

https://dspace.org/

Levels and correlates of involuntary childlessness among married women aged 45-49 in Mozambique

Mabe, Masego

2021
https://hdl.handle.net/10539/32201

Downloaded from a DSpace repository. https://dspace.org/



Levels and Correlates of Involuntary Childlessness among married women aged 45-49 in Mozambique

BY

MASEGO MABE

STUDENT NUMBER: 1497157

Contact: 1497157@students.wits.ac.za

Supervisor: Professor Clifford Odimegwu

This Research is submitted in partial fulfilment of the Master of Arts in Health Demography at the University of the Witwatersrand

Table of Contents

Table of Contents 2

List of tables 3

Abstract 4

Chapter 1 6

1.0 Background 6

1.1 Problem Statement 8

1.1.1 Aim of study 11

1.1.2 Objective 12

1.2 Justification 12

1.3 Research Questions 13

1.4 Research objectives 14

1.5 definition of Terms 14

Chapter 2: Literature Review 15

2.1 Prevalence of childlessness 15

2.2 Factors associated with childlessness 15

2.3 Coping strategies 18

2.4 Theoretical framework 19

2.5 Conceptual framework 21

2.6 Research Hypothesis 21

Chapter 3: Methodology 22

3.1 Data Source 22

3.2 Study design 22

3.3 Study population 22

3.4 Sample size 23

3.5 Study variables 23

3.5.1 Dependent variable 23

3.5.2 Independent variables 23

3.6 Data Analysis 26

Chapter 4: Results 27

Chapter 5: Discussion and Conclusion 33

Declaration 41

Acknowledgements 42

References 43

List of tables

Table 1: independent variables and their description and measures…… 25

Table 2: childlessness rates among married women in Mozambique aged 20-49 years (2015)……29

Table 3: Multivariate logistic regression showing the odds of childlessness by characteristic of Mozambican married women, 2015…….32

Abstract

Background: involuntary childlessness due to infertility in Mozambique has social, psychological and health consequences for couples. Mozambique has one of the highest infertility prevalence in sub-Saharan Africa. However, there are very few studies that exist in Mozambique which indicate the level and correlates of childlessness and infertility in the country.

Objectives: The current study aims to examine the level and correlates of childlessness among married women ages 45-49 in Mozambique so as to address the existing gap in research on the real burden of childlessness in the country.

Method: The study analysed the 2015 Mozambique Demographic and Health Survey data to examine the levels and correlates of infertility among a sample of 363 married women aged 45-49. The study implemented a cross-sectional study design. Descriptive statistics in the form of tables and graphs are provided to describe the characteristics of the study sample. Binary logistic regression was implemented to indicate the relationship between the binary categorised variable childlessness and predictor variables.

Findings: A total of 4.14% of married women in Mozambique were found to be childless. Most of these women reside in the Northern region. Majority of childless women reside in the rural areas. The higher the level of education, the higher the likelihood that a woman was childless (OR: 2.25). The odds of childlessness were higher for women that were employed compared to those that were unemployed (OR: 1.6). Remarriage, having tested for HIV and age at first cohabitation were some of the factors positively associated with the likelihood of childlessness amongst married women. The latter therefore contributed to whether a woman was childless or not.

Conclusion: there are a significant number of childless married women in Mozambique between ages 45-49. The odds of childlessness increased by level of education and type of place of residence with the odds increasing for women residing in rural areas. Government needs to implement educational programs on the possible causes, prevention and treatment of infertility in the country to cater for women battling with infertility issues.

Chapter 1

1.0 Background

Childlessness due to infertility continues to be a major global health issue affecting over 70 million couples globally (Chimbatata & Malimba, 2016). Childlessness is usually defined as the inability to produce a live birth in a union of more than 5 years whereas infertility is the inability to conceive within 12 months of regular sexual exposure in the absence of contraception use (Tabong & Adongo, 2013). There are instances where couples choose to not have children due to perceived burden that may come forth with having children and this is referred to as Voluntary childlessness.

[1]Baudin, Croix and Gobbi (2018) have defined childlessness in four different ways to help us better understand the different types of childlessness that exist. opportunity driven childlessness is more or less described as when a highly earning successful woman considers the cost of time childbearing might have on career opportunities. The second definition refers to the "innate biological impossibility of having children which is not dependent on education or wealth" (pg. 3). poverty driven childlessness is when the burden of poverty is too high for childbearing mostly among low-educated women and lastly mortality driven childlessness where "no new-born children survive". The latter study asserts that the type of childlessness that is prevalent in a country is dependent on whether it is a developed or a developing country.

This study however will focus on the natural inability to have children and the levels and correlates thereof. The lack of consensus on the definitions of infertility and childlessness and how these should be measured contributes to the under-reporting of the latter issue.

However, the demographic approach generally measures infertility and childlessness as the inability to produce a live birth after 5 years of marriage (Polis, 2017).

Majority of the couples plagued by involuntary childlessness reside in developing countries where infertility is still neglected as a public health issue (Polis et al., 2017). It is estimated that infertility ranges between 10% in Togo and Rwanda to 25% in Cameroon and Central African Republic among women aged 20-44 years (Ganguly & Unisa, 2010). More than 30% of women between the ages of 25-49 suffer from secondary infertility in certain African regions (Dhont, et al., 2011). Infertility in developing countries can be attributed to preventable conditions such tubal blockage, identified in 23% - 85% of infertile couples (Dyer, 2008), including sexually transmitted diseases, parasitic diseases, infections and exposure to toxic substances (Ganguly & Unisa, 2010).

The consequences of involuntary childlessness are more pronounced in developing countries compared to developed countries. The inability to procreate is often blamed on superstitious beliefs that leads society into believing that couples and families affected by infertility are cursed (Ombelet et al., 2008). Children are of high importance to couples and families and as such, infertile couples in the sub-Saharan African region suffer severe social, psychological, cultural, legal, religious and marital consequences (Faria, 2018; Rouchou, 2013). As a result, most childless marriages end in separation or divorce (Obiyo, 2016).

These consequences tend to be gendered as women are often blamed by not only their partners, but by their families and communities for their inability to procreate (Rouchou, 2013). involuntary childlessness often leads to polygamy and gender-based violence among infertile couples (Fledderjohann, 2012). Women affected by infertility often seek treatment in order to remedy the ordeal with the help of those who went through the same experience (Faria, 2018).

Even so, there is still under-reporting of infertility prevalences, correlates and implications in Sub-Saharan Africa making it difficult for needed recognition of infertility as a public health issue (Mascarenhas, Flaxman, Boerma, Vanderpoel, & Stevens, 2012). The focus has been on fertility which is still perceived to be high at an estimated TFR of 5.1 in Sub-saharan Africa (United Nations, 2017). Emphasis has been placed on reporting about fertility and decreasing fertility rates in most African countries as there is fear of overpopulation and overcrowding (Ombelet, 2011). The latter has been achieved by the introduction of relevant policies and programmes centred around family planning methods and contraception use that aim to reduce unintended pregnancies.

In trying to shift the focus by states on merely fertility, the 1994 International Conference of Population and Development (ICPD) highlighted the inclusion of infertility recognition and treatment as a reproductive health care right for women (Ombelet, 2011). The conference also pushed for development goals and policies to not simply be directed towards controlling overpopulation and decreasing high fertility rates but to be inclusive of the infertile groups. However, there are only few existing policies and programmes directed towards infertility treatment especially in the African context where childless consequences are prominent due to the value attached to children. Infertility treatment is therefore a challenge in developing countries with little or no facilities existing in the majority of low resource countries (Ombelet, 2011).

1.1 Problem Statement

Infertility is a major health problem in Sub-Saharan Africa with an estimated minimum prevalence of 15% in Botswana, Zimbabwe and Lesotho (Sharma, Mittal, & Aggarwal, 2009). The 1994 -2000 DHS surveys indicate the childlessness (without living children) rate at 6% for women between ages 25-49 and about 3.1% of women aged 25-49 years with no

fertile pregnancies (Rutstein & Shah, 2004). Mozambique's prevalence of infertility has been estimated at more than 5% for women aged 40-49 years (Rutstein & Shah, 2004)

For Mozambique, like many other African countries, childlessness has major implications as children have multidimensional values and are a source of security for parents during old age (Faria, 2018). Infertile women particularly carry the most burden as they suffer social, psychological and health consequences (Tabong & Adongo, 2013). childless women in Mozambique are highly stigmatized, excluded from ceremonies involving the birth of a child and are also buried differently compared to women who have children (Mariano, 2004). Infertile women are most likely to be suffering from health problems that result in their inability to conceive (Dimka & Dein, 2013).

Most women have reported feelings of guilt and embarrassment with some reporting psychological burdens such as depression as a consequence of their infertility (Rouchou, 2013). They are also prone to marital devastation including divorce, separation, possible infidelity and remarriage by their husbands in a quest for an heir (Fledderjohann, 2012). Women succumb to physical violence by their husbands and their family members including verbal, emotional abuse (Ombelet, 2011), and gender-based violence in general and among infertile women is an issue that many sub-Saharan countries are continuously grappling with. There is an increased risk of HIV infection for Sub-Saharan women as they engage in extramarital affairs in a quest to prove their fertility resulting in individual health implications and higher rates of HIV/AIDS in Sub-Saharan Africa (Inhorn, 2009).

This is further worsened by the lack of awareness, policies, programmes, facilities and research aimed at addressing infertility in sub-Saharan Africa (Ombelet, Cooke, Dyer, Serour, & Devroey, 2008). Inhorn (2009) highlighted that effective infertility treatment such as Assisted Reproductive Technologies (ART) is inaccessible in low resource countries

leading to untreated infertility cases. The latter is rationalised by poor resources and health care facilities and diversion of these resources to more life-threatening health issues such as HIV/AIDS and maternal mortality (Inhorn, 2009). Untreated infertility therefore results in the couple not being able to conceive and have children, leaving their contribution to society questionable by family and the community specifically in cultures that place high value on procreation and the continued existence of the family name (Dhont et al., 2010).

More so, in the sub-Saharan African region, attention has been on controlling over population due to high fertility levels. Research indicates population growth of about 4.2 billion by 2100 in sub-Saharan Africa (Gerland, et al., 2014). Rapid population growth due to high fertility can have multiple effects on developing countries (Gerland et al., 2014). The latter poses environmental challenges by depletion of resources, economic challenges manifesting as poverty, unemployment and increasing pollution (Gerland et al., 2014). The health concerns of overpopulation such as malnutrition, child and maternal mortality has also been one of the reasons why infertility has been solely neglected in low-resource countries therefore increasing the rate of childlessness among couples (Ombelet, 2017).

However, the objectives of the ICPD and the framework for the Program of Action beyond 2014 encourages a shift by governments from a narrow focus on population control and fertility to a broader view on the rights of men and women to sexual and reproductive health care access (Roseman & Reichenbach, 2010). In advocating the aforementioned it is imperative that the same equal focus of men and women battling with infertility exist alongside controlling for unwanted and unintended pregnancies. The continued ignorance on preventative treatment and ART's for infertile couples represents an unfair population policy restriction (Ombelet, 2011).

Particularly, little is still known about the correlates of childlessness in sub-Saharan Africa including Mozambique. Country and time specific data lies at the forefront of combating the issue of infertility especially if required of limited resources to be relocated to sexual and reproductive health care (Ombellet, 2009). Existing studies that have been conducted in Mozambique, Nigeria and Ghana have focused mainly on the social and cultural implications of childlessness (Hollos, Larsen, Obono, & Whitehouse, 2009). The latter revealed the strong existence of infertility beliefs in these communities and the social, health and economic implications experienced by infertile couples (Obiyo, 2016). Moreover, these studies have been conducted on a small scale focusing on certain communities and clans in Mozambique, (Mariano, 2004).

Even though there has been some focus on childlessness in the sub-Saharan region, research is yet to be conducted on the correlates of childlessness using a nationally representative sample, specifically in Mozambique. In addition, it is important then to carry out analysis of women whose ages fall within reproductive ages of 20-49 as opposed to post-reproductive. The age group is chosen due to the 5-year exposure period included in the study population criteria which is recommended for infertility studies in demography (Polis, 2017). Moreover, focusing on reproductive aged women will indicate the correlates of infertility in Mozambique.

1.1.1 Aim of study

This study examined the levels and correlates of childlessness among married women using a nationally representative sample to add to existing knowledge of the issue in the country. The importance of uncovering correlates of childlessness is essential in determining its burden and most importantly target groups for interventions that are highly affected by infertility. Of the research conducted on the correlates of infertility, factors associated with infertility include level of education, income, age and behavioural factors such as tobacco use among

both men and women (Safarinejad, 2007). It is important to examine these correlates in the African context as social and economic factors work in relation with behavioural factors in the occurrence of infertility and childlessness.

1.1.2 Objective

The objective of this study was to to determine the levels and correlates of childlessness among married women aged 25-49 years in Mozambique using a nationally representative sample of married women to shed more light on infertility. Findings from this study will add to the little existing knowledge on infertility in the Sub-Saharan African context where the inability to conceive brings about stigma and social exclusions for the women affected (Faria, 2018).

1.2 Justification

Infertility in Sub-saharan African has been reported to affect one in three couples (Dhont, 2010). Existing literature has indicated that infertile women face oppression in their societies and the economic consequence for these women contributes to the cycle of poverty as children are a source of security during old age among many African families. Tabong and Adongo (2013) report on the potential violence and abuse faced by women that are in childless marriages and this hinders program efforts in these regions that aim to eradicate gender-based violence and empower women. Infertility often results in separation and divorce as the pressure from family and friends' places strain on the marriages of couples. Faria, (2018) maintains how familial and marital problems due to childlessness differ by social class: upper-middle class women suffered a high burden of marital and family problems in comparison to low class women further indicating existing health inequalities.

The prevalence, causal and associated factor of childlessness have been neglected in the research field, specifically in sub-Saharan Africa. of the few studies conducted in Mozambique in infertility and childlessness, few address the contributing factors of

childlessness in the country, the levels of childlessness and even the rate at which infertility or childlessness is increasing in the country.

Moreso, the presence of active interventions and programmes that aim to address infertility in poor resource communities is next to none even though the latter has been recognised as a reproductive and health issue. The health policy project existing in Mozambique amongst other things was formed to be able to anticipate the resources needed to be able to achieve the country health goals thus making whatever findings from this study as important in highlighting the issues around involuntary childlessness and the support that might be needed by those affected .

It is therefore important to conduct research on the prevalence and correlates of infertility and childlessness in this region to help guide the development of policies and programs that will address this issue. This study will examine the correlates of childlessness among married women and therefore inform policy makers in creating policies that are fairly and equally representative of the reproductive and health care rights of the Mozambique nation. In addition, it will help in identifying target groups for programme implementation and interventions. The research will also give direction on how Mozambique and other sub-Saharan countries can grapple with the issue of infertility and childlessness by creating policies for the minority infertile groups and implementing preventative programs.

1.3 Research Questions

What are the levels and correlates of chidlessness among married women aged 25-49 years living in Mozambique?

I. What is the level of childlessness among married women ages 25-49 living in Mozambique?

II. Does the level of childlessness differ across socio-demographic characteristics?

1.4 Research objectives

To examine the levels and correlates of childlessness among married women ages 25-49 in Mozambique.

I. To determine the level of childlessness among married women aged 25-49 in Mozambique
II. To determine the correlates of childlessness among married women aged 25-49 in Mozambique

1.5 definition of Terms

Childlessness is usually defined as the inability to produce a live birth in a union of more than 5 years whereas infertility is the inability to conceive within 12 months of regular sexual exposure in the absence of contraceptive use (Tabong & Adongo, 2013). The lack of consensus on the definitions of infertility and childlessness and how these should be measured contributes to the under-reporting of the latter issue. However, the demographic approach generally measures infertility and childlessness as the inability to produce a live birth after 5 years of marriage (Polis, 2017).

infertility is defined as "a condition occurring when at least one year of unprotected sexual intercouse between a man and a woman between menarche and menopause does not produce a pregnancy" (Greely, 2016).

social exclusion is described as the exclusion of individuals or groups from social exchanges, component of practices and right of social integrations and identity (Witcher, 2013).

Correlate is known as the relationship or connection where one thing affects or is dependent on another

Stigma is defined as "the disapproval and disadvantage attached to people who are seen as different" (Adams, Reiss, & Serlin, 2015).

Chapter 2: Literature Review

2.1 Prevalence of childlessness

Infertility affects more than 70 million couples globally and majority of these couples reside in developing countries (Tabong & Adongo, 2013). The lifetime prevalence of infertility has been estimated at 16.4% in sub-Saharan Africa (Boivin, Bunting, Coliins, & Nygren, 2007). The prevalence of secondary infertility has also been estimated at more than 30% in this region (Dhont, et al., 2011). More so, Mozambique has been recognised as one the countries that lie on the infertility belt of sub-Saharan Africa (Garenne, 2008).

In developing countries, the awareness about the correlates of infertility and childlessness lack in various research fields and in the public, specifically among African infertile women who are greatly affected socially, economically and psychologically when the latter occurs (Dimka & Dein, 2013). Tubal blockage and infections such as chlamydia and ghonorrhea are some of the highlighted causes of infertility among women (Sharma et al., 2009). The aforementioned are neglected and preventable health problems that influence primary infertility. Chattopadhyay & Mukherjee (2015) maintain that one third of infertility cases in India are attributable to male problems and in some cases, male infertility causes tend to be unknown therefore making it difficult to treat (Sharma et al, 2009).

2.2 Factors associated with childlessness

Few studies report on the socio-demographic factors associated with infertility and childlessness in sub-Saharan Africa. In the US, socio-economic factors such as income level and education level where found to be associated with self-reported infertility or childlessness. Women with higher education and a higher income bracket where likely to report childlessness (Karmon, et al., 2011), and this could be due to the delay in childbearing by women in order to pursue their careers.

However, the latter contradicts findings of Baudin, de la Croix, & Gobbi (2015) reporting that low education and low income was associated with infertility and childlessness. Illiterate couples were found to be more infertile and childless compared to couples with primary or secondary level of schooling (Safarinejad, 2007). Increased level of education has also been associated with increased fertility awareness among reproductive aged women (Swift & Liu, 2014) and this highlights the importance of education in dealing with any infertility issues any couple might be faced with.

Increased remarriage rates have been reported for women who have experienced infertility compared to their healthier counterparts (Jumayev, et al., 2012). Childlessness is one of the reported factors contributing to marriage disolution among African couples where the inability to bear childlren can be strainous for many couples which can more often than not result in divorce and remarriage (Arugu, 2014). Polygamy is one way in which many couples seek to remedy the ordeal of infertilty where due to the inability of the wife to conceive, a second wife will be brought into the marriage in order to bear an heir for the family (de Kok, 2009), therefore childlessness is more likely to be reported by women in polygamous marriages.

Religion is an important aspect of procreation in marriage and this relationship is interchanged. Many couples when faced with involuntary childlessness seek solace and comfort from their church and even though programs for such are not present in many churches, religion can be a very important factor for dealing with childlessness (MBEN, 2018). In turn, many women delay childbearing due to well-known religion laws barring procreation out of marriage and this to an extent contributes to childlessness or infertility as women delay childbearing during their reproductive ages in fear of going against religion.

In African countries, HIV/AIDS was found to be associated with childlessness were pregnancies were lower among HIV positive women compared to HIV negative women (Dyer, 2008). This was also the case in kenya where STIs were a great contributing factor to infertility in the country (Musundi, 2017). In turn, infertility was also found to be a contributing factor to the HIV epidemic in many African countries. The prevalence of infertility is higher in the central and south of Africa where there is firstly a high prevalence of infections and secondly where most of the individuals who are affected are uneducated about these infections and how they can be treated (Gerrits, et al., 2017). Reseachers maintain that the involvement of government by implementing education programs aimed at informing the general public about health issues, will contribute to a noticeable decrease in infertilty and childless in many countries where the driving force of infertility are STIs.

Ethnicity has also been found to be associated with involuntary childlessness. African American women were less likely to report involuntary childlessness or infertility compared to their white and Japanese female counterparts (Karmon, et al., 2011)**.** The latter is in contrast with findings from (Wellons, et al., 2008)**,** where black women were more likely to report infertility and childlessness. Race specific infertility could be affected by the socio-economic factors such as education where there is a difference in career or educational advancement in these groups.

Age at marriage is associated with infertility as infertility increased by age (Safarinejad, 2007). This might be a major contributing factor in communities that encourage procreation only among married couples resulting in delayed childbearing. Maternal age is an important factor in childbearing where there are increased risks of female infertility in later ages than in younger ages (Sauer, 2015). Reproduction at a later age is likely lead to pregnancy

complications such as stillbirths and miscarriage. Reproduction at these advanced ages for women are due to various factors including career advancement and to seeking a partner.

Literature indicates contradictory information on whether childlessness or infertility is higher in urban or rural areas. Alvergne and Lummaa (2014) report that childlessness was found to be high in urban areas among post reproductive women. This was also observed by an increase in wealth status where the rich were more likely to report childlessness. This is line with other research indicating fertility to be higher in rural areas.

Spousal violence has been a researched phenomenon with regards to infertility and childlessness. In Nigeria, spousal violence was higher amongst women with one or more children compared to childless women (Solanke, Bisiriyu, & Oyedokun, 2018). This is contrary to the belief that childless women are more likely to be abused due to the strenuous nature of infertility for a couple.

Smoking and use of anti-depressant were identified as a risk factor for infertility among Iranian women including health factors such as the use of tobacco as well as weight and height factors. Differences in regional prevalence of childlessness exist in Iran with more prevalence existing in the southern counties than the northern counties (Safarinejad, 2007).

2.3 Coping strategies

Social networks and support systems play a strong role in coping among Mozambican women faced with infertility and childlessness. Great knowledge about causes and solutions are most likely to be obtained from peers who are faced with the simillar dillemmas and those that received treatment to resolve their infertility (Faria, 2018). Even though most women do not have access to effective treatment (Dhont, et al., 2011), social networks act as a support structure. These tend to exist outside of the family and among friends and colleagues as

infertility issues are kept hidden from family in fear of possible judgement and ostracism (Fledderjohann, 2012).

Support is enhanced during the treatment phase where women will converse about their experiences of infertility and childlessness. It is during treatment that most women seek support from those who have similar infertility issues. Coping mechanisms for men are different as they conceal the issue from peers and maintain that they have children elsewhere (Mariano, 2004). The role of family can be important for women dealing with infertility and chidlessness however the issue is normally hidden from them resulting in less or no family support.

2.4 Theoretical framework

The proposed theoretical framework for this research is the Bio-psychosocial model developed by George Engel. The theory aims to approach health and illness in the full context of the individual and not just merely focus on the biological factors. The biopsychosocial model considers biological (genetic, bio-chemical), psychological (mood, behaviour) including social factors (cultural, socio-economic) and how these interact in influencing illness, health and even healthcare. This approach is multifaceted and includes different dimensions and contexts in which medical professionals, psychologists and sociologists consider today in most of their work.

The current study applied the biopsychosocial model to indicate the possible impact of individual biological, psychological and social aspects on the inability to have children. The latter include aspects such as sexually transmitted infections, level of education and smoking or drinking behaviour and how all these can play a role on childlessness among women.

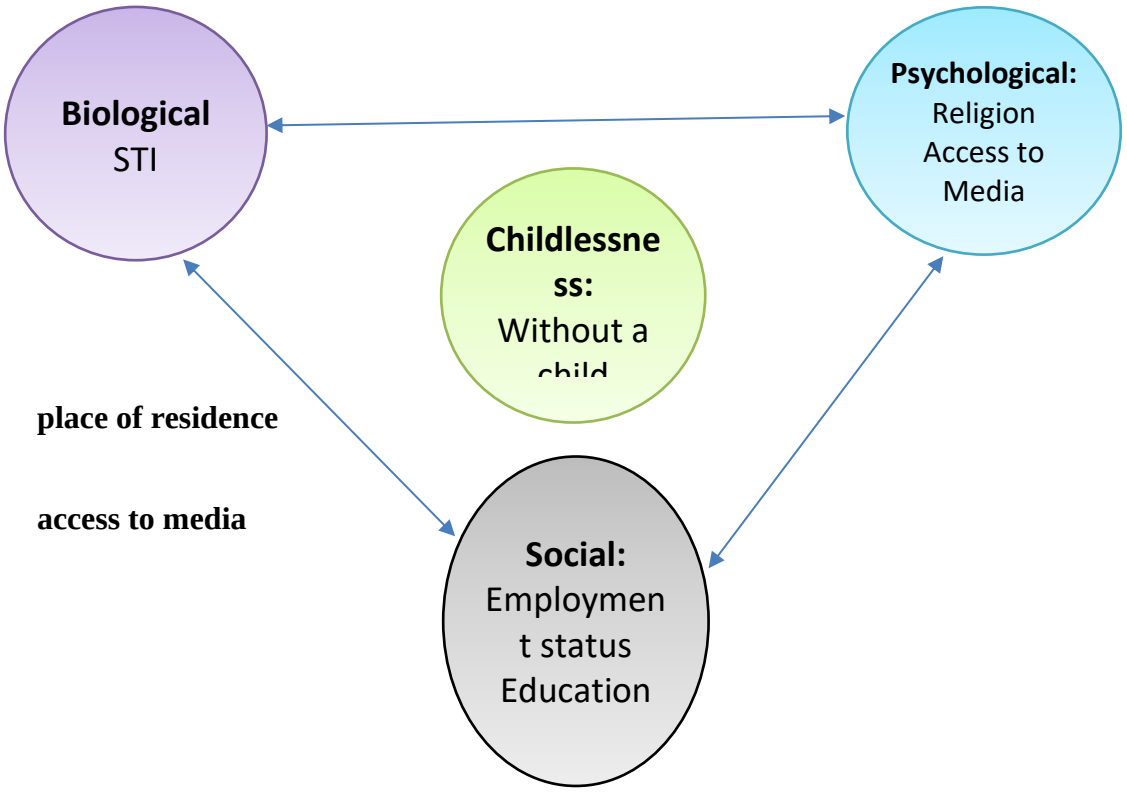
This model has been applied in many studies concerning health with each study interpreting and applying the theory in different ways depending on the scope and outcome of the

research. Raque-Bogman and Hoffman (2010) applied the model to investigate infertility as a biological contributing factor and how these interact with social and cultural factors to influence psychological wellbeing on women battling with primary and secondary infertility. the psychological factors being measured where Hope and self-compassion and to see the different levels of these among women faced with primary infertility and those with secondary infertility. Other studies have investigated health behaviours and psychological well-being and the interaction of these on other health outcomes among pregnancy women (Heery, Kelleher,Wall & Mcauliffe, 2014).

The model has mostly been applied to explain the biological, social and psychological consequences of infertility rather than to explain the relationship or influence of these on infertility and childlessness. (Sexton, Byrd, & von Kluge, 2010). which is what the current study aims to do. The strength of this model lies in its ability to indicate more than one stream of causality maintaining that health and illness is not merely due to a single factor (biological or psychological) (Ghaemi, 2009). However, the model has also been criticised in the medical sphere by practitioners for its holistic approach as in medicine there needs to be a single focus on the cause of illness. The model is befitting for the current study as we indicate that all these different proposed correlates can in relation to each other or individually can contribute to childlessness.

2.5 Conceptual framework

Conceptual framework describing the biological, psychological and social factors that influence infertility and childlessness. This is adapted from the original biopsychosocial model for mental health.



Source: https://savvywillingandable.wordpress.com/2013/09/25/the-biopsychosocial-model-explained

2.6 Research Hypothesis

Below is a proposed research hypothesis as derived from the main objectives of the study.

Ho: Individual demographic and socio-economic factors are not significantly associated with childlessness among married women in Mozambique.

H1: Individual demographic and socio-economic factors significantly reduce the risk of childlessness among married women in Mozambique.

Chapter 3: Methodology

3.1 Data Source

This study utilised the 2015 Mozambique AIDS Indicator survey (Mozambique AIS, 2015) produced by the DHS program to examine the levels and correlates of childlessness among married women aged 45-49 years in Mozambique. DHS program and its surveys has been implemented and conducted throughout the years in many other African countries including Mozambique to collect data on population health in order to implement programs and evaluate existing programs set up in each of these countries. The surveys are conducted to collect information on key areas of health such as HIV/AIDS, fertility, reproductive health, maternal mortality and child mortality etc. The survey consisted of women between the ages 45-49 who were either married or living with a partner. The female-based data includes a series of questions for females in Mozambique focusing on their sexual and reproductive health, prenatal and antenatal assessments, mortality, sexual risk behaviours, economic, social as well as their education characteristics.

3.2 Study design

The study will be a cross-sectional study. This will allow for the outcome of the study and the correlates to be investigated at the same time while considering the inclusion and exclusion criteria set out for the study and that this study will be utilising secondary data. This type of design is also best suited for the current study since the main focus is on firstly investigating the prevalence of childness and also being able to estimate the relationship between childlessness and the proposed correlates.

3.3 Study population

For a woman to be included in the study, they had to be between ages 45-49 and either married or had been living with a partner for 5 years or more. Women who did not fall within the inclusion criteria were excluded to reduce any form of selection bias. The study focused

on women aged 45-49 as this is an age group where a woman would be considered childless if there had been no live birth especially for a married person.

3.4 Sample size

This study was based on a weighted sample of 55947 women between ages 45-49 who were living with their partner at the time of the survey in Mozambique. Childlessness is normally measured among women who have passed their reproductive ages (40-49) as social norms in Mozambique always promote procreation as soon as one enters marriage. The current age group of 45-49 was also guided by the fact that childlessness is measured amongst women that have passed their reproductive age and who have not had a live birth..

3.5 Study variables

3.5.1 Dependent variable

A variable was created using the number of living children a woman has in order to identify women who were childless from women who had children. This was based on a question in the survey where women were asked about the number of living children, they had including children they did not live with. The variable was categorised for the test as 0 if married women had at least 1 child and as 1 if married women had no children. This analysis was made amongst women aged 45-49 that were married or living with their partner.

3.5.2 Independent variables

A range of variables were selected to investigate the association with childlessness. The selection of these variables was guided by existing literature on infertility and childlessness. Many of the variables were categorised to make for convenient analysis and for the production of satisfactory results.

Variables such as maternal age, age at first cohabitation and employment status were some of the variables selected in relation to childlessness. Maternal age is an important factor in conception and childbearing where the risk of childlessness and infertility increases with age

(Lampi, 2011). Religion, type of place of residence as well as level of education have been focused on with regards to infertility however these have been studied by investigating the difference in consequence of infertility by level of education and religion etc ((Dierickx, Rahbari, Longman, & Coene, 2018). The current study looked at the latter variables to indicate whether the level and risk of childlessness was different by religion or type of place of residence.

Wealth status as one of our explanatory variables has been an area of focus in fertility studies (Alvergne & Lummaa, 2014). Fertility has been discovered to be high in individuals with rich wealth status however there have been studies that contradict these findings where fertility was high among the poor groups and in rural areas. The current study aimed to indicate as association between childlessness and wealth status. Religion has been found to be a great influence in voluntary and involuntary childlessness hence the inclusion as a focus variable in the study (Buber-Ennser & Skirberk, 2016).

Education is an important contributing factor as proven by research. Postponement of childbearing has been found to be due to advancement in education (Monstad, Propper, & Salvanes, 2008). The aim was to uncover whether level of education is associated with childlessness. Sexually transmitted diseases are a great contributing factor in infertility hence a variable of focus in the study as well. Transmitted infections such as chlamydia can cause pelvic disease leading to tubal blockage in women and therefore the inability to conceive (Apari & de Sousa, 2014). The risk of STDs has also been found to be higher among childless couples where in pursuit of trying to conceive, men and women might end up having multiple sexual partners and therefore increasing their chances of contracting an STI.

The study aimed to also investigate the role of media in infertility and childlessness. This variable was created by evaluating whether respondents had access to both Radio and TV in

their households. There is little to no information in the media about sexually transmitted diseases and their possible harm to reproduce thus decreased knowledge on these amongst childless individuals. (Musundi, 2017). Research has also indicated that even with its little presence, access and infertility risks, media was the second-best way childless women knew information and this speaks to the association it might have with childlessness among women (Lampi, 2011).

Variables	**Description**
Childlessness	Whether a woman has a child or not measure by number of living children
Region	Region in which the respondent is based
Type of place of residence	Place pf residence where respondent is based
Highest education level	Highest level of education the respondent has obtained (no education, primary education or secondary/tertiary education
Religion	Type of religion to which the respondent identifies with
Number of unions	Literature indicates that women who have been married more than once are likely to be childless, this measure whether they have been remarried or not
Employment	Whether respondent is employed or not
STI in the last 12 months	Has respondent had an STI in the previous 12 months to interview
Age at first cohabitation	Age at which respondent first lived with a partner
Respondent earns more than partner	Literature indicates women who earn more than their husbands and pursuing a career are more likely to hold off on having a child or remain childless
Wealth index	Wealth status of the respondent
Access to media	Respondents have access to TV and Radio
Number of other wives (505)	Women in polygamous marriages are likely to be childless
Ever tested for HIV	Respondent ever tested for HIV

Table 1: summary of the proposed independent variables and their description

3.6 Data Analysis

Descriptive statistics in the form of graphs and tables were used to present demographic, social and economic characteristics. Multivariate analysis composed of a binary logistic regression where our dependent variable was dichotomous (0 – women with at least one child, 1- women without a child). Our proposed correlates were chosen for their direct influence on a lot of aspects concerning women including their fertility or lack thereof as observed from literature. Statistical software STATA 15 was used to analyse our data.

***Variables*:**

- Let Y be a binary response variable:

  $Y_i = 1$ if married women does not have any living children

  $Y_i = 0$ if married women had at least one child.

- $X = (X_1, X_2, ..., X_k)$ be a set of explanatory variables such as level of education, employment status, access to media etc

source:

https://online.stat.psu.edu/stat504/node/150/#:~:text=Binary%20logistic%20regression%20estimates%20the,1%7CX%20%3D%20x).&text=xi%20is%20the%20observed,explanatory%20variables%20for%20observation%20i.

Binary logistic regression is concerned with the probability that an individual will have a certain characteristic or not all the while determining the level to which the explanatory variable contributes to the likelihood of the outcome. The statistical test was best suited for this study as the main aim was uncovering how many women were childless and which risk factors had the most contribution on women being childless.

Chapter 4: Results

Table 1 presents characteristics of the sample taken from the Mozambique AIS 2015. The study sample was restricted to females between ages 45-49 who were either married or living with a partner. Majority of our sample reported living in the south (41.71%) with 62.24% being based in the rural areas. A high percentage of the sample only had primary education (38.72%) while only 7.45% reported to having secondary and tertiary education. A higher percentage (42.44%) of our sample were either catholic or Christian with 9.92% of women reporting not having any religion affiliation. Most of our sample fell in the rich wealth category (47.85%) while 36.36% were poor based on the wealth status indicator. About 63.35% females reported to not having access to media.

A high percentage of our sample had been married only once (69.36%) while 30.64% of our sample had been married before the current relation/marriage. About 76.57% of the females were in a monogamous marriage while 23.43% were in a polygamous marriage. Most of our sample reported first cohabiting between the ages of 10-19 years (58.02%) while 8% had only started cohabiting between the ages of 30-49 years. A total of 42.9% of the sample was unemployed with majority of the women being employed at the time of the study (57.1%). Of the females that reported to be working, only 12.78% earned higher than their partner while 77.3% reported to be earning less than their partners. Most of sample reported not having an STI in the last 12 months of the study (97.12%) while only 53% of the females had ever tested for HIV in their lifetime.

Only 4.14% were found to be childless while the rest had at least 1 or more children. Of the 4% that reported to being childless, 2% resided in the northern region of Mozambique while the other half where distributed between the central and southern region. About 40% of women with children resided in the southern region of Mozambique. Majority of childless women were based in rural areas (3%) while only 1% of them were from the urban areas.

About 59.15% of women with children also resided in the rural parts of the country with the rest residing in urban areas.

About 1.8% of childless women reported to having no education with almost the same number of women only having a primary education. Less than 1% of childless women had a secondary or higher education. A high number of women with child had primary education as their highest level of education. Majority of childless women were either catholic or Zionist (2.44%) while 1.21% were protestant. The number of childless women with a poor wealth status was higher than (2.02%) than those with a rich wealth status while a high percentage of women with children fell into the wealth category.

Most childless women did not have access to media (2.9%) while the rest did have access to media either through radio, TV and newspapers. About 2.12% of childless women had been married before their current marriage while the other 2% where in their first marriage. Most childless women where in a monogamous marriage (3.65%) while the rest of childless women where in a polygamous marriage. 72.91 % of women with child reported to be the only wife in the marriage. About 3% of childless women reported to having first cohabitated with a partner between the ages 10-19 while only 1.02% first cohabited between the ages of 20-29. Only 0.13% of childless women started cohabiting between ages 30-49 years. Most women with children reported first cohabitation at ages 10-19 years.

Overall there was a high number of employed responded with or without children About 2.95% of childless women were employed with 2% of them earning more than their husbands. Only 1.22% of childless women were unemployed. Most women with at least 1 child where employed at the time of the interview (54.18%) with Only 10.76% of them earning more than their partners. A high number of women with children earned less than their partners (71.84).

Majority of childless women reported to not having an STI in the last 12 months of the interview (3.85%) while 1% of childless women reported to having an STI in the last 12 months. most women with child also reported to not having an STI in the last 12 months (93.27%) with 2.57% of women with child having contracted an STI before. Only a small percentage of women without children reported to having ever tested for HIV in their lifetime (0.98%) while most reported to never testing for HIV before (3.16%). Most women with at least one child reported to having tested for HIV before (52.61). Overall there was a high number of women who reported to having tested for HIV in their lifetime.

Age	With Child	%	without child	%2
45-49	53 632	95,86	2 315	4,14
Region				
North	15 821	28,28	1 528	2,73
Central	15 020	26,85	245	0,44
South	22 791	40,74	542	0,97
Type of place of residence				
urban	20 540	36,71	588	1,05
rural	33 092	59,15	1 727	3,09
Highest Level of Education				
No education	20 625	36,87	1 038	1,86
primary	29 083	51,98	1 031	1,84
secondary	3 924	7,01	246	0,44
Religion				
catholic	22 380	40,00	1 363	2,44
protestant	18 300	32,71	679	1,21
evangelical/pentecost	7 576	13,54	100	0,18
no religion	5 376	9,61	173	0,31
Wealth Index				
poorer	19 210	34,34	1 131	2,02
middle	8 738	15,62	100	0,18
richer	25 684	45,91	1 084	1,94
Access to Media				
No	33 754	60,45	1 619	2,90
Yes	19 766	35,40	696	1,25
Remarriage				
once	37 675	67,34	1 128	2,02
more than once	15 957	28,52	1 187	2,12
Polygamy				
no other wives	40 116	72,91	2 010	3,65

one other wife	12 587	22,88	305	0,55
Age at first cohabitation				
10--19	30 785	55,03	1 673	2,99
20-29	18 456	32,99	568	1,02
30-49	4 391	7,85	74	0,13
Employment				
no	23 319	41,68	684	1,22
yes	30 313	54,18	1 631	2,92
Respondent earns more than partner				
more than him	1 883	10,76	354	2,02
less than him	12 577	71,84	955	5,46
about the same	1 018	5,82	0	0,00
husband/partner doesn't	719	4,11	0	0,00
STI in the last 12 months				
no	51 945	93,27	2 142	3,85
yes	1 431	2,57	173	0,31
Total	53 376	95,84	2 315	4,16
Ever tested for HIV				
no	24 197	43,25	1 766	3,16
yes	29 435	52,61	549	0,98

Table 2: cross tabulations between our dependent variable childlessness (measured by number of living children and proposed correlates.

Table 3 presents results from the logistic regression model between proposed correlates and the dependent variable childlessness. When looking at the likelihood of childlessness across regions, there was no difference in the likelihood of the latter for women in the Northern and Central Regions (OR :1). The likelihood of childlessness was also less likely for women in the Southern region when compared to those in the Northern region (OR 0.01; CI: 0.003 – 0.008).

childlessness was higher for women residing in rural areas compared to women in urban areas (OR 29.97; CI: 21.226 – 42.326). Looking at the impact of education, the odds of childlessness were 1.61 times more for women with a primary education compared to those

with no education at all (CI: 1.250 – 2.070). The odds were even higher for those with a secondary or tertiary education (OR 2.25; CI:1.547 – 3.265).

The odds of childlessness were high among women who were protestant compared to those who were either Catholic or Christian (OR 56.19; CI: 37.309 – 84.616). The likelihood of childlessness was also high for women who were evangelic, or Pentecostal compared to the reference category (OR 52.05; CI: 33.192 – 81.637). The odds of childlessness where even higher for women who classified as not belonging to any religious group when compared to Catholics or Christians (OR 139.56; CI: 76.249 – 255.440).

The likelihood of childlessness was 0.67 less likely for women who were in the middle wealth quintile compared to those who fell in the poor wealth quintile (OR 0.67; CI: 0.441 – 1.026) While the odds of childlessness were more higher for those women in the rich wealth quintile compared to the poor (OR 64.07; CI: 45.551 – 90.124).

The likelihood of childlessness was less likely for women with access to Media compared to women who had no media access (OR 0.31; CI: 0.224 – 0426). The odds of childlessness were also less likely for women who were in a polygamous marriage compared to those in a monogamous marriage (OR 0.43; CI: 0.318 – 0.579). The likelihood of childlessness among women who had been married before their current marriage was less likely compared to women who had only been married once (OR 0.25; CI: 0.197 – 0.316).

The likelihood of childlessness was higher among women who first cohabited between ages 30-49 compared to those who cohabited at an earlier age of 10-19 years old (OR 9.28; CI: 6.268 – 13.749). The latter was also observed for women who first cohabited between ages 20-29 (OR 2.85; CI: 2.316 – 3.512). The odds of childlessness were 1.6 times higher for women who were employed compared to their fellow females who were unemployed (CI: 0.87 – 2.908). The odds of childlessness were 0.04 times less likely for women who earned

less than their partners compared to those who earned more than their partners (CI: 0.033 – 0.055). There was no significant difference between women who earned the same as their partners, women whose partners did not bring in any income and those who didn't know what their husband's income was when compared to those female counterparts who earned more than their partners.

The likelihood of childlessness among women who reported to having an STI was 4.52 times more likely than for women who had reported to not having an STI in the last 12 months of the study (CI: 2.446 – 8.340). However, the likelihood of childlessness among women who had ever tested for HIV was 0.33 times less likely compared to women who had never tested for HIV before (CI: 0.2544 – 0.420).

Childlessness Status	**OR**	**P>Z**	**[95% Conf. Interval]**
Central	1		
South	0,01	0	0,003 0,008
Type of Place of residence			
Urban	RC		
rural	29,97	0	21,226 42,326
Highest level of education			
No education	RC		
primary	1,61	0	1,250 2,070
secondary/ Tertiary	2,25	0	1,547 3,265
Religion			
Catholic/ Christian	RC		
protestant	56,19	0	37,309 84,616
evangelical/Pentecostal	52,05	0	33,192 81,637
no religion	139,56	0	76,249 255,440
Wealth Status			
Poor	RC		
middle	0,67	0,066	0,441 1,026
richer	64,07	0	45,551 90,124
Access to Media			
No	RC		
Yes	0,31	0	0,224 0,426
Remarriage			
Only married once	RC		

more than once	0,25	0	0,197 0,316
Polygamy			
No other wife	RC		
one other wife	0,43	0	0,318 0,579
Age at first Cohabitation			
10-19	RC		
20-29	2,85	0	2,316 3,512
30-49	9,28	0	6,268 13,749
Employment			
No	RC		
yes	1,6	0,125	0,878 2,908
Respondent earns more than Partner			
More than him	RC		
less than him	0,04	0	0,0334 0,055
about the same	1		
husband/partner doesn't bring in money	1		
don't know	1		
STI in the last 12 months			
No	RC		
yes	4,52	0	2,446 8,340
Ever tested for HIV			
No	RC		
yes	0,33	0	0,254 0,420

Table 3: presents results from the logistic regression between childlessness and the proposed correlates, Mozambique AIS 2015

Chapter 5: Discussion and Conclusion

This study uncovered the level and correlates of childlessness among married women in Mozambique by utilising the Mozambique AIS 2015. The reliability of this data lies in its national representation of Mozambique individuals with the standard survey data modified according to the country's characteristics. The quantitative approach of the current study adds to the many qualitative studies done on the topic of childlessness (Chimbatata & Malimba, 2016), not only in Mozambique but in many African countries as well. The quantitative also offers a better view of the number of individuals that are indeed affected and to discover

which factors correlate with or even influence childlessness for better implementation of programs.

Mozambique was one of the countries found to have more than 5% of women aged 45-49 who were sexually active but had not had a live birth (Rutstein & Shah, 2004). The current study reported a rate of 4.14% of childlessness among the same age group of women in 2015. This could be due to late age at cohabitation as well as employment among women as these were found to increase the odds of childlessness. Education was also found to influence childlessness where the lower the education level the higher the risk of childlessness and this can also play our vice versa where the higher the education the increased odds of childlessness where career takes precedence over childbearing.

The current study indicates how the odds of childlessness were higher for women in rural areas. Sarkar & Gupta (2016) reported infertility to be higher among women based in rural areas. Additionally, women based in urban areas were more likely to seek modern treatment for their infertility. The odds of childlessness appear to be higher for women in rural areas which could either be due to lack of knowledge about possible infertility causes. Furthermore, infertility treatment such as ART's when and if accessible by women in rural areas, can be very expensive therefore limiting their chances of successful conception.

Education in this study predicted childlessness and this has been reported in many other studies. Women tend to delay childbearing in pursuit of their education hence the higher the education the higher the chances of childlessness among women. Espenhaug, Nilsen, Waldenstrom, & Schytt (2015) reported that previous generations would have children after their completion of their education however today women also aim to have established careers first and seek many other greater achievements before they decide to have a family. Childbearing then becomes more difficult at an older age as biological conditions are no

longer advantageous. Education can be an important contributing factor towards the ability of an individual to better deal with any health issue. The fact that most women who were childless had no education points firstly to limited knowledge they might have on causes and prevention of infertility and secondly would not know where and how to seek treatment should they be faced with infertility.

Childlessness tends to be higher for employed women than for unemployed women. Findings from Stats SA (2015) support the above as most employed women were found to be childless and this also varied by the type of occupation, with the odds being higher for women in managerial and executive positions. This can further be explained by findings from various studies that found delayed childbearing amongst educated employed females who were pursuing their careers. The rate of employed females in Mozambique is increasing along with female opportunities through women empowerment and development programs which play a role in women emancipation. This might therefore contribute to delayed childbearing where reproduction occurs at an advanced maternal age. (Sauer, 2015).

Another social factor found to be associated with childlessness was late age at cohabitation as it was found to increase the likelihood of childlessness. This affects reproduction exposure which would occur at a later age especially where procreation is supported only when one is in a marriage. Age related infertility issues can arise when the latter happens (Sauer 2015).

Sexually transmitted infections which could sometimes cause tubal blockage in women thus leading to increased likelihood of childlessness (Dyer, 2008). The fact that many women do not seek treatment when infected adds to their increased risk of infertility. Research has indicated how low-income countries in sub-Saharan Africa grapple with the greatest burden of STI's where these can directly increase chances of infertility among women (Essack &

Strode, 2012). It is no doubt that state attention on reducing increased rates of STI'S through sexual health education might in turn reduce high chances of infertility.

Media was the second most trusted source of knowledge after experiences from family and friends. Lampi (2011) reports how media reaches women of all ages and therefore can be an important source of information regarding age related infertility. Older women were however found to obtain information from health care facilities directly. Women with access to media were found to have lower odds of childlessness. A study conducted among Sweden women reported that media channels such as Radio and newspapers, were a secondary source of information to that obtained from friends and family about age related infertility. Receiving information about infertility from either the media or from friends and family was however bound to lead to overestimation of the risk of infertility among women (Lampi, 2011).

Research on infertility and childlessness, mostly qualitative has been conducted in the southern region of Mozambique however, no regional differences have been reported. This could be due to the intensity of the social, economic and traditional ostracization that women face in the southern region that research has been mostly conducted in that region. Women are still solely held accountable for their inability to conceive even though male infertility has also been reported. Women often seek treatment mostly traditional with western medicine being the last resort (Boaventura, Mariano, Samucidine, & Sousa, 2010).

In developing countries, marriage is considered null and void if it is not blessed by children (Arugu, 2014). Childlessness is one of the leading causes of divorce which might also result in high rates of women and men being remarried. However, in African societies, this was less likely to lead to a complete dissolution of marriage (Arugu, 2014). Many African couples faced with the adversities of infertility resort to other known practices such as Polygamy

should modern and traditional methods of battling infertility be futile (de Kok, 2009). The latter is a well-known proposed and respected practice in many African cultures when the first wife fails to bear an heir for her husband (de Kok, 2009). This was however different for Mozambique where polygamy is not a direct correlate of childlessness.

Religion also bears great significance on procreation within a marriage. In India, children most importantly, a son has great significance on religious activities and for carrying the family name forward (Dubey & Mishra, 2014). Those without strong religious ties might therefore not feel as pressured to have a child. Religion also can serve as an important refuge for childless women who seek solution and comfort for their infertility where Assisted Reproduction Technologies become unsuccessful.

Mben (2018) discusses the influence of religion, mainly Christianity on those experiencing involuntary childlessness in that it may offer comfort and acceptance where there is an understanding that it is Gods will that they are childless. There is also an existing contradiction that involuntary childlessness is a curse for those who fail to live in accordance with the standard of the kingdom of God and where repentance will be the only way to guarantee the blessing that which is a child.

The biopsychosocial theory provided a view of the issue of childlessness not only as a biological factor but a social and psychological one as well. As seen in the results, childlessness is not only associated with biological factors such as STIs' but is also related to the level of education and socio-economic stance of women. The proposed framework gives a scenario where the biological, social and psychological interact in their relationship and association with infertility and childlessness.

The proposed model fits perfectly with the study where the correlates of childlessness are not only biological but social and behavioural. These aspects to some extent interact with each

other in their influence on childlessness. The presence and treatment of an STI can be influenced by level of knowledge (education) the individual has on the infection and on how and where to go for treatment. Future research should consider the proposed model and analyse childlessness influenced by an interaction of the correlates (Hollos, Larsen, Obono, & Whitehouse, 2009).

This current study is not without its own limitations. Information on husbands age, education as well as the smoking and drinking behaviours of both men and women were absent in the data analysed. The latter limited a broad analysis regarding the effects of partners characteristics on childlessness as literature has indicated to some extent a correlation with childlessness. The proposed conceptual model of this study included the respondent behavioural aspects such as smoking and drinking however these were not available in the dataset. This decreased the applicability of the proposed model.

dies conducted on infertility and childlessness both in the developed and developing countries but also contradicts with findings from other studies.

It is evident that the focus of governments has been on reducing high fertility rates in efforts to avoid over-population and depletion of resources. However, it is important for the state to integrate infertility care into the broader reproductive health care system to show equality in health care provision across all aspects including for childless women (Sarkar & Gupta, 2016). Health systems have for a long time focused on assisting women with family planning by reducing unwanted pregnancies, however this has only been a single representation of the reproductive and health policies where infertility is not addressed (Ombelet, 2017). . One of Mozambique Family planning 2020 commitments was to increase access to family planning through community health workers, the approach is still one sided where there is lack of information about available resources for those who want to conceive.

Public education about age related infertility, causes and solutions is needed for many women as there is a lack of knowledge on such topics (Daniluk, Koert, & Cheung, 2012). Education by use of Mass media and existing healthcare systems should be utilised to increase knowledge on the causal factors, symptoms and possible infertility issues among Mozambican women. Education on sexual and reproductive health in schools might help to curb increasing sexual and reproductive health issues in the country. As we have seen from the current study and other research that education serves as an important driver for decreasing many health issues (Bessis & K., 2007).

The government of Mozambique has aimed to expand medical and health care access in the country and this study has given information on specific target areas for tackling infertility with the aim of increasing reproductive health for women.

As much as Mozambique has committed to achieving the SDG's set out, the country still grapples with improving women's health. Furthermore, the country still has a high burden of poverty and infectious diseases which often inhibits the improvement of Primary Health care for those who need it most. The issue with the improvement of health in Mozambique is not that off policy formulation but off implementation of programs to make those policies a success

The country has made great strides on improvement of integrated sexual and reproductive health services with the help of organizations such as the UNFPA and until the country's health system is built to cater for issues of infertility in the broader health system, the great source of help should be from donors such as UNFPA and WHO. One specific program that could serve of purpose is the WHO's HRP program which aims to improve sexual and reproductive health rights for men and women and those that have been marginalized. Its current works includes global systematic research on issues of infertility with the aim of

implementing a fertility care program that addresses the unmet needs of couples dealing with fertility issues. The latter will include awareness, management and support throughout the program. Further research must be conducted to show the increase or decrease of childlessness across the years. Future research could focus on trend analysis of childlessness among married women in Mozambique over a 10- or 15-year period.

Declaration

I declare that the contents and data produced in this thesis are a representation of my original work. Acknowledgements have been given where other sources have been used for the current research especially through literature and the discussion.

This thesis was produced under the guidance of Professor Clifford Odimegwu, University of Witwatersrand, Department of Population Studies.

Masego Mabe



Acknowledgements

I would like to thank the National Research Foundation (NRF) for their financial support towards my MA studies provided through Professor Clifford Odimegwu. I would like to extend my humblest appreciations to Department of Population studies for their continued support through the MA Courses and Research. To Nyasha Mutanda, thank you for continued support and guidance throughout my thesis. To Professor Clifford, your strong stance and discipline is what pushed me towards producing a sound research thesis, I am truly grateful.

References

Adams, R., Reiss, B., & Serlin, D. (2015). *Keywords for disability studies*. New York University Press.

Africa, S. S. (2015). *Exploring Childlessness and Delayed childbearing in South Africa.* Pretoria: Statistics South Africa. doi:10.13140/RG.2.1.1796.1841

Alvergne, A., & Lummaa, V. (2014). Ecological variation in wealth–fertility relationships in Mongolia: the 'central theoretical problem of sociobiology' not a problem after all? *Proceedings of the royal society B*, 1-9.

Arugu, L. (2014). Social indicators and effects of marriage divorce in African societies. *The Business & Management Review, 4*(4), 374-383.

Baudin, T., & Sarkar, K. (2019). Education and Childlessness in India. *WORKING PAPER SERIES*, 1-58.

Baudin, T., de la Croix, d., & Gobbi, P. (2015). Fertility and Childlessness in the United States. *American Economic Association, 105*(6), 1852-1882.

Black, B., Holditch-Davis, D., & Miles, M. (2010). Life Course Theory as a Framework to Examine Becoming a Mother of a Medically Fragile Preterm Infant. *Researching Nursing Health* , 38–49.

Boivin, J., Bunting, L., Coliins, J., & Nygren, K. (2007). International estimates of infertility prevalence and treatment-seeking: potential need and demand forinfertility medical care. *Human Reproduction, 22*(6), 1506–1512. doi:doi:10.1093/humrep/dem046

Bongaarts, J. (2015). Modeling the fertility impact of the proximate determinants: Time for a tune-up. *Journal of Population Sciences, 133*(19), 535–560. doi:10.4054/DemRes.2015.33.19

Buber-Ennser, I., & Skirberk, V. (2016). RESEARCHERS, RELIGION AND CHILDLESSNESS. *Journal of Biosocial Science*, 391–405. doi:10.1017/S0021932015000188

Chattopadhyay, A., & Mukherjee, R. (2015). Primary Childlessness among Married Men in India. *Sociological Bulletin, 64*(3), 325-340.

Chimbatata, N., & Malimba, C. (2016). Infertility in Sub-Saharan Africa: A Woman's Issue for How Long? A Qualitative Review of Literature. *Open Journal of Social Sciences*, 96-102.

Daniluk, J., Koert, E., & Cheung, A. (2012). Childless women's knowledge of fertility and assisted human reproduction: identifying the gaps. *Fertility and Sterility, 97*(2), 420-426. doi:15-0282/$36.00

de Kok, B. (2009). Automatically you become a polygamist': 'culture' and 'norms' as resources fornormalization and managing accountability in talk about responses to infertility. *An Interdisciplinary Journal for the Social Study of Health,Illness and Medicine, 13*(2), 197–217. doi:10.1177/1363459308099684

Dhont, N. (2010). Gender differences and factors associated with treatment-seeking behaviour for infertility in Rwanda. *Human Reproduction, 25*(8), 2024–2030. doi:10.1093/humrep/deq161

Dhont, N., Luchters, S., Muvunyi, C., Vyankandondera, J., De Naeyer, L., Temmerman, M., & van de Wijgert, J. (2011). The risk factor profile of women with secondary infertility: an unmatched case-control study in Kigali, Rwanda. *Bio Med Central Womens Health, 11*(32), 1-7.

Dimka, R., & Dein, S. (2013). The Work of a Woman is to give Birth to Children: Cultural Constructions of Infertility in Nigeria. *African Journal of Reproductive Health, 17*(2), 102-117.

Dyer, S. (2008). Infertility in African countries: challenges created by the HIV epidemic. *Human Reproduction*, 48-53. doi:10.1093/humrep/den157

Dyer, S. (2008). Infertility-related reproductive health knowledge and help-seeking behaviour in African countries. *Human Reproduction*, 29-33. doi:doi:10.1093/humrep/den148

Dyer, S., Abrahams, N., Hoffman, M., & van der Spuy, Z. (2002). "Men leave me because I can't conceive": womens experiences with involuntary childlessness. *Human Reproduction, 17*(6), 1663–1668.

Faria, I. (2018). Therapeutic Navigations and Social Networking: Mozambican Women's Quests for Fertility. *Medical Anthropology*, 1-13. doi:10.1080/01459740.2017.1417278

Fledderjohann, J. (2012). 'Zero is not good for me': implications of infertility in Ghana. *Human Reproduction, 27*(5), 1383–1390. doi:10.1093/humrep/des035

Ganguly, S., & Unisa, S. (2010). Trends of Infertility and Childlessness in India: Findings from NFHS Data. *F, V & V IN ObGyN, 2*(2), 131-138.

Garenne., M. (2008). *Fertility Changes in Sub-Saharan Africa. DHS Comparative Reports No. 18.* Calverton, Maryland,: Macro International Inc.

Gerland, P., Raftery, A. E., Ševčíková, H., Li, N., Gu, D., Spoorenberg, T., . . . Wilmoth, J. (2014). World population stabilization. *Science Mag, 346*(6), 234-238. doi:10.1126/science.1257469

Gerrits, T. (1997). Social and cultural aspects of infertility in Mozambique. . *Patient Education and Counselling* , 39–48.

Gerrits, T., Van Rooij, F., Esho, T., Ndegwa, W., Goossens, J., Bilajbegovic, A., . . . Bos, H. (2017). Infertility in the Global South: Raising awareness and generating insights for policy and practice. *Facts Views Vis Obgyn*, 39-44.

Ghaemi, S. (2009). The rise and fall of the biopsychosocial modeL. *The British Journal of Psychiatry*, 3-4. doi: 10.1192/bjp.bp.109.063859

Greely, H. T. (2016). *The end of sex and the future of human reproduction*. Harvard University Press.

Heery, E., Kelleher, C. C., Wall, P. G., & Mcauliffe, F. M. (2014). Prediction of gestational weight gain – a biopsychosocial model. *Public Health Nutrition, 18*(8), 1488-1498. doi:10.1017/s1368980014001815

Hollos, M., Larsen, U., Obono, O., & Whitehouse, B. (2009). The problem of infertility in high fertility populations: Meanings, consequences and coping mechanisms in two Nigerian communities. *Social Science and Medicine, 68*, 2061–2068.

Ibisomi, L., & Mudege, N. (2014). Childlessness in Nigeria: perceptions and acceptability. *Culture, Health and Sexuality, 16*(1), 61–75,. doi:10.1080/13691058.2013.839828

Inhorn, M. (2009). Right to assisted reproductive technology: Overcoming infertility in low-resource countries. *International Journal of Gynecology and Obstetrics, 106*, 172–174. doi:doi:10.1016/j.ijgo.2009.03.034

Joseph Loic Mben, S. (2018). Beyond Procreation: Rereading Aquinas in the Context of Involuntary Childlessness in West and Central Africa. *Horizons*, 19-45. doi:10.1017/hor.2018.55

Jumayev, I., Or-Rashid, H., Rustamov, O., Xakirova, N., Kasuya, H., & Sakamoto, J. (2012). SOCIAL CORRELATES OF FEMALE INFERTILITY IN UZBEKISTAN. *Nagoya Journal of Medical Science*, 273 - 283.

Karmon, A., Hailpern, S., Neal-Perry, G., Green, R., Santoro, N., & Polotsky, A. (2011). Association of ethnicity with involuntary childlessness and perceived reasons for infertility: baseline data from the Study of Women's Health Across the Nation (SWAN). *Fertility and Sterility*, 1200-1205.

Lampi, E. (2011). What do friends and the media tell us? How different information channels affect women's risk perceptions of age-related female infertility. *Journal of Risk Research*, 365-380. doi:10.1080/13669877.2010.541560

Mariano, E. (2004). Involuntary Childlessness among the Shangana (Mozambique). *Journal of reproductive and infant psychology, 22*(4), 261-269. doi:10.1080/02646830412331298314

Mascarenhas, M., Flaxman, S., Boerma, T., Vanderpoel, S., & Stevens, G. (2012). National, Regional, and Global Trends in Infertility Prevalence Since 1990: A Systematic Analysis of 277 Health Surveys. *PLoS Medicine, 9*(12), 1-12. doi:10.1371/journal.pmed.1001356

Musundi, S. (2017). Education, early screening and treatment of STIs could reduce infertility among women in Kenya. *Facts Views Vis Obgyn*, 111-114.

Obiyo, I. D. (2016). Impact of Childlessness on Marriage. (A Study of Married Couples in Lowa Community, Imo State). *International Journal of Religious and Cultural Practice, 2*(1), 8-19.

Ombelet, W. (2011). Global access to infertility care in developing countries: a case of human rights, equity and social justice. *F, V & V IN OBGYN,, 3*(4), 257-266.

Ombelet, W. (2017). Reproductive healthcare systems should include accessible infertility diagnosis and treatment: An important challenge for resource-poor countries. *International Journal of Gynecology and Obstetrics, 106,* 168–171. doi:10.1016/j.ijgo.2009.03.033

Ombelet, W., Cooke, I., Dyer, S., Serour, G., & Devroey, P. (2008). Infertility and the provision of infertility medical services in developing countries. *Human Reproduction Update, 14*(6), 605–621. doi:10.1093/humupd/dmn042

Ombellet, W. (2009). Reproductive healthcare systems should include accessible infertility diagnosis and treatment: An important challenge for resource-poor countries. *International Journal of Gynecology and Obstetrics, 106* , 168-171.

Polis, C., Cox, C., Tunçalp, O., McLain, A., & Thoma, M. (2017). Estimating infertility prevalence in low-to-middle-income countries:an application of a current duration approach to Demographic and Health Survey data. *Human Reproduction, 32*(5), 1064–1074. doi:10.1093/humrep/dex025

Ram, U. (2006). *Childlessness and Its Consequences in India: Levels, Patterns and Differentials.* International institute for population sciences, Department of public health and mortality studies , Mumbai.

Raque-Bogdan, T. L., & Hoffman, M. A. (2010). Self-Compassion, Hope, and Well-Being of Women Experiencing Infertility. *PsycEXTRA Dataset*. doi:10.1037/e622022010-001

Roseman, M., & Reichenbach, L. (2010). International Conference on Population and Development at 15 years: Acheiving Sexual and Reproductive Health and Rights for All? *American Journal of Public Health*, 403 - 406. doi:10.2105/AJPH.2009.177873

Rouchou, B. (2013). Consequences of Infertility in developing countries. *Perspectives in Public Health, 133*(3), 174-179. doi:10.1177/1757913912472415

Rutstein, S., & Shah, I. (2004). *Infecundity, Infertility and Childlessness in Developing countries.* Calverton, Maryland: ORC Macro and the World Health Organisation.

Safarinejad, M. (2007). Infertility among couples in a population-based study in Iran: prevalence and associated risk factors. *International journal of andrology*, 303-314. doi:10.1111/j.1365-2605.2007.00764.x

Sarkar, S., & Gupta, P. (2016). Socio-Demographic Correlates of Women's Infertility and Treatment Seeking Behavior in India. *Journal of Reproduction and Infertility*, 123-132.

Sauer, M. (2015). Reproduction at an advanced maternal age and maternal health. *Fertiility and Sterility*, 1136-1143.

Sexton, M., Byrd, M., & von Kluge, S. (2010). Measuring resilience in women experiencing infertility using the CD-RISC: Examining infertility-related stress, general distress and coping styles. *Journal of Psychiatric Research*, 236-241.

Sharma, S., Mittal, S., & Aggarwal, P. (2009). Management of infertility in low resource countries. *BJOG, 116*(1), 77-83. doi:10.1111/j.1471-0528.2009.02311.x

Sharma, S., Mittal, S., & Aggarwal, P. (2009). Management of infertility in low resource countries. *International Journal of Obstetrics and Gynaecology, 116*(1), 77–83. doi:10.1111/j.1471-0528.2009.02311.x

Solanke, B., Bisiriyu, A., & Oyedokun, A. (2018). Is the likelihood of spousal violence lower or higher among childless women? Evidence from Nigeria demographic and health surveys. *BMC Women's Health*, 1-12. doi:10.1186/s12905-018-0514-3

Swift, B., & Liu, K. (2014). The Effect of Age, Ethnicity, and Level of Education on Fertility Awareness and Duration of Infertility. *Journal of obstetric Gynaecology*, 990-996.

Tabong, P., & Adongo, P. (2013). Infertility and childlessness: a qualitative study of the experiences of infertile couples in Northern Ghana. *BMC Pregancy and Childbirth, 13*(72), 1-10.

Van Bavel, J., & Kok, J. (2010). Pioneers of the Modern Lifestyle? Childless Couples in the Early-Twentieth-Century Netherlands. *Social Science History, 34*(1), 47-72.

Wellons, M., Lewis, C., Schwartz, S., Gunderson, E., Shreiner, P., Sernfeld, B., . . . Sites, C. S. (2008). Racial differences in self-reported infertility and risk factors for infertility in a cohort of black and white women: The CARDIA Women's Study. *Fertility and Sterility*, 1640-1648.

Witcher, S. (2013). Social exclusion. *Inclusive Equality,* 127-154. doi:10.1332/policypress/9781447300038.003.0005