the resulting consequences for adult wellbeing, researchers have paid relatively little attention to the contextual factors of risky behaviours in South Africa, particularly the household and the community level factors.

Therefore this study provides a way of disentangling potential pathways through which the community may shape the behaviours of adolescents. It compliments studies that address community influences but without separating community level effects from individual and household level effect.

Research has examined the individual and household level determinants of risky behaviour among adolescents. In study by Hammer and Banegas (2010:290), stated that male adolescent's sexual debut was the average age of 15, while females started at the average age of 18. In a study conducted by Stephenson of three African countries (Burkina Faso, Ghana and Zambia) results showed that young women living in wealthier communities may observe more opportunities for accruing human capital, providing the motivation for avoidance of early sexual debut (Stephenson, 2009). In a study done in rural South Africa, community factors were associated with substance use among adolescents (Onya, et al., 2012).

Although much is known about the individual and separately studying the household and community characteristics associated with risk taking behaviours among young people. Previous studies on risky behaviours among adolescents have examined young people's risk behavior in sub- Saharan countries using the micro-level approach which focuses on individual characteristics as predictors of behavior. However, there has been little consideration of the potential pathways through which the wider community may shape behavior of risky behaviours in South Africa which is the focus of this research.

1.3 JUSTIFICATION

Adolescents constitute an important population group in South Africa with about 18,67 % of the population being aged between 10-19 in 2015 (Stats SA, 2015). These adolescents are future leaders and the productive backbone of the country therefore their health is of pivotal importance as it is crucial for economic development. There have been studies on adolescents engaging in risky behaviours in South Africa (Brook, et al.,, 2006; Eaton, et al., 2003; Madu, et a., 2003; Morojele et al., 2016; Parry et al., 2004; Taylor, et al., 2003). However, little research has been done on the role of the contextual factors influencing risky behaviours among adolescents in South Africa. Research has found that a range of types of behaviours are influenced by peers and determined by community factors. For instance, in a study of adolescents residing in the United

States, findings suggested that young people's sexual behavior is strongly influenced by a community's opportunity structure (Billy, et al, 1994).

Given that communities have an influence on these types of behaviours it stands to reason that communities should have an influence on risky behaviours too. If community factors contributing to adolescent risky behaviours can be identified then appropriate community-level interventions can be developed to reduce risky behaviours in the country. An example would be involvement in community based programmes in alleviating poverty and unemployment. Therefore this research aims to redress this gap by examining community and household factors on risky behaviours among adolescents in South Africa. This study contributes to policy debates in South Africa that aim to reduce risky behaviours among adolescents. Furthermore this study will add to the literature surrounding risky behaviours among adolescents. It will specifically contribute to the knowledge on the topic of contextual factors associated with risky behaviours.

1.4 RESEARCH QUESTION

What are the contextual determinants of risky behaviours among adolescents in South Africa?

RESEARCH SUB- QUESTIONS

1.4.1What are the levels of risky behaviours among adolescents in South Africa?
1.4.2What are the individual-level demographic and socioeconomic determinants of risky behaviours among adolescents in South Africa?

1.5 RESEARCH AIM AND OBJECTIVES

- The main aim of this study is to determine the contextual determinants of risky behaviours among adolescents in South Africa

The specific objectives of this study are:

1) To quantify the levels of risky behaviour among adolescents in South Africa.

2) To determine the demographic and the socio-economic characteristics of adolescent who engage in risky behaviours in South Africa.

3) To assess the extent to which regional factors account for variations in regional patterns of adolescent risky behaviour in South Africa.

1.6 DEFINITION OF TERMS:

1.6.1 Adolescents:

The World Health Organization defines adolescents as persons between 10 and 19 years of age (WHO, 2016).

1.6.3 Household:

This is defined as a group of people who live under the same roof and typically shared common provision for living essentials (Kertzer, 1991).

1.6.4 Community:

This is defined as a group of households that share a common geographic location (Mac Queen et al., 2001).

1.6.5 Multi-level model:

A multi-level model in this study is used to analyze the relationship between independent and dependent variables at different hierarchies.

1.7 OUTLINE OF THE STUDY

Chapter 1 provided an introduction to the study. Chapter 2 provides the literature reviewed and summarizing previous research on risky behaviours among adolescents. Chapter 2 also provided the theoretical background and conceptual framework. Chapter 3 presents a description of the methodology used in the research process and the stages of the research process. Chapter 4 presents the findings of the study in detail, while Chapter 5 provides an integration of the findings with the theoretical framework and literature reviewed through a discussion. Chapter 6 concludes the study by presenting a summary of the overall research, stating the limitations of the research and by providing recommendations for future research.

CHAPTER 2: LITERATURE REVIEW

2.0 INTRODUCTION

This chapter provides a critical review of literature, the theoretical and the conceptual framework. Different scholars have identified the factors of risky behaviours among adolescents. Previous research has regarded South Africa as having some of the highest rates of risky behaviours in sub-Saharan Africa (Zuma et al.,2010, Nnko, et al., 2004, Eaton, 2002, Baker et al., 2016) However rates of risky behaviours have been decreasing as compared to previous years and this was shown below. The literature review is divided into three sections; level of risky behaviours among adolescents in South Africa, the individual factors of risky behaviours and finally the household and community level determinants of risky behaviours previously researched mainly in South Africa and other sub- Saharan regions.

Risky behaviours are well documented in South Africa, especially risky sexual behaviours. However, there are two main groups of risky behaviours which include substance abuse and sexual behaviours. Risky substance abuse behaviours refer to the use of alcohol, illicit drug and tobacco use. Risky sexual behaviours refer to those behaviours that expose one to HIV/AIDS, STIs and unplanned pregnancies (Eaton et al 2002). These behaviours include having multiple sexual partners and practicing unprotected sex (not using a condom). The consequences of risky sexual behaviour, especially HIV/AIDS, are a major health concern in society and remain a global as well as a local concern (De Lange et al., 2012). Risky sexual behaviors developed during youth often influence sexual behavior in adult life, thus increasing risk of HIV and STIs (Berhan & Berhan, 2015).

2.1 RISKY SEXUAL BEHAVIOURS

Condoms remain the most effective barrier against HIV, pregnancies and other sexually transmitted infections (STIs) in sexually active young adults. Most South African youths know that condoms prevent HIV, STIs and unwanted pregnancies (James, et al., 2004). Despite the knowledge, many South African youth don’t use condoms regularly. Adolescents and young people are hesitant about using condoms despite their knowledge due to threats of relationships and societal norms (Bhattacharya, 2004).

South Africa also reports high rates of teenage pregnancy, according to a report of the General household survey by Stats SA, (2015) it is reported that more than 99 000 schoolgirls fell pregnant in 2013, however this number has shown to decrease whereby in 2016 it was reported that 8,732 school pregnancies (Stats SA, 2016). The statistics above show that the adolescents in South Africa are continuing engaging in unprotected sex regardless of the outcomes. Studies found that young people who communicate more in a relationship were more likely to use condoms during their most recent sexual intercourse (Hendriksen, et al., 2007). Some studies in South Africa have found that condom use in associated with factors such as age, education and race (Morroni, et al, 2003). It has been reported that early sexual debut is associated with risky behaviours later in life (Zuma et al., 2010), while adolescents who started having sex at younger ages were less likely to use a condom (Zuma et al., 2010). In terms of sex, males were more likely to use condoms as seen in previous research (Zuma et al., 2010).

Multiple sexual partnerships in this study is regarded as having two or more concurrent relationships over the same period of time. Multiple sexual partnerships among adolescents have been associated with high sexual behaviour, because they are believed to be one of the main drivers of the transmission of HIV epidemic in sub-Saharan Africa (Tanser et al., 2011). The key predictors of multiple sexual partners identified in the literature include; gender, race and place of residence, education and younger age (Uchudi, et al, 2012; Zuma et al., 2010).

Research in South Africa has shown that 12.6% of males and 4.8% males reported having two or more sexual partners in a survey of South African youths (Nnko, et al., 2004). In terms of gender, males were likely to report having multiple sexual partners (Zuma et al., 2010). In this regard, males are more vulnerable to HIV through multiple partnerships. Multiple sexual partnerships was also reported by Eaton et al (2003), found that between 10% and 30% of sexually active young people have more than one sexual partner at a time, with more men than women engaging in concurrent multiple partnering. In terms of race, reported multiple sexual partners was significantly higher among Africans, followed by Coloured, as compared to Whites and Asians/Indians (Zuma et al., 2010). Finally, the same study reported that young people living in formal urban areas rather than rural areas.

2.2 SUBSTANCE USE

Alcohol represents a major public health challenge in South Africa. Adolescent substance use has a number of consequences on the health and wellbeing of individuals, including the risk of injury, death form factors such as violence, motor vehicle accidents, and suicidal behaviours and drowning (Miller, et al, 2001). There have been several studies that have documented prevalence rates of alcohol and drug consumption among adolescents in South Africa. Parry et al. (2004) found that cannabis was the most common primary drug of abuse of adolescents in substance and alcohol was the second most frequently reported primary substance of abuse among adolescent patients in Durban. Emerging evidence (Alwan, 2010) reported that harmful use of alcohol contributes to the health burden caused by communicable diseases such as tuberculosis and HIV/AIDS. A number of scholars in the field of epidemiology and social sciences have observed a correlation between sexual risky behaviours and substance risk behaviours among adolescents. Scholars suggest that alcohol use is associated with the sexual behaviours that put people at risk for HIV and STIs (Cook and Clark, 2005).

2. 3 OTHER BEHAVIOURS

Carrying weapons among adolescents has become a growing concern in South Africa, due to the high levels of crime in the country. Adolescents are vulnerable to violence; therefore carrying weapons is a risky behaviour that needs attention. Some of the consequences of carrying weapons among adolescents include; physical fights, committing suicide and homicides (Killias & Haas, 2002). Carrying guns has been a research focus in the US pointing out that carrying a weapon was for self-defense and that it reduced crime victimization levels (Kleck & Gertz, 1995).

South Africa has high levels of crime and citizens arm themselves for protection. Despite this, very little is known regarding carrying weapons among adolescents. Most of the existing studies have been done by the South African Risk Behavior Survey 2002 and 2008 which is a national survey that provided provincial and nationally representative data which assessed how risky behaviours change over time among the youth of South Africa. The National Risk Behaviour survey in 2002 found that carrying weapons either a gun, knife or ‘panga’ (machete) had the prevalence rate of 16.7% nationally, with 28.2% and 7.6% for males and females respectively

admitting to have carried a knife in the past month. In the second survey (2008), the Western Cape Province had the highest prevalence of carrying weapons with 35. 2% and 9.1% for males and females respectively (Reddy et al., 2013). Most of the research conducted in South Africa regarding carrying weapons was conducted in Cape Town in the Western Cape as this province reports the highest levels of crime and violence (Baker et al., 2016). A study conducted in Manenburg, Cape Town and Durban found that carrying weapons was more prevalent among males at 17% as compared to 1.6% for females who carried a gun (Legget, 2005). Beyond, the studies above, carrying weapons was more prevalent among males than females.

Road accidents have been reported to be a major contribution to adolescent mortality, after HIV/AIDS and other infectious diseases (Ohene, Tettey, & Kumoji, 2010). Traffic accidents and drunk driving has become a global concern for the young population. Previous research identified that a key factor associated with drunk driving was binge (alcohol use) (Evans-Whipp et al., 2013). In terms of risky driving among adolescents, males were more likely to engage in risky driving behaviours (Bachoo, 2010). The same study concluded that the personal attitudes of the driver significantly predict the extent to which they engage in this behaviour (Bachoo, 2010).

2. 4 DETERMINANTS OF RISKY BEHAVIOURS IN SUB-SAHARAN AFRICA

Studies on individual and household determinants of risky behaviours have identified demographic and socio-demographic factors associated with risky behaviours. For example, gender and education were significant for substance use in a Nigerian hospital (Okpataku, et al., 2014). Birhanu et al (2014) conducted a study among adolescents in Ethiopia and found that gender, mother's education and religion were associated with substance use. However, in the same country, another study found that being female was not associated with substance use among adolescents in the Northern part of Ethiopia (Birhanu, 2014). While in Sudan, sex was reported as a main predictor of substance use, the study found that male adolescents were more likely to use alcohol and tobacco (Osman et al., 2016). In Zimbabwe, it was reported that illicit drug use was associated with male adolescents, alcohol use, sexual activity and parental supervision (Rudatsikira, et al, 2009). Demographic factors such as age, place of residence, education help shape health seeking behaviours among adolescents. With regards to risky sexual

behaviours in Uganda, factors associated with sexual behaviours among students included; school (whether school was mixed or single sex), if parents were alive and whether or not parents approved of premarital sex (Musiime & Mugisha, 2015). Extensive research has been done regarding the factors associated with risky behaviours. In South Africa, demographic and socio-economic factors at individual level have been found to be associated with risky behaviours among adolescents. In Cape Town, education was associated with HIV risk factors, in that those with fewer years of education (Simbayi et al., 2005). While in North West, research found that gender, age and school was highly associated with risky sexual behaviours among adolescents.

2.5 HOUSEHOLD AND COMMUNITY LEVEL DETERMINANTS IN SUB-SAHARAN AFRICA

Studies on the importance of household factors associated with risky behaviours have been identified in previous research in Africa. In terms of living arrangements, a study on adolescents in Nigeria reported that adolescents not living with both parents and from poor family backgrounds were associated with risky sexual behaviours (Udigwe et al., 2014). Single headed households were associated with ever sexual activity among adolescents high school students in Nigeria (Nnebue, et al, 2015). In Kenya, living arrangements were also associated with risky behaviours among adolescents. In the study adolescents living with both parents had significantly lower odds of sexual activity compared to those living with other relatives or friends (Kabiru & Orpinas, 2009).

In Nigeria, Odimegwu, et al (2002), found that adolescents whose parents were not poor had lower chances of premarital sex than adolescents whose parents had middle to high income. In contrast, research conducted in three African countries (Burkina Faso, Ghana and Zambia) found that community demographic factors were not associated with risky sexual behaviours among young people, but were influential in shaping behaviour among young people (Stephenson, 2009). Research conducted in 26 sub-Sharan Africa, found that contextual level factors that were associated with risky sexual behaviours included; ethnic diversity, urban residence and small household size.

Study in Ethiopia found that living arrangements was one of the major predictors of high sexual behaviour, in that living away from parents increased the risk of engaging in risky behaviours (Fentahun & Mamo, 2014).

2.6 HOUSEHOLD AND COMMUNITY DETERMINANTS IN SOUTH AFRICA

Adolescents begin to interact with the school, other peers and begin to have influences on them and their behaviours as well. According to Cooper and Guthrie (2007:30), the Ecological model approach to understanding adolescent health behaviour emphasizes that development in adolescence is influenced by factors such as the family, peers and the community characteristics. A study done by Dinkelman, et al (2007) reported the household level factors associated with risky sexual behaviours among adolescents in South Africa. In the same study young women in households with higher incomes were less likely to engage in sexual activities, while young men from poverty stricken households were less likely to use condoms during sex (Dinkelman et, al. 2007).

Using the Cape Area Panel Survey (CAPS) in Cape Town, South Africa, community level of poverty was closely associated with sexual risk behaviours among young people (Tenkorang, et al, 2011). Also in Cape Town, a different study reported that males in communities with a 10% higher poverty were less likely to report condom use at last sex (Dinkelman et al., 2007). However the same study concluded that there was little association with between negative economic shocks and household and community poverty and risky behaviour (Dinkelman et al., 2007).

Several studies have been done on the relationship between household level factors affecting adolescent risky sexual behaviours. In a study done in rural South Africa, it identified the community level factors associated with substance use among adolescents. Their findings were degree of antisocial adult behavior within the community, adolescents' perceptions that their neighborhood is run-down and unsafe, and community affirmation of adolescents (Onya, et al., 2012). These findings showed that the "community" is an important influence on adolescent health behaviors in African communities.

Considering these previous studies conducted on risky behaviours and the contextual factors, the aim of this study is to investigate the contextual determinants of risky behaviours among

adolescents in South Africa. Adolescents are not brought up in isolation but in households and communities where they are socialized and influenced, therefore it is important that household and community characteristics be analyzed to properly inform policy makers on appropriate interventions to reduce risky behaviours among adolescent.

2.7 THEORETICAL FRAMEWORK

Risky behaviours involve complex interactions between the individual, family and the community factors. In order to understand risky behaviours, it requires a framework not only focused of the individual, but the household and the community –level factors (Salazar et al., 2010). Many theories have focused on the individual. These include the health belief model (Skinner, Tiro, & Champion, 2015) and the theory of planned behavior (Montano & Kasprzyk, 2015). However the focus of this study is to understand the contextual factors related to risky behaviours.

It has become clear that more and more scholars are interested in gaining a more thorough understanding of these issues requiring an examination of the interrelated contextual risk factors influencing adolescent sexual behavior(Salazar et al., 2010). The framework comprises multiple levels of influence which include; the individual level, followed by the interpersonal the neighborhood (household) or community level, and finally the societal level (Bronfenbrenner, 1986). Various researchers have used the ecological model in explaining risky sexual behaviours (Cho, 2016; L'Engle, et al., 2006; Ng et al., 2015; Small & Luster, 1994; Voisin, et al., 2006). Other researchers have used the ecological model in explaining substance use among adolescents (Paschall, et al., 2014; Scull, et al., 2014; Zimmerman & Farrell, 2017). The basic premises of the ecological model are that health, behaviour and their determinants are interrelated (Salazar et al., 2010).

The ecological model shows different stages and levels of determinants of health outcomes (Salazar et al., 2010). The first circle is the individual level factors that are biological and personal history factors. The second circle is the interpersonal relationship level influences which are the factors that increase the risk as a result of associations with peers, partners and family members. The third circle are the community level influences are factors that increase risk based on community and social environments in which an individual has experiences and

relationships such as schools and the neighborhood. The fourth circle is the societal level influences that are macro- level factors that influence adolescent maltreatment such as religious or cultural affiliations, societal norms and economic or social policies that create or sustain gaps and tensions between groups of people (Salazar et al., 2010).

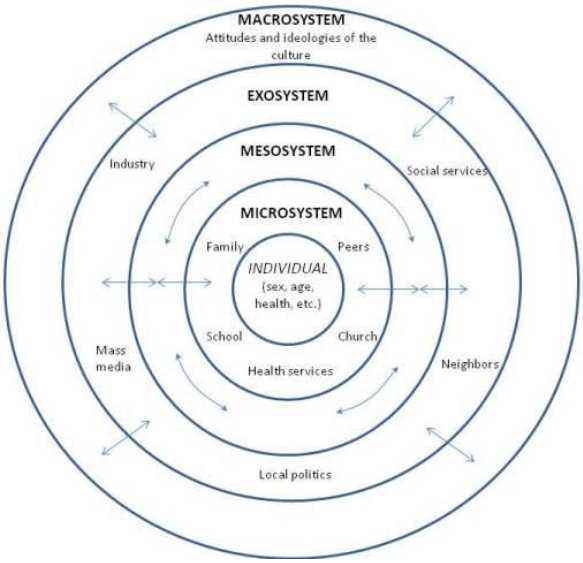


Figure 2.7.1 Bronfenbrenner's Ecological Theory of Development

2.8 CONCEPTUAL FRAMEWORK

The ecological model has been adapted to describe the contextual factors that contribute to risky behaviours among adolescents. The model has been adapted and modified in this study. This study used three levels of the ecological model. The first level is the community where adolescents reside in. The second level is the household level. Lastly, individual level factors are considered. The distant determinants in this study were the individual factors (which include: age, race, gender, education), the household factors (which include; household size, living arrangements and number of income earners) and the community factors (which include: province, community poverty, community employment and community ethnic diversity).

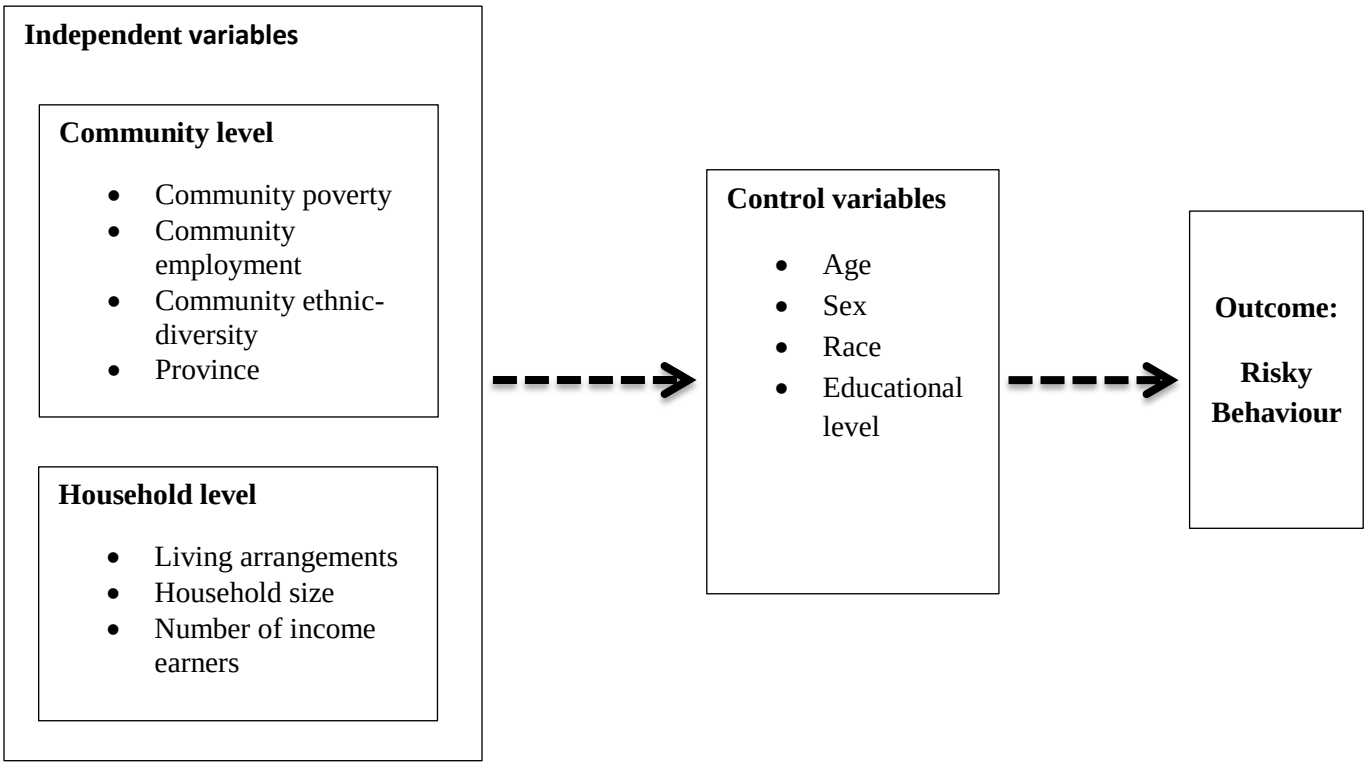


Figure 2.8.1: Conceptual framework for the contextual determinants of risky behaviours among adolescents in South Africa adapted from (Salazar et al., 2010) and (Bronfenbrenner, 1986) frameworks.

CHAPTER THREE: METHODOLOGY

3.1 INTRODUCTION

This chapter discusses the description of the study area, data source, study design, study population, ethical considerations, the variables used for analysis and a detailed description of the analysis plan used to achieve each of the objectives of the study.

3.2 STUDY AREA

The study area is South Africa. South Africa is situated at the southern tip of Africa. Its neighboring countries include Namibia, Botswana, Zimbabwe, Mozambique and Swaziland. The population of South Africa was 55, 9 million people by the end of June in 2016 (Stats SA, 2016).

South Africa has one of the strongest economies in sub-Saharan Africa. In 1994 South Africa's apartheid regime was disbanded making was for a new era of political freedom that was viewed as the foundation for economic growth, racial equality and employment (Bhorat, Hirsch, Kanbur, & Ncube, 2014).

Over the past 20 years, South Africa has been one of the fastest growing economies in the sub Saharan region due to some microeconomic policies that have been implemented since the end of the apartheid regime (Turok, 2012). The country is doing well in achieving its development goals. South Africa has progressed in the improvement of quality education and achieving primary education. Significant progress has been made on equal opportunities for men and women for example the access of employment. Achievements have been made in creating a healthy life for all South Africans, through the access of free health-care from clinics and hospitals.

However, poverty is rife in South Africa. The unemployment rate of South Africa currently sits at 25% according to the (Stats SA, 2015). South Africa's economic gains are unfortunately being lost to the HIV/AIDS pandemic. The country has one of the highest HIV prevalence rates in the world at 11.2% in 2015 (Stats SA, 2015), as a consequence of unsafe and unprotected sexual practices. The HIV pandemic is one of the major factors which have pulled South Africa backwards in terms of achieving its development goals which are devoted to health and

education. Unemployment and poverty remain the key challenges for the country, especially for the black youth. Despite the challenges faced by the population of South Africa, youths in the country face similar challenges. South Africa has one of the highest levels of youth unemployment in the sub Saharan region (Stats SA, 2016). The youth unemployment rate in South Africa is 49.9% excluding discouraged workers (Stats SA, 2015). HIV/AIDS is a social issue in South Africa that cuts across race, class and gender and is mainly affecting the youths of South Africa. The HIV prevalence of youths was 5.59% in 2015(Stats SA, 2015). Given all these challenges facing young people since the end of the apartheid regime, South Africa is an interesting area to study the contextual factors of risky behaviours of adolescents.

Figure 3.2.1 The Political Map of South Africa showing names of capital cities, towns & provinces



Source: (http://www.emapsworld.com/south-africa-provinces-map-black-and-white.html)

3.3 DATA SOURCE

This study used data from the 2008 South African Youth Lifestyle Survey (YLS). The study involved 4391 young people aged between 12 and 22 years recruited in the whole country (Leoschut, 2009). The study was conducted by an independent research and training organization based in Cape Town, Centre for Justice and Crime Prevention (CJCP) (Leoschut, 2009). The 2008 South African (YLS) provided information on the exposure of children and

youth to violence, their personal experiences of crime and risky behaviours that South African youth commonly engage in (Leoschut, 2009). The sample frame for the survey was provided by Stats SA 2001 data and the sample was stratified by province and race (Leoschut, 2009). A sample of 550 enumerator areas (EAs) were randomly selected, with eight households identified to be interviewed in each EA (Leoschut, 2009). The final data was weighted by province, race and gender using the marginal totals drawn from the 2001 Census (Leoschut, 2009).

3.4 STUDY DESIGN

This study made use of analytical cross-sectional study, the 2008 South African Youth Lifestyle Survey (YLS).

3.5 STUDY POPULATION

The study population was male and female adolescents in the (12-19) aged group in South Africa. The analytical sample for this study was 3336 South African adolescents and excluded those aged above 19 years. The sample for the South African YLS is nationally representative and the sample covers adolescents from all nine provinces of South Africa.

3.6. DEPENDENT VARIABLE

The main outcome variable analyzed was risky behaviour. A risky behaviour index was created based on engagement in at least one of the behaviours relating to sexual activity, substance use and other behaviours. The index variable was generated grouping variables which were then grouped into mainly three types of behaviours; sexual behaviours, substance behaviours and other behaviours. The sexual behaviours category included; ever had condom use at last sex and multiple sexual partners. The substance behaviours category included; alcohol, tobacco and drug use. Finally other behaviours included; carrying weapons, drunk driving, and passenger with driver under the influence as shown in table 3.6.1. In total seven variables were combined to make up the outcome variable risky behaviours.

The variables were then categorized and recoded as ‘1” (Yes) and “0” (No) and the expected outcome was “Yes” except for condom use at last sexual encounter which was “No”. For this study, binary coding was used for risky behaviour index. No engagement in risky behaviour was

coded (0) and engagement in at least one of these behaviours was coded (1) and this is depicted in table 3.6.1

Table 3.6.1: Dependent variable: definition and coding.

Variables	Definition	Measurement	Coding
Risky behavior	Whether adolescent engaged in any of the three categories of behaviors sexual, substance or other.	(1) Sexual- (condom use & multiple sexual partners) (2) Substance behavior (drugs, tobacco &alcohol) (3) Other (reckless driving and carrying weapons)	(0) No (1) Yes

3.7 INDEPENDENT VARIABLES

The explanatory variables in this study included variables at the individual, household level and community level. The individual, household and community variables were selected based on the relevance of the study guided by the conceptual framework through the relevance of the literature on the research topic

3.7.1 INDIVIDUAL- LEVEL VARIABLES (CONTROL VARIABLES)

The individual-level variables used in this study included; age, race, gender and educational level The background individual level characteristics were chosen based on relevance to this study relating to risky behaviours among adolescents.

The variable ‘Age’ was recoded and grouped into three categories as those aged between 12-14, 15-17 and 18-19. The variable ‘Race’ remained coded ‘1’ for White, ‘2’ African, ‘3’ Asian/ Indian, ‘4’ Coloured. The variable ‘Sex’ of the responded remained coded as ‘1’ Male and ‘2’ Female. Education level variable was recoded and ‘1’ represents ‘None- grade 8’ and ‘2’ ‘Grade 9-12’.

Table 3.7.1.1: Individual-level variables: definition and coding.

Variables	Definition	Coding
Age	Age in years of respondent	(1) 12-14 (2) 15-`17 (3) 18-19
Race	Racial group of respondent	(1) White (2) African (3) Asian/Indian (4) Coloured
Gender	Sex of respondent	(1) Male (2) Female
Education level	Highest school grade attained by respondent	(1) None- grade 8 (2) Grade 9-12

3.7.2 HOUSEHOLD-LEVEL VARIABLES

The household-level variables used in this study included; living arrangement, household size and household income size. The household level characteristics were reported by the respondents in this survey; and were selected based on the relevance of this study. Education level variable was recoded and '1' represents 'None', '2' 'Primary' and '3' 'Secondary'. 'Living arrangement' variable was recoded and categorized into (1) 'Both parents', (2) 'Mother only', (3) 'Father only', (4) 'Grandparents' and (5) 'other relatives'. 'Household size' variable was recoded and categorized to (1) one-four, (2) five to six (3) seven + (plus). 'Number of household earners' variable was recoded and categorized to (1) 'none', (2) 'one ', (3) "two and above.

Table 3.7.2.1: Household-level variables: definition and coding.

Variables	Definition	Coding
Living arrangements	Living arrangement of respondent	(1) Both parents (2) Mother only (3) Father only (4) Grand-parents (5) Other relatives
Household size	Number of household members	(1) One - four (2) Five-six (3) Seven +
Number of income earners	number of household members with permanent/ stable source of income	(1) None (2) One (3) Two or more

3.7.3 COMMUNITY-LEVEL VARIABLES

The community-level variables used in this study were; province, community-level of poverty, community-level of ethnic diversity and community-level of employment. The community-level characteristics represent individual responses that would be aggregated by community for the purpose of the multi-level modelling techniques. With the use of STATA 14 software, the community-level characteristics were aggregated using primary sampling unit.

Province remained coded as the nine provinces of South Africa. In this study, community level of employment was generated using the variable 'Number of income earners' in the household and the question was then recoded to a binary variable either employed or unemployed. Community level of ethnic diversity is a new variable in this study and it was generated though creating a dummy variable then creating proportions for the enumeration areas using the variable race and later creating an index for community level of ethnic diversity. Ethnic diversity index in this study was created using the below formula that captures both the different racial groups in an area and the relative presentation of each group (Simpson, 1949).

Ethnic diversity index = $1-\sum_{i=1}^{n} \frac{x_i}{y}$

Where:

x_i= population of ethnic group I of the area,

y= total population of the area, and

n= number of ethnic groups in the area (Simpson, 1949)

Community level of poverty was generated by recoding two questions that were pertaining to poverty; "Does anyone in the household receive any form of government grant?" and "Would you say that you always have enough to eat in the house?" both questions had a binary response (Yes or No). The aggregation was done using STATA software version 14 by generating the mean, then creating variables containing percentile and finally dividing them into three quantile (low, medium and high).

Table 3.7.3.1: Community-level variables: definition and coding.

Variables	Definition	Coding
Province	All nine official provinces of residence in South Africa.	(1) Gauteng (2) Limpopo (3) Free State (4) Mpumalanga (5) North West (6) Eastern Cape (7) Northern Cape (8) KwaZulu Natal (9) Western Cape
Community-level of ethnic diversity	Proportion of respondents from diversified communities	(1) Low (2) Medium (3) High
Community-level of employment	Proportion of employment in the communities	(1) Low (2) Medium (3) High

3.8 ANALYSIS PLAN

To be able to address the research question in the study, each of the research objectives was addressed.

3.8.1 FIRST OBJECTIVE: To quantify the levels of risky behaviour among adolescents in South Africa.

In order to address the first objective, descriptive statistics and chi-square test was carried out. Levels of risky behaviours among adolescents were displayed using graphs and tables.

To achieve rates of adolescent risky behaviours, a rate of risky behaviours was generated using the following equation:

(Specific risky behaviour/ Total adolescent population) x 1000

The proportion of adolescents engaging in risky behaviours was calculated using the following formula:

(Specific risky behaviour/ engaging in at least one of risky behaviours) x100

These rates of proportions were generated by sex and grouped between the younger (12- 15 years old) and older (16-19 years old).

In order to investigate whether there is association between the independent and the dependent variables, the statistical technique used was chi-square test. Thus, the existence of association between row and column variables within the contingency tables was investigated.
The chi-square equation is:

$\chi 2 = \Sigma$ (o-e) 2/e.

Where; $\chi 2$ is chi-square, Σ is summation, o is observed and e is expected (Satorra & Bentler, 2001).

3.8.2 SECOND OBJECTIVE: To determine the demographic and the socio-economic characteristics of adolescent who engage in risky behaviours in South Africa.

In order to achieve this objective, multi-level analysis was carried. A multivariate logistic regression was done to establish a relationship between each demographic and socioeconomic variable and the risky behaviour outcomes.

3.8.3 THIRD OBJECTIVE: To assess the extent to which regional factors account for variations in regional patterns of adolescent risky behaviour in South Africa.

In order to meet the third objective, to determine the individual/household and community characteristics and adolescent risky behaviours, a multivariate multi-level analysis was carried out to address this objective. The outcome variable used in this study is binary, that is a 'yes' or 'no' response for the dependent variable. Therefore a two-level multilevel logistic regression model will be applied.

The equation for the two-level model for binary outcome is:

$Log\ [pij/\ (1\text{-}pij)] = \beta 0 + \beta 1xij + uj$ *(combined model)*

Where: uj is the random effect at level two. Conditional on uj, yijs were assumed to be independent (Guo & Zhao, 2000).

Odds ratios (or) produced in the results was expressed at 95% confidence interval. While the random effects, were expressed as odd ratios (ORs) and 95% confidence intervals (95% CIs),were used to model associations; random effects (uj) are useful in modelling in risky behaviours across communities. Random effects in the multilevel model were expressed in intra-class correlation (ICC) also known as variance partition coefficient (Merlo, 2005).

Five models with different combinations of the individual, household and community variables were produced to clearly show the variations. They include:

Model 1 which is an empty or null model. The purpose of this model was mainly to decompose the total variance into the micro (measured by household number) and macro-level components (measured by enumeration number).

Model 2 which considers each of the explanatory variables at the individual-level and the outcome of the risk of adolescent risky behaviour.

Model 3 that considers each of the explanatory variables at household level and the outcome of the risk of adolescent risky behaviour.

Model 4 which considers each of the explanatory variables at community level and the outcome of the risk of adolescent risk behaviour.

Model 5 which considers the incorporation of all the independent variables, - individual, household and community variables and the outcome of adolescent risky behaviour. This model shows the extent to which household and community level characteristics accounted for regional variations.

In each model, a stepwise regression analysis was done to identify the key variables which were significantly associated with risky behaviour among adolescents. In total five models were fitted for risky behaviour.

3.9 ETHICS

This study was solely quantitative and a secondary data was used. The South African NYLS data was completely anonymous and it also protects the identity of all the respondents. Where children below the age of 16 were interviewed, prior informed and written consent was obtained from parents or the primary caregiver. Only female enumerators were allowed to conduct interviews with female respondents given the sensitive nature of some of the survey items, while male respondents could be interviewed by both male and female interviewers (Leoschut, 2009).

CHAPTER FOUR: RESULTS

4.1 INTRODUCTION

In understanding risky behaviours, it was important to consider demographic and contextual factors of an environment and their contributions to risky behaviours among adolescents. This chapter therefore gives the background statistics of the distribution of risky behaviours among adolescents in South Africa, the rates of risky behaviour by selected demographic and contextual characteristics, as well as results showing the multilevel binary logistic regression with the independent variables at individual, household and community levels.

4.2 LEVELS OF RISKY BEHAVIOURS AMONG ADOLESCENTS IN SOUTH AFRICA.

The first objective was to identify the levels of risky behaviours among adolescents in South Africa, descriptive statistics were produced and chi-square test (bivariate results) was carried out.

Table 4.2.1 Percentage distribution of background individual- level characteristics of South African adolescents aged 12-19.

Variables	Frequency (N)	Percentage (%)
Age		
12-14	676	20.26
15-17	1,671	50.09
18-19	989	29.65
Total	3,336	100
Race		
White	379	11.36
African	2,285	68.5
Asian/Indian	186	5.58
Coloured	486	14.57
Total	3,336	100
Gender		
Male	1,870	56.06
Female	1,466	43.94
Total	3336	100
Education		
Grade 8 or less	1,055	31.94
Grade 9 to 12	2,248	68.06

Missing	33	0.99
Total	3,336	100

The adolescents' background characteristics are shown in the above table 4.2.3. Adolescents aged 12-14 were of about 20.26%, those aged 15-17 were of about 50.09% and those aged 18-19 were about of 29.65. About 56.06% of them were males and females were about 43.94%. Adolescents who are racially White were 11.36% whilst Africans were the largest group with about 68.50%, and Asian/Indian were the smallest group with about 5.58% and Coloured were about 14.47% of entire population of adolescents. Distribution of adolescents in grade 8 or less were approximately 31.94%, adolescents with grade 9 to 12 were the highest with approximately 68.06%.

Table 4.2.2 Frequency and percent distribution of risky behaviour among South African adolescents aged 12-19

Dependent variable- Risky behaviour	**Frequency (N)**	**Percentage (%)**
Sexual behaviour		
Condom use at last sex		
Yes	700	20.98
No	234	7.01
Non sexually active	2402	72.01
Total	3336	100
Multiple sexual partners		
one sexual partner	620	18.59
two or more sexual partners	158	4.74
Non sexually active	2403	72.01
missing	155	4.66
Total	3336	100
Substance Use		
Alcohol use		
No	2,257	65.83
Yes	1,077	34.14
missing	2	0.03
Total	3336	100
Tobacco use		
No	2638	79.08
Yes	696	20.86
Missing	2	
Total	3336	100

Drug Use		
No	3129	93.79
Yes	206	6.81
Missing	1	0.03
Total	3336	100
Other behaviour		
Passenger with driver under the influence		
No	2,380	71.34
Yes	949	28.45
Missing	7	0.21
Total	3336	100
Driving under the influence of alcohol		
No	3,232	97.09
Yes	97	2.91
Missing	7	0.21
Total	3336	100
Carrying weapons		
No	3133	93.91
Yes	201	6.02
Missing	2	0.06
Total	3336	100

Table 4.2.1 presented the levels of risky behaviour of South African adolescents. 27.98% of the adolescents indicated that they were sexually active at the time of the survey. In terms of condom use, 33.37% adolescents reported non-use of condom at last time they had sex. 4.74% of adolescents reported having two or more sexual partners. The most common and highest sexual behaviour according to table 4.1 was lack of condom use at last sexual encounter.

Table 4.2.1also shows that 34.14% of all the adolescents surveyed used alcohol before while 20.86% reported having used tobacco and 6.81% have ever used drugs (at the time of the survey). The largest proportion of the adolescents used alcohol in their lifetime (34.14%) out of all other forms of substance use. As shown in table 4.2.1, in terms of other behaviours; about 28.45 of all adolescents were a passenger in a car with a driver who was under the influence; while only about 2.91% have driven under the influence of alcohol of all adolescents surveyed. Being a passenger with a driver under the influence was reported as the highest other behaviour in the survey**.** Lastly 6.02% ever used weapons out of the entire sample.

Figure 4.2.2 Rates of specific risky behaviour per 1000 adolescents in South Africa

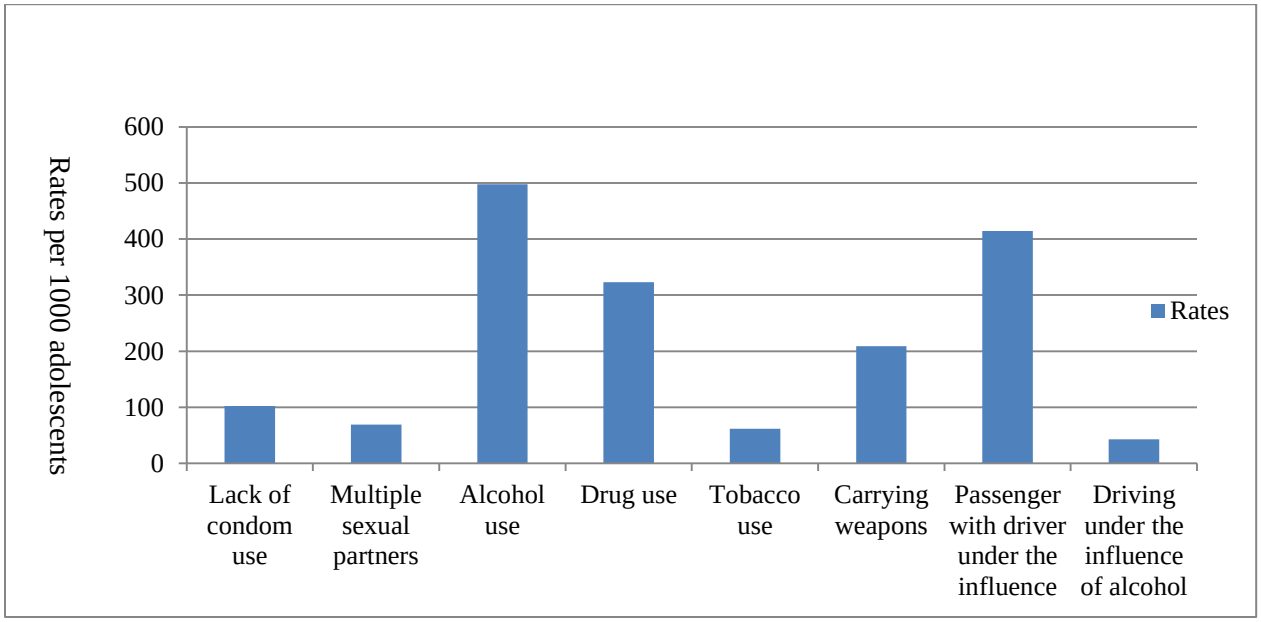


Figure 4.2.2presents the rates of specific risky behaviour per 1000 adolescents in South Africa. The rate of lack of condom use at last sexual intercourse was 102 per 1000 adolescents. The highest rate was alcohol use among adolescents with a rate of 497 per 1000 adolescents. The third lowest rate was multiple sexual partners with 69 adolescents per 1000 adolescents. Adolescents, who ever used tobacco, had a rate of 209 per 1000 adolescents; while drug use had a rate of 322 per 1000 adolescents. Also depicted in Figure 4.2.2, driving under the influence of alcohol was the second highest rate and had a rate of 42 per 1000 adolescents engaging in risky behaviours. While, adolescents being a passenger with driver under the influence had a rate of 414 per 1000 adolescents. Finally, adolescents carrying weapons had a rate of 60.25 per 1000 adolescents.

Table 4.2.3 Percentage distribution of household- level characteristics of South African adolescents aged 12-19.

Variables	Frequency (N)	Percentage (%)
Living arrangements		
Both parents	1,623	48.74
Mother only	868	26.07
Father only	89	2.67
Grandparents	381	11.44
Other relatives	369	11.08
Missing	6	0.18
Total	3,330	100
Household size		
One-four	1,342	40.23
four-five	1,225	36.72
seven+	769	23.05
Total	3336	100
No. of income earners		
None	688	20.62
One	1,386	41.55
Two or more	1,250	37.47
Total	12	0.36

Characteristics at household level were living arrangements, household size, and the number of income earners in each household shown in table 4.2.4. With regards to living arrangements, about half of the adolescents were living with both parents (48.74%). Those living with mother only were approximately 26.07% whilst those living with father only were the lowest with about 2.67%. Adolescents living with grandparents were of about 11.44% and those living with other relatives were about 11.08%. Considering household size, adolescents from household with one to four individuals were the largest group with about 40.23%, those in household with four to five individuals were approximately 36.72% and those from household with seven or more individuals were approximately 23.05%. With regards to number of income earners, 20.62% of adolescents were living in households with no income earners, while about 41.55% were living in a household with one individual receiving an income and 37.47% of those were in a household with two or more individuals receiving an income.

Table 4.2.4 Percentage distribution of community- level characteristics of South African adolescents aged 12-19.

Variables	Frequency (N)	Percentage (%)
Community poverty		
low	1,157	34.68
medium	1,125	33.72
high	1,054	31.59
Total	3,336	100
Community ethnic diversity		
low	2,208	66.19
middle	28	0.84
high	1,100	32.97
Total	3,336	100
Community employment		
low	1,441	43.2
medium	983	29.47
high	912	27.34
Total	3,336	100
Province		
Gauteng	572	17.15
Limpopo	320	9.59
Free State	299	8.96
Mpumalanga	249	7.46
North West	312	9.35
Eastern Cape	414	12.41
Northern Cape	189	5.67
KwaZulu Natal	537	16.1
Western Cape	444	13.31
Total	3336	100

At community level, characteristics of interest were community poverty, ethnic diversity and employment. Percentage distribution of the sampled adolescents by community level is shown in table 4.2.5above. Considering community poverty index, about 34.68% adolescents were residing in communities with low concentration of poor households; approximately 33.72% of adolescents were residing in communities with medium concentration of poor households and about 31.59% of those were residing in communities with high levels of poor households. With regards to ethnic diversity, about 66.19% of the adolescents were residing in low heterogeneous,

while 31.59 adolescents were residing in highly heterogeneous and about 0.84% adolescents were residing in homogeneous communities. Table 4.2.5shows that about 43.2% of adolescents reside in communities with low employment and this is the largest fraction, those residing in communities with medium levels of employment were about 29.47% and about 27.34% of those were residing in communities with high levels of employment. In terms of residence, Gauteng has the largest percentage with 17.15% adolescents residing there. The second largest province was the Western Cape with 3.31% of the overall adolescents residing there. The province with the least percentage of adolescents is Mpumalanga with 7.46% of the overall population of adolescents.

4.3 RELATIONSHIP BETWEEN RISKY BEHAVIOURS AND INDIVIDUAL, HOUSEHOLD AND COMMUMILY LEVEL CHARACTERISTICS

Table 4.3.1 The relationship between risky behaviours and individual level characteristics behaviour among South African adolescents.

	Risky Behaviours				
Background variables	**None**		**At least one**		**p-values**
Age	(N)	(%)	(N)	(%)	
12-14	46	6.8	630	93.2	0.000
15-17	281	16.82	1,390	83.18	
18-19	287	29.02	702	70.98	
Race					
White	106	27.97	273	72.03	
African	314	13.74	1,971	86.26	0.000
Asian/Indian	32	17.2	154	82.8	
Coloured	162	33.33	324	66.67	
Gender					
Male	384	20.53	1,486	79.47	0.000
Female	230	15.69	1,236	84.31	
Education					
None- grade 8	95	9	960	91	0.000
Grade 9 - 12	513	22.82	1,735	77.18	

The results from the Chi-square analysis showed in table 4.4 shows the relationship between risky behaviors and background variables of adolescents in South Africa. Age, race, gender, education, and residence are significantly associated with risky behaviour.

With regards to the relationship between age and risky behaviours as shown in table 4.3.1, the results indicated that as age increases the percentage of risky behaviour increases significantly ($p<0.05$). Race showed a statistical significant association for risky behaviour ($p<0.05$) and so did gender too show a statistical significant relationship with risky behaviour. Higher proportions of females were likely to engage in risky behaviour than their counterparts, at 79.47% for males and 84.31% for females.

Taking into consideration adolescent's education, it showed a statistical significant relationship with risky behaviour ($p<0.05$). As education level increases the proportion of risky behaviour decreases. In terms of education, those with grade 9-12 education had the lowest proportion of risky behaviour.

Place of residence showed a statistical significant relationship with risky behaviour ($p<0.05$). Adolescents residing in rural areas accounted for the highest percentage of engaging in risky behaviour.

Table 4.3.2 The relationship between risky behaviour and household- level, characteristics among South African adolescents.

Risky behaviour					
Household variables	**None**		**At least one**		**p-values**
Household-level variables	(N)	(%)	(N)	(%)	
Living arrangements					
Both parents	1,336	17.68	1,623	82.32	0.091
Mother only	172	19.82	696	80.18	
Father only	23	25.84	66	74.16	
Grandparents	58	15.22	323	84.78	
Other relatives	73	19.78	296	80.22	
Household size					
One - four	260	19.37	1,082	80.63	0.091
Five- six	233	19.02	992	80.98	
Seven +	121	15.73	648	84.27	
No. of income earners					

None	84	12.21	604	87.79	0.000
One	245	17.68	1,141	82.32	
Two or more	282	22.56	968	77.44	

The Chi- square results showed in table 4.3.2shows the relationship between risky behaviour and household- level variables among South African adolescents. Only the number of income earners variable showed a statistical significant relationship with risky behaviour ($p<0.005$). The highest percentage was those adolescents living with no one in their household receiving income or has permanent work (87.79%).

Table 4.3.3 The relationship between risky behaviour and community- level characteristics among South African adolescents.

Risky behaviour					
Community- level variables	**None**		**At least one risky behaviour**		**p-values**
Community poverty	(N)	(%)	(N)	(%)	0.000
Low	169	14.61	988	85.39	
Middle	225	20	900	80	
High	220	20.87	834	79.13	
Community ethnic diversity					0.000
Low	339	15.35	1,869	84.65	
Middle	11	39.29	17	60.71	
High	264	24	836	76	
Community employment					0.000
Low	171	11.87	1,270	88.13	
Middle	215	21.87	768	78.13	
High	228	25	684	75	
Province					
Gauteng	134	23.43	438	76.57	
Limpopo	1	0.31	319	99.69	0.000
Free State	29	9.70	270	90.30	
Mpumalanga	61	24.50	188	75.50	
North West	53	16.99	259	83.01	
Eastern Cape	78	18.84	336	81.16	
Northern Cape	20	10.58	169	89.42	
KwaZulu Natal	101	18.81	436	81.19	
Western Cape	137	30.86	307	69.14	

Table 4.3.3 shows the relationship between community level variables and risky behaviour among South African adolescents. With regards to community poverty, the results from the chi-square test analysis showed a statistically significant association with risky behaviour ($p < 0.005$). Proportions of adolescents residing in communities with low levels of poverty are the highest percentage (85.39%), while those from communities with high levels of poverty are lower at 79.31% likely to engage in at least risky behaviour. In terms of province of residence, the results from the chi-square test showed a statistically significant association with risky behaviour ($p<0.005$). From the above table, province was statistically significant with risky behaviours ($p<0.005$). Gauteng province had the highest number of adolescents who engaged in at least one risky behaviour (438); while Northern Cape had the least number of adolescents engaging in risky behaviours (169).

4.4 CONTEXTUAL DETERMINANTS OF RISKY BEHAVIOURS ADOLESCENTS IN SOUTH AFRICA

The second and third objectives were to identify the demographic and the socio-economic characteristics of risky behaviours and to determine the extent to which contextual factors account for regional variation. To achieve this, a multi-level analysis was done. The models included;

- Model 1 used the null/ empty model
- Model 2 considered the individual (background) variables and the outcome risky behaviour.
- Model 3 considered the household variables and the outcome risky behaviour.
- Model 4 considered the community variables and the outcome risk behaviour.
  Model 5 considered the incorporation of all individual, household and community variables and the outcome risky behaviours (full model).

In interpreting results of the multilevel binary logistic regression, fixed and random effects are important aspects of multilevel modelling. Fixed effects measures associations and size of effect of the association while random effects are used to model variations(Adedini, et al, 2014). The fixed effects were expressed in odds ratios.

Table 4.4.1 Multilevel Binary Logistic Regression and Odds Ratio with 95% Confidence Intervals (CI) of Risky behaviours among adolescents in South Africa.

Variables	Null (empty model)	Model 1	Model 2	Model 3	Model 4
Individual- level variables	**OR (95% CI)**	**OR (95% CI)**	**OR (95% CI)**	**OR (95% CI)**	**OR (95% CI)**
Age					
12-14	-	1.00	-	-	1.00
15-17	-	0.44 (0.25- 0.78)*	-	-	0.44 (0.24- 0.77)*
18-19	-	0.10 (0.08- 0.42)*	-	-	0.19 (0.08- 0.41)*
Race					
White	-	1.00	-	-	1.00
African	-	1.93 (1.23- 3.04)*	-	-	1.62 (1.00- 2.56)
Asian/Indian	-	1.70 (0.78- 3.73)	-	-	0.361 (0.74- 3.50)
Coloured	-	0.40 (0.22- 0.72)*	-	-	0.38 (0.20- 0.69)
Gender					
Male	-	1.00	-	-	1.00
Female	-	1.23 (0.93- 1.62)	-	-	1.26 (0.95- 1.66)
Education					
None- grade 8	-	1.00	-	-	1.00
Grade 9- grade 12	-	0.48 (0.30- 0.79)*	-	-	0.50 (0.31- 0.79)*
Household-level variables				-	
Living arrangements				-	
Both parents	-	-	1.00	-	1.00
Mother only	-	-	0.81 (0.60- 1.09)	-	0.70 (0.50- 1.99)*
Father only	-	-	0.67 (0.34- 1.31)	-	0.66 (0.30- 1.43)
Grandparents	-	-	1.07 (0.70- 1.62)	-	0.76 (0.47- 1.23)
Other relatives	-	-	0.77 (0.52- 1.13)	-	0.71 (0.45- 1.22)
Household size					
One - four	-	-	1.00	-	1.00
Five- six	-	-	0.96 (0.74- 1.24)	-	0.8 (0.60- 1.10)

Seven +	-	-	1.06 (0.78- 1.45)	-	0.82 (0.56- 1.20)
No. of income earners					
None	-	-	1.00	-	1.00
One	-	-	0.76 (0.53- 1.07)	-	0.88 (0.58- 1.33)
Two or more	-	-	0.58 (0.40- 0.86)	-	0.85 (0.52- 1.36)
Community- level variables					
Gauteng	-	-	-	1.00	1.00
Limpopo	-	-	-	1.00 (empty)	1.00 (empty)
Free State	-	-	-	2.41 (1.37- 4.27)*	2.04 (0.01- 0.30)*
Mpumalanga	-	-	-	0.75 (0.48- 117)	0.60 (0.05- 0.35)
North West	-	-	-	1.14 (0.73- 1.77)	1.29 (0.32- 0.78)
Eastern Cape	-	-	-	0.72 (0.43- 1.18)	0.76 (0.33- 0.43)*
Northern Cape	-	-	-	2.6 (1.32- 5.37)	3.99 (0.01- 1.68)*
KwaZulu Natal	-	-	-	1.19 (0.73- 1.97)	0.74 (0.30- 0.42)
Western Cape	-	-	-	0.64 (0.44- 0.95)*	0.82 (0.36- 0.53)
Community level of poverty					
Low	-	-	-	1.00	1.00
Middle	-	-	-	0.86 (0.62- 1.20	0.81 (0.58- 1.16)
High	-	-	-	0.83 (0.59- 1.17)*	0.76 (0.53- 1.11)
Community level of ethnic diversity					
Low	-	-	-	1.00	1.00
Middle	-	-	-	1 (empty)	empty
High	-	-	-	0.72 (0.55- 0.96)	0.91 (0.67- 1.24)
Community level of employment					
Low	-	-	-	1.00	1.00
Middle	-	-	-	0.67 (0.48- 0.11)*	0.70 (0.48- 1.02)
High	-	-	-	0.79 (0.6- 1.12)	0.71 (0.46- 1.10)
Random effects Effects	**Empty OR**	**Individual OR**	**Household OR**	**Community OR**	**Full model OR**
Household level					

Variance (SE)	0.81	0.27	0.50	0.16	0.85
ICC	0.02	0.53	0.01	0.35	0.15
Community level					
Variance (SE)	1.01	1.82	0.89	0.12	1.58
ICC	0.25	0.35	0.22	0.26	0.34

* Significance at P value <0.05

OR is Odds Ratios; CI indicates Confidence Interval; SE indicates Standard Error; ICC indicates Intra-Class Correlation

1.00 = reference group

The multilevel modelling results in table 4.4.1 presented the influence of contextual factors on risky behaviour among adolescents in South Africa. Five models were fitted in order to examine the effects of contextual factors of risky behaviour. The null/empty model) was contained no factor, it only shows the random intercept from the intra-class correlation (ICC) which measured between the household and the enumeration variations were calculated. From the empty model it suggests that 25% of variation observed in risky behaviour among adolescence can be explained by contextual factors. Though this is relatively a low percentage, it is statistically significant; it suggests that in order to fully understand risky behaviours in South Africa, we should incorporate community level factors. With regards to the household and community level factors, ICC changed for both. The null model indicated that community level factors are important in explaining risky behaviour among adolescents in South Africa.

Model 1 which considered the independent variables at individual level revealed that adolescents aged between 12 and 15 years of age were 0.44 times less likely to engage in risky behaviour compared to those between the ages of 16 and 19 years. In terms of race, African adolescents were 1.93 times significantly more likely to engage in risky behaviours compared to White adolescents; while Asian/ Indian were 1.70 more likely to be engaging in risky behaviour as compared to Whites; and Coloured adolescents were 0.40 less likely to engage in risky behaviours as compared to those White. Compared to adolescents who are male, female adolescents were 1.23 times more likely to engage in risky behaviour. Compared to adolescents with no education, those with grade 9 to 12 education were 0.48 times less likely to engage in risky behaviour; as compared to their counterparts. The first model explains that 35% variations in the full model.

Results from model 3 which examined the household- level characteristics of risky behaviour were shown in the table 4.4.1. In comparison to adolescents living with both parents, all other living arrangements showed an increase in the odds of engaging in risky behaviour. Adolescents living with the mother only have lower odds of 0.81 engaging in risky behaviour compared to their peers who lived with both parents. Adolescents living with their father were 0.67 less likely to be engaging in risky behaviour as compared to their counterparts living with both parents. Compared to those living with both parents; those living with other relatives were 0.77 less likely to engage in risky behaviours.

Although no statistical significance was observed for the relationship between living arrangements and risky behaviour, no patterns was observed within the variable living arrangements.

Considering household size of adolescents, table 4.4.1 revealed that those living in household with five to six members had 0.96 odds of engaging in risky behaviours similar to those whose household size is one to four. Adolescents in households with seven or more members were 1.06 times more likely to be engaging in risky behaviour compared to those living with both parents.

With regards to number of income earners in each household, table 4.4.1 revealed that there was a statistically significant relationship with those living in a household with two members earning an income. Adolescents from households with one person earning an income were 0.76 times less likely to engage in risky behaviour compared to their counterparts who had no person receiving an income in the household. Also adolescents from households were they are two or more persons earning an income were 0.58 less likely to engage in risky behaviour compared to those with no persons in the household earning an income.

Results from model 4 which examined the effects of community level variables on risky behaviours were shown on table 4.4.1. Adolescents residing in communities with high poverty were 18.4% less likely to be engaging in risky behaviour compared to adolescents residing in communities with low poverty. Also, adolescents living in communities with high levels of poverty have the even odds of engaging in risky behaviour compared to those from communities with low levels of poverty. Compared to adolescents residing in communities with low concentration of employment, those residing in communities with high concentration of employment were 0.79 less likely to engage in risky behaviours. In consideration to community ethnic diversity, adolescents residing in highly heterogeneous communities had 0.72 lower odds of engaging in risky behaviours as compared to their counterparts residing in highly homogenous communities.

Model 5 considered the incorporation of all the individual, household and community-level factors and the outcome risky behaviours, which was the full model revealed in table 4.4.1, compared to adolescents aged 12-15 years, those aged 16-19 years were less likely to engage in

risky behaviour. Compared to those white adolescents, African adolescents were 1.62 times more likely to engage in risky behaviour. Asian/ Indian are 1.36 times more likely to engage in risky behaviour as compared to white adolescents; while coloured adolescents are 0.38 less likely to engage in risky behaviour. Compared to male, females were 1.26 times more likely to engage in risky behaviours. Table 4.3 shows that those with grade 9 to grade 12 education were 0.5 times more likely to engage in risky behaviours as compared to those with none to grade 8 education.

With regards to household living arrangements, those living with mother only were 0.703 less likely to engage in risky behaviour as compared to those living with both parents. Compared to those living with both parents, those living with the father only were 0.658 times less likely to engage in risky behaviour. Also those living with other relatives were 0.709 times less likely to engage in risky behaviour. In consideration to household size, those living in with five to six persons were 0.806 less likely to engage in risky behaviour as compared to those in households with one to four; also those living in households with seven or more people were 0.820 less likely to engage in risky behaviour. In terms of number of income earners, adolescents with one income earners were having equal odds of 0.983 as compared to those adolescents in households with no income earners; while those with two or more income earners were 0.960 times likely to engage in risky behaviours as compared to those with no income earners in their households.

Contextually, adolescents residing in communities with middle levels of poverty are 0.818 times less likely in engaging in risky behaviour as compared those in communities with low levels of poverty; also those in communities with high levels of poverty are 0.769 times likely to engage in risky behaviour. Adolescents residing in communities with medium (middle) levels of ethnic diversity are 0.983 (even odds) times likely to engage in risky behaviour as those from communities with low ethnic diversity; while those from communities with high levels of ethnic diversity are 0.822 times less likely to engaging in risky behaviour compared to those in communities with low levels of ethnic diversity.

In terms of community level of employment, those residing in communities with middle concentration of employment were 0.697 times less likely to engage in risky behaviour compared to those residing in communities with low concentration of poverty; also those in communities with high concentration of employment are 0.713 times less likely to engage in risky behaviour as compared to those in communities with low concentration of employment. This model explains 30% of all variations in the full model.

Across all models, characteristics such as; gender, race, number of income earners, household size and community level of employment and level of ethnic diversity were statistically insignificant.

CHAPTER 5: DISCUSSION

5.1 INTRODUCTION

This chapter discusses the contextual determinants of risky behaviours among adolescents in South Africa. To begin with, levels of risky behaviours among adolescents in South Africa are discussed in relation to the prevailing literature mainly from South Africa. Secondly the individual level factors of risky behaviour are discussed in light of the current literature on adolescent risky behaviours. Finally, the main findings of the multilevel modelling of adolescent risky behaviours are discussed in relation to existing literature on South Africa and sub-Saharan Africa.

5.2 LEVELS OF RISKY BEHAVIOURS

This study found that 81.6% of adolescents engaged in at least one risky behaviour. The results show that the most prevalent type of risky behaviour was alcohol use (34.1%) followed by being a passenger with a driver under the influence of alcohol (24.5%), tobacco use (20.9%) and lack of condom use at last sexual encounter (7.01%).

Alcohol was the most common risky behaviour among adolescents in this study. Due to its availability, accessibility and affordability, alcohol use facilitates opportunities for adolescents to engage in risky behaviours. Alcohol in South Africa can easily be purchased from bottle stores, 'shebeens', supermarkets, bars and other unlicensed liquor outlets, especially in disadvantaged communities and this makes it more accessible for adolescents (Seggie, 2012). Another possible reason is that may explain risky behaviours among adolescents, is the issue of experimenting. In that at this stage of adolescent life there is a lot of experimenting going on. In that adolescents would experiment with alcohol, drugs and sex.

The levels of alcohol use among adolescents found in this study are congruent with previous studies. Similar results were reported in the South African National Youth Risk Behaviour Survey which found that the prevalence rate for alcohol use was 50%, whilst 35% confirmed that they had used alcohol in the past month and 29% engaged in binge drinking within the past month (Reddy et al., 2010).

It also supports previous research in South Africa that indicated that lifetime alcohol use among adolescents was 22% (Onya, et al., 2012). In Limpopo, South Africa Madu & Matla (2003) noted that the prevalence rate among adolescents for alcohol use was 39.1 %..

Other studies in South Africa have observed even higher levels of substance use, according to a study conducted in Johannesburg, it found that 53% of the adolescents sampled had used alcohol in the past six months (Magidson et al., 2016) and these results were consistent with those in Cape Town, whereby the study reported 43.1% adolescents used alcohol in the study (Parry et al., 2004). In a 2013 cohort study conducted in Cape Town, it was found that alcohol use at was 34.3% at Time 1, increased to 46.6% at Time 2 and to 63.3% at Time 3 (Carney, et al, 2013). This study by Carney et al (2013) demonstrates that alcohol use amongst adolescents is increasing over time. From the above studies by Magidson et al (2016), Parry et al (2004) and Carney et al (2013), it can be inferred that substance use among adolescents is high and it is becoming a problem which may have severe consequences on households, communities and pose potential health risks for individuals.

High levels of being a passenger with a driver under the influence of alcohol were reported in this study (24.45%). Similar findings were also reported by the Youth Risk Behaviour survey which observed that 33% of learners interviewed in 2011/12 stated that in the past month they had been driven by someone under the influence of alcohol (Evans-Whipp et al., 2013). In contrast Flisher et al (2006) found that 7.0% of sampled adolescents had travelled as a passenger in a car with an intoxicated driver, in Cape Town, South Africa.

At 20.86%, tobacco use was high among adolescents in this study. However in contrast, 10.6% for tobacco use was reported in the Pietersburg area of South Africa (Madu & Matla, 2003). A more recent study reported that 44% of adolescents reported tobacco use in South Africa (Morojele & Ramsoomar, 2016). Another study in Johannesburg South Africa, also reported similar results of tobacco use at 32.50% among adolescents (Olumide et al., 2014). From these previous studies it can be discerned that rates of tobacco use have increased over time and this may be due to a number of reasons such as the media, family connectedness, and social contexts of individuals namely peers and community environment (Waller, et al., 2014).

Condom use is often regarded as a difficult topic of discussion in South Africa among adolescents. In this study, 7% of the sample reported not using a condom at last sexual encounter. In rural South Africa, a study by Taylor et al (2007) found that 29.5% of males and 38.5% of females had used a condom at their last sexual encounter (Taylor et al., 2007). In another study in the Western Cape, South Africa, it was reported that 49.2% of the participants used condoms regularly (Nyembezi et al., 2014). In KwaZulu Natal report low levels of condom use, study found that 36.3% of high school students used a condom at their last sexual encounter(Taylor et al., 2007). These studies show that there has been an increase in non-condom use among youths in South Africa. Reported condom use at last sex increased drastically from 57% in 2002 to 87% in 2008 among young males and 46% to 73% among young females (Shisana, 2005).

5.3 DEMOGRAPHIC AND SOCI-DEMOGRAOHIC DETERMINANTS OF RISKY BEHAVIOURS AMONG ADOLESCENTS IN SOUTH AFRICA.

Determinants of risky behaviours have been identified in South Africa as age, race, gender and education (Arkaah, 2014). This study has identified a few but important individual level determinants of risky behaviours among adolescents in South Africa. Both bivariate and multivariate analysis showed four variables as key predictors of risky behaviours- age, race, gender and education.

This study has identified that adolescents aged 12-14 years of age were more likely to engage in risky behaviours. This is similar to Gardner & Steinberg, (2005) who found that younger adolescents (10-14 years old) are more likely to engage in risky behaviours. For example younger adolescents are more likely to engage in the use of alcohol and illicit drugs, driving under the influence of alcohol, having unprotected sex and multiple sexual partners. A possible reason for this is that younger adolescents are more often susceptible to peer pressure which influences their decisions in risk taking behaviours yet they lack adequate knowledge as compared to older adolescents. Younger adolescents generally do not know the risks of what there are doing or understand the consequences of risky behaviours. This is especially true, in

that research has found that in majority of cases, peer norms encourage and promote high risk behaviours (MacPhail & Campbell, 2001).

This study found that race was a predictor of risky behaviours among adolescents, in that Africans, Asians/Indians were more likely to engage in risky behaviours as compared to other races in South Africa. A possible explanation can amount to the fact that majority of South Africans are African (black).Similar results were found in the risk survey in 2002 in terms of risky sexual behaviours, whereby significantly fewer white learners (25.9%) reported ever having had sex compared to black learners (43.6%) and significantly more white (49.8%) and coloured learners (39.5%) than black learners (26.9%) reported using condoms consistently (Sharp & Dellis, 2010). Majority of the South African population are Black (African) (Stats SA, 2016). Africans in South Africa, especially females have been previously disadvantaged and they continue to be the poorest as compared to other racial groups, due to the legacies of South Africa (Hallman, 2004). In other words, being Black or Asian/Indian increased the likelihood of engaging in risky behaviours, compared to being White and Coloured. In the study , Coloured adolescents had a lower likelihood to engage in risky behaviours. A possible explanation is, according to Stats SA (2016), coloured population constitute about 10% of the overall population in South Africa and constituted a small sample in the study.

Findings from this study showed that females were more likely to engage in risky behaviours. Similarly, Frank, et al (2008) observed that gender was found to be a significant predictor of risky sexual behaviours in South Africa. Females often tend to seek emotional or material support, while also motivated by more physical pleasure and social standing (Frank et al., 2008). Contrary to this study's findings, other studies reported that males were at risk of engaging in risky behaviours (Frank et al., 2008). However, gender was found not to be a significant predictor of risky behaviours in this study. Previous literature found that gender does not affect sexual behaviour. For example, (Gillmore et al., 2002) found that in terms of teen risky behaviour, results between boys and girls did not differ.

This study determined that education decreases the odds of engaging in risky behaviours among adolescents. Previous research has found that education decreases adolescent risky behaviour. Simbayi et al., (2005) found that for young men, risky sexual behaviours were associated with fewer years of education. Education is believed as to be the key to transforming people's

behaviours and mentality (Jackson, et al, 2012). In that skills adolescents acquire in school are more likely to lead them to a healthier adult life. Education, for example is believed to increase the ability to avoid engagement in risky behaviours, thereby decrease mortality, the risk of contracting HIV/AIDS and sexually transmitted infections, giving people a sense of confidence, authority and self-control, knowledge (Baker, Collins, & Leon, 2008; Uchudi, et al., 2012).

Findings in this study are inconsistent with a study conducted in Limpopo, South Africa among adolescents which found that receiving some educational life orientation skills had no effect on condom use compared to those who did not receive educational and life orientation skills (Maluleke, 2010).

5.4 CONTEXTUAL DETERMINATS OF RISKY BEHAVIOURS AMONG ADOLESCENTS IN SOUTH AFRICA

The multivariate results provided the support of the ecological model, which states that health behaviours are not only shaped by individual and household characteristics but also community-level characteristics play a role (Salazar et al., 2010). This research found that adolescents living with mother only, father only, grandparents, or other relatives, living in a household with five or more people and with one of more persons earning an income is associated with the increased odds of adolescent risky behaviours in South Africa. Also adolescents residing in communities with high ethnic diversity, low employment were associated with the increased odds of engaging in risky behaviours in South Africa.

This study found that adolescents living in households whereby there is no one with a permanent job or some source of income where more likely to engage in risky behaviours. This supports Heinrich, et al (2015) research which found that South African adolescents living in poverty had the increased chances for negative outcomes associated with risky sexual behaviours and substance use. Poverty influenced risky behaviours among adolescents in terms of transactional sex among adolescents (Heinrich et al., 2015). Previous research has found that an increase in the household income protects females from early sexual debut (Dinkelman, et al., 2007). The lack of economic opportunities associated with poverty drives young girls and boys into risky

behaviours due to lack of family support. A study conducted in South Africa found that family support influenced resilience in youths (Dass-Brailsford, 2005). In Africa, families living with poverty are prone to their young people engaging in risky behaviours (Frantz, Sixaba, & Smith, 2015).

This study found that living arrangement was a significant factor for risky behaviours among adolescents in South Africa. Findings from this study found that adolescents living with both parents were less likely to engage in risky behaviours. These results were consistent with previous studies (Aspy et al., 2007; Haglund & Fehring, 2010). The studies reported that living with both parents was a protective factor. Risky behaviours are affected by factors such as the presence of parents, in that effective parental control can decrease the odds of adolescents engaging in risky behaviours (Frantz et al., 2015). For example, a parent having knowledge of their adolescent's whereabouts is a protective factor, in that parents are able to monitor and be influential in the child's life. However, low levels of parenting could result in the risk of engaging in risky behaviours. This coincides with the findings in this study that adolescents not living with both parents were more likely to engage in risky behaviours. Living with both parents may delay engagement in risky behaviours. Adolescents living in households with both parents have a better well- being than those in single parent homes or those cohabiting (Frantz et al., 2015). Studies have also reported that adolescents from nuclear families are less likely to engage in risky behaviours such as drinking(Frantz et al., 2015).

McGrath et al (2009) in their study in South Africa found that the risky of engaging in sex at a young age was significantly higher for women and men whose mother or father had died, while on the other hand they found that the risk of early sexual encounter was significantly lower for females whose mother or father was a co-member of the same household. Systematic review conducted in different African countries reveals that parental involvement is important in the activities of young people (Frantz et al., 2015). In this study it was found that living with grandparents increased the odds of engaging in risky behaviours among adolescents in South Africa. In South Africa there are many single headed households especially by women. As women join the labour force, young children are left in the care of their grandparents to allow the mothers to be breadwinners.

From the findings, household size of the adolescent was not associated with engaging in risky behaviours. This means that the number of members in a household does not necessarily mean adolescences would be at the risk of engaging in risky behaviours but other factors play a role, in the multivariate analysis. However, there is a limited amount of evidence showing the association of household size and risky behaviours in South Africa.

In consideration to community poverty, there was no association with risky behaviours. This was similar to findings by (Robinson & Seiber, 2008) that no association was found between poverty and condom use among adolescents. In contrast to these findings, (Tenkorang et al., 2011) found that poverty in the community at household level was associated with risky behaviours, in that young people living in poverty stricken communities were more likely to engage in risky behaviours. However, the findings showed that adolescents living in communities with low employment levels had an increased risk of engaging in risky behaviours.

Similarly Dinkelman, et al. (2007) and Marteleto, et al. (2008) found that community poverty rate was a major predictor to sexual risky behaviours among both males and females.. Previous research suggested that poverty may be a motivating factor for risky behaviours among young people and this was due to female adolescents' reports of gift exchange and money in sexual relationships (Hallman, 2004). Communities with high levels of poverty often drive risk taking behaviours especially sexual risk behaviours in means of economic survival through the exchange of money and gifts.

Residing in a community with a high level of employment decreased the odds of engaging in risky behaviours among adolescents in South Africa. A possible reason for this, due to unemployment in the community, many people turn to alcohol and result in lack of parental control in households. Study conducted on community influences on young people's sexual behaviours in three African countries, found that community employment was associated with risky sexual behaviours (Stephenson, 2009). The study found that high male employment in communities significantly decreased the odds of reporting risky sexual behaviours among young men in Burkina Faso (Stephenson, 2009). Therefore a high level of community employment was a protective factor for risky sexual behaviours.

Community ethnic diversity was not statistically significant to risky behaviours among adolescents in South Africa. However, there was some relationship in that adolescents living in ethnically homogeneous communities had higher odds of engaging in risky behaviours as compared to their counterparts. A possible reason for this would be that homogeneous communities that are mainly African reside mostly in poor communities due to the legacy of apartheid which marginalized these communities socially and politically (Carter & May, 1999)

5.5 REVISITING THE CONCEPTUAL FRAMEWORK

This study used an ecological model to guide the research and this provided the basis of the conceptual framework. This framework was used to understand beyond the individual into the household and the community level factors of risky behaviours among adolescents. The results from this study provided support for the ecological model. This study found out that community-level factors were important factors regarding risky behaviours although their role unclear and statistically insignificant.

CHAPTER SIX: CONCLUSION ANDRECOMMEDATIONS

6.1 CONCLUSION

This study set out to examine the levels of risky behaviours and ascertain the demographic and socio- demographic factors associated with risky behaviours; to identify the household and community factors associated with risky behaviours; and to determine the extent to which contextual factors account for variations in risky behaviours among adolescents in South Africa.

The study found that 72% of adolescents in South Africa in 2008 engaged in at least one risky behaviour. The rates of risky behaviours are significantly associated with age, gender, education, race, living arrangements and number of income earners. Existing literature in South Africa has focussed on the individual factors of risky behaviours among adolescents whilst relatively little is known about the contextual factors at the household and community level. This study has sought to fill this gap in the literature by examining the contextual factors of risky behaviours in South Africa. Community level factors were not associated with reports of risky behaviour among adolescents but were influential in shaping the risky behaviour of adolescents.

In conclusion, the present study has drawn attention to the contextual determinants that might help us to predict risky behaviours among adolescents unlike other studies in South Africa which mainly focused on the individual factors of risky behaviours. With regards to the contextual factors of household and community influences, this study has shown that households can affect adolescent behaviour. The living arrangements of the adolescent such as living with parents can be a protective factor regarding risky behaviours. Therefore there is a need to address risky behaviours not only on the individual spectrum but also on a community level; in that prevention strategies should focus on poverty in communities.

6.2 RECOMMEDATIONS

The findings from this study have implications for government policy. Policies and measures need to be put into place to help lessen adolescent risky behaviour. To begin with, policies such as the National Youth Policy could benefit from the study findings on Risky behaviours among adolescents.

Some of the aims of this policy include; promotion of sexual and reproductive rights and combating substance use among youth (National Youth Policy 2015-2020 | South African Government, 2015). In order to achieve these policy proposals, parents, teachers and communities need to be involved in the reduction of risky behaviours in South Africa. Teachers and parents are expected to inform adolescents the consequences of risky behaviours on their health and their future opportunities for education, employment and the well- being. As prevention interventions should engage families and communities and address the risk factors of risky behaviours among adolescents including; unemployment and poverty especially among female adolescent in our communities.

Other policy interventions could include an emphasis on community engagement in adolescence well-being. There needs to be a strong relationship between adolescents and family structures since this research has found that the absence of parent figures in households increases risky behaviours. The government needs to support communities in promoting and implementing policies aimed at reduce risky sexual behaviours, discourage substance use and address the problem of poverty in communities.

6.3 LIMITATIONS

The research findings should be considered in light of the limitations in this study: First, the cross sectional nature of the data it is impossible to determine the temporal or causal direction of the observed relationships (Verhulst & Estabrook, 2012). Variables that were "ever" use" or "ever experienced", the time period between the outcome and independent variables could be far apart in such instances beyond temporality being unknown, Second, the data used in this study was self- reported risky behaviours, in that engagement in risky behaviours cannot be validated. Due to the nature of the data, it was impossible to determine adolescents whom were not attending school due to the coding of the variables. The education variable could not distinguish between adolescents who were school-going and those who were not due the coding of the survey, as this is a limitation, in that the recoding of the variable therefore could not separate it. The use of condoms and the question of whether last time one had sex used condoms doesn't explain the consistency of condoms, just because the adolescents did not use a condom the last

time they had sex does not necessarily mean that a condom has never been used before. Finally, the results may be biased in that adolescents may be hesitant to report actual behaviours due to the subject being sensitive regardless of the anonymity. There are instances of misreporting with regards to risk sexual behaviours.

BIBLIOGRAPHY

Abdulkarim, A. A., Mokuolu, O. A., & Adeniyi, A. (2005). Drug use among adolescents in Ilorin, Nigeria. *Tropical Doctor*, *35*(4), 225–228. https://doi.org/10.1258/004947505774938620

Africa, S. S. (2015). Media Release: General Household Survey (GHS) 2015 | Statistics South Africa. Retrieved August 11, 2016, from http://www.statssa.gov.za/?p=7765

Africa, S. S. (n.d.-b). Mid-Year Estimates 2016 | Statistics South Africa. Retrieved February 23, 2017, from http://www.statssa.gov.za/?p=8176

Ali, M. M., Dwyer, D. S., Vanner, E. A., & Lopez, A. (2010). Adolescent Propensity to Engage in Health Risky Behaviors: The Role of Individual Resilience. *International Journal of Environmental Research and Public Health*, *7*(5), 2161–2176. https://doi.org/10.3390/ijerph7052161

Arkaah, Y. J. (2014). Multiple risky behaviours among High School Adolescents in Ngaka Modiri Molema District, South Africa. PhD Thesis, North West University.

Aspy, C. B., Vesely, S. K., Oman, R. F., Rodine, S., Marshall, L., & McLeroy, K. (2007). Parental communication and youth sexual behaviour. *Journal of Adolescence*, *30*(3), 449–466. https://doi.org/10.1016/j.adolescence.2006.04.007

Bachoo, S. (2010). Young drivers, personality & risky driving behaviour.

Baker, D. P., Collins, J. M., & Leon, J. (2008). Risk factor or social vaccine? The historical progression of the role of education in HIV and AIDS infection in Sub-Saharan Africa. *Prospects*, *38*(4), 467–486.

Baldwin, P., Shrestha, R., Potrepka, J., & Copenhaver, M. (2013). The Age of Initiation of Drug Use and Sexual Behavior May Influence Subsequent HIV Risk Behavior: A Systematic Review. *ISRN AIDS*, *2013*, 1–17. https://doi.org/10.1155/2013/976035

Berhan, Y., & Berhan, A. (2015). A Meta-Analysis of Risky Sexual Behaviour among Male Youth in Developing Countries. *AIDS Research and Treatment*, *2015*, 1–9. https://doi.org/10.1155/2015/580961

Bhorat, H., Hirsch, A., Kanbur, R., & Ncube, M. (2014). *The Oxford companion to the economics of South Africa*. OUP Oxford. Retrieved from https://books.google.co.za/books?hl=en&lr=&id=5SgDBQAAQBAJ&oi=fnd&pg=PP1&dq=++Oxford+Companion+to+the+Economics+of+South++Africa&ots=Q-Jhjx-rEu&sig=91oWaiKBvQPF0v8OKUdJOND3Gn0

Billy, J. O., Brewster, K. L., & Grady, W. R. (1994). Contextual effects on the sexual behavior of adolescent women. *Journal of Marriage and the Family*, 387–404.

Birhanu, A. M., Bisetegn, T. A., & Woldeyohannes, S. M. (2014). High prevalence of substance use and associated factors among high school adolescents in Woreta Town, Northwest Ethiopia: multi-domain factor analysis. *BMC Public Health*, *14*, 1186. https://doi.org/10.1186/1471-2458-14-1186

Bronfenbrenner, U. (1986). Ecology of the family as a context for human development: Research perspectives. *Developmental Psychology*, *22*(6), 723–742. https://doi.org/10.1037/0012-1649.22.6.723

Brook, J. S., Morojele, N. K., Pahl, K., & Brook, D. W. (2006). Predictors of drug use among South African adolescents. *Journal of Adolescent Health*, *38*(1), 26–34. https://doi.org/10.1016/j.jadohealth.2004.08.004

Carney, T., Myers, B. J., Louw, J., Lombard, C., & Flisher, A. J. (2013). The relationship between substance use and delinquency among high-school students in Cape Town,

South Africa. *Journal of Adolescence*, *36*(3), 447–455. https://doi.org/10.1016/j.adolescence.2013.01.004

Carter, M. R., & May, J. (1999). Poverty, livelihood and class in rural South Africa. *World Development*, *27*(1), 1–20. https://doi.org/10.1016/S0305-750X(98)00129-6

Cho, D. (2016). Health Behaviors Changes from Adolescence to Emerging Adulthood: A Multilevel Modeling Perspective. *Doctoral Dissertations*. Retrieved from http://digitalcommons.uconn.edu/dissertations/1050

Cooper, R. G. (2009). Alcohol and tobacco use in adolescents and young adults in Zimbabwe. *Journal of Pre-Clinical and Clinical Research*, *3*(2). Retrieved from http://yadda.icm.edu.pl/yadda/element/bwmeta1.element.agro-7856cd8f-3972-485b-ae36-5a0041d1d3b5/c/16.pdf

Dass-Brailsford, P. (2005). Exploring resiliency: academic achievement among disadvantaged black youth in South Africa:'general'section. *South African Journal of Psychology*, *35*(3), 574–591.

Demographics. (n.d.). Retrieved February 23, 2017, from //data.unicef.org/topic/adolescents/adolescent-demographics/

Dinkelman, T., Lam, D., & Leibbrandt, M. (2007). Household and community income, economic shocks and risky sexual behavior of young adults: evidence from the Cape Area Panel Study 2002 and 2005: *AIDS*, *21*(Suppl 7), S49–S56. https://doi.org/10.1097/01.aids.0000300535.05226.a9

Eaton, L., Flisher, A. J., & Aarø, L. E. (2003). Unsafe sexual behaviour in South African youth. *Social Science & Medicine*, *56*(1), 149–165. https://doi.org/10.1016/S0277-9536(02)00017-5

Evans-Whipp, T. J., Plenty, S. M., Toumbourou, J. W., Olsson, C., Rowland, B., & Hemphill, S. A. (2013). Adolescent exposure to drink driving as a predictor of young adults' drink driving. *Accident Analysis & Prevention*, *51*, 185–191. https://doi.org/10.1016/j.aap.2012.11.016

Fentahun, N., & Mamo, A. (2014). Risky Sexual Behaviors and Associated Factors Among Male and Female Students in Jimma Zone Preparatory Schools, South West Ethiopia: Comparative Study. *Ethiopian Journal of Health Sciences*, *24*(1), 59–68.

Flisher, A. J., Ward, C. L., Liang, H., Onya, H., Mlisa, N., Terblanche, S., … Lombard, C. J. (2006). Injury-related behaviour among South African high-school students at six sites. *South African Medical Journal = Suid-Afrikaanse Tydskrif Vir Geneeskunde*, *96*(9), 825–830.

Frank, S., Esterhuizen, T., Jinabhai, C. C., Sullivan, K., & Taylor, M. (2008). Risky sexual behaviours of high-school pupils in an era of HIV and AIDS. *SAMJ: South African Medical Journal*, *98*(5), 394–398.

Frantz, J., Sixaba, Z., & Smith, M. (2015). A Systematic Review of the Relationship Between Family Structure and Health Risk Behaviours Amongst Young People: An African Perspective. *The Open Family Studies Journal*, *7*(1), 3–11. https://doi.org/10.2174/1874922401507010003

Gardner, M., & Steinberg, L. (2005). Peer Influence on Risk Taking, Risk Preference, and Risky Decision Making in Adolescence and Adulthood: An Experimental Study. *Developmental Psychology*, *41*(4), 625–635. https://doi.org/10.1037/0012-1649.41.4.625

Gillmore, M. R., Archibald, M. E., Morrison, D. M., Wilsdon, A., Wells, E. A., Hoppe, M. J., … Murowchick, E. (2002). Teen sexual behavior: Applicability of the theory of reasoned action. *Journal of Marriage and Family*, *64*(4), 885–897.

Guo, G., & Zhao, H. (2000). Multilevel modeling for binary data. *Annual Review of Sociology*, 441–462.

Haglund, K. A., & Fehring, R. J. (2010). The association of religiosity, sexual education, and parental factors with risky sexual behaviors among adolescents and young adults. *Journal of Religion and Health*, *49*(4), 460–472.

Hallman, K. (2004). Socioeconomic disadvantage and unsafe sexual behaviors among young women and men in South Africa (Working paper No. In *The Population Council, Inc., Policy Research Division*. Citeseer. Retrieved from http://citeseerx.ist.psu.edu/viewdoc/summary?doi=10.1.1.601.1087

Heinrich, C., Hoddinott, J., & Samson, M. (2015). Reducing adolescent risky behaviors in a high-risk context: the effects of unconditional cash transfers in South Africa. *Economic Development and Cultural Change*. Retrieved from https://my.vanderbilt.edu/carolynheinrich/files/2016/06/CSG-effects-on-adolescent-risky-behavior-Heinrich-Hoddinott-Samson.pdf

Hendriksen, E. S., Pettifor, A., Lee, S.-J., Coates, T. J., & Rees, H. V. (2007). Predictors of Condom Use Among Young Adults in South Africa: The Reproductive Health and HIV Research Unit National Youth Survey. *American Journal of Public Health*, *97*(7), 1241–1248. https://doi.org/10.2105/AJPH.2006.086009

Irwin & Millstein (1986).pdf. (n.d.).

Jackson, C. A., Henderson, M., Frank, J. W., & Haw, S. J. (2012). An overview of prevention of multiple risk behaviour in adolescence and young adulthood. *Journal of Public Health, 34*(suppl 1), i31–i40.

James, S., Reddy, S. P., Taylor, M., & Jinabhai, C. C. (2004). Young people, HIV/AIDS/STIs and sexuality in South Africa: the gap between awareness and behaviour. *Acta Paediatrica, 93*(2), 264–269.

Kabiru, C. W., & Orpinas, P. (2009). Factors associated with sexual activity among high-school students in Nairobi, Kenya. *Journal of Adolescence, 32*(4), 1023–1039.

Kertzer, D. I. (1991). Household History and Sociological Theory. *Annual Review of Sociology, 17*, 155–179.

Killias, M., & Haas, H. (2002). The Role of Weapons in Violent Acts: Some Results of a Swiss National Cohort Study. *Journal of Interpersonal Violence, 17*(1), 14–32. https://doi.org/10.1177/0886260502017001002

Kalule- Sabiti I, Amoateng AY, Narayanan P (2007) Substance Use and Sexual Behaviour Among African Adolescents in the North West Province of South Africa. *African Journal of Drug and Alcohol Studies.*

Kleck, G., & Gertz, M. (1995). Armed resistance to crime: the prevalence and nature of self-defense with a gun. *J. Crim. L. & Criminology, 86*, 150.

L'Engle, K. L., Brown, J. D., & Kenneavy, K. (2006). The mass media are an important context for adolescents' sexual behavior. *Journal of Adolescent Health, 38*(3), 186–192. https://doi.org/10.1016/j.jadohealth.2005.03.020

Leoschut, L. (2009). *Snapshot Results of the CJCP 2008: National Youth Lifestyle Study*. Centre for Justice and Crime Prevention.

Lowinson, J. H. (2005). *Substance Abuse: A Comprehensive Textbook*. Lippincott Williams & Wilkins.

MacPhail, C., & Campbell, C. (2001). 'I think condoms are good but, aai, I hate those things':: condom use among adolescents and young people in a Southern African township. *Social Science & Medicine*, *52*(11), 1613–1627.

MacQueen, K. M., McLellan, E., Metzger, D. S., Kegeles, S., Strauss, R. P., Scotti, R., … Trotter, R. T. (2001). What is community? An evidence-based definition for participatory public health. *American Journal of Public Health*, *91*(12), 1929–1938.

Madu, S. N., & Matla, M.-Q. P. (2003). Illicit drug use, cigarette smoking and alcohol drinking behaviour among a sample of high school adolescents in the Pietersburg area of the Northern Province, South Africa. *Journal of Adolescence*, *26*(1), 121–136. https://doi.org/10.1016/S0140-1971(02)00120-3

Magidson, J. F., Dietrich, J., Otwombe, K. N., Sikkema, K. J., Katz, I. T., & Gray, G. E. (2016). Psychosocial correlates of alcohol and other substance use among low-income adolescents in peri-urban Johannesburg, South Africa: A focus on gender differences. *Journal of Health Psychology*, 1359105316628739. https://doi.org/10.1177/1359105316628739

Maluleke, T. X. (2010). Sexual risk behaviour amongst young people in the Vhembe district of the Limpopo province, South Africa. *Health SA Gesondheid*, *15*(1). https://doi.org/10.4102/hsag.v15i1.505

McGrath, N., Nyirenda, M., Hosegood, V., & Newell, M.-L. (2009). Age at first sex in rural South Africa. *Sexually Transmitted Infections*, *85*(Suppl 1), i49–i55. https://doi.org/10.1136/sti.2008.033324

Merlo, J. (2005). A brief conceptual tutorial of multilevel analysis in social epidemiology: linking the statistical concept of clustering to the idea of contextual phenomenon. *Journal of Epidemiology & Community Health*, *59*(6), 443–449. https://doi.org/10.1136/jech.2004.023473

Miller, B. C., Benson, B., & Galbraith, K. A. (2001). Family relationships and adolescent pregnancy risk: A research synthesis. *Developmental Review*, *21*(1), 1–38.

Montano, D. E., & Kasprzyk, D. (2015). Theory of reasoned action, theory of planned behavior, and the integrated behavioral model. *Health Behavior: Theory, Research and Practice (*. Retrieved from https://books.google.com/books?hl=en&lr=&id=9BQWCgAAQBAJ&oi=fnd&pg=PA95&dq=planned+behaviour+model&ots=ecPa6gwTe5&sig=S9-iQsqQSpYinJNCQm4ETjJX-qk

Morojele, N. K., & Ramsoomar, L. (2016). Addressing adolescent alcohol use in South Africa. *SAMJ: South African Medical Journal*, *106*(6), 551–553.

Morroni, C., Smit, J., McFadyen, L., Mqhayi, M., & Beksinska, M. (2003). Dual protection against sexually transmitted infections and pregnancy in South Africa. *African Journal of Reproductive Health*, 13–19.

Musiime, K. E., & Mugisha, J. F. (2015). Factors Associated with Sexual Behaviour among Students of Uganda Martyrs University. *International Journal of Public Health Research*, *3*(1), 1.

National Youth Policy 2015-2020 | South African Government. (n.d.). Retrieved February 20, 2017, from http://www.gov.za/documents/national-youth-policy-2015-2020-8-jun-2015-0000

Ng, J. Y. S., Wong, M.-L., Chan, R. K. W., Sen, P., Chio, M. T. W., & Koh, D. (2015). Gender Differences in Factors Associated With Anal Intercourse Among Heterosexual Adolescents in Singapore. *AIDS Education and Prevention*, *27*(4), 373–385. https://doi.org/10.1521/aeap.2015.27.4.373

Nnebue, C. C., Chimah, U. C., Lawoyin, T. O., Ilika, A. L., & Duru, C. B. (2015). Original Article: Socio-demographic Determinants of Sexual Risk Behavior among Senior Secondary Schools Students in a Military Barracks in Nigeria. *American Journal of Public Health Research, American Journal of Public Health Research*, *3*(4), 148–156. https://doi.org/10.12691/ajphr-3-4-4

Nnko, S., Boerma, J. T., Urassa, M., Mwaluko, G., & Zaba, B. (2004). Secretive females or swaggering males?: An assessment of the quality of sexual partnership reporting in rural Tanzania. *Social Science & Medicine*, *59*(2), 299–310.

Nyembezi, A., Resnicow, K., Ruiter, R. A., van den Borne, B., Sifunda, S., Funani, I., & Reddy, P. (2014). The association between ethnic identity and condom use among young men in the Eastern Cape Province, South Africa. *Archives of Sexual Behavior*, *43*(6), 1097–1103.

Odimegwu, C. O., Solanke, L. B., & Adedokun, A. (2002). Parental Characteristics and Adolescent Sexual Behaviour in Bida Local Government Area of Niger State, Nigeria. *African Journal of Reproductive Health*, *6*(1), 95. https://doi.org/10.2307/3583150

Ohene, S.-A., Tettey, Y., & Kumoji, R. (2010). Injury-related mortality among adolescents: findings from a teaching hospital's post mortem data. *BMC Research Notes*, *3*(1), 124. https://doi.org/10.1186/1756-0500-3-124

Okpataku, C., Olisah, V., Ejiofor, J., & Kwanashie, H. (2014). Prevalence and socio-demographic risk factors associated with psychoactive substance use in psychiatric out-

patients of a tertiary hospital in Nigeria. *Nigerian Medical Journal*, *55*(6), 460. https://doi.org/10.4103/0300-1652.144695

Olumide, A. O., Robinson, A. C., Levy, P. A., Mashimbye, L., Brahmbhatt, H., Lian, Q., … Blum, R. W. (2014). Predictors of Substance Use Among Vulnerable Adolescents in Five Cities: Findings From the Well-Being of Adolescents in Vulnerable Environments Study. *Journal of Adolescent Health*, *55*(6), S39–S47. https://doi.org/10.1016/j.jadohealth.2014.08.024

Ononokpono, D. N., Odimegwu, C. O., Imasiku, E. N. S., & Adedini, S. A. (2014). Does it Really Matter Where Women Live? A Multilevel Analysis of the Determinants of Postnatal Care in Nigeria. *Maternal and Child Health Journal*, *18*(4), 950–959. https://doi.org/10.1007/s10995-013-1323-9

Onya, H., Tessera, A., Myers, B., & Flisher, A. (2012). Community influences on adolescents' use of home-brewed alcohol in rural South Africa. *BMC Public Health*, *12*(1). https://doi.org/10.1186/1471-2458-12-642

Osman, T., Victor, C., Abdulmoneim, A., Mohammed, H., Abdalla, F., Ahmed, A., … Mohammed, W. (2016). Epidemiology of Substance Use among University Students in Sudan. *Journal of Addiction*, *2016*, 1–8. https://doi.org/10.1155/2016/2476164

Parry, C. D. (2005). South Africa: alcohol today. *Addiction*, *100*(4), 426–429.

Parry, C. D. ., Myers, B., Morojele, N. K., Flisher, A. J., Bhana, A., Donson, H., & Plüddemann, A. (2004). Trends in adolescent alcohol and other drug use: findings from three sentinel sites in South Africa (1997–2001). *Journal of Adolescence*, *27*(4), 429–440. https://doi.org/10.1016/j.adolescence.2003.11.013

Paschall, M. J., Lipperman-Kreda, S., & Grube, J. W. (2014). Effects of the local alcohol environment on adolescents' drinking behaviors and beliefs. *Addiction, 109*(3), 407–416. https://doi.org/10.1111/add.12397

Petit, G., Kornreich, C., Verbanck, P., Cimochowska, A., & Campanella, S. (2013). Why is adolescence a key period of alcohol initiation and who is prone to develop long-term problem use?: A review of current available data. *Socioaffective Neuroscience & Psychology*, *3*(1), 21890. https://doi.org/10.3402/snp.v3i0.21890

Ramsoomar, L., Morojele, N. K., & Norris, S. A. (2013). Alcohol use in early and late adolescence among the Birth to Twenty cohort in Soweto, South Africa. *Global Health Action*, *6*. https://doi.org/10.3402/gha.v6i0.19274

Reddy, S. P., James, S., Sewpaul, R., Sifunda, S., Ellahebokus, A., Kambaran, N. S., & Omardien, R. G. (2013). Umthente uhlaba usamila: the 3rd South African national youth risk behaviour survey 2011. Retrieved from http://repository.hsrc.ac.za/handle/20.500.11910/2487

Rehm, J. (2011). The risks associated with alcohol use and alcoholism. *Alcohol Research & Health: The Journal of the National Institute on Alcohol Abuse and Alcoholism*, *34*(2), 135.

Robinson, A. L., & Seiber, E. E. (2008). Does community clustering mitigate the negative effect of poverty on adolescent condom use in South Africa? *International Family Planning Perspectives, 121–126.*

Rudatsikira, E., Maposa, D., Mukandavire, Z., Muula, A. S., & Siziya, S. (2009). Prevalence and predictors of illicit drug use among school-going adolescents in Harare, Zimbabwe.

Annals of African Medicine, *8*(4). Retrieved from http://www.ajol.info/index.php/aam/article/view/50720

Salazar, L. F., Bradley, E. L. P., Younge, S. N., Daluga, N. A., Crosby, R. A., Lang, D. L., & DiClemente, R. J. (2010). Applying ecological perspectives to adolescent sexual health in the United States: rhetoric or reality? *Health Education Research*, *25*(4), 552–562. https://doi.org/10.1093/her/cyp065

Satorra, A., & Bentler, P. M. (2001). A scaled difference chi-square test statistic for moment structure analysis. *Psychometrika*, *66*(4), 507–514.

Scull, T. M., Kupersmidt, J. B., & Erausquin, J. T. (2014). The Impact of Media-Related Cognitions on Children's Substance Use Outcomes in the Context of Parental and Peer Substance Use. *Journal of Youth and Adolescence*, *43*(5), 717–728. https://doi.org/10.1007/s10964-013-0012-8

Seggie, J. (2012). Alcohol and South Africa's Youth. *South African Medical Journal*, *102*(7), 587.

Shaik, A. (2014). Adolescence at Risk: An Overview. *Internation Journal of Indian Psychology*, *01*(03), 144–146.

Sharp, C., & Dellis, A. (2010). Risky teens: Intervention science and its application to the South African context. *Report Commissioned by the South African Responsible Gambling Foundation*. Retrieved from http://www.jogoremoto.pt/docs/extra/Gktd8c.pdf

Shisana, O. (2005). *South African national HIV prevalence, HIV incidence, behaviour and communication survey, 2005*. HSRC press. Retrieved from https://books.google.co.za/books?hl=en&lr=&id=LlZRZjX-D_gC&oi=fnd&pg=PR5&dq=South+African+national+HIV+prevalence,+HIV+incidenc

e,+behaviour+and+communication+survey,+2005&ots=SujQyfawN_&sig=KDgYvi2oAgF_U07NnX4pyuvtGyM

Simbayi, L. C., Kalichman, S. C., Jooste, S., Cherry, C., Mfecane, S., & Cain, D. (2005). Risk factors for HIV-AIDS among youth in Cape Town, South Africa. *AIDS and Behavior*, *9*(1), 53–61.

Simpson, E. H. (1949). Measurement of Diversity. *Nature*, *163*(4148), 688–688. https://doi.org/10.1038/163688a0

Skinner, C. S., Tiro, J., & Champion, V. L. (2015). Background on the Health Belief Model. *Health Behavior: Theory, Research, and Practice*, 75.

Sleet, D. A., Ballesteros, M. F., & Borse, N. N. (2010). A Review of Unintentional Injuries in Adolescents. *Annual Review of Public Health*, *31*(1), 195–212. https://doi.org/10.1146/annurev.publhealth.012809.103616

Small, S. A., & Luster, T. (1994). Adolescent Sexual Activity: An Ecological, Risk-Factor Approach. *Journal of Marriage and the Family*, *56*(1), 181. https://doi.org/10.2307/352712

South Africa Provinces Map black and white | Black and white Provinces map of South Africa | South Africa Country Provinces Map black and white. (n.d.). Retrieved February 20, 2017, from http://www.emapsworld.com/south-africa-provinces-map-black-and-white.html

Statistical release - P02113rdQuarter2016.pdf. (n.d.). Retrieved March 15, 2017, from http://www.statssa.gov.za/publications/P0211/P02113rdQuarter2016.pdf

Stats SA. (2015). *Stats SA Mid-Year population 2016* - (Statistical Release No. P0302) (p. 20). Pretoria, South Africa: Department of Statistics. Retrieved from

https://www.google.com/search?q=stats+sa+mid+year+population+2016&ie=utf-8&oe=utf-8

Stats SA. (2017). Mid-Year Estimates 2016 | Statistics South Africa. Retrieved March 8, 2017, from http://www.statssa.gov.za/?p=8176

Stephenson, R. (2009). Community Influences on Young People's Sexual Behavior in 3 African Countries. *American Journal of Public Health*, *99*(1), 102–109. https://doi.org/10.2105/AJPH.2007.126904

Swahn, M. H., Ali, B., Palmier, J., Tumwesigye, N. M., Sikazwe, G., Twa-Twa, J., & Rogers, K. (2011). Early alcohol use and problem drinking among students in Zambia and Uganda. *Journal of Public Health in Africa*, *2*(2), 20. https://doi.org/10.4081/jphia.2011.e20

Tanser, F., Bärnighausen, T., Hund, L., Garnett, G. P., McGrath, N., & Newell, M.-L. (2011). Effect of concurrent sexual partnerships on rate of new HIV infections in a high-prevalence, rural South African population: a cohort study. *The Lancet*, *378*(9787), 247–255. https://doi.org/10.1016/S0140-6736(11)60779-4

Taylor, M., Dlamini, S. B., Kagoro, H., Jinabhai, C. C., & de Vries, H. (2003). Understanding high school students' risk behaviors to help reduce the HIV/AIDS epidemic in KwaZulu-Natal, South Africa. *The Journal of School Health*, *73*(3), 97–100.

Taylor, M., Dlamini, S., Nyawo, N., Huver, R., Jinabhai, C., & de Vries, H. (2007). Reasons for inconsistent condom use by rural South African high school students. *Acta Paediatrica*, *96*(2), 287–291. https://doi.org/10.1111/j.1651-2227.2007.00060.x

Tenkorang, E. Y., Maticka-Tyndale, E., & Rajulton, F. (2011). A multi-level analysis of risk perception, poverty and sexual risk-taking among young people in Cape Town, South

Africa. *Health & Place*, *17*(2), 525–535. https://doi.org/10.1016/j.healthplace.2010.12.009

Turok, I. (2012). *Urbanisation and development in South Africa: Economic imperatives, spatial distortions and strategic responses*. Human Settlements Group, International Institute for Environment and Development London. Retrieved from http://led.co.za/sites/default/files/cabinet/orgname-raw/document/2013/10621iied.pdf

Uchudi, J., Magadi, M., & Mostazir, M. (2012). A multilevel analysis of the determinants of high-risk sexual behaviour in sub-Saharan Africa. *Journal of Biosocial Science*, *44*(03), 289–311.

Udigwe, I. B., Adogu, P. O., Nwabueze, A. S., Adinma, E. D., Ubajaka, C. F., & Onwasigwe, C. (2014). Factors Influencing Sexual Behavior among Female Adolescents in Onitsha, Nigeria. *Open Journal of Obstetrics and Gynecology*, *04*(16), 987–995. https://doi.org/10.4236/ojog.2014.416139

Verhulst, B., & Estabrook, R. (2012). Using genetic information to test causal relationships in cross-sectional data. *Journal of Theoretical Politics*, *24*(3), 328–344. https://doi.org/10.1177/0951629812439348

Voisin, D. R., DiClemente, R. J., Salazar, L. F., Crosby, R. A., & Yarber, W. L. (2006). Ecological Factors Associated with STD Risk Behaviors among Detained Female Adolescents. *Social Work*, *51*(1), 71–79. https://doi.org/10.1093/sw/51.1.71

Waller, R., Gardner, F., & Cluver, L. (2014). Shared and unique predictors of antisocial and substance use behavior among a nationally representative sample of South African youth. *Aggression and Violent Behavior*, *19*(6), 629–636. https://doi.org/10.1016/j.avb.2014.09.002

WHO. (2017). Adolescent Health. Retrieved from http://www.who.int/topics/adolescent_health/en/

Zimmerman, G. M., & Farrell, C. (2017). Parents, Peers, Perceived Risk of Harm, and the Neighborhood: Contextualizing Key Influences on Adolescent Substance Use. *Journal of Youth and Adolescence*, *46*(1), 228–247. https://doi.org/10.1007/s10964-016-0475-5

Zuma, K., Setswe, G., Ketye, Y., Mzolo, T., Rehle, T., & Mbelle, N. (2010b). Age at sexual debut: A determinant of multiple partnership among South African youth. *African Journal of Reproductive Health*, *14*(2), 47–54.