AN INVESTIGATION INTO THE DEMOGRAPHIC AND SOCIO-ECONOMIC FACTORS ASSOCIATED WITH FEMALE INFERTILITY; ITS RISK FACTORS AND TREATMENT SEEKING BEHAVIOR AMONG INFERTILE WOMEN IN LUSAKA URBAN DISTRICT: A CASE STUDY OF RESIDENTS OF MISISI, LIBALA AND WOODLANDS TOWNSHIPS OF LUSAKA

By

ANNASTASIA MUNYATI

A Dissertation submitted to the University of Zambia in Partial fulfillment of Requirements of the degree of Master of Arts in Population Studies

The University of Zambia

AUGUST, 2020

CERTIFICATION

The undersigned certify that he has read and hereby recommend for examination the

Dissertation entitled **"an investigation into the demographic and socio-economic factors associated with female infertility; its risk factors and treatment seeking behavior among infertile women in Lusaka urban district: a case study of residents of Misisi, Libala and Woodlands townships of Lusaka"** in fulfilment of the requirements for the degree of Master of Arts with Population Studies of the University of Zambia.

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Prof Malungo, J.R.S

(Supervisor)

Date: _____

DECLARATION

I, ANNASTASIA MUNYATI hereby declare that this dissertation;

a) Represents my work;

b) Has not previously been submitted for a degree or any other academic qualification at this or any other university; and

c) Does not incorporate any published work or material from another dissertation without acknowledgement.

Signed ……

Data ……/……/……

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APPROVAL

The dissertation of ANNASTASIA MUNYATI is approved as fulfilling part of the requirements for the award of the degree of Master of Arts in Population Studies by the University of Zambia.

Signatures:

Name Signature Date

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ABSTRACT

This study aimed at investigating the demographic and socio-economic factors associated with female infertility; its risk factors and treatment seeking behavior among infertile women in Lusaka urban district. Despite the existence of an extensive body of literature on psychological and medical aspects of infertility, there are only a few studies that have been conducted to investigate the demographic and socio-economic factors, risk factors and treatment seeking behavior associated with female infertility in Zambia, yet alone the Lusaka urban district. This study aimed to contribute to the knowledge gap in this area.

The study focused on investigating female patients with a pre-existing infertility condition from three residential areas in Lusaka urban district. The analysis was complemented by additional surveys conducted with medical professionals and non-patient individuals from Lusaka urban district as well. The study incorporated a wide range of descriptive statistics to explore the data. Standardized statistical tests were also conducted using bivariate Chi-square and binary logistics regression analysis.

The main study findings revealed that among demographic factors under study, age at time of marriage and residence were not significantly associated with female infertility, while the age of a woman and the age (or period) of marriage were found to be both statistically significantly associated with female infertility. The study further revealed that among the socio-economic factors under study, gender-based violence and divorce were not statistically associated with female infertility, while social stigmatization and income loss due to treatment were statistically significantly associated with female infertility.

Based on these results obtained from the study, it was recommended that further research on the causes and effects of primary female infertility should be prioritized and conducted at a national level; that the Government, through the Ministry of Health, should offer better free or affordable health care and counselling services for women and couples who cannot afford treatment abroad or from private institutions. Moreover, it was recommended that partnerships between the Government and private sector health institutions be forged in order to increase the coverage of health care services associated with infertility.

DEDICATION

This research is dedicated to those women who struggle and will do anything if only for that one child. Do not lose hope!

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I would like to most sincerely give thanks to my Father and helper (God) for giving me faith and hope and the grace to work hard.

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My parents, even in your absence, I strive to make you proud. My family has been very supportive during my studies. I thank you for the love, encouragement and support of all kind during this season of my life.

To all my friends; Chipego, Ndayama, Kasonde and Sampa for pushing me to pursue my dreams, when I thought it were impossible you encouraged me.

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ACRONYMS

AIDS	-	Acquired Immune Deficiency Syndrome
FIGO	-	International Federation of Gynecology and Obstetrics
GBV	-	Gender Based Violence
HIV	-	Human Papilloma Virus
ICSI	-	Intracytoplasmic Sperm Injection
UTH	_	University Teaching Hospital
IUD	-	Intra - Uterine Device
IUI	-	Intra - Uterine Insemination
IVF	_	In-Vitro Fertilization
NSAIDs	-	Non-steroidal anti-inflammatory drugs
PCOS	-	Polycystic Ovary Syndrome
PID	-	Pelvic inflammatory disease
SSA	-	Sub-Sahara Africa
STD	-	Sexually Transmitted Diseases
STI	-	Sexually Transmitted Infections
WHO	-	World Health Organization

CHAPTER ONE

1.0 Introduction and Background of the Study

1.1 Introduction

Although female infertility is a phenomenon that has not attracted much media attention and coverage or research, the topic is of much significance and requires interest and attention not only in Zambia but globally. According to Leiblum and Greenfeld (1997), female infertility is a major crisis and can cause depression, anxiety, social isolation and sexual dysfunction (Fassino, et al, 2002). As a result, to this frustrating experience, many infertile women would seek medical help and may finally receive assisted reproductive treatment (Van Bale et al, 1997). Most couples that plan to have the treatment experience challenging methods of diagnosis and treatment. Despite the existence of an extensive body of literature on psychological and medical aspects of infertility, there are only a few studies on the *demographic and socio-economic* factors associated with female infertility.

One way of understanding infertility is through a review of the prevailing controversies surrounding the definition of infertility. A study by Sundby (1994: 9) on the causes, care and consequences of infertility defined clinical infertility as "one year of regular unprotected intercourse not leading to pregnancy in a couple who try to get pregnant". Whereby the World Health Organization (WHO) defines infertility as the inability to conceive after two years of regular sexual intercourse without contraception, or inability to carry a pregnancy to live birth (WHO, 1991).

This shows that, there is no one standard definition of infertility, instead, most definitions are greatly influenced by the social and cultural backgrounds of the individuals attempting to define it. In some cases, for instance, especially in developing nations, infertility is usually attributed to women (Goosen and Klugman, 1996) and to a very large extent, infertility in men is kept a secret in the communities of African societies (Mabasa, 2000 and Upton, 2001).

Therefore, in this study, the WHO definition of infertility was used and the study focused on women, as the primary sample and target group. It should be noted that the focus of this study was on women experiencing primary infertility as opposed to secondary infertility because it aimed to provide comprehensive analysis of the problem, and also because it is widely believed that in Africa especially, social stigma and discrimination is more common to women suffering primary infertility than those with secondary infertility (Larson, 2004).

A feasible definition of primary infertility can be said to be a woman (or couple) who has never been pregnant and has no live child. Secondary infertility on the other hand, could be defined as the inability to become pregnant or carry a baby to term after previously giving birth (Sundby et al., 1998).

1.2 Background

Infertility can be problematic, worrying, and a traumatic experience for women who, for cultural or personal reasons, view childbearing as central to their lives (Ndaba, 1994; Abbey et al, 1994). Yet most demographic studies in Sub-Saharan Africa (SSA) focus on fertility and the need to lower the high fertility rate (Potts and Marks, 2001; Upton, 2001). Focusing on the often-overlooked demographic phenomenon of infertility can begin to elucidate and help explain the prevailing trends of decreasing overall fertility rates, yet increasing extramarital fertility rates in Sub-Sahara Africa (SSA) (Lesthaeghe, 1989; Potts and Marks, 2001).

In 2002, over 186 million women worldwide experienced problems conceiving (Bhattacharya et al., 2009). This figure was higher than previous estimates, suggesting a global rise in the prevalence of infertility (Farley, 1986, Rutstein and Shah, 2004). At the turn of the last century projections of infertility in the United States indicated a sharp upward trend over the next two decades (Stephen and Chandra, 1998) while data from Europe suggested that increasing numbers of couples were seeking assisted reproduction (Lutz and Qiang, 2002). There is widespread concern about the effect of contributory factors such as abortions, surgery, and sexually transmitted infections (Pal and Santoro, 2003; Karinen et al., 2004).

According to the John Hopkins University, 8% to 12% of couples around the world have difficulty conceiving at some point in time. Levels vary widely within and between countries. In Sub-Sahara Africa (SSA), rates vary from 14% to 32%. As highlighted earlier, primary infertility, which refers to infertility in a couple who have never had a child, is the most common type world-wide, SSA being an exception where 52% infertile couples suffer from secondary infertility; failure to conceive following a previous pregnancy. SSA has higher incidence rates of infertility between 15.7% and 21.4% than other African nations (Erickon and Brunette, 1996). The WHO (1991) task force on infertility estimated an even higher infertility prevalence rate (30%) in SSA, using a criterion of two years in married couples.

Having children is a natural part of the reproductive cycle that is questioned by few. The expectation of a vast majority of young people is that at some stage, they will become biological parents. The expectations emanate from young people as individuals, as a couple, and from the society of which they are part (Daniels, 1993). Literature suggests that about 40% of infertile

individuals experience psychological distress, economic hardships and social segregation associated with infertility (Ndaba, 1994). Tradition and religion also have a great effect on how children are viewed, and create norms regarding reproductive expectations. According to the literature review, in African communities, the cultural expectation is so strong that couples are almost always asked "how many" and "when" rather than "whether" they will have children (Eupnu, 1995). It is not surprising, therefore, to find that across the continent of Africa infertile women seek treatment for their problem at a number of venues, both traditional and biomedical, often with a preference for traditional healers (Green, 1994; Gerrits, 1997; Kielman, 1998; Sundby & Jacobus, 2001).

In addition to remedies primarily sought by individuals alone, some communities also offer mechanisms for dealing with infertility which include voluntary associations and cults that support women with infertility problems (Skramstad, 1997; McCurdy, 2000), thereby demonstrating community interest and involvement in the problem of infertility. It seems that societal expectations and pressure negatively affect infertile couples' and their families' well-being. Women in infertile relationships are often blamed and constantly subjected to stigmatization, derogation, and humiliation. These attitudes negatively affect the infertile woman's sense of belonging, her identity, and her status in the society. However, it is not well known how Zambian women, and their social systems, react and cope with this problem.

Some cultural systems that were used to manage infertility no longer hold. Socio-political and economic changes have led to a synthesis of diverse systems into a model in which values and family life are neither purely traditional nor entirely western (Kayongo-Male and Onyango, 1994). Consequently, the process of change exposed African and Zambian families and individuals to conflicts and problems, which centered, among others, on marriages. Polygamy used to help by providing children in a family where one of the partners was infertile. In this regard, family members were able to achieve parental goals, and infertile women were not ostracized as much because there would be children in the family. However, women no longer want to be in polygamous marriages (Lundgren and Paulson, 1997). This leaves a gap in the management of infertility, at least from a Zambian perspective.

Despite the available literature on the clinical and medical effects of infertility on women, there is limited amount of research done by demographers in many African countries and especially in Zambia regarding the analysis and isolation of demographic and socio-economic factors that can be linked to female infertility, Chitanda (2016) in his MA thesis shows evidence of this. There is very little body of knowledge that exists in Zambia with regards this area of female infertility.

The University Teaching Hospital (UTH) which is Zambia's main referral center for women with infertility and as a national gynecology and obstetrics center barely has records of national statistics on women with infertility. It was established during the baseline survey that the hospital did not equally have information pertaining the true experience or the treatment seeking behaviors of women with infertility (Chitanda, 2016).

In an interview with the head of gynecology and obstetrics department, the head of department indicated that the hospital only offered clinical diagnosis and treated infertility as a disease; the initial interview also exposed the existing gaps in the demographic and socio-economic aspects of female infertility among women in Zambia. The direction to focus on women was also as a result of the fact that more women than men were attending the Gynecology clinic at UTH and that women were more willing to pursue a solution to their problem than the male counterpart who seemed to not only shy away but blamed the coupe's failure to conceive on the woman.

There is limited research on the demographic and socio-economic aspects, risk factors and treatment seeking behavior of female infertility, particularly on the Zambian context. Among the few studies conducted on infertility, there is evidence of association amongst the variables listed above with female infertility. For example, some of the studies cited in the literature review section highlight some of the risk factors, treatment seeking behavior, and the demographic and socio-economic factors associated with infertility.

1.3 Statement of the Problem

The importance of children in the Zambian communities and among Zambian couples cannot be overemphasized. Parenting is viewed by most couples as their central role in life, and the thought of not achieving it can be very upsetting especially for women since Zambian tradition views motherhood as the primary role of women.

Female infertility is one issue that maybe considered as a developing issue in Zambia; not that the condition has just recently been discovered but because very little research has been done in Zambia regarding the condition. Very few studies, if any, have been conducted to study the association between female infertility and the socio-economic and demographic factors, risk factors and treatment seeking behavior in Zambia (Rodwell, 2016), let alone in Lusaka urban district. This lack of research in the area further indicates that there are very few deliberate efforts that have been put in place to provide effective health care and treatment plans to help women living with this condition.

It is therefore the aim of this current study to investigate the demographic and socio-economic factors, risk factors and treatment seeking behavior associated with female infertility among

women in Lusaka district. This research hopes to contribute positively to the existing knowledge gap in this field and to create a baseline for further research.

1.4 Research Objectives

1.4.1 General Objective

- To investigate the demographic and socio-economic factors, risk factors and treatment seeking behavior associated with female infertility among infertile women in the low, medium and high-density areas of Lusaka Urban District.

1.4.2 Specific Objectives

i.) To investigate the link between demographic factors and female infertility among women in Misisi, Libala and Woodlands Townships.

ii.) To establish the link between socio-economic factors and female infertility among women in Misisi, Libala and Woodlands Townships.

iii.) To assess health care and treatment seeking behaviors among infertile women in Misisi, Libala and Woodlands Townships.

iv.) To assess the risk factors (possible causes) associated with female infertility among infertile women in Misisi, Libala and Woodlands Townships.

v.) To determine the relationship between Gender-Based Violence, socio-stigma, and discrimination, divorce, income loss due to treatment seeking and female infertility among infertile women in Misisi, Libala and Woodlands Townships.

1.4.3 Research Questions

i.) Is there a link between demographic factors and female infertility among women in Misisi, Libala and Woodlands Townships?

ii.) Is there a link between socio-economic factors and female infertility among women in Misisi, Libala and Woodlands Townships?

iii.) Is there a difference in health care and treatment seeking behaviors among women in Misisi, Libala and Woodlands Townships?

iv.) What are the risk factors (possible causes) associated with female infertility among women in Misisi, Libala and Woodlands Townships?

v.) Is there any relationship between gender-based violence; social stigma and discrimination, divorce, income loss due to treatment seeking and female infertility among the women in Misisi, Libala and Woodlands Townships?

1.5 Significance of the Study

In most societies infertility resulting in involuntary childlessness is often cast as a medical condition rather than as a social problem worthy of social and demographic analysis. This "Medicalization" of infertility has served to restrict the research agenda to the domains of medicine, epidemiology and medical psychology, the latter devoted largely to the psychological aspects of medical interventions. With the persistent growth of new forms of high-tech reproductive medicine, infertility continues to be a hot area of medical research and is the primary focus of two major journals, fertility and sterility and human reproduction.

Thus, it is somewhat ironic that infertility has attracted comparatively little attention in the social sciences, although medical monopolization of the subject makes this lacuna somewhat understandable (Inhorn, 2002). This too has been the case in Zambia where very little has been done in terms of investigating the demographic and socio-economic factors, risk factors and treatment seeking behavior associated with female infertility especially among infertile women in Lusaka Urban District, it is from this background that this research makes significant findings and adds or contributes to the knowledge gap that exists in this area of research.

In many countries including Zambia, female infertility is not considered a problem and therefore no substantial effort is directed towards understanding factors associated with it. This research provided some information on the psychosocial and economic elements of female infertility in the urban setting of Zambia. Transcending the clinical dimension of female infertility and progressing into the social and economic aspect may enlighten policy makers to develop systems that cushion the negative effect experienced by these women. Aspects of gender-based violence precipitated by female infertility may be reduced when men come to understand the issue of infertility and how they can give support to their partners.

This study brings into perspective two significant additions to population studies and demography in Zambia. It is a valuable addition to the existing literature as it expands the national data and information on female infertility. Results from this study may provide valuable information for needs assessment, program planning, monitoring, and evaluation, and policy development and analysis of strategies.

1.6 Limitation of the Study

The issue of female infertility is not only widespread but also shroud in secrecy due to the huge emotional burden associated with it. The researcher could not obtain the total population of infertile women in all three study areas, nor the total population of all married women in these

areas, as such, the researcher could not use the findings of this study for generalization but simply made comparisons of characteristics of women from the various areas studied.

The researcher was not able to identify all the women with an infertility condition in the selected townships and thus, those who were available for the study were not a complete representation of the entire township population, However, interviews with key informants and community members who knew someone with an infertility condition were very helpful in obtaining further information and cementing some information on the topic.

Equally, research resources were not adequate to make a full coverage of the population especially in the high-density township of Misisi due to the sheer number of people. The secrecy surrounding the issue was also a serious barrier to locating women with infertility problems who did not attend medical clinics for the condition. Hence, the author made an attempt to overcome this hurdle by surveying information from interviews conducted with marriage counsellors in different churches and communities that helped to provide some of the missing information to the study. Sumner and Tribe (2008) state that combination or triangulation of information are suitable proposals to combat any weaknesses in methodology or information gaps.

1.7 Ethical Considerations

Ethical considerations for this study included obtaining permission to access patients' records in writing from the University Teaching Hospital (UTH) administration and the Head of department of Obstetrics and Gynecology. The researcher obtained ethical clearance from the Lusaka District Health Board. The researcher also obtained ethical clearance from the University of Zambia Ethics Board in the School of Humanities and Social Sciences. Approval letters are attached in the Appendices.

Patients' questionnaires were assigned code numbers for identification and accountability purposes; thus, no patients' names were disclosed in the study upholding the confidentiality ethics. For the interviewed people and those who responded to questionnaires, a consent letter was availed to them for signing and the information disclosed by them was used strictly for the study purposes. Their identities were equally kept confidential by assigning them code numbers.

1.8 Dissertation Outline

This dissertation is organized as follows: Chapter 1 presents an introduction to the study. It presents background information, statement of the problem, significance of the study and outlines the research objectives. The subsequent chapters address different aspects of the study. Chapter 2 discusses relevant literature or similar studies conducted by other researchers on the same subject;

Chapter two also discusses the theoretical and conceptual frameworks of the study. Chapter 3 explains the methodology used in this study while Chapters 4 and 5 present the findings and discussion sections respectively. Chapter 6 presents the conclusions and recommendations.

CHAPTER TWO

2.0 Literature Review, Theoretical and Conceptual Framework

2.1. Introduction

This chapter highlights related literature and research done by other scholars and researchers in relation to infertility. It reviews both literatures in Zambia, Africa and around the world so as to have a wide view of the topic at hand. Most of the reviewed literature is however from other countries as there are very little written about infertility in Zambia, especially on the demographic and socio-economic factors, risk factors and treatment seeking behavior associated with it. The literature reviewed was however enough to give perspective to the topic; and to give credence to the views discussed and provide a foundation for the whole research paper.

2.2 Infertility and Demographic Factors

Larsen & Hollos (2004) examined the ramifications of infertility in the study conducted in Moshi, Tanzania, a multi-ethnic community with relatively high levels of education and a well-developed health services infrastructure. Their research found that childless women were stigmatized and called names and had little respect in the community. They also found that in this community of mixed ethnic groups, beliefs about the causes of infertility and remedy seeking were mixed.

A study conducted by Mohammad Reza (2007) explored the prevalence and risk factors of infertility in Iran. Data were obtained about their age, education, marital status, toxic habits, medical history, disabilities and illnesses, help-seeking, economy, ethnicity, geographic location, contraceptive use and age at which they had first intercourse. He found out that the prevalence of infertility increased with age. He recommended that even though the study provided a quantitative estimate of the prevalence and main risk factors associated with infertility in Iranian couples, there was need for further studies on the cause of primary and secondary infertility.

It has been found out that an increase in the women's age at marriage contributed to an increase in chances of infertility. Thus, one of the most important determinants of fertility is the reproductive age, which is associated with age-specific fertility rate. Postponement of age at marriage will certainly lower the number of children ever born to a woman. Despite their importance, infertility prevention and care often remain neglected public health issues, or at least they rank low on the priority list, especially for low-income countries that are already under

population pressure. Low fertility is becoming more common worldwide, particularly in ageing populations and many urban settings where women are having their first babies in older ages (Fred, 2016).

Residence

2.3 Infertility and The Socio-Economic Factors

Various studies have reviewed an association between infertility and socio-economic factors such as Education, economic activities, economic status, religion, employment status, and income per month. In the 1996 census survey of New Zealand, results indicated that more educated women were delaying childbearing to a significant extent compared to their less educated counterparts; this delay in child bearing by more educated women may further increase chances of infertility among women. The study showed a relationship exiting between education and child bearing. In Ghana, women with a high school education have a TFR between 2 and 3, whereas those with no education have a TFR of about 6, even as recently as 2008. Similarly, women with a high school education in Ethiopia have a TFR of 1.3 (DHS Ghana and Ethiopia, 1988-2011).

Further studies have revealed that female infertility may also be associated with careers and employment pursuits that eventually bring about a delayed marriage among women of certain socio-economic backgrounds. Among the major causes of female infertility, endometriosis has been proved to be found to be on top of the list (Corson, 1990), this disease is frequently referred to as a "career woman's disease" because it tends to affect women of middle and upper income in their thirties. Victor and Karen (1998) further state that since many couples are pursuing careers and marrying at a later age than in previous generations, they often delay having children, delayed child bearing may further affect a woman's chances of conception and child bearing.

Religion is a particular doctrinal framework which guides sacred beliefs and practices about a higher power or God. It is a system of beliefs and practices that structure how people worship. Spirituality refers to the beliefs and practices that connect people with sacred and meaningful entities beyond them. These beliefs and practices often create a relationship with a supreme power which gives meaning and purpose to life (Tanyi, 2002). Religion may be both a resource and a burden. For some infertile couples, religion may provide opportunities to maintain hope and give meaning to their experiences of suffering and loss inherent in the infertility experience. However, faced with existential dilemmas, psychological distress and social stigma, they may experience a 'crisis of faith' or alternatively, find peace and comfort in their faith community and/or its rituals that help them meet the challenges of infertility (Hynie and Burns, 2006).

Latifnejad Roudsari et al. have argued that infertile women turning their attention to religious and spiritual beliefs show connectedness to a higher being who can be trusted and believed, as a source of strength, guidance, and support (Latifnejad et al, 2009). They endeavor to maintain, develop, and renew this relationship to be able to deal with the hardship of infertility. Latifnejad Roudsari et al. (2009) have discussed that women's views on socialization as a religious value motivate them to search reassurance through the love and care of congregation.

Having this unique worldview, infertile women give sacred meaning to life and talk about an internal knowing, certainty and assurance that they will be blessed by God (Latifnejad et al, 2009). This confidence may impact their decisions regarding seeking therapeutic approaches, including the usage of counselling services. In this regard, Hynie and Burns (2006) have argued that religious beliefs may provide limits on the acceptability of various treatment options. Hence, infertility counsellors, in providing a suitable approach, should consider religion as a potential asset as well as a potential liability for infertile couples.

In a study conducted in Dakar and Lome' by Donatien Beguy (2009), Women who had paid jobs and those who were undergoing training (students) were less likely to give birth than women who were self-employed. Women who were in wage employment were 27% less likely to give birth than self-employed women. Thus, it does seem that wage employment (rather than self-employment) reduces a woman's chance of increasing her family.

"As the cost of establishing advanced infertility centers is very high, only a limited number of centers were established in some low- and middle-income countries and most remain in the private sector," says Serour (2014). In Uganda, an IVF service provider run by the Women's International Hospital relies on foreign doctors from Belgium, Kenya and Nigeria who fly in and out of the country. This raises the cost and is not sustainable. Unfortunately for most women in developing countries, infertility services are not widely available and IVF is unaffordable. While optimal utilization of IVF is estimated to be around 1500 cycles per one million population per year, provision of the service falls significantly short in developing countries, according to Dr Gamal Serour, president of the International Federation of Gynecology and Obstetrics (FIGO) and director of the International Islamic Center for Population Studies and Research at Al Azhar University in Cairo, Egypt (Inhorn, 2003).

Some cultural traditions or customary laws create economic difficulties for infertile couples or women. In Nigeria and Cameroon land claims are negotiated through the number of children (Feldman- Savelsberg, 1994; Hollos, 2003). Studies from sub-Saharan Africa have documented

that a childless widow may face poverty as she had little or no right to inherit from her deceased husband (Sundby, 1997; Okonofua et al., 1997; Pearce, 1999). In addition, widowed women were reported to lose their right to reside in their deceased husband's compound unless they had born a son (Hollos 2003; Hollos et al., 2009). The traditional payment of bride wealth may create economic hardship. In sub-Saharan Africa the bride wealth is paid by the husband to the family of his bride. In case of infertility this price may have to be repaid. This burdens the relatives of the infertile woman, who in turn may face ostracism from both families (Feldman-Savelsberg, 1994).

Hollos (2003) described the strategy of one woman who raised the bride wealth to pay for two additional wives for her husband. Although this gained her the respect of the co-wives and their ten children, she still ended up leaving her husband and living with her brother, who barely tolerated her. Research conducted in Bangladesh reported the concerns of a female relative of a divorced, infertile woman who said: "If we have to raise the money again for her second marriage, we will become beggars" (Nahar and Richters, 2011).

2.4 Treatment Seeking Behavior Among Infertile Women

Infertility is primarily a physical condition. In most instances, the infertility problem is taken to the health services in order to obtain a biomedical solution. Usually the problem receives a diagnosis and is treated as a disease (Lober, 1997). Often there are no signs or symptoms associated with an infertility problem. However, medical technology now offers more answers and treatment options to men and women trying to conceive. From hormonal treatments, ovulation induction and intrauterine insemination to more advanced technologies like in vitro fertilization, ICSI to surrogacy, egg/sperm donation and even embryo donation (William, et al, 2010). There are a variety of medications used to treat infertility. It is important to understand the medications and what their purpose is.

Larsen & Hollos (2004) examined the implications of infertility and coping mechanisms in an African urban population in Tanzania, they found that in this community of mixed ethnic groups, beliefs about the causes of infertility and remedy seeking were mixed. They concluded that while most women have been informed about the western biomedical treatment of infertility, traditional beliefs persisted in explaining the problem and both western medical facilities and traditional healers were utilized for treatment. In Lusaka urban district however, it is not very well known how women respond to their failure to conceive. It is highly speculated that women in high density areas will seek traditional help when they fail to conceive while those in low density areas will

immediately seek conventional medicine to obtain help with their condition, this however can only be proved through rigorous research.

2.5 Risk Factors Associated with Female Infertility Among Infertile Women

The most recent view is that medical factors are primary agents of infertility (Eupnu, 1995). The etiology of infertility is divided into four categories; the female factor, the male factor, combined male and female factor, the infertility of undermined cause (Stanto and Dunkel-Schetter, 1991). There is no gender disparity in the cause of infertility: male and female factors each account for 40% while the remaining 20% is either shared or unexplained factors (Eupnu, 1995; Williams et al, 1992). Here we will deal with the female factor.

According to William et al (1992) infertility in women is due to three primary biological causes. Firstly, the woman may not be producing and releasing mature eggs due to hormonal problems or ovarian cysts. Secondly, scarring or adhesions may interfere with the fallopian tubes being unable to properly transport the egg from the ovary to the womb. Thirdly, structural abnormalities or hormonal problems may result in fertilized egg being unable to successfully implant in the uterus lining. According to Goosen and Klugman (1996), one-third of all cases of infertility in South African women result from pelvic infections due to sexually transmitted diseases, another one third is due to hormonal imbalances, and the remaining one third results from unknown causes. Infertility in women is also linked to age. The biggest decrease in fertility begins during the mid-thirties. Among women who are 35, 95% will get pregnant after three years of having regular unprotected sex. For women who are 38, only 75% will get pregnant after three years of having regular unprotected sex (Murphy et al, 2010).

Mohammad Reza Safarinejad (2007) explored the prevalence and risk factors of infertility in Iran. Data were obtained about their age, education, marital status, toxic habits, medical history, disabilities and illnesses, help-seeking, economy, ethnicity, geographic location, contraceptive use and age at which they had first intercourse. He found that the overall prevalence of infertility was 8% and there was a pronounced regional pattern in the levels of primary infertility. The prevalence of secondary infertility was 3.4%. He further found out that the prevalence of infertility increased with age. He recommended that even though the study provided a quantitative estimate of the prevalence and main risk factors associated with infertility in Iranian couples, there was need for further studies on the cause of primary.

2.6 Infertility and GBV, Divorce, Stigmatization, and Income Loss Due to Treatment

2.6.1 Infertility as a Factor in Gender-Based Violence

Violence affects the lives of millions of 'infertile' women worldwide regardless of their socio-economic or educational levels (Yildizhan. et al, 2009). Any woman who experiences domestic violence because of infertility is generally twice as vulnerable as women with children (Yildizhan, et al, 2009). The prevalence of intimate partner violence against women with female infertility was reported to be 1.8% in Hong Kong (Leung, et al, 2003), 33.6% in Turkey (Yildizha, et al, 2009), and 41.6% in Nigeria (Ameh, et al, 2007).

According to Leung et al (2003), the prevalence of domestic violence against women with female factor infertility was found to be 61.8%, a rate much higher than the 1.8% reported from Hong Kong and the 33.6% reported from Turkey (Yildizhan, et al, 2009). Nojomi, et al (2006) conducted a study in Tehran with 1000 married women aged from 15 through 64 years who were seen at 3 outpatient gynecology clinics, and reported that 590 had experienced psychological and physical violence from their husbands.

2.6.2 Infertility and Divorce

Childbearing is considered highly desirable in Islamic countries, where an absence of children with a first wife may lead husbands to take a second wife with or without divorcing the first one (Ramezanzadeh, et al, 2004). Setting aside statistical data to glance at the individual faces of infertility, one frequently finds women, rather than men, whose personal stories are cause for indignation and ethical concern, as the news feature in *Nature* makes starkly clear: several years ago, Betty Chishava was thrown out of her family home in Harare, Zimbabwe, because she had failed to fall pregnant and did not want to sleep with her husband's brother. Desperate for an heir and a cure for the stigma of infertility, her husband Herbert took a new wife. Betty was left penniless and alone. A similar picture is painted in an article published in *Population and Developmental Review*: (Akinloye and Truter, 2011)

Kaddy Sisay, a 30-year-old remarried divorcee had carried at least four pregnancies. Three were with her first husband. The firstborn, a daughter who died before age 3 years, was followed by two stillbirths. At this point Kaddy's marriage ended, very likely as a consequence of her failure to produce children for her husband. Remarrying as the marginal second wife of a man already married to a younger woman with three children, Kaddy became pregnant for the fourth time and bore another son when she was about 21 years of age. This child died and Kaddy was left in a precarious marriage with no children to support her in later life (Akinloye and Truter, 2011).

Often the female takes the blame even when the problem lies with the man, says Inhorn (2011). The women often keep their husband's secret and bear the insults. In Chad, a proverb says, "A woman without children is like a tree without leaves." If a woman doesn't bear children, their husbands may leave them or take new wives with society's blessing. In some Muslim places, women can't go on the street on their own unless they have a child with them that is when they can do their errands. (Van Balen, 2011).

Divorce or abandonment, which is not uncommon in the case of infertility, often carries economic consequences. Women may lose access to land, which is usually owned by men, as well as other belongings and their homes (Feldman-Savelsberg, 1994; Runganga et al., 2001; Hollos, 2003; Sami and Ali, 2006; Hollos and Larsen, 2009; Dhont et al., 2011; Nahar and Richters, 2011). One woman living in Zimbabwe explained that she had to leave three homes because of her inability to conceive (Runganga et al., 2001). Women who are divorced may have to return to their own families where they may face further economic hardship and have little prospect of remarriage (Hollos 2003; Hollos et al., 2009; Nahar and Richters, 2011).

2.6.3 Infertility and Stigmatization

Infertility-related stress and stigma were found among women seeking infertility treatment in Southern Ghana (Donkor & Sandall, 2007; 2009). The authors reported that 23% of the women experienced moderate stigma and 41% experienced severe infertility-related perceived stigma. Women who reported severe levels of perceived stigma had the highest mean score for fertility-related stress. Furthermore, two recent studies in Ghana reported on the mental health effects of infertility among Ghanaian women (Fledderjohann, 2012; Naab et al., 2013).

According to these studies infertile Ghanaian women experience many psychosocial consequences of childlessness such as social stigma, marital instability and mental health problems including worrying, crying for long periods, and insomnia (Fledderjohann, 2012). Similarly, 53% of women seeking treatment for fertility problems in Ghana were depressed (Naab et al., 2013). Some individuals facing infertility who cannot withstand the high stigma on childlessness in Ghana also end up taking their own life (Naab et al., 2013). This confirms previous statements that the consequences of involuntary childlessness are usually more dramatic in developing countries when compared to Western societies, particularly for women (Dyer et al., 2004; 2005; Ombelet et al., 2008; Van Balen & Bos, 2009).

2.6.4 Treatment Costs of Infertility

Treatment for infertility cases is so expensive most women tend to turn to witch doctors, traditional healers and also to churches to seek solutions to their infertility problems (Mary. A, 2003). Many women go the mile; some may sell their inherited piece of land to pay for one cycle of IVF. That cycle, costing around US$4900, in most cases may not even be successful. For many infertile women in low-income countries, some hope may lie in the introduction of affordable infertility services (Davis. M, et al, 2013).

In Lusaka, for example, many women cannot afford to travel the journey from the most remote areas to the Lusaka's University Teaching Hospital to access the much-needed infertility treatment (Dr. Macha, 2016). Even for those that live within the city boundaries, a number of them cannot afford the referrals to travel to more advanced fertility clinics in South Africa or even afford treatment at the only invitro-fertilization (IVF) clinic in the country. Zambia furthermore has limited developed technology and space to handle artificial insemination.

Services to assist infertile couples need to be integrated and holistic – starting from the community level to reveal the cause and prevent infertility when possible, and to provide referral for affordable care if infertility is unavoidable. Infertility prevention also involves important lifestyle choices. The outcome of quality fertility care is a healthy birth. Maternal and newborn health does not begin during antenatal care, nor should it only be addressed at the time of birth. Rather, it starts with quality reproductive health care which includes pre-conception fertility care (Jerome. S, and Jon. W, 2010).

2.7 Theoretical Framework

The general systems theory on which the biopsychosocial model is based (Schlebusch, 1990), assumes that individuals are on-separate entities of an environment, that reality is a product of change and stability, being and becoming; and causality is dynamic (Stones, 1996, Tolman and Szlacha, 1999). Therefore, the theoretical framework contends that the individual's attitudes and reactions towards infertility are formed and modeled in interaction with other members of the society system (Williams et al, 1992).

Furthermore, the model implies that society made infertile persons what they have become; it shaped their behavior, their aspirations, and their attitudes towards themselves and towards the society at large (Tolman and Szalacha, 1999). Although the model contends that past research serves as an important guide for hypothesis generation, it also suggests that, depending on the type

of life problem and individual stage of adjustment to the problem, reactions can differ (Stones, 1996).

Tolman and Szalacha (1999) contend that any system, be it physical, economic, social, ideological, or mental, can be analyzed at various levels from various point of views. This study examines the system from the point of view of women. Therefore, the approach is psychosocial rather than individualistic, and includes a focus on the interaction of social influence.

Although grounded on sub-systems theory, the theoretical position will be eclectic in the sense that the study will draw concepts from various fields; literature shows that the problem of infertility affects all areas of life and to limit oneself to one theoretical perspective will be to miss out on much of the complexity of the phenomenon.

2.8 Conceptual Framework: Biopsychosocial Model

Conceptual framework for a particular study is the abstract, logical structure that enables the researcher to link the findings to the body of knowledge. It is developed from the existing theory and helps in identifying and defining concept of interests and proposing relationships among them. The model gives direction for planning research design, data collection and interpretation of findings.

The present study aims at describing the bio – psycho – social dimension of infertile women and their adaptive responses to their condition. The framework for the study was based on "Roy's Adaptation model" whose core is the belief that a person's adaptive responses are a function of the incoming stimulus and the adaptive level.

In this case female infertility will act as an incoming stimulus and the research will show how women in the three residential areas of Lusaka will respond to this condition through treatment seeking, and how failure to adapt to the condition may further result into the possible negative consequences of infertility that may include socio-economic consequences such as gender based violence, divorce and stigmatization and a lack of support from family member and the community these women live in.

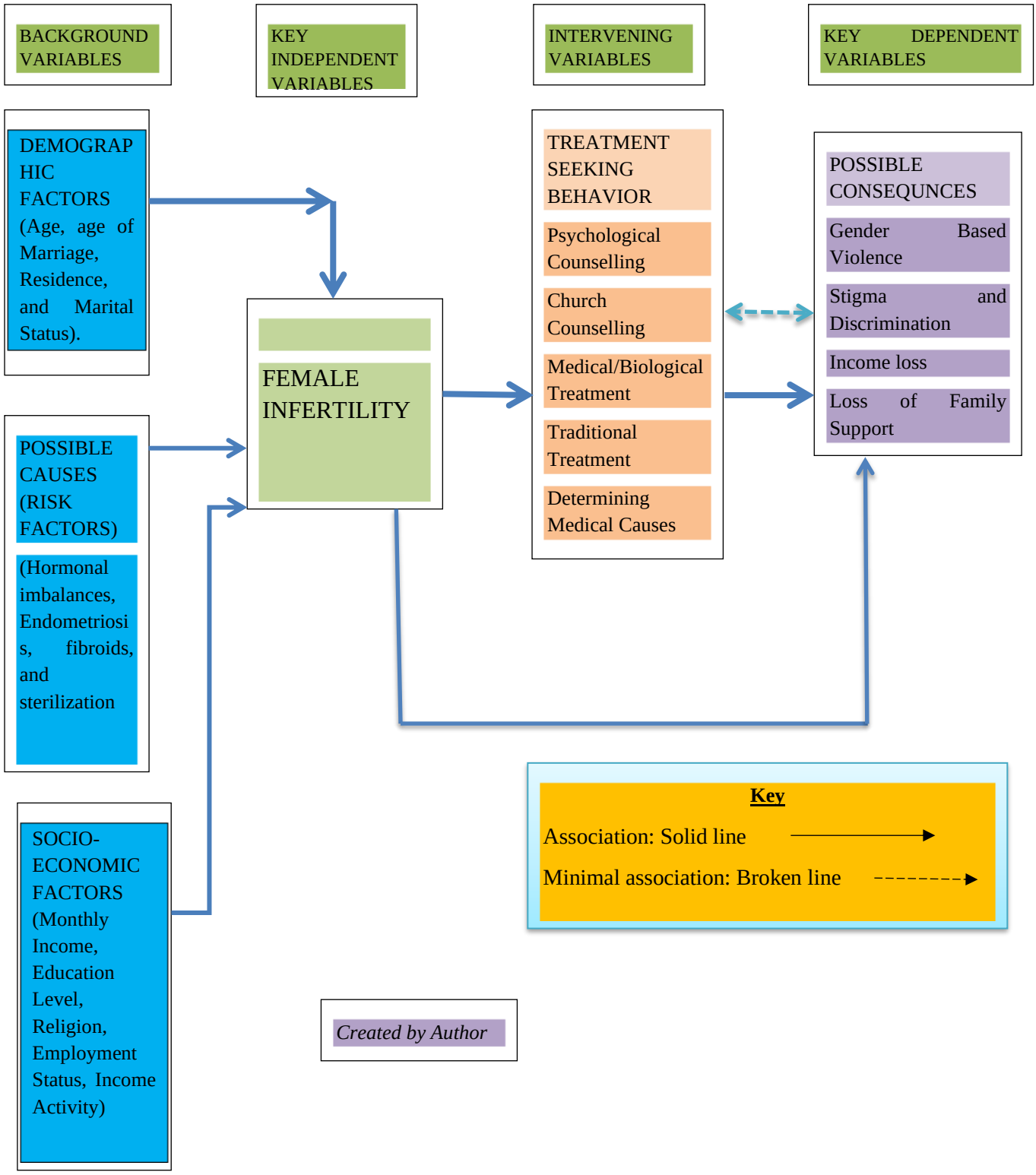
Since female infertility is a multi-faced dimension, the biopsychosocial theory acts as a key theory through which infertility can be studied. As has been indicated, this theory looks at a person and the whole condition of infertility as a whole and looks into the various processes and experiences that a woman with infertility goes through in order to deal with the problem that they are faced with. This being the case, it is important that this research also utilizes the Roy's adaptation model in order to fully conceptualize the processes that are involved with the field of female infertility.

Since this study focusses on the demographic and socio-economic aspects of female infertility, it was important for the author to diagrammatically relate different realities that affect infertile women in a conceptual framework. See Figure 2.0 below. The conceptual framework shows that there are different complex and interrelated factors that can be associated with female infertility among infertile women in Lusaka Urban District. Understanding these factors requires a holistic and coordinated analysis of their individual effects and how they interplay among themselves, including how infertile women react to their situation and further adapt or fail to adapt to their situation through seeking treatment and how they may eventually experience some negative consequences of infertility.

For example, the age of a woman at the time of marriage may have an effect on whether or not child bearing will occur, it is well noted by demographers that child bearing tends to be more difficult and infertility may be more common at older ages (40 – 49) than at younger ages (20 – 29) (Gleicher and Barad, 2006). In other ways age may seem to have a direct effect on female infertility, whether this is the case among women in Zambia is yet to be established. Once a woman is diagnosed infertile, or is found to have the infertility condition, she begins (together with her husband in some cases) to seek treatment; this treatment is sort using either conventional or non-conventional methods.

In some cases, women have been known to fall pregnant and have children after months or even years of seeking treatment. However, when conception fails, individuals go through individualized responses which range from depression, to socio-isolation and sometimes sexual dysfunction. The inability to conceive after many attempts at treatment may further lead to such socio-economic consequences as gender-based violence in marriages, socio-stigmatization, divorce, and in most cases these women (and their husbands or families) will experience notable economic and financial stress in their quest for a solution. Figure 2.0 conceptualizes the demographic and socio-economic factors, risk factors and treatment seeking behavior associated with female infertility.

Figure 2.0: Conceptualizing the Demographic and Socio-Economic Factors Associated with Female Infertility



2.9 Summary of Research Hypotheses

Based on the theoretical and empirical research reviewed in preceding sections, Table 2.1 provides a summary of the research hypotheses tested in the study based on the literature review.

Table 2.0 Summary of Research Hypotheses

Research Hypotheses	**Theory/Empirical Research**
H1: Female infertility leads to gender-based violence in women	(McCloskey et al 2005) (Leung, et al, 2003) (Yildizhan, et al, 2009) (Nojomi, et al (2006)
H2: Female infertility leads to divorce	(Ramezanzadeh, et al, 2004) (Akinloye and Truter, 2011) (Van Balen, 2011) (Runganga et al., 2001)
H3: Female infertility leads to social stigmatization	(Donkor & Sandall, 2007; 2009) (Fledderjohann, 2012; Naab et al., 2013)
H4: Female infertility leads to negative economic consequences and income loss due to treatment seeking	(Davis. M, et al, 2013) (Dr. Macha, 2016) (Jerome. S, and Jon. W, 2010)

Source: Author

2.10 Operational Definitions

This section presents the operational definitions of the technical terms used in this study.

Biological dimension: It conceptualizes health biologically as a state in which every cell and every organ is functioning at optimum capacity and in perfect harmony with the rest of the body (Park 1998). In the study the biological dimension refers to the, causes (or risk factors), investigations and treatment of female infertility.

The causes or (risk factors associated with female infertility) of female infertility are disorders of ovulation, transportation of egg (Tubal factors) or implantation of fertilized ovum (Uterine disorders), abortions, hormonal imbalances, tubal blockages, surgery, hereditary.

The treatment for female infertility includes induction of ovulation, tubal surgeries, artificial insemination and assisted reproductive technologies like Gamete Intra Fallopian Transfer of

Oocytes (GIFT) or Zygote Intra Fallopian Transfer (ZIFT). Treatment may also include using herbal medicine and other non-conventional methods

Psychological dimension: It is defined as a state of balance between the individual and the surrounding world, a state of harmony between oneself and others, a co-existence between the realities of the self and that of other people and that of the environment. A mentally healthy person is free from internal conflicts, well adjusted, searches for identity, has a strong sense of self-esteem and tries to solve the problems intelligently (Park 1998). In the study the psychological dimension refers to the quality of life, self-concept, and level of anxiety, level of depression and stress level of infertile women. These however will not be critically assessed but may be mentioned in some instances.

Quality of life: It refers to the level of cheerfulness, relaxation, activity, rest and the interest present in infertile women as measured by General Well-Being Index (WHO 1998).

Self-concept: It is the individual's personal judgement of her own worth by analyzing the conformity with self-ideal. Self-concept is threatened during infertility when concepts of self are modified. It is the estimation that an infertile woman has regarding herself and reveals the extent to which they believe themselves to be worthy. Self-concept may be altered during infertility and it depends upon their values, aspirations and success.

Anxiety: It is a state of tension which affects both mind and body.

Depression: A diffuse apprehension associated with feelings of uncertainty and helplessness. It occurs as a result of a threat to the woman's identity in terms of their inability to conceive.

Stress: Refers to reactions to stressors; physical, emotional, social, sexual, rejections of child free life style and need for parenthood reactions.

Social dimension or social wellbeing implies harmony and integration within the individual; between each individual and other members of society and between individuals and the world in which they live. It has been defined as the "quantity and quality of individuals interpersonal ties and the extent of involvement with the community" Social support systems can be helpful in emphasizing the strength of individuals and families. Marriage is considered a primary relationship in our society and also is a social construct of community. Infertility can cause a couple to question the biological and social function of marriage.

Health behavior: Behavior is any observable, recordable and measurable act, movement or response of the individual. There are three interrelated elements in explaining human behavior, which are:

Cognitive – thoughts about the situation

Affective – emotional or feeling responses

Behavioral – outward actions

An assessment of each one of these areas has important implications for understanding the problem and effectively treating it (Stuart and Sundeen 1995).

Attitude towards treatment options: It is the attitude of infertile women towards conventional and non-conventional treatment such as the use of herbs, ovulation induction, artificial insemination, tubal surgeries, In Vitro Fertilization, surrogacy and adoption as the treatment options available for female infertility.

Treatment seeking behavior: It is the pattern of behavior demonstrated by the women as they move through the choices of infertility management. These will include seeking conventional treatment, traditional and non-conventional treatments, marriage counselling and psychological counselling.

Infertile women: Married women who have been trying to have a baby for more than 24 months but have not been able to do so. This includes women who have conceived but have not been able to carry the pregnancy to live birth. This study does not include women who have had children before but are suffering from secondary infertility.

Socio-economic factors: Socioeconomic factors are the social and economic experiences and realities that help mold one's personality, attitudes, and lifestyle. In this study these factors include; the level of education attained, religion or denomination, monthly income, employment Status, income activity, occupation.

Demographic factors: Characteristics assigned to age, sex, marital status, age at marriage and age of marriage and residence.

Stigmatization: To stigmatize is to treat someone or something unfairly by disapproving of him, her, or it: in this study, any form of mistreatment that causes an infertile woman to feel uncomfortable, shame, disgrace, isolated or unfairly treated in speech or actions will be termed as stigma and discrimination.

Gender Based Violence: In this study, this means violence against women with female infertility. It is understood as a violation of human rights and a form of discrimination against such women and shall mean all acts of gender-based violence that result in, or are likely to result in, physical, sexual, psychological or economic harm or suffering to women, including threats of such acts,

coercion or arbitrary deprivation of liberty, whether occurring in public or in private life, this will also mean violence inflicted by spouse, the community or any family member.

Divorce: In this study divorce will be defined as the legal dissolution of a marriage by a court or other competent body, it will also include, a formal ending of a marriage between two people who make a mature and mutual decision to end their marriage.

Secondary infertility: Being unable to become pregnant, or to carry a full-term pregnancy, following the birth of one or more children.

Primary Infertility: Being unable to become pregnant after at least 1 year of having sex without using birth control methods. In this study, a two-year period will be considered as infertility.

Sexual dysfunction: Refers to a problem occurring during any phase of the sexual response cycle that prevents the individual or couple from experiencing satisfaction from the sexual activity.

2.11 Chapter Conclusion

Although female infertility is a condition that requires much attention among nations and the global health environment, nothing much has been done concerning research in the area. During literature review, this current study found out that quite a few studies have been conducted to deal with female infertility, yet what has been discovered is that most of the studies conducted globally have focused more on the clinical and psychological aspect of female infertility while a few studies have been conducted in isolated cases to investigate demographic factors that and how they influence of affect female infertility and how infertility has negatively affected the socio-economic lives of women that have been found to live with the infertility condition.

What is surprising is the fact that there remains yet very little research that has been conducted to investigate the risk factors, treatment seeking behavior, and the demographic and socio-economic factors associated with female infertility among infertile women globally. This reveals such a great gap in the field of female infertility that requires for much more research to be conducted if truly women with infertility are to be helped to cope up with the various demographic and socio-economic factors that may be associated with the condition.

Furthermore, the researcher observed that there are very few studies that have been done on a national level to investigate the effects of female infertility on the socio-economic lives of these women. Studies done in Zambia have not necessarily addressed the problems that may be associated with infertility but have in most cases dealt with treating infertility as a disease or medical condition that requires medical or biological solutions, other than identifying causes and

a few surgeries that have been deliberately conducted in some rural areas of Zambia, much more remains to be done to establish the ordeals that women with infertility suffer.

As at the time of the current study; literature revealed indicated that no studies had been conducted to study the association between female infertility and the risk factors, treatment seeking behavior, and demographic and socio-economic factors associated with it. The research further found that with reference to female infertility and its effects on women socially and economically, there exists very little information about the subject. Nationally it is not even known as to the statistics and trends concerning infertile women in Zambia.

The researcher also found that there was a similar study conducted within the Department of Population Studies at the University of Zambia. In that study however, the student used secondary data from the Zambia Demographic Health Survey Report to investigate the association of infertility among married women in relationship to gender based violence and HIV/AIDS; that particular study focused on trends among infertile women living in urban and rural Zambia, this study however uses primary data to investigate the risk factors, treatment seeking behavior, and demographic and socio-economic factors associated with female infertility among infertile women living in Lusaka Urban District. It is hoped that this research will add to the existing knowledge gap where this topic is concerned and that the contributions this research will make to the body of knowledge will act as a basis for further research and that it may arouse further interest in the area of female infertility not only amongst academicians but amongst policy makers and the ministry of health.

CHAPTER THREE

3.0 Research Methodology

3.1 Introduction

This chapter covers the research methodology employed in the study and will explain the steps that were conducted in the field which include: an overview of the research design; study population; the identification of participants and the demographic characteristics of the sample; an elaboration of the measuring instruments; eligibility criteria; a description of the procedures for data collection; and finally, the methods of data analysis.

3.2 Research Design

The design of this study was both a quantitative and qualitative study of female infertility among women in Lusaka Urban District. The study was non-experimental and involved a retrospective study of female infertility at the Obstetrics and Gynaecology Department of the University Teaching Hospital in Lusaka and with patients from 3 selected townships. Namely, Misisi (high-density), Libala (medium-density) and Woodlands (low-density) of Lusaka. Data collected from the hospital provided information on the clinical aspect of the subject and the real experiences of women living with the infertility condition who were coming from the three residential areas. The researcher recognized differences in the densities of localities and therefore categorized them into low, medium and high-density residences.

To ensure that the study maintained a fair representation of the study population, additional surveys were also conducted with non-patients from the same communities who knew someone with an infertility condition in order to provide qualitative data intended to fill information gaps. In total, 20 females were selected from each location; namely, Misisi (high density), Libala (medium density) and Woodlands (low density). In addition, 10 males were as well selected from the aforementioned locations for the purpose of getting their views on how they perceived female infertility.

3.2.1 Study Areas

The study was conducted in Misisi (high-density), Libala (medium-density), Woodlands (low-density) areas of Lusaka urban District. These areas were chosen purposively based on densities and similar geographical location of being located in one side of Lusaka. Misisi compound is a shanty town, which is located in Lusaka, Zambia. Misisi has been identified as one of the five worst slums in Sub Saharan Africa. Due to a lack of resources there has been poor record keeping,

but according to best estimates, there are between 80,000 and 90,000 people living in the area. On the other hand, Libala is medium-density township located in the central part of the capital Lusaka. It has an estimated population of between 20,000 to 30,000 people living in the area. While, Woodlands is a low-density residential, also part of the Lusaka urban center, and has a population of between 10,000 to 15,000 people[1].

3.2.2 Target Population

The target population were females living in Lusaka Urban District with a condition of infertility. Particularly, females living in the identified residential areas and attending medical care from the University Teaching Hospital gynecology clinic for infertility.

3.2.3 Sampling Procedure and Sample Size

A sample is the part of the population from which information is obtained. For the sample size, the criterion selected for this study was based on the *Central Limit Theorem*. It states that, for a random sample size of 'n' it holds that the sample distribution is approximately normal for a large enough n (>30), regardless of the distribution from which we are sampling (Weiss, 2012). Conclusions can then be inferred about a population based on information obtained from a sample of the population.

The sample frame was drawn from a population of women attending medical care concerning infertility at the UTH gynecology clinic. A purposive sampling strategy was used to obtain the sample size of the respondents who were attending the gynecology clinic at UTH based on the *Central Limit Theorem*. The study targeted thirty-three (33) married women with the problem of primary infertility from Misisi, Libala, and Woodlands Township. Exit interviews were conducted upon meeting the selection criteria (i.e. had been diagnosed with the primary infertility condition).

3.2.4 Supplementary Surveys

The main study was complemented by additional surveys with eighteen (18) marriage counsellors from the study areas, also selected through purposive sampling. As well as three (3) Medical Doctors from the UTH Gynecology Department, and sixty (60) female and thirty (30) male non-patient respondents from Misisi, Libala and Woodlands Townships.

The data collected from community members was based on a selection criteria of knowledge factors pertaining to infertility. The data provided qualitative data and community perceptions of issues related to female infertility. Sampling of respondents was done using Maximum Variation

[1] *Source: Zambia Statistics Agency* https://zambia.opendataforafrica.org/

Sampling (purposive sampling) to capture a wide range of perspectives relating to the topic under study. The purpose of the supplementary surveys was to collect information to be used to seal, back up, or consolidate on the information that would be given by female patients of infertility.

Table 3.0 Sample Size

S/N	Respondents (Target Population)	Location	Sample Size
11 11 11	Clients at Fertility Clinic:	UTH	33
S/N	**Respondents (Supplementary)**	**Location**	**Sample Size**
3	Medical Doctors	UTH	3
6 6 6	Marriage counsellors from churches and communities:	Misisi Libala Woodlands	18
20 20 20	Females in Communities:	Misisi Libala Woodlands	60
10 10 10	Males in Communities	Misisi Libala Woodlands	30
	TOTAL		**144**

Source: Field Data, 2017

3.3 Respondent Selection Criteria:

3.3.1 Inclusion Criteria

Infertile married women who:

1. Who were willing to participate in this study?
2. Including of only primary infertility.
3. Those who are not adopted family planning methods.
4. Those who had been trying to have children for more than two years.
5. Women coming from either a low, medium and high-density area of Lusaka and had been living in that area for more than two years.
6. Men and Women from the three communities who knew someone who had female infertility
7. Medical personnel from UTH gynecology department and had more than five years working experience.

8. Marriage Counsellors from the three communities who had been counselling couples and women with infertility for more than five years.

3.3.2 Exclusion criteria:

Infertile female:

1. Who were not willing to participate in this study?
2. Who were not mentally fit?
3. Who were not present at the time of data collection?
4. Who did not reside in Lusaka but were attending the gynecology clinic?
5. Men and women from the communities who did not reside in these communities (visitors).

3.4 Data Collection Procedures and Instruments

Data collection was conducted through the administration of questionnaires with patients (and non-patients) and in-depth interviews with key medical personnel. Questionnaires were administered to the women respondents (patients) at the gynecology clinic, and to males and females in the communities (non-patients).

The researcher administered 60 questionnaires (20 for each selected townships) to a cross section of women in the community. Questionnaires were not restricted to women with infertility, however a question on whether or not the respondent had the infertility condition was also included to ensure necessary data was obtained from those women in the community with the condition. These were women who knew someone who had an infertility condition and were purposively interviewed to offer information on community perception of female infertility and its associated factors.

To obtain a balanced view on the socio-economic aspects of female infertility, the researcher also administered 30 (10 for each selected townships) special formulated questionnaire for men to gather data on aspects relating to female infertility. These were also purposively interviewed to offer information on community perception of the conditions

In-depth interviews were conducted among the medical Doctors and the marriage counsellors. This approach was used because the Medical Doctors had expert knowledge of female infertility and had experience dealing with patients with primary infertility at the gynecology clinic. Whereas, the marriage counsellors provided information based their experience on counseling married couples and women with infertility related problems.

The researcher organized, through the counselling divisions from various churches in the three locations (Misisi, Libala and Woodlands), 18 non-structured interviews focused on obtaining

information about those women who did not go to seek medical care at clinics or hospitals but had in one way or the other sought counselling from marriage counsellors both in churches and the communities. Some of these counsellors were interviewed as couples and were able to provide information based on their experience as marriage counsellors who had had the experience of counselling couples and individuals with the infertility condition.

3.5 Variables

Independent, dependent, Background, intervening and extraneous (compounding) variables[2] were all considered during the study as follows:

3.5.1 Independent and Background Variables

The variables for women with infertility that were kept constant were the following: -

(a) Demographic factors were kept as background variables

(b) Socio-economic factors were also kept as background variables

(c) Female Infertility was a key independent variable

* Background Variables are explanatory variables that can affect other (dependent) variables but cannot be affected by them. In this case female infertility can be affected by demographic variables but female infertility cannot affect the demographic variables.

3.5.2 Dependent Variables

(a) Gender based violence (GBV)

(b) Divorce

(c) Stigmatization

(d) Income loss

(e) Lack of family support

3.5.3 Intervening Variables

(a) Treatment seeking

(b) Non-conventional and conventional treatment

(c) Counselling and prayers from church

[2] The dependent variable represents the output or effect (or is tested to see if it is the effect). The independent variable represents the inputs or causes (or tested to see if they are the cause). In a statistics experiment, the dependent variable is the event studied and expected to change whenever the independent variable is altered. An extraneous variable may alter the dependent or independent variable though it is not the actual focus of the experiment (Everitt 2002)

3.6 Data Analysis

The data was collected and analyzed using Statistical Package for Social Sciences (SPSS version 20). Qualitative data was analyzed thematically. While quantitative data was analyzed using multiple approaches as outlined below.

3.6.1 Descriptive Data Analysis

Descriptive statistics were done in the form of frequency and percentage distributions. These were complemented with the presentation of results in generated cross tabulations.

3.6.2 Chi-square Statistical Tests

Statistical hypothesis tests were done using bivariate chi-square analysis. The chi-square analyses tested whether significant relationships existed between the variables of interest in the cross tabulations generated (Argyrous, 2000). Presented in equation 1 below is a representation of the Chi-square formula.

$$\chi^2 = \sum_{ij}^{RC} \frac{(f_o - f_e)^2}{f_e} \qquad (1)$$

Where, χ^2 = chi-square; f_o = frequency observed; f_e = frequency expected; and Σ is the summation operator for all rows *(i = 1,2,..,R)* and columns *(j = 1,2,…,C)*.

3.6.3 Logistic Regression Estimation

Binary logistic regression was also used to measure the effect of the independent variable (infertility – whether a patient was provided with a treatment course for their infertility condition) on the dependent variables GBV, stigmatization, divorce, loss of income due to treatment seeking, suicide attempt, and partner support. Binary logistic regression was done to reduce the confounding effect or spurious associations amongst the variables. The logistic model is as described by the logit fraction in equation 2 below:

$$Logit\ (Y) = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \cdots + \beta_n X_n \qquad (2)$$

Where, Y represents the independent variable; $X_i\ (i = 1,2,\ldots,n)$ represents the dependent variables; and the $\beta_i (i = 1,2,\ldots,n)$ represent the logistic regression coefficients (Argyrous, 2000).

3.7 Reliability and Validity of Data

The reliability of the study discusses replicability in terms of procedures and recorded results across time and observations (Sumner and Tribe, 2008). That is, whether the results of the study can be repeated. This requirement was achieved by the setting of concise methods in data

collection and analysis. The study used structured techniques in administering questionnaires and conducting interviews. The study also applied different data collection methods, such as interviews and document reviews, so as to ensure the reliability of the data collected in this study.

Validity of the study refers to degree to which a concept desired to be measured actually is measured by a particular scale. Internal validity is concerned with whether the research has drawn correct inferences from sample data about causal effects on the population. External validity is concerned with whether the research has drawn correct inferences from the sample data that can be generalized to other population settings (Shadish et al., 2002). Validity was achieved both internally and externally through the proper identification of the research problem, and the use of different research methods and secondary information. Addressing threats to the validity of the research ensured the findings to be credible and dependable.

CHAPTER FOUR

4.0 Findings

4.1 Background Characteristics of Respondents

4.1.1 Introduction

This chapter deals with selected socio-economic and demographic variables of respondents that might have a bearing on female infertility. These variables include age, age of marriage, age at marriage, sex, marital status and area of residence, religion, education, income activities, employment status and type, and monthly income. This chapter also presents findings on all four other issues under investigation namely; female infertility with regards to gender-based violence, divorce, discrimination and the economic effects that women with infertility suffer due to treatment seeking. This chapter will also show how women respond to their condition through the various treatment seeking behaviors that they portray while the various possible causes or risk factors associated with female infertility among these women are also presented.

In this chapter and subsequent chapters that follow, it is important for the reader to note also that the results obtained from the analysis of data collected from community members who were non-patients of infertility but knew someone with an infertility condition are also presented as this data helped the research to collect some information that helped to understand the community perception of female infertility. In this research, obtaining data to help us understand community perception of this phenomenon was important and acted as an adequate and much needed qualitative contribution to the responses and results obtained from the analysis of data obtained from sufferers of female infertility.

Community perception was important as it also provided backup data and offered data saturation where patients were not available or did not provide the much-needed information. The reader should note that members of the communities were included in the qualitative analysis to help seal some weak areas in the reporting; these community perceptions on infertility were given as narratives just to enhance findings and discussions, but were mostly not included in the quantitative analysis because the main focus of this research was on women suffering from infertility and had been diagnosed by a medical doctor and were attending the UTH obstetrics and gynecology clinic. Therefore, all data is presented and analyzed side by side and comparisons among various responses are made to provide a comprehensive understanding of the real situation and consequences associated with the subject matter. All the chapters following this chapter and before are a reflection of the research objectives stated as follows;

1. To investigate the association between demographic factors and female infertility.
2. To establish the association between socio-economic factors and female infertility.
3. To assess health care and treatment seeking behaviors among infertile women.
4. To assess the risk factors (possible causes of infertility) associated with female infertility among infertile women.
5. To determine the relationship between; gender-based violence (GBV), divorce, socio-stigma and discrimination, income loss due to treatment seeking and female infertility among infertile women.

Chapters four, five and six are presented in relation to the conceptual framework and theories used for this research. Chapter four provides detailed results which are mostly presented in form of statistics and explanations, while chapter five provides contextual explanations critical to the understanding and interpretation of presented statistics and also shows how female infertility affects the variables under study. Chapter six only gives a conclusion to the research study, findings and discussion.

4.1.2 Sex

Sex is a very crucial variable in many aspects of our lives as people of different sexes are affected differently sometimes by varying phenomena. The results presented in the pie chart below shows the sex composition of respondents (non-patients and patients) in this study. As can be seen, 33% of the non-patients' respondents were male while 67% were females while all patients (33) who took part in this research were females who had been diagnosed with female infertility by a medical doctor and were attending the UTH gynecology clinic. The bias may be as a result of the fact that the study mainly focused on female infertility and most of the men interviewed were giving a perspective of female infertility from a male angle and from their experience with women they knew suffered from this condition.

Figure 4.0 Percentage Distributions of Non-Patient Respondents by Sex

4.1.3 Residence

The sampling of the 33 patients was not done for the purpose of generalization but for the purpose of comparison of various characteristics and behaviors exhibited by female infertility patients from the three different locations. The three areas were selected purposively due to their differences in demographic characteristics in terms of population densities. Misisi is high density; Libala is Medium density while Woodlands is low density. The three areas also had some similar geographic characteristics in terms of their being located in one side of Lusaka and they were also easily accessible by the researcher, especially when it came to collecting data among the key informants and key community respondents from these communities. The 33 patients were exit clients at the University Teaching Hospital's gynecology and obstetrics clinic who met the selection criterion and were willingly available to take part in the research.

The total population of married women and infertile women from these three locations were not known, hence the researcher could not select samples that would represent the total population among patients and use them for generalization. However, the 11 clients interviewed from each of the locations were able to provide a baseline for conclusive evidence towards this research and may act as a baseline for future studies and further comparisons and generalization in future research. Responses from the 33 women were used for comparison purposes among women with the same condition (infertility) but coming from three different types of residential areas and not to generalize to the entire population.

The Table 4.0 below shows the distribution of non-patient respondents by place of residence and marital status stratified by sex. The researcher recognized differences in the densities of localities and therefore categorized them into low, medium and high-density residences. To ensure equal representation of the respondents, 20 females were selected from each location namely; Misisi (high density), Libala (medium density) and Woodlands (low density). In addition, 10 males were also selected from the aforementioned locations as can be seen from the figure. Table 4.0 also includes the distribution of women (patients) by residence and age groups, which shows that 80% of age groups 20-24 were from Misisi compound, while 100% of age groups 40-44 were from Woodlands.

Table 4.0 Distribution of Patients by Age and Residence, and Non-Patients by Residence and Marital Status.

Characteristic	Women				Men			
	Residence				Residence			
Patients								
Age Groups	**Misisi**	**Libala**	**Woodlands**	**Total**	-			
20-24	80.0	20.0	0.0	100.0	-			
25-29	55.6	22.2	22.2	100.0	-			
30-34	11.1	55.6	33.3	100.0	-			
35-39	16.7	33.3	50.0	100.0	-			
40-44	0.0	0.0	100.0	100.0	-			
45-49	0.0	50.0	50.0	100.0	-			
Total	**33.3**	**33.3**	**33.3**	**100.0**	-			
Non-Patients								
Marital status	**Misisi**	**Libala**	**Woodlands**	**Total**	**Misisi**	**Libala**	**Woodlands**	**Total**
Single	15.0	5.0	5.0	8.3	40.0	0.0	10.0	16.7
Married	85.0	70.0	70.0	75.0	40.0	90.0	90.0	73.3
Divorced	0.0	5.0	10.0	5.0	10.0	0.0	0.0	3.3
Widowed	0.0	10.0	15.0	8.3	0.0	10.0	0.0	3.3
Total	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**

4.1.4 Age

Reproduction in human beings is restricted to a certain age group, 15-49 years, in females but there is no age limit for the male counterparts. The ages of the respondents (non-patients) were put into groups of size 5 for females and 10 for males. Table 4.1 shows that majority (44%) of the female respondents were aged 35-39 followed by those in age group 25-29 at 20%. Those below age 25 had proportions less than 20%. In contrast, most (33%) of the male participants in the study were aged 40-49.

While patient's data shows that majority of the patients fell in the age groups 25-29 and 30-34 each representing 27.3% of the total patients interviewed and the lowest representation were from

the age groups 40-44 and 45-49, each representing 6.1 % of the total sample size for patients. Age of marriage and age at time of marriage were also included for the respondents who had the infertility condition and the results are indicated in Table 4.1 below.

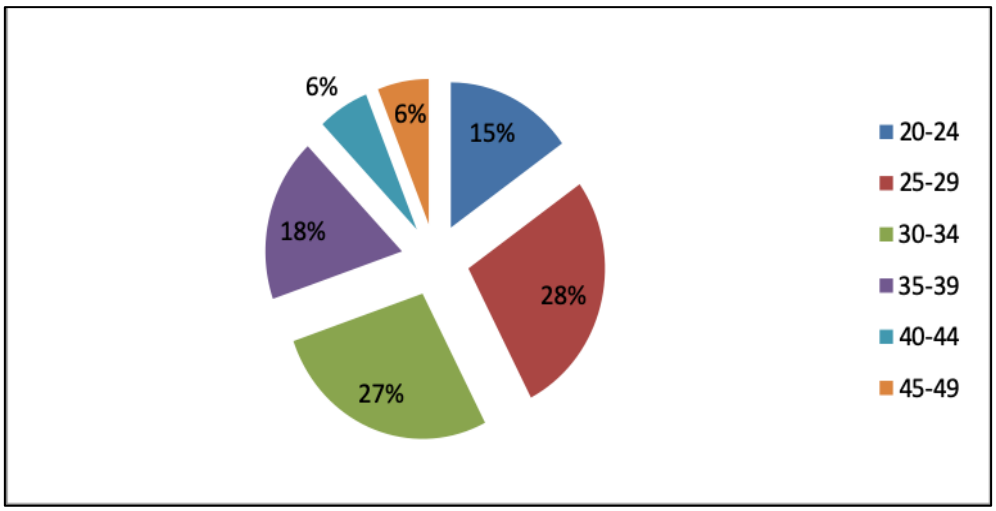
Table 4.1: Percent Distribution of Respondents by Age

Patients		
Age	**Frequency**	**Percentage (%)**
20-24	5	15.2
25-29	9	27.3
30-34	9	27.3
35-39	6	18.2
40-44	2	6.1
45-49	2	6.1
Total	**33**	**100**
Patients Age at Marriage		
15-19	4	12.1
20-24	12	36.4
25-29	10	30.3
30-34	7	21.2
Total	**33**	**100**
Patients Age of Marriage		
2-4 Years	12	36.4
5-7 Years	14	42.4
More than 8 years	7	21.2
Total	**33**	**100**
Women (Non-Patients)		
20-24	7	9.3
25-29	15	20.0
30-34	12	15.0
35-39	33	44.0
40-44	10	13.3
45-49	10	13.3
Total	**75**	**100**

Men (Non-Patients)		
20-29	7	19.7
30-39	9	25.0
40-49	12	33.3
50-59	4	11.0
60+	4	11.0
Total	**36**	**100**

In this research, age at time of marriage is considered a critical variable that may have an effect on when and whether or not a woman will be able to conceive and bear a child or their age may be problematic towards their achieving positive parity or having children. It has been observed by various researches that the age at which a woman enters marriage is critical to child bearing. Age of marriage was also put into consideration as one of the factors that may affect female infertility. In this study, the variable was considered to have an effect due to readings and other researches that have shown that the longer the woman has been married without having children, the lower the chances of conceiving in the later age or the future. Further reference of percentage distributions of patients is shown in Figure 4.1 below.

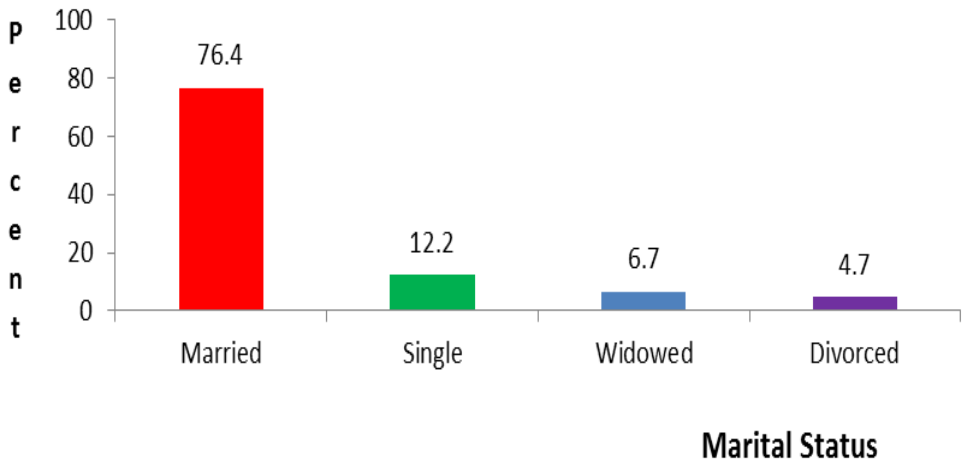
Figures 4.1 Percentage Distribution of Patients by Age



4.1.5 Marital Status

Respondents (non-patients) were divided into the categories of single, married, the divorced and the widowed. The study was dominated by the married respondents (76.4%) followed by those that were single (12.2%). The divorced and widowed were, respectively, at 4.7% and 6.7%. It is important for the reader to note that all 33 patients who took part in this study were married women; hence no distribution by marital status is presented for them. See Figure 4.2

Figure 4.2 Percentage Distribution of Non-Patients by Marital Status

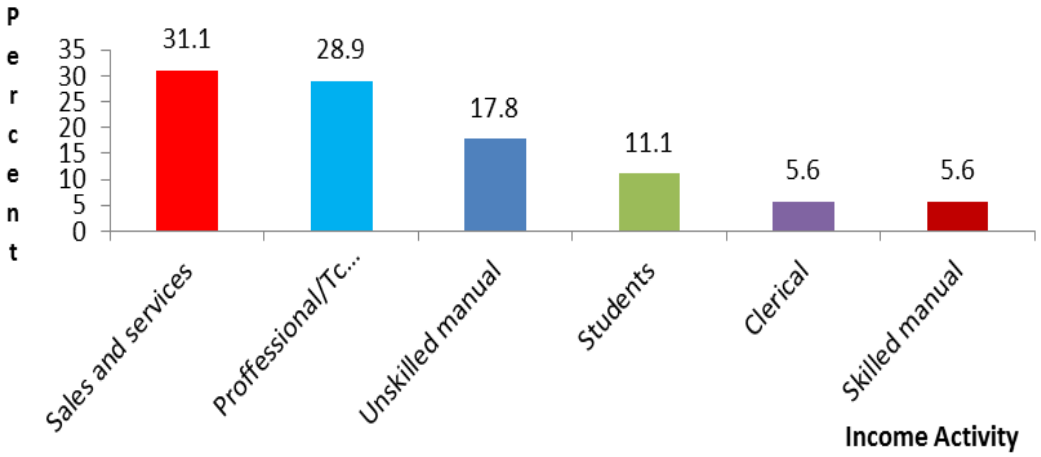


4.1.6 Income Activity/Occupation

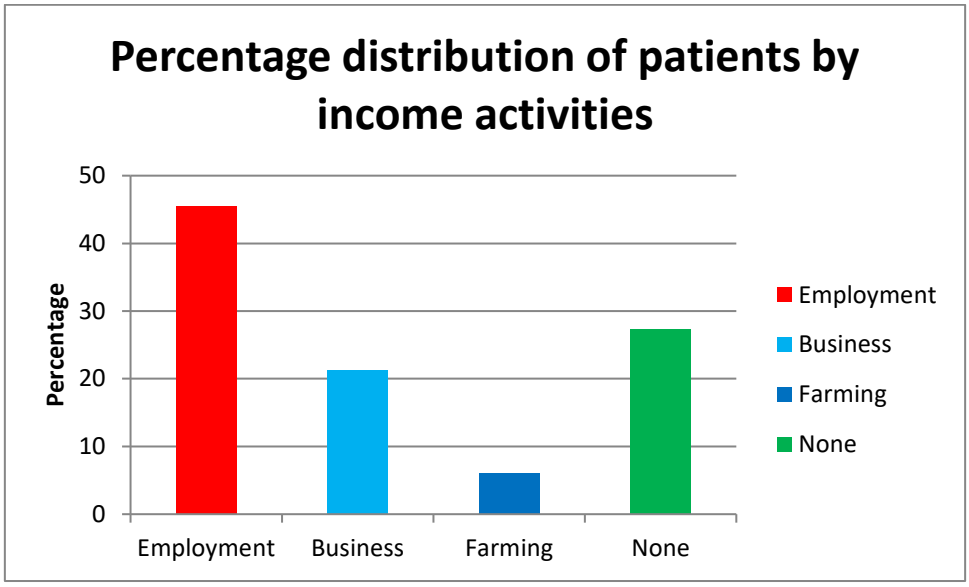
Income activities were divided into six categories for the surveyed respondents which included professional/technical/managerial, clerical, sales and services, skilled manual, unskilled manual and students. Figure 4.3 show that the majority (31%) of respondents were in sales and service activities, seconded by those that were in professional/technical/managerial activities (29%). Clerical and skilled manual activities were the least represented both at 5.6%.

In Figure 4.4, among the women with the infertility condition, 46% were in employment, 21% were involved in business and 6% were farmers while 27% of the patients were not engaged in any income generating activity.

Figures 4.3 Percentage Distribution of Respondents by Income Activity



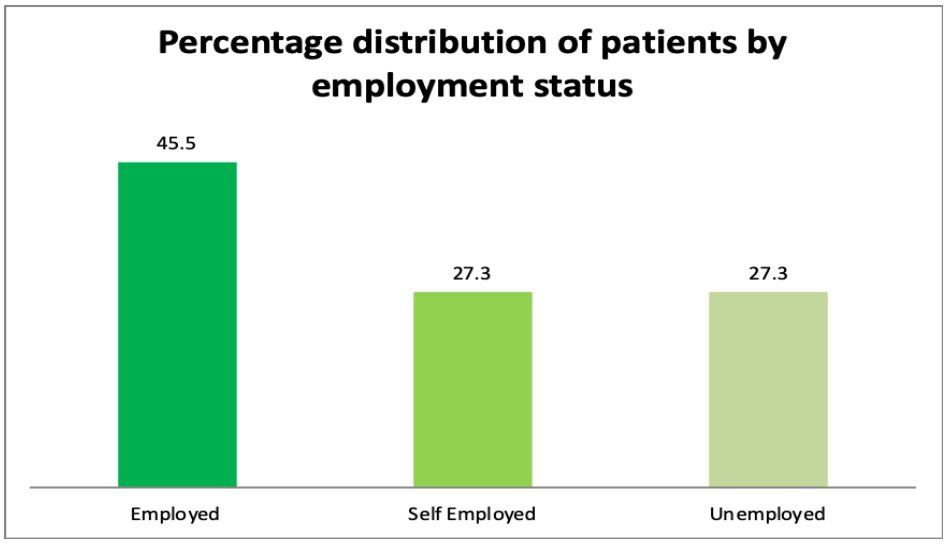
Figures 4.4 Percentage Distribution of Patients by Income Activity



4.1.7 Distribution of Patients by Employment Status

Employment was another factor that was being considered where female infertility was concerned; the research assumed that education was associated with female infertility. Figure 4.5 below has more details of the distribution.

Figure 4.5 Percentage Distribution of Patients by Employment Status

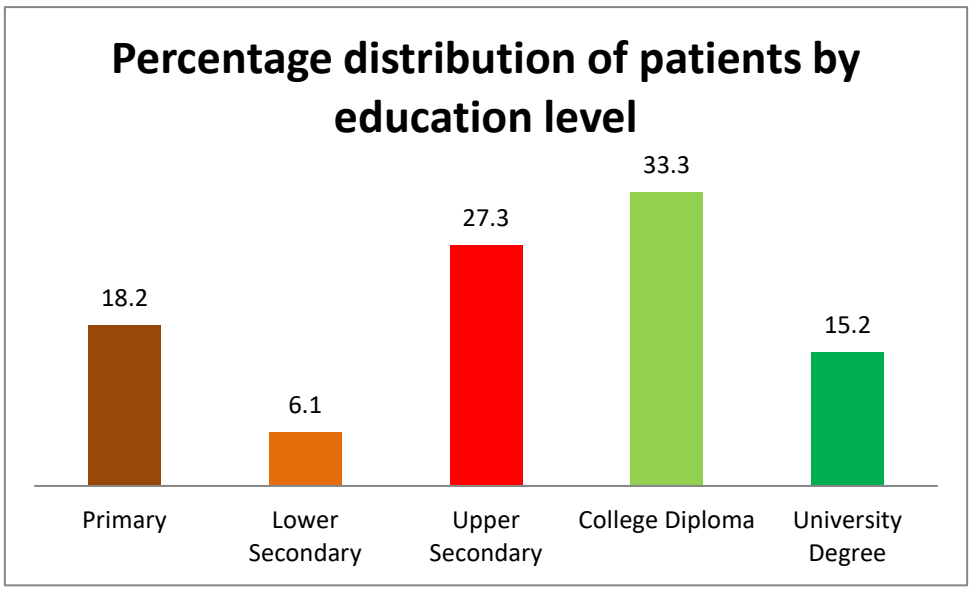


4.1.8 Distribution of Patients by Education

The research considered education as being an important factor of female infertility, the assumption was that education was associated with female infertility. It is believed that people of varying education levels will respond differently towards conditions and circumstances that they may face. It is also assumed that the more time one spends in school, the higher the likelihood that

they will delay childbearing and consequently increase the age at which one gets married, thereby reducing the chances of conception. Figure 4.6 below has more details of the distribution.

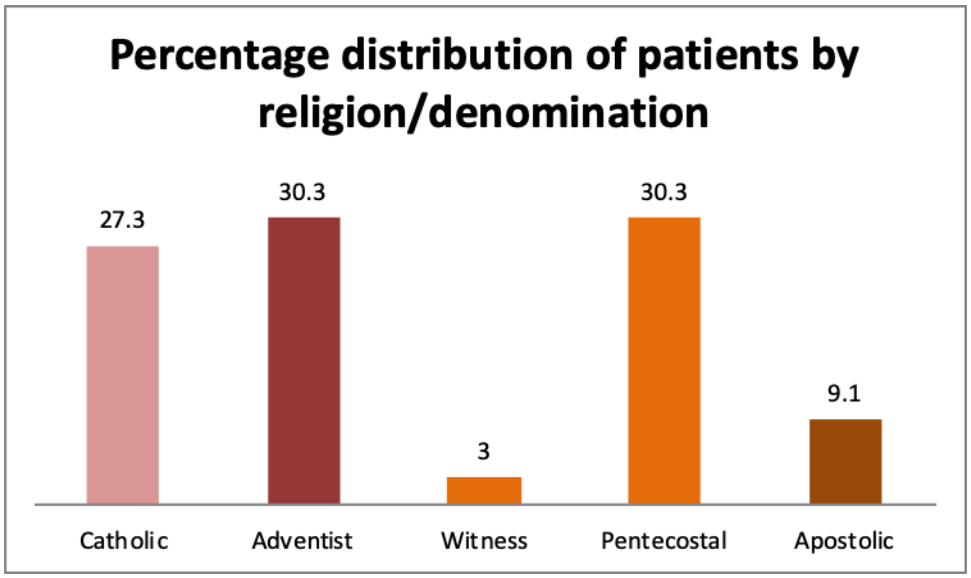
Figure 4.6 Percentage Distribution of Patients by Level of Education



4.1.9 Distribution of Patients by Religion/Denomination

The researcher considered religion as a factor in female infertility and made an assumption that religion/denomination was associated with female infertility. Various religious denominations will defer in how they respond to situations affecting their lives depending on the values and belief systems of that religion. Figure 4.7 below has more details of the distribution.

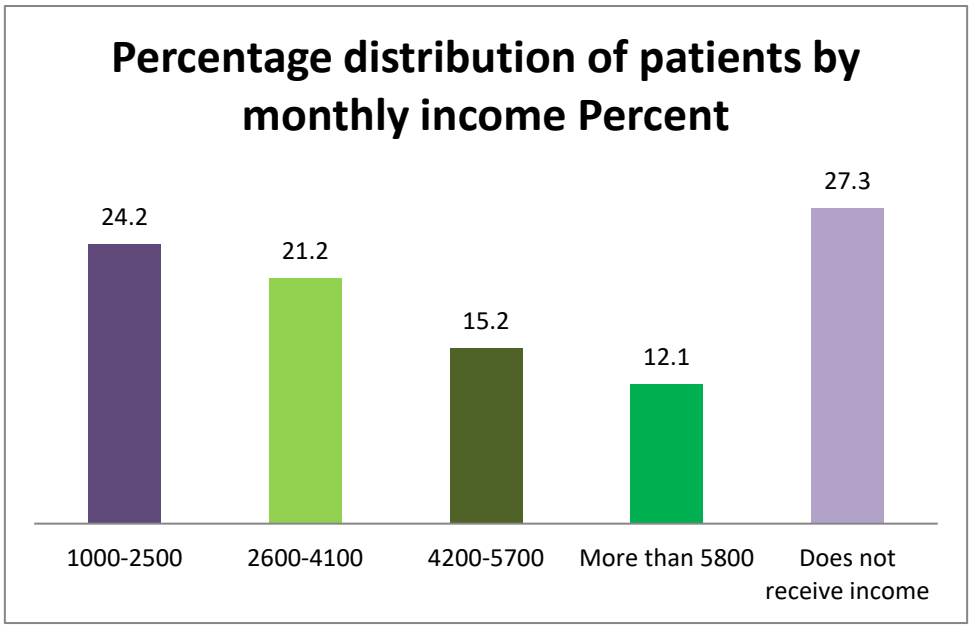
Figure 4.7 Percentage Distribution of Patients by Religion/Denomination



4.1.10 Distribution of Patients by Monthly Income

In this research, monthly income was an important factor that was studied and considered to have an association with female infertility. The researcher needed to establish whether or not women suffering from infertility and received varying monthly income would also respond differently to their infertility condition. Figure 4.8 below has more details of the distribution.

Figure 4.8 Percentage Distribution of Patients by Monthly Income



4.1.11 Infertility Knowledge as Defined by Respondents

In an effort to seek an understanding of the respondents of the topic at hand, the researcher asked the respondents who were not patients of infertility to demonstrate their understanding by defining female infertility condition. The results are shown in the Table 4.3 below. Most females (53.3%) understood female infertility as ones' inability to conceive and bear a live child as opposed to the majority of males (38.3%) who defined female infertility as the inability to carry a pregnancy to live birth. Females that understood female infertility as inability to conceive after two years of regular unprotected sex were 5% more than their male counterparts as can be seen from the figure below.

The women with the infertility condition who took part in this study were also asked to state how they understood or defined their infertility condition; 66.7% of them defined it as the inability to conceive and bear a live birth, 9.1% percent defined it as the inability to conceive after two years of regular unprotected sex while the other 24.2 percent defined infertility as the inability to carry a pregnancy to live birth, the data is presented in Table 4.3 below.

Table 4.3 Percentage Distribution of Respondents by Infertility Condition Definition

Infertility Definition by Non-Patients	Males (Freq)	Females (Freq)	Males (%)	Females (%)
Inability to conceive and bear a live birth	8	32	25.7	53.3
Inability to conceive after two years of regular unprotected sex	7	18	25.0	30.0
Inability to carry a pregnancy to live birth	12	10	38.3	15.7
Other	3	0	10.0	0.0
Total	**30**	**60**	**100**	**100**

Definitions by the Patients (WOMEN)	Frequency	Percentage
Inability to conceive and bear alive birth	22	66.7
Inability to conceive after two years of regular unprotected sex	3	9.1
Inability to carry a pregnancy to live	8	24.2
Total	**33**	**100**

4.12 Bivariate Tests for Association Between Demographic Factors and Female Infertility Knowledge among Non-patient Respondents.

In trying to understand the knowledge base for infertility among our key respondents who were community members in the study areas but were not patients of infertility, the researcher conducted tests that were meant to observe how demographic factors among these respondents affected or were associated with their knowledge of female infertility.

Table 4.4 represents an examination of the possible influences that the demographic variables: - age, marital status, and residence might have on infertility condition knowledge among the non-patient respondents who were interviewed during this research. The data shows that age does not play a role as regards which age group knows more of females with an infertility condition than the other. This can be seen from the p-value of Chi-square test that was conducted as it is greater than the benchmark confidence level of 0.05. This is also evident from the percentages that are showing an inconsistent behavior as age increases. For example, the oldest females (45-49) in the study do not know more infertile females than their counterparts who were in the youngest category (20-24). This is true for both males and females that were surveyed.

It is interesting to note that for both sexes, individuals that had never been married (single) as well as those that were widowed knew more females that were infertile than those that were married and divorced. In fact, all males that were single as well as those widowed knew at least a female who was infertile as can be seen from the results presented in Table 4.4 below. For females, those that were married were the least in knowing any female with an infertility condition while all divorced males did not know at least a female with the aforementioned condition. All in all, the statistical tests do not show any association between knowledge of female infertility and marital status (P>0.05). See Table 4.4 below.

Table 4.4: Knowledge of Females with Infertility

Variable	**Do you know any female with an infertility condition?**					
	Women			**Men**		
Age group	**Yes (%)**	**No (%)**	**P-value**	**Yes (%)**	**No (%)**	**P-value**
20-24	28.6	71.4	0.52	-	-	0.68
25-29	10.0	90.0		0.0	100.0	
30-34	50.0	50.0		25.0	75.0	
35-39	40.0	60.0		20.0	80.0	
40-44	25.0	75.0		33.3	65.7	
45-49 (45+)*	28.6	71.6		33.3	65.7	
Marital Status						
Single	40.0	60.0	0.85	100.0	0.0	0.14
Married	28.9	71.1		21.7	78.3	
Divorced	33.3	65.7		0.0	100.0	
Widowed	40.0	60.0		100.0	0.0	
Residence						
Misisi	40.0	60.0	0.47	10.0	90.0	0.15
Libala	30.0	70.0		40.0	60.0	
Woodlands	25.0	75.0		10.0	90.0	

Note: * Applies to males ONLY.

According to Table 4.4, the nature of place of residence seems to be playing a part in knowledge of females with an infertility condition especially in the case of female respondents of the study. Participants from the high-density area, Misisi, knew more females with an infertility condition (40.0%) than their counterparts in the medium density location, Libala with 30%, and those from

the less densely populated Woodlands (25%). However, this association is not strong enough to be taken on as the statistical test conducted does not support the observed pattern.

On the other hand, there seems to be no knowledge differential between the males from Misisi (high density) and those from Woodlands (low density). However, those males from Libala know more females with an infertility condition than those from the aforementioned locations. Table 4.4 more details and indicates that there is no statistically significant association between demographic factors among non-patient responds and their knowledge of women with infertility.

4.2 OBJECTIVE ONE: To Investigate the Association Between Demographic Factors and Female Infertility.

Under this objective, the researcher sought to establish whether or not there was an association between demographic factors (age, age at marriage, age of marriage, and residence) and female infertility. In order to establish this association: the chi-square test for association was carried out using data obtained from the exit-clinic interviews conducted with infertility patients that were found at the UTH obstetrics and gynecology clinic during the survey period. Only respondents who met the selection criteria were interviewed during this survey.

The tests were conducted to see the association between the variables being measured. As per definition, association is a more generalized term that refers to a relationship between two random variables which makes them statistically dependent. It refers to a general relationship without specifics of the relationship being mentioned, and it is not necessarily to be a causal relationship.

The data obtained from the analysis of the variables under study indicated that there was a statistically significant association between the age of a woman (age) and infertility ($P<0.05$) and age of marriage and infertility $P<0.001$ ($P<0.05$). Results further indicate a non-significant association between age at marriage and infertility, and place of residence and infertility ($P>0.05$). Table 4.6 below gives more details of these results.

Table 4.6 Bivariate test results for the association between demographic factors and female infertility among patients.

Covariate/Factor	Years of Infertility			Chi-Square Results		
Demographic Factors	**2-4**	**5-7**	**>8Years**	**Value**	**df**	**P Value**
Age Group						
20-24	100.0	0.0	0.0			
25-29	44.4	55.6	0.0			
30-34	44.4	44.4	11.1			
35-39	16.7	83.3	0.0	19.427	10	0.035**
40-44	0.0	100.0	0.0			
45-49	0.0	50.0	50.0			
Total	**42.4**	**51.5**	**6.1**			
Age of Marriage						
2-4	100.0	0.0	0.0			
5-7	14.3	85.7	0.0	32.287	4	0.000**
>8 years	0.0	71.4	28.6			
Total	**42.2**	**51.5**	**6.1**			
Age at Marriage						
15-19	50.0	50.0	0.0			
20-24	41.7	5.0	8.3			
25-29	50.0	40.0	10.0	2.336	6	0.886
30-34	28.6	71.4	0.0			
Total	**42.2**	**51.5**	**6.1**			
Residence						
High density	45.5	54.4	0.0			
Medium density	45.5	36.4	18.2	4.966	4	0.291
Low Density	36.4	63.6	0.0			
Total	**42.2**	**51.5**	**6.1**			

P-Values *** p<0.01, ** p<0.05, *p<0.1

4.3 OBJECTIVE TWO: To Establish the Association Between Socio-economic Factors and Infertility.

Under this objective, the researcher sought to establish whether or not there was an association between socio-economic factors (religion, education level, employment status, income activities and monthly income) and infertility.

The Chi-Square test for association/independence was carried out using patient's data obtained from interviews with exit-clinic patients at the UTH obstetrics and gynecology clinic and the following results were obtained.

There was no statistically significant association established between the following variables as they all measured above the 5% standard level of significance; (P>0.05); religion/denomination and infertility, education level and infertility, employment status and infertility, income activities and infertility, monthly income and infertility. These variables when tested for association with female infertility all indicated a non-existence of a statistically significant association P>0.05. There was however a statistically significant association between residence and monthly income at P Value 0.001 (P<0.02). Table 4.7 below gives further details.

Table 4.7 Bivariate test results for the association between socio-economic factors and female infertility among patients.

Covariate/Factor	**Years of Infertility**			**Chi-Square results**		
Socio-economic Factors	**2-4**	**5-7**	**>8Years**	**Value**	**df**	**P-Value**
Religion/ Denomination						
Catholic	44.4	44.4	11.1			
Adventist	40.0	50.0	10.0			
Witness	0.0	100.0	0.0	2.810	8	0.946
Pentecostal	50.0	50.0	0.0			
Apostolic	33.3	66.7	0.0			
Total	**42.4**	**51.5**	**6.1**			
Level of Education						
Primary	83.3	16.7	0.0			
Lower secondary	0.0	100.0	0.0			
upper secondary	33.3	66.7	0.0	9.684	8	0.288
College diploma	45.5	45.5	9.1			
University degree	20.0	60.0	20.0			
Total	**42.4**	**51.5**	**6.1**			
Employment status						
Employed	46.7	40.0	13.3			
Self employed	33.3	66.7	0.0	3.463	4	0.483
unemployed	44.4	55.6	0.0			
Total	**42.4**	**51.5**	**6.1**			
Income activities						

Employment	46.7	40.0	13.3			
Business	28.6	71.4	0.0	3.770	6	0.708
Farming	50.0	50.0	0.0			
None	44.4	55.6	0.0			
Total	**42.4**	**51.5**	**6.1**			
Monthly Income						
1000-2500	37.5	62.5	0.5			
2600-4100	71.4	14.3	14.3			
4200-5700	0.0	80.0	20.0	10.164	8	0.254
>5800	50.0	50.0	0.0			
Does not receive Income	44.4	55.6	0.0			
Total	**42.4**	**51.5**	**6.1**			
	RESIDENCE					
Monthly income	**High**	**Medium**	**Low**			
1000-2500	75.0	25.0	0.0			
2600-4100	0.0	71.4	28.6			
4200-5700	0.0	60.0	40.0	25.895	8	0.001**
>5800	0.0	0.0	100.0			
Does not receive Income	55.6	11.1	33.3			
Total	**33.3**	**33.3**	**33.3**			

P-Values *** p<0.01, ** p<0.05, *p<0.1

4.4 OBJECTIVE THREE: To Assess Health Care and Treatment Seeking Behaviors among Infertile Women.

4.4.1 Bivariate Tests for the Association Between Female Infertility and Treatment Seeking.

The reader should note that non-conventional treatment here means that a woman had gone to seek help either from traditional healers, or from their church pastors or priests (church counselling and prayers), before they eventually decided to seek conventional treatment at a medical clinic or hospital.

The bivariate test conducted established that there was no association between seeking non-conventional treatment and infertility (P>0.05), there was also no association between seeking further alternative specialized treatment and infertility (P>0.05). However, there was an

association between failure to afford further specialized treatment and infertility. Table 4.8 below illustrates this further.

Table 4.8 Bivariate test results of other forms of treatment and infertility.

Covariates/Factor	Years of infertility			Chi-Square results		
Other form of treatments	**2-4**	**5-7**	**>8Years**	**Value**	**df**	**P Value**
Couldn't afford further specialized treatment						
No	42.3	57.7	0.0			
Yes	42.9	28.6	0.0	8.337	2	0.015**
Total	**42.4**	**51.5**	**6.1**			
Seeking non-conventional treatment						
No	40.0	53.3	6.7			
Yes	44.4	50.0	5.6	0.072	2	0.964
Total	**42.4**	**51.5**	**6.1**			
Alternative treatment sought						
No	0.0	100.0	0.0			
Yes	46.7	46.7	6.7	3.106	2	0.212
Total	**42.4**	**51.5**	**6.1**			

P-values *** p<0.01, ** p<0.05, *p<0.1

4.4.2 Residence and Seeking Non-conventional Treatment

Furthermore; the researcher also tried to find differences on health care seeking behaviors among the women coming from the three different townships. The differences between health care and treatment seeking behaviors and residence were also noted and the results were as follows; 45.5% respondents from each of the townships had not sought any none conventional treatment before attending conventional hospitals and clinics while 54.5% respondents from each of the three townships admitted having been to non-conventional health care providers before attending conventional hospitals.

Of all the respondents who had been to non-conventional health care providers in the high-density area of Misisi, 83.3% had been to traditional healers and 16.7% had sought counselling and prayers from various churches. 33.3% of those who sought non-conventional treatment in Libala

(Medium density) had seen a traditional healer while 66.7% had sought prayers and counselling from church. Furthermore, 50.0% of those who had sought non-conventional treatment in the low-density area of Woodlands had been to a traditional healer and 50.0% had been to seek prayers and counselling at church. On the Chi-Square test, these variables were not statistically significantly associated (P>0.05). See Table 4.9

4.4.3 Residence and Seeking Further Specialized Conventional Treatment

Note that patients sometimes wanted to seek further specialized treatment beyond what UTH was currently offering them. This further treatment could either be obtained from UTH itself, Lusaka IVF clinic or abroad (China, India and South Africa). While some women had attempted to seek specialized treatment and could not continue because they could not afford the specialized treatment, some women made no attempt to such quests.

Respondents were further asked if they had sought further conventional or medical treatment either at UTH (besides the treatment they were currently receiving) or any other clinic which they could not afford due to financial constraints and the results indicate that while no one from the high density area of Misisi had done so, 45.5% of the residents of Libala and 18.2% of the residents of Woodlands had. Women from Libala Township who could not afford further treatment included 20% who sought further treatment at UTH but couldn't afford it, 40% tried IVF Clinic and another 40% tried to go abroad but they could not afford the treatment.

On the other hand, the 18.2% of the patients from Woodlands who could not afford further treatment elsewhere had all tried to seek further treatment abroad. On the Chi-Square test, this variable was found to be statistically associated with female infertility at P-value less 0.05. There was an association between residence and inability to afford further specialized medical treatment (P<0.05). See Table 4.9

4.4.4 Residence and Seeking Alternative Treatment Other than Medical Treatment

The reader should note that alternative treatment here means that other than being treated at a medical hospital (UTH), patients had also decided to get help by either getting psychological counselling, church counselling and prayers, or visiting a traditional healer.

Furthermore, the patients were asked whether or not they had sought any alternative treatment beyond the medical treatment they were receiving at UTH, the following results were obtained from their data: 90.9% respondents from each of the three Townships had sought alternative treatment. Among the alternative treatment sought were counseling, church prayers and traditional

healers. On the bivariate test conducted, the results show that there was no statistically significant association between residence and seeking alternative treatment.

Of the respondents from Misisi 30% had seen traditional healers while 70% had been to church for prayers. 30% of these said the alternative treatment sought was not helpful while 70% said it was helpful, none of these had gone for psychological counseling. On the other hand, 50% of those from Libala had gone for counseling, 10% had been to traditional healers and 40% had gone for church prayers; 70% of these said the alternative treatment was helpful while the other 30% said it was very helpful.

Furthermore, 80% of the respondents from Woodlands had been to counseling, while the other 20% had gone for church prayers. 50% of these said the alternative treatment sought was helpful while the other 50% said it was very helpful. The bivariate tests for the association for both types of alternative treatment sought and residence and the helpfulness of the alternative treatment sought and residence all indicated a statistically significant association ($P<0.05$). Meaning that there was an association between residence and type of alternative treatment sought, and there was equally an association between residence and the helpfulness of the type of alternative treatment sought ($P<0.05$). See Table 4.9

Table 4.9 Bivariate results of the analysis on treatment seeking behavior and residence

Covariate/Factor	**Residence**			**Chi-square results**		
Other Forms of Treatment	**High**	**Medium**	**Low**	**Value**	**df**	**P Value**
Non–conventional treatment sought						
No	45.5	45.5	45.5			
Yes	54.5	54.5	54.5	0.000	2	1.000
Total	100.0	100.0	100.0			
Where have you sought non-conventional treatment						
Traditional Healers	83.3	33.3	50.0			
Churches & Prayers	16.7	66.7	50.0	3.150	2	0.207
Total	100.0	100.0	100.0			
Sought treatment elsewhere and could not afford						
No	100.0	54.5	81.8			
Yes	0.0	45.5	18.2	6.890	2	0.032**
Total	100.0	100.0	100.0			
Where treatment was sought						

UTH	-	20.0	0.0			
Lusaka IVF Clinic	-	40.0	0.0	2.100	2	0.350
Abroad	-	40.0	100.0			
Total	-	100.0	100.0			
Alternative treatment sought						
No	9.1	9.1	9.1			
Yes	90.9	90.9	90.9	0.000	2	1.000
Total	100.0	100.0	100.0			
What kind was sought						
Counseling	0.0	50.0	80.0			
Traditional Healer	30.0	10.0	0.0	13.962	4	0.007**
Church Prayers	70.0	40.0	20.0			
Total	100.0	100.0	100.0			
How helpful was the treatment						
Not helpful	30.0	0.0	0.0			
Helpful	70.0	70.0	50.0	11.171	4	0.025**
Very helpful	0.0	30.0	50.0			
Total	100.0	100.0	100.0			

P-Values *** p<0.01, ** p<0.05, *p<0.1

4.4.5 Bivariate Tests for the Association Between Other Socio-economic Variables and Treatment Seeking.

The researcher further found a statistically significant association between the following variables: type of alternative treatment sought and monthly income, type of alternative treatment sought and education, the helpfulness of alternative treatment sought and education and also type of non-conventional treatment sought and education level, all these were associated at P-values less than 0.05. Table 4.10 below gives more details.

Table 4.10 Results of the bivariate tests of other socio-economic variables and treatment seeking.

Covariates/Factors	**Monthly Income**					**Chi-square results**		
Other forms of treatment	**1000-2500**	**2600-4100**	**4200-5700**	**>5800**	**No-Income**	**Value**	**df**	**P Value**
Alternative treatment sought								
Counselling	0.0	71.4	100.00	75.0	14.3			
Traditional Healer	37.5	0.0	0.0	0.0	14.3	19.852	8	0.011**
Prayers/Church	62.5	28.6	0.0	25.0	71.4			
Total	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**			
Covariates/Factors	**Education**					**Chi-square results**		
Other forms of treatment	**Primary**	**Lower Sec**	**Upper Sec**	**College**	**Degree**	**Value**	**df**	**P Value**
Alternative treatment sought								
Counselling	0.0	0.0	25	63.6	100			
Traditional Healer	60	0.0	12.5	0.0	0.0	22.132	8	0.005**
Prayers/Church	40	100	62.5	36.4	0.0			
Total	**100**	**100**	**100**	**100**	**100**			
Helpfulness of Alternative Treatment								
Not helpful	60.0	0.0	0.0	0.0	0.0			
Helpful	40.0	100	87.5	636	25.0	23.881	8	0.002***
Very helpful	0.0	0.0	12.5	36.5	75.0			
Total	**100**	**100**	**100**	**100**	**100**			
Type of Non-Conventional treatment sought								
Traditional Healers	100	0.0	100	71.4	0.0			
Prayers/church	100	100	0.0	38.9	100	12.214	4	0.016**
Total	**100**	**100**	**100**	**100**	**100**			

P-values *** p<0.01, ** p<0.05, *p<0.1

4.5 OBJECTIVE FOUR: To Assess the Risk Factors (Possible Causes of Infertility) Associated with Female Infertility among Infertile Women.

As indicated in the conceptual framework, it was important for this research to identify some risk factors (possible causes of female infertility) believed to be associated with female infertility and

determine whether or not these factors were really associated with infertility among women from the three Townships under study.

There was no association established between the possible causes of infertility and female infertility as the bivariate result was above the benchmark of P>0.05. Furthermore, the researcher found that there was no significant association between female infertility and the number of years the patient had been attending the obstetrics and gynecology clinic at UTH (P>0.05). There was however a statistically significant association established between female infertility and when medical diagnosis was made, P<0.001 (P<0.05). See Table 4.11

When analyzed by residence, the findings according to the statistics indicate that those from the high-density areas, 27.3% of infertility was due to sexually transmitted infections (STIs), while 72.7% was due to hormonal imbalances. Among those from the medium density areas, 9.1% of infertility was due to sexually transmitted infections (STIs), 81.8% was due to hormonal imbalances, while 9.1% was due to sterilization. On the other hand, 18.2% of those from the low-density areas reported STIs to be the cause of their infertility, 45.5% was due to hormonal imbalances, and 18.2% of the causes were fibroids while the other 18.2% was due to endometriosis. This variable was however not statistically significant on the Chi-Square test.

As regards when their infertility condition was diagnosed; results indicated that of those from Misisi, 45.5% were diagnosed 2-3 years ago, another 45.5% were diagnosed 4-5 years ago and 9.1 % reported to have been diagnosed 6-7years ago. Among respondents from Libala, 45.5% were diagnosed 2-3years ago, 9.1% were diagnosed 4-5 years ago, 18.2% were diagnosed 6-7 years ago and 27.3% of them were diagnosed more than eight years ago. Reports on those from Woodlands indicated that 27.3% of them were diagnosed with infertility 2-3 years ago, 45.5% were diagnosed 4-5 years ago. From the results presented one can see that Libala Township had the most reports of those who had lived with infertility for the longest period of time. This variable did not however have a statistically significant association. Table 4.11 below gives more details of the findings.

Table 4.11 Bivariate results of diagnosis and risk factors associated with infertility

Covariates/Factor	Years of Infertility			Chi-Square results		
Diagnosis	**2-4**	**5-7**	**>8Years**	**Value**	**df**	**P Value**
Period attending UTH clinic						
1-6 months	61.1	33.3	5.6			
7- 12 months	23.1	69.2	7.7	6.523	4	0.163
1-2years	0.0	100	0.0			
Total	**42.4**	**51.5**	**6.1**			
When Medical Diagnosis was made						
2-3years ago	100.0	0.0	0.0			
4-5 years ago,	9.1	90.9	0.0	49.798	6	0.000**
6-7 years ago,	0.0	100.0	0.0			
>8 years ago,	0.0	33.3	66.7			
Total	**42.4**	**51.5**	**6.1**			
Possible Causes of infertility						
Hormonal imbalance	40.9	50.0	9.1			
Fibroids	50.0	50.0	0.0			
Sterilization	0.0	100.0	0.0	4.908	8	0.767
Endometriosis (blocked pelvis)	100.0	0.0	0.0			
STI'S	33.3	66.7	0.0			
Total	**42.2**	**51.5**	**6.1**			
Diagnosis						
STI's	27.3	9.1	18.2			
Hormonal Imbalances	72.0	81.8	45.5			
Fibroids	0.0	0.0	18.2			
Sterilization	0.0	9.1	0.0	12.182	8	0.143
Endometriosis	0.0	0.0	18.2			
Total	100.0	100.0	100.0			
When Infertility Condition was Diagnosed						
2-3 years ago,	45.5	45.5	27.3			
4-5years ago	45.5	9.1	45.5			
6-7years	9.1	18.2	27.3	10.524	6	0.104
>8 years ago	0.0	27.3	0.0			

Total	**100.0**	**100.0**	**100.0**			

P-values *** p<0.01, ** p<0.05, *p<0.1

In terms of percentage distribution, results indicate that the highest number of causes was hormonal imbalance (66.7) while the lowest number of causes was sterilization (3.0%). On the other hand, majority of the patients were diagnosed with infertility 2-3years ago (39.4%), while the least number had been diagnosed more than 8 years ago (27.3%), that means 27.3% of the women had been living with infertility for more than eight years. See Table 4.12 below.

Table 4.12 Percentage distribution of risk factors associated with infertility

Background characteristics	**PATIENTS**	
Possible Risk Factors	**Frequency**	**Percentage**
STIs	6	18.2
Hormonal Imbalance	22	66.7
Fibroids	2	6.1
Sterilization	1	3.0
Endometriosis	2	6.1
Total	**33**	**100**

4.6 OBJECTIVE FIVE: To Determine the Relationship Between GBV, Socio-stigma and Discrimination, Divorce, Income Loss Due to Treatment Seeking and Female Infertility among Infertile Women.

Under this objective, the researcher sought to establish an association and also to establish the effect that female infertility has on the socio-economic factors under study. This study wanted to see to what extent infertility affected these variables. Here infertility was taken as an independent variable upon which all these other variables were dependent. In order to establish this effect, binary logistic regression was done and dichotomous variables were established using questions that gave only two responses *No* and *Yes* on the dependent variables. For example, the women were asked if they had experienced any GBV and their responses to these questions were either yes or no: similar questions were also asked to establish responses on the other dependent variables under study.

4.6.1 Chi-square Tests of the Socio-economic Effects of Female Infertility on Patients

The Chi-square results presented after the analysis of data indicated that there was an association between income loss due to treatment seeking and female infertility at a P-value of 0.015 (P<0.05).

There was however no significant association established between female infertility and infertility having a negative economic bearing on women (P>0.05). See Table 4.13 below for further details.

Table 4.13 Bivariate results of the Chi-square test to examine the association between socio-economic factors and female infertility among infertility patients.

Covariates/Factor	Years of Infertility			Chi-Square results		
Socio-economic Factors	**2-4**	**5-7**	**>8Years**	**Value**	**df**	**P Value**
Income loss due to treatment seeking						
1000 – 2500	33.3	66.7	0.0			
2600 – 4900	62.5	37.5	0.0			
5000 – 10000	0.0	100.0	0.0	15.856	6	0.015**
>11000	20.0	40.0	40.0			
Total	**43.3**	**50.0**	**6.7**			
Negative economic bearing due to infertility						
No	33.3	66.7	0.0			
Yes	43.3	50.0	6.7	0.411	2	0.814
Total	**42.4**	**51.5**	**6.1**			
Support from Partner						
No	50.0	50.0	0.0			
Yes	30.8	53.8	15.4	3.786	2	0.151
Total	**42.4**	**51.5**	**6.1**			
Experienced GBV						
No	40.0	50.0	10.0			
Yes	46.2	53.8	0.0	1.393	2	0.498
Total	**42.4**	**51.5**	**6.1**			
Experienced Divorce						
No	43.8	50.0	6.2			
Yes	0.0	100.0	0.0	0.971	2	0.616
Total	**42.4**	**51.5**	**6.1**			
Experienced Stigma						
No	45.5	54.5	0.0			
Yes	40.9	50.0	9.1	1.065	2	0.587
Total	**42.4**	**51.5**	**6.1**			
Attempted Suicide						
No	40.9	59.1	0.0			

Yes	45.5	36.4	18.2	4.771	2	0.092
Total	**42.4**	**51.5**	**6.1**			

P-values *** p<0.01, ** p<0.05, *p<0.1

4.6.2 Logistic Regression Analysis of the Socio-economic Effects of Female Infertility on Patients.

This section uses the binary logistic regression in order to determine the influence of the predictor (female infertility) on the dependent variables such as GBV, divorce, loss of income due to treatment seeking. When using this model, the independent variable (female infertility) was regressed with all the dependent variables at once. The logistic regression examined the influence of the independent variable on the dependent variables by using Backward Stepwise (elimination) where dependent variables were entered so that the model could remove variables with least change in R^2 until change becomes significant in coming up with the model.

The variables gender-based violence, divorce, stigmatization and income loss due to treatment seeking were retained in the binary logistic regression model based on the datasets. Based on *Nagelkerke's* R^2, the observed variability in the selected dependent variables on infertility was 65 percent. This proportion of variation explained by the dependent variables is quite good for estimation of the parameters. The model further shows overall, 90 percent of the predictions in the model were correct.

Furthermore, from the binary regression analysis that was carried out, the following results were obtained: the variables GBV and divorce were not statistically significant at P-values of 0.852 and 0.997 respectively (P>0.05) while the variables stigmatization and income loss were both statistically significant at P-values 0.033 and 0.044 respectively (P<0.05). This indicates that divorce and GBV are not significantly associated with female infertility while stigmatization and income loss due to treatment seeking is statistically significantly associated with female infertility. The regression table below shows these results in details. See Table 4.14

Table 4.14: Results from logistic regression analysis of demographic and socio-economic factors associated with female infertility - data from women with the infertility condition.

Covariate	Category	Sig.	B (Exp.(B))	C.I
Suicide Attempt	Yes	0.279	-0.952 [0.386]	0.069-2.160
	No (**RC**)	---	0.00 [1.00]	---
Support from Partner	Yes	0.225	-1.278 [0.279]	0.035-2.193
	No (**RC)**	---	0.00 [1.00]	---
Non-conventional treatment seeking	Yes	0.208	-0.720 [0.487]	0.159-1.492
	No (**RC**)	---	0.00 [1.00]	---
Alternative treatment seeking	Yes	0.997	-34.948 [0.000]	---
	No (**RC**)	---	0.00 [1.00]	---
Unaffordable treatment sought	Yes	0.811	0.335 [1.397]	0.089-21.835
	No (**RC**)	---	0.00 [1.00]	---
Gender Based Violence	Yes	0.852	-0.172 [0.842]	0.139-5.102
	No **(RC)**	---	0.00 [1.00]	---
Divorce	Yes	0.997	-17.306 [0.000]	---
	No (**RC**)	---	0.00 [1.00]	---
Stigmatization	Yes	**0.033****	-2.738 [0.065]	0.005-0.801
	No **(RC)**	---	0.00 [1.00]	---
Income Loss due to treatment seeking	Yes	**0.044****	-2.007 [0.134]	0.019-0.948
	No **(RC)**	---	0.00 [1.00]	---

Significance values: *** p<0.01, **p<0.05, * p<0.1, RC: Reference Category

4.6.3 Logistic Regression Analysis of the Perceptions by Non-patients of the Socio-economic Effects of Female Infertility on Patients.

The research also wanted to establish community perception of female infertility; the non-patient respondents' data was analyzed quantitatively to see if their perception of infertility was similar to what the women living with infertility were actually experiencing. The findings are displayed in Table 4.15 below and they indicate similarities with actual patient information in most cases.

Table 4.15: Results from Logistic Regression analysis of Demographic and Socio-Economic Factors associated with female Infertility - data from non-patients with knowledge of infertility.

Covariate	**Category**	**Sig.**	**B (Exp(B))**	**C.I**
Age	20-24	0.54	0.89 [2.43]	0.15-4.59
	25-29	0.26	-1.30 [0.27]	0.03-2.59
	30-34	0.50	-0.12 [0.46]	0.05-4.23
	35-39	0.91	-0.15 [0.87]	0.06-1.85
	40-44	0.48	-0.08 [0.92]	0.05-1.04
	45-49 **(RC)**	---	0.00 [1.00]	---
Marital status	Never Married **(RC)**	---	0.00 [1.00]	---
	Married	0.65	-0.38 [1.09]	0.04-2.54
	Divorced	0.93	0.08 [0.41]	0.03-1.89
	Widowed	0.38	-0.88 [1.10]	0.01-3.50
Residence	Misisi	0.51	0.44 [1.56]	0.42-5.76
	Libala	0.32	0.69 [2.01]	0.52-7.72
	Woodlands (**RC**)	---	0.00 [1.00]	---
Gender Based Violence	Yes	0.80	0.13 [1.14]	0.41-3.17
	No **(RC)**	---	0.00 [1.00]	---
Divorce	Yes	0.60	0.15 [1.26]	0.03-4.05
	No (**RC**)	---	0.00 [1.00]	
Stigmatization	Yes	0.39	-0.45 [0.64]	0.23-1.77
	No **(RC)**	---	0.00 [1.00]	---

Income loss due to treatment seeking	Yes	0.04**	-2.00 [0.137]	0.98-1.33
	No **(RC)**	---	0.00 [1.00]	---

Significance values: *** p<0.01, **p<0.05, * p<0.1, RC: Reference Category

According to community perceptions of female infertility table 4.20 above from regression analysis the non-patient data shows that there was no association between female infertility and divorce (P>0.05); between female infertility and GBV (P>0.05); and although patients data indicated an association between stigmatization and female infertility, data from community perception of this phenomenon indicated otherwise, some community members felt that infertile women did not experience stigma while others agreed that women who were infertile were discriminated by society. Furthermore, just like patient data, community perception data also indicated that there was an association between female infertility and income loss due to treatment seeking (P<0.05). This implies that community members also agree that infertility may have more economic consequences on infertile women than fertile women.

4.6.4 Infertility and Stigmatization

With regards to stigmatization, the Chi-Square results indicate a significant association between stigma and residence (P<0.05). In Table 4.16, 100% of women in Misisi had experienced some form of stigma, 54.5% of those in Libala and 45.5% of those in Woodlands had all reported some experience of a type of stigma from family or the community they lived in. As indicated by these results, it appears that infertile women in Misisi tend to experience more stigma from the community. There were no associations established between stigma and the other variables. 66.7% of all the women reported to have experienced some form of stigma.

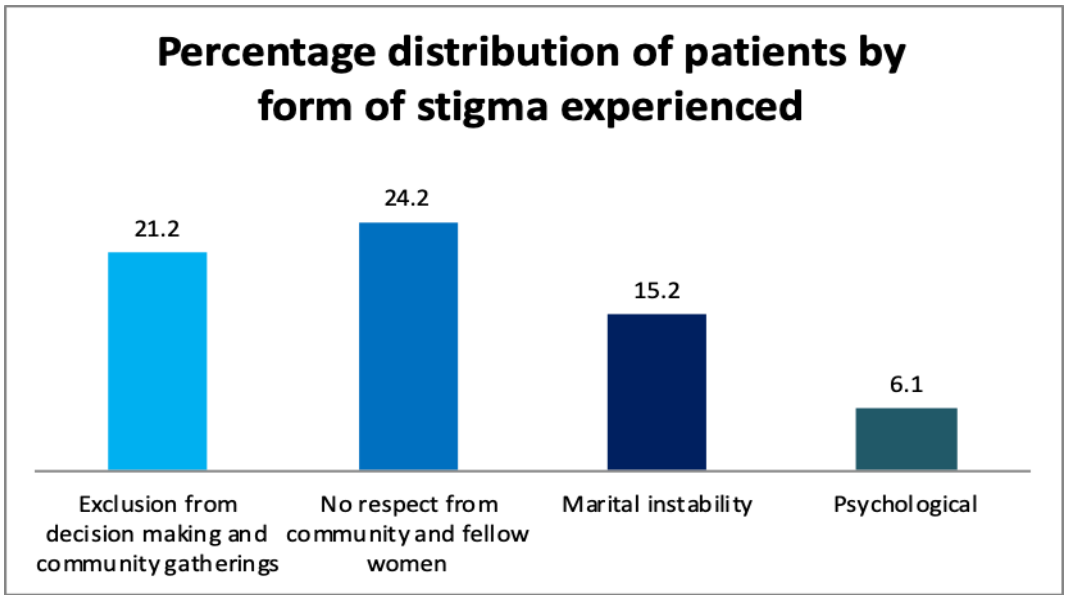
Table 4.16 Bivariate results of the association between residence and stigmatization among infertile women.

Covariate/Factor	**Residence**			**Chi-Square results**		
Stigmatization	**High**	**Medium**	**Low**	**Value**	**df**	**P Value**
Stigmatization experienced						
No	0.0	45.5	54.5			
Yes	100.0	54.5	45.5	8.455	2	0.015**
Total	100.0	100.0	100.0			

P-values *** p<0.01, ** p<0.05, *p<0.1

Among all the women who reported to have experienced stigma from society 21.2% felt excluded from decision making and gatherings, 24.2% felt they received no respect from society, while 15.2% said they experienced a form of stigma that led to marital instability and 6.1% had experienced a form of psychological stigma as is presented in Figure 4.9 below. The regression analysis indicates a significant association between infertility and stigmatization (P<0.05). See Table 4.14

Figure 4.9 Percentage distribution of patients by type of stigma experienced



When asked how men treated women with infertility, the majority of the women (45.5%) felt men discriminated against infertile women, 42.4% felt men disposed infertile women while 4% thought that men would by all means just avoid women that were infertile.

4.6.5 Infertility and Divorce

Although the results of the regression analysis in Table 4.14 show no association between infertility and divorce, 84.8% of the women reported to have known a woman that was divorced as a result of infertility. Among these, 42.4% said they knew at least 1-2 women who had been divorced while the other 42.4% said they knew at least 5-8 women who had experienced a divorce due to infertility. Among the women spoken to, only one woman reported to have experienced a divorce and was re-married. The details are presented in Table 4.17 below.

Table 4.17 Percentage distribution of patients by experience of divorce

Background characteristics	**PATIENTS**	
Experienced Divorce	**Frequency**	**Percentage**

No	32	97.0
Yes	1	3.0
Total	**33**	**100**
Knowledge of women divorced	**Frequency**	**Percentage**
No	5	15.2
Yes	28	84.8
Total	**33**	**100**
# Of divorced women known	**Frequency**	**Percentage**
1-4	14	42.4
5-8	14	42.4
Total	**28**	**84.8**

4.6.6 Infertility and Gender Based Violence (GBV)

The analysis of the association between infertility and GBV found no association between the two variables. See Table 4.14 above. The findings indicate that 39.4% of all the women who were infertile and took part in this study had experienced some form of GBV from their partner. Among these women, 21.2% had faced physical violence, 12.1% had experienced psychological and 6.1% had experienced emotional violence. Despite experiencing some form of GBV, only 12.1% of these women had reported these cases to the police Victim Support unit (3.0%) or their pastor, priest or counselors in various churches.

The other 27.3% had not reported these cases of GBV because 18.2% were afraid their partners would leave them if they reported, 12.1% were advised against reporting the cases by their friends and family, 3% blamed themselves for the abuse they received, while 3% felt their partners actions were justifiable since they could not give them children in the marriage and other 3% saw no need to report the cases of violence.

When measured against residence, the violence levels were as follows: 45.5%of those from the high-density areas of Misisi had experienced GBV, 27.3% of those from the medium density area of Libala had experienced some form of GBV, while another 45.5% of those living in the low-density areas of Woodlands had experienced some form of GBV. The results presented indicate that there was no significant association between area of residence and gender-based violence, although it appears that those from Libala recorded the lowest occurrences of GBV, while those from Woodlands and Misisi had the highest number of cases.

4.6.7 Infertility and Income Loss Due to Treatment

The researcher sought to find out if there was a significant association between female infertility and loss of income due to treatment seeking: whether female infertility had an economic effect on the women and how statistically associated these variables were. As already indicated, the findings on the logistic regression show a P-value of 0.044 (P<0.05) which indicates an existence of a statistically significant association. See Table 4.14 above.

In Table 4.13 above, the analysis on the Chi-Square test also indicated a statistically significant association (P<0.05). These results indicate that women suffer negatively economically and financially in their quest for a solution to their infertility condition. Furthermore, when compared against residence, there was a statistically significant association between residence and income loss due to treatment seeking with a P-value of 0.001 (P<0.01) on the chi-square test for association.

Results indicate that 66.7 of women in Misisi had spent between K1000 to K2500 on treatment seeking processes, while 33.3% of them had spent up to K4900. 80% of women from Libala Township had spent up to K4900 on treatment while 20% of them had spent K11000. Among the women from Woodlands Township, 45.0% had spent up to k4900, 27.3% had spent between K5000 to K10000 on treatment while another 27.3% of these women had spent more than K11000 on treatment seeking processes. See Table 4.18 below.

Table 4.18 Bivariate results of the association between residence and income loss due to treatment seeking by patients.

Covariate/Factor	**Residence**			**Chi-Square results**		
Income loss	**High**	**Medium**	**Low**	**Value**	**df**	**P Value**
Income loss due to treatment						
1000-2500	66.7	0.0	0.0			
2600-4900	33.3	80.0	45.5			
5000-10,000	0.0	0.0	27.3	23.627	6	0.001**
>11000	0.0	20.0	27.3			
TOTAL	100.0	100.0	100.0			

P-values *** p<0.01, ** p<0.05, *p<0.1

4.6.8 Infertility and Support from Partner

Further analysis was carried out to find out the level of support that the husbands or partners to these women who had the infertility condition were giving to their views and the following results were obtained. While 60.6% admitted to having husbands who were not supportive, 39.4% results

indicate that 12.1% of the partners were supportive, 15.2% were very supportive, while another 12.1% were extremely supportive of their partner in the quest for treatment.

When measured against residence, 90.9% of the women from Misisi received no support from their husbands, and only 9.1% received some form of support. 54.5% of the women from Libala received no support from their husband's while the other 45.5% received some support. Among the women from Woodlands Townships, 36.4% of them received no support from their partners while 63.6% of these women had supportive husbands. The level of association between residence and support from partner indicate a statistically significant association of P-value 0.02 (P<0.05). Table 4.19 below presents the findings.

Table 4.19 results of the bivariate test of the association between selected variables and support from partner

Covariate/Factor	**Support from Partner**		**Chi-Square results**		
Selected Variables	**No**	**Yes**	**Value**	**df**	**P Value**
Level of Education					
Primary	100.0	0.0			
Lower Secondary	100.0	0.0			
Upper secondary	77.8	22.2	12.472	4	0.014**
College	36.6	63.6			
University degree	20.0	80.0			
Total	**60.6**	**39.4**			
Residence					
High	90.9	9.1			
Medium	54.5	45.5	7.108	2	0.029**
Low	36.4	63.6			
Total	60.6	39.4			
Monthly Income					
1000-2500	87.5	12.5			
2600-4100	28.6	71.4			
4200-5700	40.0	60.0	11.461	4	0.022**
>5800	25.0	75.0			
No income	88.9	11.1			
Total	**60.6**	**39.4**			
Age of Women					
20-24	100.0	0.0			
25-29	88.9	11.1			

30-34	55.6	44.4			
35-39	33.3	66.7	14.385	5	0.013**
40-44	0.0	100.0			
45-49	0.0	100.0			
Total	60.6	39.4			

P-values *** p<0.01, ** p<0.05, *p<0.1

It was interesting to observe further that there was a statistically significant association (P<0.05) between the following variables: support from partner and level of education, residence, monthly income and age of a woman. It appears that those with university education received more support from their partners as compared to those with little education. Those living in low density areas received more support than those from high density areas, those with more than k5800 monthly income received support than those who did not receive any income at all, while older women above 40years received more support from their husbands than the younger women of less than 24years of age.

In addition to quantitative data generated, qualitative data was also generated from the non-patients to get opinions and perceptions of respondents. Respondents were asked to tell the researcher on what they understood by the term female infertility.

In your opinion, what is female infertility?

Female infertility is a condition where one cannot have children and the likely causes may be abortions done using the traditional medicines, Respondent, 2016

In trying to find out whether female infertility causes Gender Based Violence, respondents were further asked to state whether female infertility causes GBV, Divorce, Stigmatization and has some Economic effects?

In my opinion, I would say that infertility may cause Gender Based Violence. Some of the affirmative reasons which may lead to this form of violence could be initiated by husband's relatives who pressure them. Furthermore, infertility may lead to divorce which in most cases has brought stigmatization for some people in our communities.

To some extent, I would say, female infertility has a bearing on the economic status of a woman in the sense that more money is usually spent on seeking treatment. (Non-patient respondent, 2016)

Sometimes people with this condition find it difficult to openly talk about such situations. "I think it is important for society to help such people through counseling and giving them biblical scriptures may be helpful to such people", (Non-patient respondent, 2016)

4.7 Data Diagnostic Tests

A number of diagnostic tests were run before the final Chi-square and Logistic regression estimations. The following conditions were data tested for the selection of Chi-square cross-tabulations:

i.) All measurement variables were either in nominal or ordinal scale.

ii.) The original data in cells were recorded in frequencies or counts of cases. For ease of presentation purposes, the values were changed to percentages.

iii.) Each subject contributed data to one and only one cell in the Chi-square.

iv.) There were 2 study variables for each analyses of Chi-square, measured as categories. The respective study groups of the variables were independent.

v.) Lastly, due to sample size restrictions, the value of the cell expecteds did not meet the required criteria. Most of them having a value of expecteds less than 5. To mitigate for this, insights were sought from the non-patient surveys and compared and/or contrasted with patient surveys to draw conclusions.

Table A.1 in the Appendices documents the summary results from the diagnostic tests for the different set of bi-variate Chi-square analyses.

Furthermore, using an Ordinary Least Square regression from the model specification, diagnostic tests were also done to review the logistic regression model. Table 4.20 provides a summary of the diagnostics run. Further outputs are provided in the Appendices.

Table 4.20 Bivariate Logistic Regression Diagnostics

Logistic Regression Diagnostics		
Test For:	**Diagnostic Test**	**Conclusion**
Model Significance	Omnibus Tests of Model	The distribution followed a Chi-square probability mass function ($\chi^2 = 8.962; df = 13; p - value = 0.776$)
Heteroskedasticity	Residual Plot analyses	Scatter plots did not portray an obvious trend relationship for the residuals
Multicollinearity	VIF test	No presence of multicollinearity as all VIF values were below 5 for all predictors
Goodness of Fit	R-squared statistic	Fairly high R-squared observed (60%)

Linearity	Coefficient correlations	Not all individual coefficients were significant
Normality	Residual Plot analyses	Normality plot fairly placed about the mean. Though slight skewness was observed due to the presence of outlier responses

CHAPTER FIVE

5.0 Discussion of The Findings

5.1 Introduction

As mentioned in chapter four, this chapter provides background contextual details which help to understand the findings. The discussion is based on the objectives of the study and relates to the conceptual framework and theories used and discussed in chapter one. In this chapter the researcher explains the findings of the study and reveals the association between demographic and socioeconomic factors and female infertility. The researcher further shows how female infertility affects the dependent variables under investigation. This discussion is based on the analysis of the data which is covered in the preceding chapter and it is therefore important for the reader to read this chapter in connection to the analysis chapter thus referred to. The chapter begins by a brief discussion of the background characteristics of the respondents proceeded by an in-depth discussion of the findings as regards the objectives of the study.

5.2 Background Characteristics

The study took into consideration a total of 144 participants out of which 33 were had experienced female infertility selected from the University Teaching Hospital (UTH), 3 doctors from UTH and 90 respondents that were selected from residential areas of Misisi, Libala and Woodlands. Each of the residential areas contributed a total of 30 participants, 20 females and 10 males that helped in the understanding of the topic at hand. The research also incorporated 18 marriage counsellors (6 from each community) from the three communities; these acted as key informants who had personal experience dealing with issues of infertility among married women in these areas. The choice of the location was done on the basis of ensuring balanced representation for all locations of different population densities where Misisi, Libala and Woodlands represented the high, medium and low-density areas respectively. These areas were also selected based on their similarities in geographic characteristics such as being located in one side of Lusaka urban.

Most of the female participants were aged between 35 and 39 years while the majority of their male counterparts came from the age group, 40-49. Economically, these participants earned their income mainly from sales and service activities followed by those that were professional or technical career positions. Despite most males defining female infertility as inability to carry a pregnancy to a live birth and most females considering it as inability to conceive and produce a

live birth, they both pointed to the fact that female infertility is a condition that has something to do with a woman's failure to bear children.

5.3 Main Discussion

The main objective of this study was to investigate the risk factors, treatment seeking behavior, and the demographic and socio-economic factors associated with female infertility among infertile women in the low, medium and high-density areas of Lusaka Urban District.

5.4 OBJECTIVE ONE: To Investigate the Association Between Demographic Factors and Female Infertility.

5.4.1 Age at Marriage

Although age at marriage is regarded as one of the dominant factors associated with female infertility, this research found no significant association between age at marriage and female infertility. it is a well-known factor, according to various research that has been conducted in the area of infertility that an increase in age at marriage will definitely lower down the reproductive period of a woman and also reduce the number of possible births per woman, but according to the findings of this research, there is no statistically significant association that was established between age at marriage and female infertility. Although research shows that postponement of age will certainly lower the number of children ever born to a woman, this factor does not necessarily indicate that older women are not likely to conceive and bear children. These findings also agree with the statement that was made by Fred, 2016 who said that low fertility is becoming more common worldwide, particularly in aging populations and many urban settings where women are having their first babies in older ages. In this research 36.4% of the women were married between the ages of 20-24 while 30.3% of the women were married between 25-29 years, with a P value of more than 0.05, the research shows no association between age at marriage and infertility. The findings by Rodwell Chitanda (MA, 2016) also indicated no association between these two variables.

5.4.2 Residence

The findings from this research indicated a non-significant association between residence and female infertility. Among the women from the three different areas under study, findings indicated that 45.5% of women from Misisi had been infertile for a period of 2-4 years, while another 45% and 36.4% of women from Libala and Woodlands respectively had been infertile for the same period of time. Some 54.4% of women in Misisi had been living with infertility for as long as 5-7 years, 36.4% represented those from Libala while 63.6% of women from the low-density areas of Woodlands had been infertile for a period of 5-7years. On the other hand, all women who had

been infertile for more than eight years were from Libala, representing 18.2% of the total population of the women in Libala who took part in the survey and were infertile. Although it appears that women from Libala had more years of infertility exhibited by findings, the non-significant association established from the data analysis means that residence or place where a woman comes from has no influence on infertility, a further and more vigorous research on these variables is recommended by the researcher to further examine these findings as the sample size utilized in this survey cannot be utilized for generalization purposes. Although Chitanda (2016), found infertility to be more in rural than urban areas, his findings do not show infertility levels and trends in areas of various densities in urban areas. This study therefore does not generalize the findings of this research but hopes that this acts as a basis for further research on female infertility and residence in terms of varying densities with the urban set ups of Zambia.

5.4.3 Age of Women

The study revealed a statistically significant association between the age of a woman and female infertility. Although there was no association established between age at marriage and infertility, it appears that the age of a woman matters when it comes to issues of infertility. women in older age groups 25-29 and 30-39 were found to suffer more from age related infertility than younger women in the age groups less than 24 these findings agree with Chitanda's (MA, 2016) research who found that women aged above 30 were more prone to suffer from infertility than younger age groups. Chitanda (MA, 2016) further established an association between age and infertility and explains how infertility gradually increases with increasing age in women.

This study also agrees with Meaning (1980) who also reports that order women beyond 30 years are more likely to increase their chances of reporting conception failure. The result of the bivariate test conducted ($P<0.05$) show that age has a positive association with infertility and was statistically significant. This result is also consistent with the assumption in the conceptual framework which highlighted age as a factor associated with female infertility. More than 57% of the women who took part in this research were above the age of 30.

5.4.4 Age of Marriage (Duration of Marriage)

This research found that there was a statistically significant association between age of marriage and infertility. It appears that the longer the woman has been married, the higher their chances of conception failure. Age of marriage just like age of a woman also lowers the number of children ever born and the chances at child bearing for women. As indicated, the bivariate test indicated a positive association ($P<0.05$) and also the majority of the women in this study had been married for more than five years (63.6%), this value in addition shows that the longer a woman has been

married without children, the older they become, and hence the greater their chances of failure to reproduce. The result of this study also agrees with the assumption in the conceptual framework that age of marriage is associated with female infertility. Also, as women age, they are more likely to have had illnesses or medical treatments that can compromise fertility. Some of these affect the reproductive system directly, such as endometriosis, sexually transmitted diseases (STDs), surgery on the reproductive organs, or ectopic pregnancies. Others are general medical problems that can damage fertility, such as hypothyroidism, high blood pressure, diabetes and lupus. The most predictable age-related change is a gradual reduction in the number and quality of eggs produced as a woman enters her late thirties. As she nears menopause, eggs are not released in more and more of a woman's menstrual cycles, making conception impossible. In general, women's fertility begins to decline gradually after age 30, with a steep drop between 35 and 45. This means that, on average, it takes longer for an older woman to conceive, and older women are more likely to be diagnosed with infertility. Pregnancies in older women are also more likely to miscarry.

5.5 OBJECTIVE TWO: To Establish the Association Between Socio-economic Factors and Female Infertility.

5.5.1 Education and Infertility

Although this research sought to establish an association between infertility and level of education the bivariate test conducted reveal that there was no statistically significant association between these two variables ($P>0.05$). one would assume that the higher the education level attained, the higher the likelihood that one would decrease their chances of child bearing, and the lower education level attained, the lower the likelihood of conception failure, however findings of this research indicate no association whatsoever. More than 48% of the respondents had acquired college and university education while less than 25% of the women had attained an education level lower than secondary and primary school.

According to analyzed data in this study, infertility does not increase with increased years of education or higher education. These findings dispel the assumption in the framework about education being associated with female infertility. However, the study does agree with other researchers who indicated that the level of education a woman attained influenced their decisions on child bearing and the number of children they wanted to have. For instance, in Ghana, women with a high school education have a TFR between 2 and 3, whereas those with no education have a TFR of about 6, even as recently as 2008. Similarly, women with a high school education in

Ethiopia have a TFR of 1.3 (DHS Ghana and Ethiopia, 1988-2011). The influence that education seems to have on infertility according to finings is that it does not contribute to failure of conception but only contributes to a reduction in TFRs of a woman.

As Fitzgerald, 2011 stated, female education is especially important. Research consistently shows that women who are empowered through education tend to have fewer children and have them later. If and when they do become mothers, they tend to be healthier and raise healthier children, who then also stay in school longer. They earn more money with which to support their families, and contribute more to their communities' economic growth. This means that the lack of association does not mean education of a woman is not an important factor but it is important as it helps in the reduction in TFRs.

5.5.2 Religion and Infertility

The findings in this study dispel the assumption in the conceptual framework that indicates an association between the variables. Findings indicate that there is no statistically significant association between religion/denomination and infertility (P>0.05). It appears that there were more cases of infertility among Adventists and Pentecostals (30.3% respectively), followed by 27.3% of infertile women in this study being Catholics. There was only 9.1% among apostolic and 3.0% Jehovah's witnesses, the explanation for the lower representation of Jehovah's witnesses maybe due to the fact that these are less likely to seek assisted reproduction as their faith may hinder them from doing so, although similar to Catholic teachings on infertility and assisted reproduction seeking behavior, it appears that Catholics were more willing to seek medical attention than were the Jehovah's witnesses.

Although there may seem to be similar views on the role of religion on the handling of infertility across different religious groups, within the various themes that emerged regarding religion and infertility, and also with regards various residents the patients were coming from, the most interesting thing to note across all denominations, was that infertility was seen as punishment for wrong-doing or some sin of some sought, to some denominations, they considered infertility as a way of God showing these women that God was more powerful than they were and that his timing was always the best.

As regards infertility and religion, although there was no association established between infertility and religion, there appears to be a greater influence that religion has on the treatment seeking behaviors that are portrayed by women from various religious and denominational groupings. For example, although there were some women from the Catholic faith that were attending the clinic at UTH, most of these women were not willing to pursue assisted reproduction

such as IVF as it went against their faith. This was in relation to the findings by Culley, L and Norton, W, 2013 who stated that the individual's level of involvement with religion, their personal conception of God, and their sense of self in relation to God appeared to be important factors in influencing the impact of religion on the experience of infertility. This study recommends further research in this area to determine the real causes for such disparities, and if such would be the case on larger samples.

Furthermore, as was stated by Latifnejad et al, 2009, infertile women in this study also spoke about turning their attention to religious and spiritual beliefs, that through their experiences, they were able to deliberately turn to a higher being who could be trusted and believed, as a source of strength, guidance, and support, this can be seen in how most of these women sought alternative treatments through church counselling and prayers.

5.5.3 Employment Status and Infertility

The study revealed that there was no statistically significant association between infertility and employment status. The study made an assumption that women with high education levels and were employed were more likely to suffer from infertility, however the bivariate analysis showed that this was not the case ($P>0.05$). This dispels the assumption on employment being associated with infertility in the conceptual framework. 45.5% of the women were employed, 27.3% were self-employed while only 27.3% were not employed.

Although Corson (1990) found that endometriosis was the most common cause of infertility among women of medium and high income in their 30s, this does not necessarily mean that we can associate employment status to female infertility, as in this current study, only 6.1 % infertility among infertile women was due to endometriosis. Furthermore, although Victor and Karen (1998) stated that many couples were pursuing careers and marrying at later stages, thereby delaying child bearing and further reducing chances of conception, this assertion does not necessarily mean an association between employment and infertility as this current study reveals so.

5.5.4 Income Activities and Infertility

Although this study in its conceptual framework assumed an association between income activities and infertility, the findings of this study dispels what is stated in the framework. The bivariate test conducted shows that there was no statistically significant association between income activities and infertility ($P>0.05$). As with employment status, 45.5% of the women were in employment, 21.2% were involved in business, and 6.1% were in farming, while 27.3% were not involved in any income generating activities: these were all house wives who just stayed at home.

The study however does recognize that most women involved in high income generating activities and employment are more likely to delay child bearing and have fewer children than women who are either self-employed, or are just stay home wives (house wives). As was revealed in a study conducted in Dakar and Lome' by Donatien Beguy (2009), Women who had paid jobs and those who were undergoing training (students) were less likely to give birth than women who were self-employed. Women who were in wage employment were 27% less likely to give birth than self-employed women.

Thus, it does seem that wage employment (rather than self-employment) reduces a woman's chance of increasing her family. This situation could be explained by the fact that salaried women may be less likely than self-employed women to control their schedule. However, these findings by Beguy (2009) did not indicate that there was an association between female infertility and the income activities that women were engaged in. Certain activities may cause delay in child bearing but that does not necessarily mean that women engaged in these activities will be more likely to suffer from infertility, but that they may delay child bearing.

5.5.5 Monthly Income and Infertility

This current study wanted to establish an association between monthly income and female infertility. The assumption was that women who received more monthly income were more likely to suffer from infertility related problems than those with less or no income. Findings of this research however disprove this assumption and also the assumption made in the conceptual framework that there was an association between monthly income and infertility: this study found that there was no statistically significant association between these two variables ($P>0.05$). 27.3% of the respondents received no income: while 48.5% received income of more than k2600 while the other 24.2% had monthly income of between 1000-2500 kwacha. There was however no significant association between these variables.

This research further found that there was an association between residence and female infertility ($P<0.02$); this association can be seen from the fact that most of those who received income below 2500 and those who did not receive income were from the high-density areas of Misisi Township. Most of the infertile women living in Misisi areas were not involved in any income generating activities, while those who did were making below 2000 Kwacha monthly income. This in itself means that women in high density areas were most likely to receive low income than those in medium and low-density areas.

As can be seen from the results, women in high density areas were also among the least educated, and research has shown that there is an association between education and income, that those with

higher education are more likely to receive higher income than those with little to no education. Although the research established an association between residence and monthly income, it is important for the reader to note that this research did not however find an association between monthly income and female infertility, thereby disputing the assumption in the framework that there was an existence of such an association.

5.6 OBJECTIVE THREE: To Assess the Health Care and Treatment Seeking Behaviors among Infertile Women.

5.6.1 Non-Conventional Treatment Sought Before Attending Conventional Medical Hospital.

The researcher wanted to find out the behavior of infertile women towards treatment seeking in all possible aspects, patient's behavior was compared against residence and infertility. It is important for the reader to note that non-conventional treatment meant going to see a traditional healer or going to seek prayers from church to try and deal with the problem the women were faced with.

The research found that there was no significant association between female infertility and seeking non-conventional treatment ($P>0.05$) the research further found a non-statistically significant relationship between non-conventional treatment seeking and residence ($P>0.05$). The researcher however compared the results from the cross tabulations to check for behavior as compared to residence. The results show that 54.5% of the patient from each of the three areas (Misisi, Libala, and Woodlands) had sought non-conventional treatment before attending conventional treatment. Interesting to note however, is that 83.3% of the respondents who had sought non-conventional treatment from Misisi area had sought treatment from traditional healers while only 16.7% of them had gone for prayers at church.

From these results, it appears that women from high density areas are more likely to seek traditional healers when they observe failure of conception. This is in comparison to residents of Libala, only 33.3% had sought traditional healers while the other 66.7% took their problems of lack of children to church for prayers. It was interesting for the researcher to note that 50.0% of women in Woodlands had been to see traditional healers before attending conventional hospitals; one would assume that it would be uncommon for women from Woodlands to seek traditional healers, but results of the analysis indicate otherwise.

The other 50.0% of those who sought non – conventional treatment from Woodlands had however sought this through prayers in their various churches. These variables were however not statistically significant, meaning that there was no association established between in fertility and

seeking non-conventional treatment and residence and seeking non-conventional treatment, although women from the low-density areas are more likely to seek treatment from traditional healers: a situation that may be attributed to the fact that most of these women have little to no education.

5.6.2 Further Specialized Treatment Sought Elsewhere but was Unaffordable

During this research, the researcher wanted to find out if the women who took part in the study had sought treatment, that is further specialized treatment either at UTH itself or any other clinic or hospital and could not afford it the findings were that there was a statistically significant association between seeking further specialized treatment and female infertility ($P<0.05$).

Among the women who sought specialized treatment none of them where from the high-density areas of Misisi, while 45.5% of the women from Libala had sought treatment but could not afford it, only 18.2% of those from Woodlands had sought specialized treatment and could not afford it. Those from Libala had sought specialized treatment from either UTH itself, Lusaka IVF clinic or abroad (China and South Africa) while all those who could not afford further specialized treatment from Woodlands Township had sought or tried to seek such treatment from abroad (China or South Africa). This significant association indicates that women who suffer from infertility will go far and beyond in their quest for a solution to their problem.

The study also found a statistically significant association between failure to afford further specialized treatment and residence ($P<0.05$), this can be seen as earlier stated in the fact that none of the women from Misisi had sought or tried to seek specialized treatment. these findings indicate a need in terms of further treatment especially among women from the high density areas of Misisi who do not even attempt further specialized treatment due to a lack of financial resource and the expensive nature associated with specialized fertility treatments of more than 60,000 kwacha at the Lusaka IVF clinic there is need for interventions that may help such women redress their quest for a solution to their infertility condition.

5.6.3 Seeking Alternative Treatment Other Than Medical Treatment

The researcher further sought to establish an association between seeking alternative treatment and infertility. Alternative treatment here was defined as seeking other forms of treatment besides medical treatment: this included patients looking to psychological counselling, traditional healers and seeking prayers at church. The researcher assumed that besides seeking medical treatment at hospitals, patients would also seek alternative treatment that would help them to live their lives better and reduce on their stress and anxiety or worry levels. These women were expected to seek

such treatment for them to continue to have the extra support system they needed especially where medically there seemed to be delay in solving their problems.

The research established that 90.9% of the women from each area had sought alternative treatment. 30% of those from Misisi sought treatment from traditional healers, 40% looked to prayers at church while 50% went for further counselling. From among those in Woodlands, 80% sought psychological counselling for their infertility related problems, while 20% of these women looked to prayers at church. The research found that there was a statistically significant association between resident and alternative treatment seeking and also between resident and the helpfulness of the alternative treatment sought ($P<0.05$) respectively.

There was however no statistically significant association between female infertility and seeking alternative treatment ($P>0.05$). These findings indicate that although no association exists between infertility and seeking alternative treatment, the presence of an association between residence and alternative treatment seeking seem to explain that infertile women will speak alternative treatment in the places they are able to afford financially and in those places that are readily available to offer support, help and some form of stability.

Women from Woodlands for example are more likely to seek psychological counselling because they are in a place to afford it financially as compared to their counter parts from Misisi who are more likely to turn to church for prayers as these are easily accessible, affordable and readily available for them. This research further recommends that church pastors, priests and counselors are trained and well equipped to give these women the kind of psychological support and help they need as they seem to be of help in these situations.

The research further found a statistically significant association between the following variables ($P<0.05$) monthly income and alternative treatment seeking; education level and alternative treatment seeking; education level and the helpfulness of alternative treatment sought and finally education level and the type of non-conventional treatment sought.

This indicates that those with higher monthly income are more likely to seek and afford professional alternative treatment as compared to those with less or no income at all. Furthermore, education seems to play a major role in seeking both alternative and non-conventional treatment. In this regard, those with little education are more likely to seek non-conventional treatment from traditional healers as compared to those with higher education.

5.7 OBJECTIVE FOUR: To Establish the Risk Factors (Possible Causes) Associated with Female Infertility.

To establish an association between infertility and possible causes, a bivariate test was run and the results indicated that there was no statistically significant association between female infertility and possible causes (risk factors) (P>0.05). The research found that 66.7% of infertility among the women who took part in the study was due to hormonal imbalances, 18.2% was due to STI's, 6.1% was due to fibroids, and another 6.1% was due to endometriosis while 3.1% was due to sterilization.

This study reveals that there is not one specific cause of infertility but that a variety of causes exist and the associated risk factors vary from woman to woman and may not necessarily be as a result of one cause. These findings agree with other researchers who made similar conclusions. When checked against residence; there was equally no significant association established (P>0.05) between possible causes of infertility and residence.

As has been stated by various scholars, there is no one specific cause of female infertility but that there are a wide range of causes and risk factors when it comes to female infertility and these may differ from region to region and may be due to various lifestyles and environments that these women are exposed to. According to Goosen and Klugman (1996) one third of all cases of infertility in South African women result from pelvic infections due to sexually transmitted diseases, another one third is due to hormonal imbalances, and the remaining one third results from unknown causes. Infertility in women is also linked to age.

This research also found no association between causes and infertility, most of the infertility in this research was due to hormonal imbalances, but that doesn't mean it is the one major cause of infertility among women in these three areas. Further and more detailed research in this area is called upon by this paper and the researcher hopes that this can be done on a larger sample size to determine the real cause among women in Zambia and hopefully the findings of such further research would be helpful in preventing future cases and in early detection.

5.8 OBJECTIVE FIVE: To Assess the Relationship Between Female Infertility and GBV, Stigma, Divorce and Income loss due to Treatment seeking.

5.8.1 Infertility and Gender Based Violence (GBV)

Violence is an important community health problem commonly observed among all cultures worldwide regardless of geographical boundaries, economic development and educational level. The most common type frequently hidden is violence toward women (WHO, 2005). Violence directed at women is defined as any behavior including those which can cause physical, sexual or

psychological harm, or cause pain, as well as the threat of such behavior and restriction of women's freedom by force. Violence against women is most often experienced within the family. According to a 2005 report by the World Health Organization (WHO), the proportion of women who have suffered physical violence by a male partner was 13-61% (WHO, 2005).

According to Yildizhan (2009), any woman who experiences domestic violence because of infertility is generally twice as vulnerable as women with children. The prevalence of intimate partner violence against women with female infertility was reported to be 1.8% in Hong Kong (Leung, et al, 2003), 33.6% in Turkey (Yildizha, et al, 2009), and 41.6% in Nigeria (Ameh, et al, 2007). During this study, women who were especially from the high-density areas reported more violence against them from their husbands than did those from low density areas.

As seen from the literature that was revealed for this study, a number of researchers have established the presence of an association between female infertility and gender-based violence. Based on the empirical research reviewed, the study sought to test the hypothesis that female infertility leads to gender-based violence in infertile women.

Hypothesis 1: *Female infertility leads to gender-based violence in infertile women*

Although studies elsewhere indicate an association between female infertility and GBV, there was however no statistically significant association between female infertility and GBV ($P>0.05$), this finding dispels what was assumed in the conceptual framework that there was an association between infertility and GBV. Thus, we rejected the null hypothesis at a 0.05 level of significance and went on to conclude that female infertility does not lead to GBV in infertile women.

These results also agree with findings presented by Rodwell Chitanda (2016) who also found in his study that there was no association between infertility and violence. However, among the infertility patients who took part in this study and reported some form of violence being inflicted on them by their spouses, results indicate that 39.4% of all the women had experienced some form of GBV from their partner. Among these women, 21.2% had faced physical violence, 12.1% had experienced psychological and 6.1% had experienced emotional violence.

Despite experiencing some form of GBV, only 12.1% of these women had reported these cases to the police Victim Support unit (3.0%) or their pastor, priest or counselors in various churches. Most women did not report the GBV cases they experienced; there is need for these women to be educated on the need to report such GBV cases.

There was also no statistically significant association between residence and GBV. When measured against residence, the violence levels were as follows: 45.5%of those from the high density areas of Misisi had experienced GBV, 27.3% of those from the medium density area of Libala had experienced some form of GBV, while another 45.5% of those living in the low density areas of Woodlands had experienced some form of GBV, one would expect that there would be less violence in low density areas, but in comparison, there clearly is less violence among medium density households than there are in low density households by these findings.

Some of the marriage counsellors spoken to during this study also revealed that living with infertility can be stressful as the women who are infertile and seeking help frequently express the fear that their husbands were losing interest in them and those who experienced domestic violence were in most cases depressed and socially isolated. Such cases were mostly common among residents of high-density areas unlike the low-density areas.

Some of the women interviewed with the condition mentioned that they had personally faced some form of gender-based violence especially from their husbands or at least knew someone who had experienced physical abuse due to their being infertile. One woman described how her husband would not miss an opportunity to batter her every time he had been on one of his drinking sprees, she explained how he called her useless and always threatened to leave her for another woman because of her failure to conceive and bear him children.

Another marriage counsellor narrated how she and her husband had frequently been called to intervene in marital disputes that involved husbands buttering their wives and directly linked the abuse to the woman's failure to reproduce. These cases, according to the marriage counsellors who took part in this study were more common in Misisi compound than they were in Libala or Woodlands areas.

When asked for an explanation to that effect, one marriage counsellor attributed this to the fact that most men and women in the so called high income areas of Woodlands spent most of their time working or attending social gatherings that gave them little time to think about their predicament and that they also understood that it was not by desire that their wives could not have children. Another respondent attributed this to the fact that most men in the medium and low-density areas took infertility as a couple problem and were more supportive of their wives and felt the need to not contribute further to the discomfort their wives were already experiencing.

5.8.2 Infertility and Divorce

This research in its conceptual framework assumed that women who suffer from female infertility are highly likely to experience divorce than those who do not have this condition. As such, the second research hypothesis sought to test the assertion that female infertility leads to divorce.

Hypothesis 2: *Female infertility leads to divorce*

The findings of this research however dispelled the assumption as they indicated that there was no statistically significant association between female infertility and divorce (P>0.05). At the 0.05 level of significance we rejected the null hypothesis and proceeded to state that there was enough evidence from the study to conclude that female infertility does not lead to divorce.

Each of the women who took part in this research at least knew a woman or more who had experienced an infertility related divorce. Although literature reviewed in this study gives examples of the consequences of infertility on a marriage, there was only one woman in this study who had experienced a divorce due to her infertility condition and was now re-married. In her narration, the respondent stated that after being married to her first husband for over five years and having no child in the marriage, her in-laws put pressure on her husband to take in a second wife. Although her husband was hesitant at first, pressure from his family forced him to divorce his wife and take in another wife who would give him children. Her story was similar to one stated in the literature review where one woman living in Zimbabwe explained that she had to leave three homes because of her inability to conceive (Runganga et al., 2001).

Although all the women who took part in this study were still married to their first husbands (except for the one who was now re-married), these women 84.8% admitted knowing other women who had been divorced by their husbands due to their inability to produce children in the marriage. Among these, 42.4% said they knew at least 1-2 women who had been divorced while the other 42.4% said they knew at least 5-8 women who had experienced a divorce due to infertility.

Although results indicate a non-significant association of female infertility and divorce, cases of divorce as a result of female infertility were observed in the three research communities. One very vivid scenario was when at data collection stage; the researcher encountered a man throwing the wife's belongings outside the house whilst shouting, "*What kind of a woman are you? You have no purpose in this house anymore, I will go and find another woman who can and will bear me children*", This man, like a few others in these communities felt justified to leave his wife for another woman who he felt would in-turn bear him children and make him "whole".

As stated in the literature review, in some societies furthermore, it is reported that the divorced infertile woman becomes an outcast and is excluded from inheriting property and from decision making in the family (Inhorn 1996), this was also found to be true according to responses by some respondents interviewed during this research, one respondent revealed that during her counseling career, she had encountered many such cases within and outside of Lusaka.

Some of the marriage counsellors interviewed revealed that very few women had been divorced based on the fact that they could not have children but that most of those in such situations had divorced or were contemplating divorce because their partner, mostly the male counterpart was involved in extra marital affairs or wanted to take a second wife who would bear him children, in such cases, the wife would choose to settle for divorce.

Some women also indicated that divorce was also common especially where husbands indulged in activities such as alcohol abuse and violence on their infertile women or wives. In most cases these couples do not wish to end up separated or divorced but pressure from families-mostly the family of the one who is presumably fertile may cause the marriage to fail. Such families encourage the man to leave the infertile women and take a second wife and the man ends up conceding to such pressures and divorce is guaranteed.

5.8.3 Infertility and Stigmatization

The third hypothesis to be tested in the study was one establish the relationship between female infertility and social stigmatization. The formulation of the hypothesis was built from research studies by Donkor and Sandall (2007; 2009), Fledderjohann (2012), and Naab et. al. (2013).

Hypothesis 3: *Female infertility leads to social stigmatization*

This research established that there was an association between stigmatization and female infertility ($P<0.05$), these findings agree with the assumption in the conceptual framework that there is an association between infertility and stigmatization. Thus, the study failed to reject the null hypothesis at a 0.05 level of significance.

There was also an established association between residence and stigmatization ($P<0.05$). It appears that women with infertility living in high density areas of Misisi are more likely to experience infertility related stigmatization from their communities as compared to their counterparts in Libala and Woodlands Townships.

The women complained that they were excluded from community gatherings and decision-making processes; that they received no respect in society and some of them experienced some form of marital instability due to their conditions. Some of the women complained that they experienced stigma from men and felt that some of the men in society despised and avoided women who they knew to have an infertility condition.

One woman narrated how she deliberately isolated herself at public gatherings because of the ridicule she usually experiences when in such gatherings from other women with children. Another woman explained that she avoided family gatherings that included funerals and get together meetings for fear of discrimination.

Most women complained that although their husbands may try to make them feel as comfortable and as protected as they could, these women especially experienced stigmatization from their in-laws and some members of the community they lived in. in the three Townships that were under study, the one aspect that seemed to be prevalent among all the respondents (both patients and non-patients) was that infertility was something that was handled with much secrecy and women who experienced it were not as willing to talk about it as those who did not experience it.

One marriage counsellor complained about how most of these infertile women would isolate themselves, and chooses not to participate in public gatherings and would not openly discuss their experience. Some marriage counsellors also narrated how they found it difficult to counsel women with infertility due to their unwillingness to open up during counselling.

According to other studies infertile Ghanaian women experience many psychosocial consequences of childlessness such as social stigma, marital instability and mental health problems including worrying, crying for long periods, and insomnia (Fledderjohann, 2012). Similarly, 53% of women seeking treatment for fertility problems in Ghana were depressed (Naab et al., 2013). Some individuals facing infertility who cannot withstand the high stigma on childlessness in Ghana also end up taking their own life (Naab et al., 2013).

As revealed in the literature, the marriage counsellor who took part in this study also stated how women with infertility were usually isolated, depressed and in some instances had gone to the extremes of attempting suicide because they could not handle their predicament. 100% of women in Misisi had experienced some form of stigma, 54.5% of those in Libala and 45.5% of those in Woodlands had all reported some experience of a type of stigma from family or the community they lived in.

As indicated by these results, it appears that infertile women in Misisi tend to experience more stigmatization from the community. Among all the women who reported to have experienced

stigma from society 21.2% felt excluded from decision making and gatherings, 24.2% felt they received no respect from society, while 15.2% said they experienced a form of stigma that led to marital instability and 6.1% had experienced a form of psychological stigma.

As literature reveals, most of those who experience stigma even in Zambia tend to experience it from either close family members, especially from the side of the partner who is thought to be "fine". We see such women segregated from attending certain family functions or meetings; sometimes they won't even be left to take care of other family members' children as they are regarded to lack the experience in such kind of care.

Furthermore, the results of this study concur with what was seen in the literature reviewed from other countries, mothers and sisters in law were described as hostile to instead of supportive of infertile women (Mugobe 1998), and this was also seen to be the case for some women interviewed during the study. As noted in the literature reviewed by Sundby (1997), it was also observed in the three study communities that problems did not only exist at the family level, but that women were seriously offended, denigrated, and stigmatized by community members or bothered by negative gossip. Based on Roy's adaptive model that this study utilized, such women had higher chances of failing to adapt to their infertility condition and the stigma experienced exacerbated their negative experiences and failure to adapt..

One respondent interviewed from Libala Township had this to say,

"When family members gather for funerals or other functions, they sit around each other and talk about their children and how their children are faring, before I know it, they have turned to me and they start asking questions about when I was going to have a child and what the problem was, sometimes they mock me using some old songs that make me feel unworthy of my position as a member of the family and even as a wife".

As literature has been revealed, infertile women are stigmatized in ways that leave them depressed, socially isolated and dysfunctional.

Some women continue to suffer discrimination from members of the family and communities they live in. some respondents described their situation as being tough, while some may have contemplated suicide due to the hardships they seem to experience as a result of their condition. The research reveals that some women were socially isolated, lonely and felt that they were excluded from making important decisions that involved the family system. One respondent said she was the center of ridicule by her in-laws and because of that she deliberately avoided attending

any family gatherings as such places created an environment for members of her own family to mock her for her condition.

5.8.4 Infertility and Income Loss Due to Treatment Seeking

Following from Davis et.al. (2013), we were introduced to some of the different treatment seeking measures for female infertility that lead to loss of income. The income effects of infertility treatment seeking were supported by Mary (2003) and Dr. Macha (2016). This evaluation of the literature gave birth to the fourth hypothesis which stated that there was a negative relationship between income and female infertility treatment seeking.

Hypothesis 4: *Female infertility leads to negative economic consequences and income loss due to treatment seekina*

As assumed in the literature review and conceptual framework, this research found that there was indeed a statistically significant association between female infertility and income loss due to treatment seeking processes ($P<0.05$). At a 0.05 level of significance we failed to reject the null hypothesis. The findings showed that infertile women experience huge economic consequences and financial losses in their quest for a solution to their problems. Women suffering from female infertility experience significantly huge income loss due to treatment seeking.

In this study for example, one woman narrated how after trying various forms of treatment at many clinics, she decided to try the Lusaka IVF clinic, however the cost of treatment there was too high for her that she ended up following on with the treatment she was receiving at UTH clinic. Another woman narrated that she and her husband (partner) had been to many hospitals both in Zambia and South Africa and had spent over one hundred and fifty thousand Kwacha (K150, 000) on treatment seeking alone.

Most women from various areas expressed how expensive it has been for them together with their spouses to seek treatment for their infertility. in another instance, one woman reported how that after having a failed IVF attempt, she could not handle her situation anymore, she became stressed and would not stop obsessing about her need for a child that she ended up hospitalized at Chainama clinic, she narrated that after her attempted suicide due to the failed IVF, she almost went mad and the counselling she received at Chainama clinic helped her to comprehend her situation. She and her husband eventually adopted a child from one of the orphanages in Lusaka.

When analysis was made to check for an association between residence and income loss due to treatment seeking, the bivariate analysis conducted showed a significant association at $P<0.02$. Those who lived in Woodlands Townships had spent more money on treatment as compared to

their counterparts in Libala and Misisi Townships. As revealed through this study, the cost of infertility treatment is costly for women of all status both economically and socially, this situation is even much more difficult for women from high density areas who lack means of accessing specialized treatment due to the lack of finances. A woman from the medium density area of Libala explained how she was due for further specialized treatment at UTH, beyond the treatment that she had been given but could not go ahead with the recommended treatment as she could not afford it.

In an interview with Dr. Macha at UTH, he also explained that it was very difficult for women from both outside and within Lusaka city boundaries to access the much-needed specialized treatment due to its expensive nature, he further explained that UTH did not carry out IVF or IUI services. Dr. Macha narrated how most women who would be referred for specialized treatment outside the country would not go as they could not afford it. Mary. A, (2009) also stated that treatment for infertility cases is so expensive that most women tend to turn to witch doctors, traditional healers and also to churches to seek solutions to their infertility problems.

This was also indicated by Penning's, G, 2002, unfortunately for most women in developing countries, infertility services are not widely available and IVF is unaffordable. This is the case for Zambia where there is only one IVF clinic and very few laboratories where one can obtain IUI services. Services to assist infertile couples need to be integrated and holistic – starting from the community level to reveal the cause and prevent infertility when possible, and to provide referral for affordable care if infertility is unavoidable. Infertility prevention also involves important lifestyle choices.

"*It's beyond frustrating to have to put your dreams of having a baby on hold*," narrated a 29-year-old woman of Libala Township, who's been trying to conceive for six years. After several failed attempts at intrauterine insemination (IUI)—a procedure where sperm is placed inside a woman's uterus to increase the number that reach the fallopian tubes—she and her husband had to take a break from treatments while they worked to scrape up the K60 000 required for IVF. "I was a school teacher at the time. We didn't have disposable income," she said.

As revealed in literature, this research also reveals that the infertility condition has huge economic implications among women in the three areas under study. This research agrees with revealed literature that infertile women suffer economic loss and hardships in their quest to seek treatment and solutions to their infertility condition. As is the case for Uganda, where IVF providers rely on foreign doctors who fly into the country to provide services, so it is for Lusaka, Zambia, where

the service providers rely on foreign doctors from South Africa who fly in once or twice a month for service delivery.

This situation raises the cost and is not sustainable for most women seeking treatment from Lusaka and around the Country. Although government Hospitals such as the University Teaching Hospital (UTH) offers some solutions and treatments at affordable fees, most women cannot afford further treatment and care if and when the public hospitals fail to provide a solution.

5.8.5 Infertility and Support from Partner

The research went on to measure the support system that existed for infertility among women who were infertile (support especially from their husbands). In this case the study assumed that the women were able to receive support from their husbands or partners to help them better deal with their infertility condition and to ease their negative experience and also help support them financially as they sought treatment for their condition. The research however found that there was no statistically significant association between female infertility and support by partners ($P>0.05$)

When measured against residence, there was a statistically significant association between residence and support from partner was present ($P<0.05$). These findings indicate that women from Woodlands and Libala were more likely have supportive partners than those from Misisi Township. Many women from Misisi complained about this lack of support and added that their partners were more willing to take in a second wife or have a child with another woman that stay to help them in their quest for a solution to their infertility problem.

Furthermore, it was interesting to observe that there was a statistically significant association between support from partner and education; support from partner and monthly income and support from partner and age of a woman. At a $P<0.05$ level, it appears that women with higher education were more likely to receive support from their partners than those with little education. Women who received high monthly income of more than k5800 received much more support from their partners than those with little to no monthly income.

On the other hand, this research has found that older women are more likely to receive support from their husbands than younger women. Most women in their older ages above 35 indicated that their partners were more supportive in their older ages than they were in the younger ages. They attributed this increased support and concern to the number of years the woman had been infertile, that over the years the men learnt that their wives needed their support to be able to handle infertility related challenges and problems their wives were faced with on a daily basis.

For some men however, they had learnt that the issue of infertility affected the couple system and not just the individual living with the condition.

The findings of this research as regards to support for women with infertility are in agreement with other findings elsewhere which show how women with infertility lack proper support systems and are mostly left to deal with their frustrations on their own. For instance, as stated by Lesli A. Westfall (2013) in sub-Saharan Africa most women are not encouraged by their male partners to seek modern technical treatments, this means that seeking fertility care often means a lonely path for women wishing to conceive. Although the study reports some cases of women who had attempted suicide due to their infertility, there was no association between suicide attempt and female infertility.

Concerning this lack of support, some marriage counselors spoken to during this research had this to say, “Most of the women who come for counselling say their husbands are not supportive, in most cases they don’t even want to go for checkups to see if they may be the cause of the lack of children in the marriage, they blame the wives and are not willing to pay for any medical expenses when the wives have to seek treatment, in case the wife has the problem, she has to figure out the solution and cover any expenses incurred by her own will, the men in most cases are more willing to engage in extra-marital activities and have children elsewhere than spend money moving from place to place to seek treatment and consultation for this one woman’s condition”. Meanwhile, the woman has to figure out ways of dealing with her condition by herself as in most cases, she has no one to support her financially, the cost tends to be high for such a one and they eventually just give up on hope of ever bearing a child.

CHAPTER SIX

6.0 Conclusions and Recommendations

6.1 Conclusion

This chapter gives a conclusion to this research. As indicated in the preceding chapters, the conclusion is also aligned with the conceptual framework and theories studied in chapters one and two. The conceptual framework and theories studied looked at the various stages and processes a woman goes through once finding out that she has the infertility condition, these responses and stages are in relation to the association between female infertility and the dependent variables that were studied in this research.

This study was aimed at investigating the demographic and socio-economic factors, risk factors and treatment seeking behavior associated with female infertility among infertile women in the low, medium and high-density areas of Lusaka Urban District; it looked at how these specific factors affected the lives of women. Among factors investigated were gender-based violence, divorce, social stigmatization, the loss of income due to treatment seeking and how these affected women's response to their infertility through treatment seeking behaviors.

Demographically this study looked at whether age of a woman, age at marriage, age (period) of marriage and area of residence had any association with female infertility, it has been observed by this research that age of a woman and age or period of marriage are significantly associated with infertility on the one hand while on the other hand, there appears to be no association between female infertility and residence or age at time of marriage. The most probable demographic factor associated with female infertility is age with results showing that married women in age group 30-49 are more likely to report primary infertility than their counterparts in other age groups, while women who had been married longer than five years were more likely to suffer from female infertility than those who had been married for lesser periods.

Given the level of importance that children hold in matrimonial homes, female infertility has been a problem of intense debate since time immemorial. Despite widespread perception in the public domain that marriages in which the female spouse is infertile do not last, this study has revealed that this is not necessarily the case; that divorce and failure of marriages will occur in these areas of Lusaka with or without infertility, but that other factors were at the center of divorce. For instance, women and marriage counsellors who were interviewed for this study did reveal that most of the divorce that would occur among couples that did not have children when not directly

due to infertility but due to the husband's infidelity or abusiveness, and sometimes negative pressure from the family of the spouse that was alright.

This study found that there was no association between female infertility and gender-based violence, however this does not imply that there would be no existence of infertility related violence among infertile couples. The study shows that although there was no association between the two variables, some women with infertility did experience GBV regardless of the residential areas they were coming from. Although this research assumed that there would be less cases of violence due to infertility coming from the medium- and low-density areas of Libala and Woodlands respectively, this research shows that there was similar number of cases of violence against infertile women reported from both Misisi and Woodlands, while Libala had fewer cases of violence reported. This research does not however conclude that this would be the case if large samples were analyzed but simply recommends that further research be carried out to determine such differentials at a larger scale.

Although the research has shown that female infertility does not necessarily have an association with divorce and gender-based violence, there are a few cases that have been reported of such experiences occurring due to this condition. As observed during the time of data collection for this research, and also as indicated from the results, a number of women have experienced the negative effects that come with this condition. Some women reported to have experience gender-based violence as a result of their condition, although very few cases, these women experience emotional and psychological pain that led them into depression, socio-isolation and in a few cases they end up being hospitalized in institutions and sometimes suicide cases have been reported as a result of the emotional pain and trauma these women go through.

This study did establish an association between female infertility and stigmatization and also an association between female infertility and income loss due to treatment seeking. Women from the high-density areas of Misisi as was assumed in the conceptual framework were found to be more affected by these two factors than were their counterparts in Libala and Woodlands Townships. Women who suffer from infertility are stigmatized by both members of their family and the communities they live in. The reported cases in this study indicate that much attention and emphasis needs to be put in place to help these women to deal with the situations that they are faced with on a daily basis. This research recognizes the levels of secrecy surrounding infertility not only in Lusaka but around Zambia and therefore calls for partnership between government hospitals, private hospitals, churches and other NGOs that are interested in such issues to offer more education and improve community and national literacy levels as regards this situation.

The research has also shown how much these women need to have support structures put in place to help them with their situations, most women seek affordable counselling from their church pastors and priests who further pray with them and give them words of encouragement that help them to face the day to day challenges they are faced with due to their condition. It would be of much more help if couples are counselled together and if systems were put in place to help reach out to infertile women's husbands and help them to realize that the burden their wives carry would be made lighter if both couples were involved and if the women received the much needed support they needed from their husbands and members of the family and communities they lived in.

Furthermore, although six variables that include; Education, Residence, Income loss, Years of Medical Diagnosis, Stigma and Age of marriage (duration) were statistically significant at Bivariate levels, only three stronger ones remained significant in the model - Income loss, Stigma and Age of Marriage (Duration of marriage). This does not mean we should ignore the significant results obtained in the bivariate analysis but calls for more research on this subject matter. This research therefore concludes that although the effects may be insignificant in terms of statistics, and results from this research, those very few cases that occur require much attention. Although female infertility is not yet and may probably never become too rampant in this country, further research must be carried out by Universities and Health Institutions to determine and establish the actual national statistics of this condition and investigate the plausible solutions to the problem of infertility among those who suffer the condition. Identifying the real cause and effects on a national level may help to offer the much-needed care and assistance both economically and socially to those women and couples who may fall in the category of those affected by this condition. This will further entail identifying the right support systems and treatment options that would then be made available and easily accessible to such women. As indicated in the model utilized in this study, "Roy's Adaptive Model", the health of a person will necessitate the need for humans to continually adapt to stimuli. In this case, we have seen how adaptation can be hard, especially where there is no support given to women suffering from infertility. In cases where women failed to cope with the existence of their infertility condition, cases of depression and even suicide attempt have been observed. As Roy's model indicates, if a human can continue to adapt holistically, they will be able to maintain health to reach completeness and unity within themselves. This was conclusively observed where women experienced stronger support systems not only from their spouses but from both extended families. Where they could not adapt accordingly, the integrity of the person as stated in the model was affected negatively.

6.2 Recommendations

Based on results presented in this study and based on reviewed literature, the author makes the following recommendations:

1. There is need for the government and especially the Ministry of Health and Universities to conduct rigorous national research on female infertility to identify its effects on women's life at a national level; this would help to add to the existing knowledge gap on the demographics and statistics of female infertility.
2. There is need for the Ministry of Health to educate the communities and society on ways through which women who are faced with the infertility condition can get help. Therefore, rigorous national information dissemination centers should be established in all health centers to facilitate easier and quick access to information and treatment.
3. There is need for government hospitals and clinics to avail free access to initial or primary screening and treatment for the condition in all major health centers and clinics and to also encourage women to carry out regular gynecological tests so as to help with early detection and treatment of the condition.
4. Government should offer through the Ministry of Health better free or cheaper health care and counselling services for those women who cannot afford treatment abroad or from private institutions.
5. There is need for the government to partner with private sector and NGOs to offer free regular screening services for all women in their reproductive ages so as to allow for earlier detection of infertility.
6. There is need for stakeholders to empower women who may have challenges of infertility. This would assist them seek specialized medical services and also support their livelihood in the likelihood of reduced support systems. This is more so with the observations that many women endure infertility for long periods, and the situation is more dire among persons in high-density or low-income brackets.

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APPENDICES

Appendix 1: Information Sheet

Title:

An Investigation into the Demographic and Socio-Economic Factors; Risk Factors and Treatment Seeking Behavior Associated with Female Infertility Among Infertile Women in Lusaka Urban District: A Case Study of Residents of Misisi, Libala and Woodlands Townships of Lusaka

Principle Investigator: Annastasia Munyati
Supervisor: Professor Malungo

Sponsor: Self

Dear Participant,
May I invite you to participate in this study being conducted by Annastasia Munyati as part of the requirement for the award of a Master of Arts Degree with Population Studies.

- **What is the Purpose of the study? -** The study mainly focuses on the demographic, social, economic effect, risk factors, and treatment seeking behavior of female infertility on the women who face this condition in their lives. The social factors include gender-based violence (GBV), divorce, and stigmatization. In order to obtain data on these issues, interviews and questionnaires have been designed to be administered to various categories of people. The interviews will be of duration 10 minutes and will be held in a convenient place to the participant.
- **Potential benefits of the study** - The findings of this study will help stakeholders understand the magnitude of the problem and hence formulate policies and guideline in dealing with female infertility in communities.
- **Are there any risks to the participants in this study?** There are no risks involved in the study for the participants.
- **Are there any benefits to the participants in this study?** Participation is on a voluntary basis and will not carry any financial or material benefits for the participants.
- **Right to Withdraw** – The participant is at liberty to withdraw at any time from the study.

- **Confidentiality** - The information you provide will be strictly kept confidential and will solely be used for the purposes of the study.

If there are any clarifications or questions kindly contact any of the following:

PRINCIPAL INVESTIGATOR:

Anastasia Munyati

The University of Zambia

School of Humanities and Social Science

Department of Population Studies

P.O Box 32379, Lusaka

Mobile Number: 097 9403009

E-mail: annastasiamunyati@yahoo.com

RESEARCH SUPERVISOR:

Prof. Malungo

The University of Zambia

School of Humanities and Social Science

Department of Population Studies

P.O Box 32379, Lusaka

Mobile Number: 0977 805997

_____

Annastasia Munyati

Appendix 2: Research Consent Form

RESEARCH TITLE:

An Investigation into the Demographic and Socio-Economic Factors; Risk Factors and Treatment Seeking Behavior Associated with Female Infertility Among Infertile Women in Lusaka Urban District: A Case Study of Residents of Misisi, Libala and Woodlands Townships of Lusaka

PRINCIPLE INVESTIGATION: ANNASTASIA MUNYATI

If you agree to participate in this study, kindly consent by signing this document:

ATTESTED CONSENT

I understand all that has been explained to me as above and it is clear to me what this study is all about. So, I voluntarily consent to take part in the study. I agree to provide information for the study on my own without coercion.

Participant Signature: _____

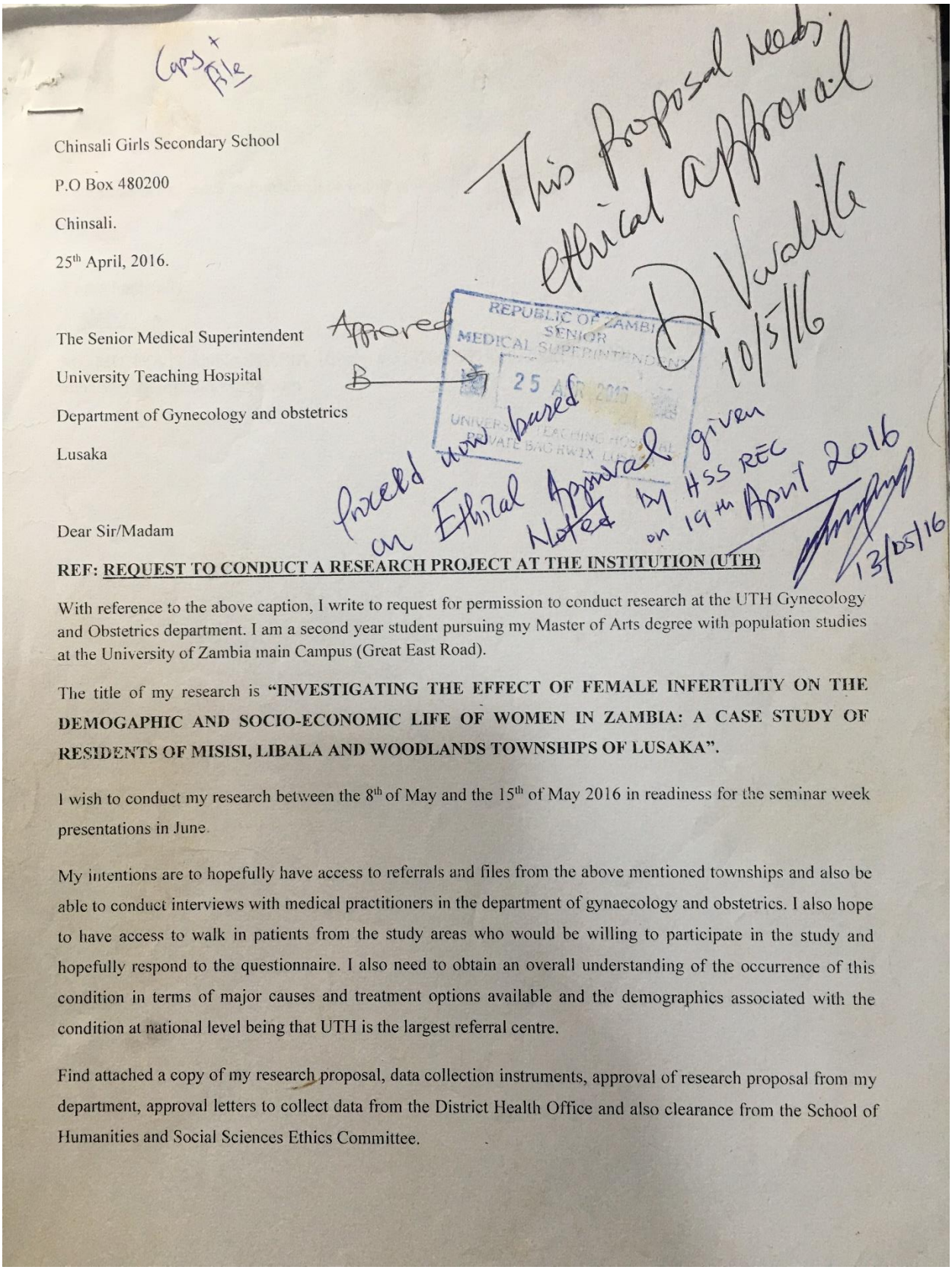
Date: _____

Enumerator: _____

Date: _____

Appendix 3: Ethical Consideration Approvals

A) University Teaching Hospital



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This proposal needs ethical approval
Dr Vwalika 10/5/16

Chinsali Girls Secondary School

P.O Box 480200

Chinsali.

25th April, 2016.

The Senior Medical Superintendent

University Teaching Hospital

Department of Gynecology and obstetrics

Lusaka

Approved
B

REPUBLIC OF ZAMBIA
SENIOR
MEDICAL SUPERINTENDENT
25 APR 2016
UNIVERSITY TEACHING HOSPITAL
PRIVATE BAG RW1X LUSAKA

Proceed now based on Ethical Approval given Noted by HSS REC on 19th April 2016
13/05/16

Dear Sir/Madam

REF: REQUEST TO CONDUCT A RESEARCH PROJECT AT THE INSTITUTION (UTH)

With reference to the above caption, I write to request for permission to conduct research at the UTH Gynecology and Obstetrics department. I am a second year student pursuing my Master of Arts degree with population studies at the University of Zambia main Campus (Great East Road).

The title of my research is **"INVESTIGATING THE EFFECT OF FEMALE INFERTILITY ON THE DEMOGAPHIC AND SOCIO-ECONOMIC LIFE OF WOMEN IN ZAMBIA: A CASE STUDY OF RESIDENTS OF MISISI, LIBALA AND WOODLANDS TOWNSHIPS OF LUSAKA".**

I wish to conduct my research between the 8th of May and the 15th of May 2016 in readiness for the seminar week presentations in June.

My intentions are to hopefully have access to referrals and files from the above mentioned townships and also be able to conduct interviews with medical practitioners in the department of gynaecology and obstetrics. I also hope to have access to walk in patients from the study areas who would be willing to participate in the study and hopefully respond to the questionnaire. I also need to obtain an overall understanding of the occurrence of this condition in terms of major causes and treatment options available and the demographics associated with the condition at national level being that UTH is the largest referral centre.

Find attached a copy of my research proposal, data collection instruments, approval of research proposal from my department, approval letters to collect data from the District Health Office and also clearance from the School of Humanities and Social Sciences Ethics Committee.

Your positive and quick response will be highly appreciated.

Yours Faithfully,

Ms. MUNYATI ANNASTASIA (Comp # 514706792, Cell: 0979403009)
annastasiamunyati@yahoo.com

B) University of Zambia

THE UNIVERSITY OF ZAMBIA

DIRECTORATE OF RESEARCH AND GRADUATE STUDIES

Telephone: +260 -1- 290258/291777 Ext. 2208
Fax: +260-1-290258/253952
E-mail drgs@unza.zm

P O Box 32379
Lusaka, Zambia

19th April, 2016

Ms. Annastasia Munyati
P.O Box 480200
CHINSALI

Dear Ms. Munyati,

RE: FULL ETHICAL CLEARANCE

With reference to your research proposal entitled: **"Investigating the effect of female infertility on the socio-economic life of women in Zambia: A case of residents of Misisi, Libala and Woodlands Townships of Lusaka,"** you are hereby given full ethical clearance to proceed with your research.

ACTION:	**APPROVED**
DECISION:	**19th April, 2016**
EXPIRATION DATE:	**18th April, 2017**

However, it is recommended that all data to be collected should be kept confidential and that if there are plans for publication or dissemination of results, the names of the participants should not be linked with the research in order to ensure confidentiality.

Please note that you are expected to submit to the Secretariat a Progress Report and a copy of the full report on completion of the project.

Finally, and more importantly, take note that notwithstanding ethical clearance given by the HSSREC, you must also obtain authority from the Permanent Secretary of the appropriate Ministry before conducting your research.

Yours sincerely,

Prof. C. M. Namafe
ACTING CHAIRPERSON - HUMANITIES AND SOCIAL SCIENCES RESEARCH ETHICS COMMITTEE

cc: Acting Director, Directorate of Research and Graduate Studies
Assistant Director (Research), Directorate of Research and Graduate Studies
Acting Assistant Registrar (Research), Directorate of Research and Graduate Studies

Appendix 4: Statistical Diagnostic Test Results

A. Chi-Square Assumptions Criteria

Table A.1 Summary of Chi-square Assumptions

Chi-Square Tests					
Assumption of cell *expecteds*:		**Patients:** (% of cells with count <5)	**Independence Criteria**	**Measurement Scale**	**Conclusion**
Demographic Factors	Age	100%	Yes	Correct	Significant
	Age of Marriage (Duration of marriage)	80%	Yes	Correct	Significant
	Age at Marriage	81.3%	Yes	Correct	Not Significant
	Residence	75%	Yes	Correct	Not Significant
Primary Socio-economic Factors	Religion	90%	Yes	Correct	Not Significant
	Level of Education	95%	Yes	Correct	Not Significant
	Employment Status	83.3%	Yes	Correct	Not Significant
	Income Activities	87.5%	Yes	Correct	Significant
	Residence vs Income	100%	Yes	Correct	Not Significant
Treatment Seeking (vs Infertility)	Couldn't Afford Specialized Treatment	75%	Yes	Correct	Significant
	Non-conventional Treatment	50%	Yes	Correct	Not Significant
	Alternative Treatment (Infertility)	75%	Yes	Correct	Not Significant
Treatment Seeking (vs Income/Education)	Alternative Treatment (Income)	62.5%	Yes	Correct	Significant
	Alternative Treatment (Education)	70%	Yes	Correct	Significant
	Helpfulness of Alt. Treat.	86.7%	Yes	Correct	Significant
	Non-conventional Treatment Sought	80%	Yes	Correct	Significant

Treatment Seeking (vs Residence)	Non-conventional Treatment Sought	0%	Yes	Correct	Not Significant
	Sought Elsewhere Because Couldn't Affordability	50%	Yes	Correct	Significant
	Where Treatment Was Sought	100%	Yes	Correct	Not Significant
	Alternative Treatment Sought	50%	Yes	Correct	Not Significant
	What Kind of Alternative Treatment	100%	Yes	Correct	Significant
	Helpfulness of Alt. Treat.	66.7%	Yes	Correct	Significant
Risk Factors	Period Attending	66.7%	Yes	Correct	Not Significant
	When Diagnosis was Made	85%	Yes	Correct	Significant
	Possible Causes of Infertility	90%	Yes	Correct	Not Significant
	Diagnosis	87.5%	Yes	Correct	Not Significant
Secondary Socio-Economic Factors	Income Loss	91.7%	Yes	Correct	Significant
	Negative Economic Bearing	75%	Yes	Correct	Not Significant
	Support from Partner	50%	Yes	Correct	Not Significant
	Experienced GBV	50%	Yes	Correct	Not Significant
	Experienced Divorce	75%	Yes	Correct	Not Significant
	Experienced Stigma	62.5%	Yes	Correct	Not Significant
	Attempted Suicide	62.5%	Yes	Correct	Not Significant

B. Tests for Linearity of Predictors

Graphical plots were observed across individual variables to test the linearity assumption amongst the variables. These were based on the one-to-one variable correlations.

Notes (Table A2):

**. Correlation is significant at the 0.01 level (2-tailed).
*. Correlation is significant at the 0.05 level (2-tailed).

a. Cannot be computed because at least one of the variables is constant.

Table A2. Correlations

Factors										
Pearson Correlation Sig. (2-tailed) N	Residence	Age	GBV	Divorce	Stigma	Financial and economic bearing	Treatment due to Affordability	Support from Partner?	Non-conventional Treatment	Alternative Treatment
Residence	1	.547**	.[a]	.000	.[a]	.258	.182	.456**	.000	.561**
		.001	.	1.000	.	.147	.312	.008	1.000	.001
	33	33	33	33	33	33	33	33	33	30
Age	.547**	1	.[a]	-.012	.[a]	.134	.253	.648**	-.021	.430*
	.001		.	.948	.	.456	.155	.000	.907	.018
	33	33	33	33	33	33	33	33	33	30
GBV	.[a]	.[a]	.[a]	.[a]	.[a]	.[a]	.[a]	.[a]	.[a]	.[a]
	.	.		.	.	.	.	.	.	.
	33	33	33	33	33	33	33	33	33	30
Divorce	.000	-.012	.[a]	1	.[a]	-.056	-.341	-.219	-.056	-.266
	1.000	.948	.		.	.757	.052	.220	.757	.156
	33	33	33	33	33	33	33	33	33	30
Stigma	.[a]	.[a]	.[a]	.[a]	.[a]	.[a]	.[a]	.[a]	.[a]	.[a]
	.	.	.	.		.	.	.	.	.
	33	33	33	33	33	33	33	33	33	30
Financial and economic bearing	.258	.134	.[a]	-.056	.[a]	1	.164	.039	.267	.306
	.147	.456	.	.757	.		.362	.828	.134	.100
	33	33	33	33	33	33	33	33	33	30
Treatment due to Affordability	.182	.253	.[a]	-.341	.[a]	.164	1	.188	-.094	.429*
	.312	.155	.	.052	.	.362		.294	.604	.018
	33	33	33	33	33	33	33	33	33	30
Support from Partner?	.456**	.648**	.[a]	-.219	.[a]	.039	.188	1	.255	.558**
	.008	.000	.	.220	.	.828	.294		.152	.001
	33	33	33	33	33	33	33	33	33	30
Non-conventional Treatment	.000	-.021	.[a]	-.056	.[a]	.267	-.094	.255	1	.[a]
	1.000	.907	.	.757	.	.134	.604	.152		.000
	33	33	33	33	33	33	33	33	33	30
Alternative Treatment	.561**	.430*	.[a]	-.266	.[a]	.306	.429*	.558**	.[a]	1
	.001	.018	.	.156	.	.100	.018	.001	.000	
	30	30	30	30	30	30	30	30	30	30

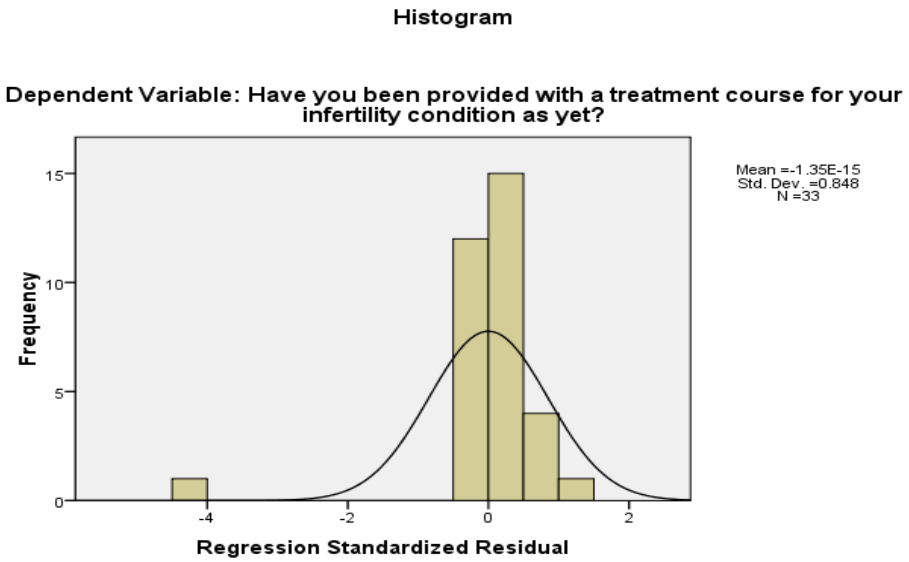
C. Tests for Multicollinearity

Table A.3 Coefficient Collinearity Statistics

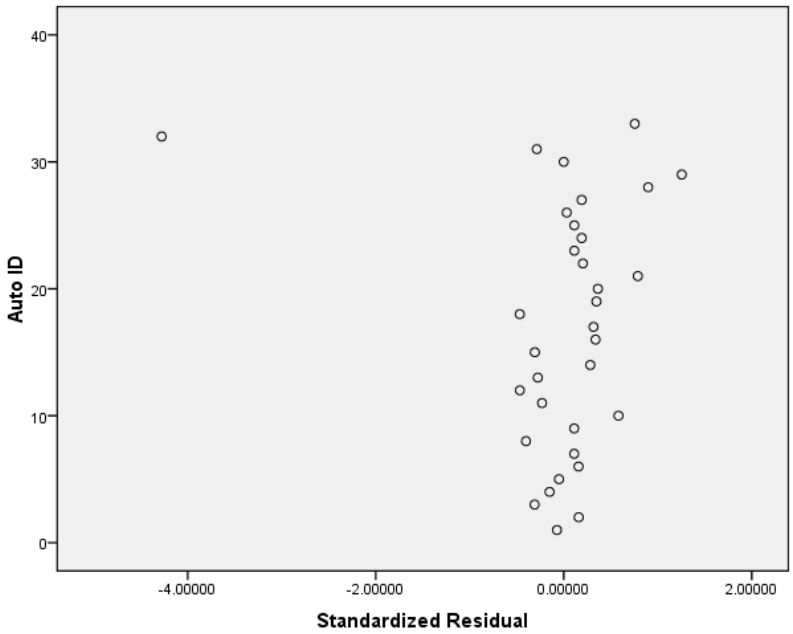
Model	Variable	Collinearity Statistics	
		Tolerance	**VIF**
1	(Constant)	-	-
	Divorce	.627	1.596
	Income Loss Due to Treatment Seeking	.641	1.560
	Non-conventional Treatment Sought	.690	1.450
	Alternative Treatment Sought due to Financial Struggles	.498	2.009
	Partner Support	.420	2.382
	Have you sought any other treatment other than medical treatment?	.738	1.355
	Suicide	.549	1.822
	Residence	.509	1.963
	Age	.411	2.434

Dependent Variable: Treatment of Infertility

D. Test for Normality



E. Test for Variability of Residuals



Appendix 5: Research Instrument 1

Medical Practitioner Interview on Women Infertility at the University Teaching Hospital, and district health clinics

DATE: ……

CODE: ……

	DOCTOR GENERAL INFORMATION
1	What is your job title?
2	Your Responsibility in Obs. & Gyn. Dept.
3	Length of service in Dept:

INSTRUCTIONS (Tick or enter code for appropriate responses and specify other responses)

(a) CLINICAL INFORMATION ON FEMALE INFERTILITY

1. How do you define female infertility?

   _____ The inability to conceive and bare a live child (1)

   _____ The inability to conceive after two years of regular unprotected sex

   _____ The inability to carry a pregnancy to live birth (3)

   ____ other specify (88)

   ____ don't know (99)

2. Estimate the percentage occurrence in a population of women age 15 to 49 of female infertility in Zambia.

   ____ 0-10 (1)

   ____ 11-21 (2)

   ____ 22-32 (3)

   ____ other specify (88)

   ____ don't know (99)

3. How many women are currently seeking services at this clinic?

   ____ 20 – 50 (1)

   ____ 51 – 81 (2)

   ____ 82 – 150 (3)

   ____ 151 – 250 (4)

____ 250 - 500 (5)

____ other specify (88)

____ don't know (99)

4. On average, how many cases per month do you attend to at the clinic?

____ 20 – 50 (1)

____ 51 – 81 (2)

____ 82 – 150 (3)

____ 151 – 250 (4)

____ 250 - 500 (5)

____ other specify (88)

____ don't know (99)

5. List four (4) major causes of female infertility in Zambia

____ Age of a woman (at first marriage) (1)

____ Sexually transmitted Infections (2)

____ Hormonal Imbalances (3)

____ Fibroids (4)

____ Sterilization (5)

____ Endometriosis (blocked pelvis) (6)

____ other specify (88)

____ don't know (99)

5. List four (4) major treatment options available to women who are infertile at your clinic.

____ Early detection and treatment of a problem (1)

____ Hormonal treatments (2)

____ In vitro fertilization (3)

____ Artificial insemination (4)

____ Surgical procedures to remove fibroids and unblock pelvis (5)

____ other specify (88)

____ don't know (99)

(b) FEMALE INFERTILITY AND GENDER BASED VIOLENCE (GBV)

1. Do you record cases of GBV resulting from female infertility at this clinic?

___ No (0)

___ Yes (1)

2. If yes, can you estimate how many cases are recorded in a period of a month at this clinic? (What percentage of all cases is represented here?)

___ 0-10 (1)
___ 11-20 (2)
___ 21-35 (3)
___ 56-100 (4)
____ other specify (88)
____ don't know (99)

3. Are clients who experience GBV resulting from infertility willing to discuss their experience with you?

___ No (0)
___ Yes (1)

4. What form of GBV do they experience?

___ Physical (1)
___ Psychological (2)
___ Verbal (3)
___ Mental (4)
____ other specify (88)
____ don't know (99)

5. Who are the most perpetrators of these GBV cases?

___ Husbands (1)
___ In-laws (2)
___ Other wives (in cases of polygamous unions) (3)
___ Society/ Community (4)
____ other specify (88)
____ don't know (99)

6. How are these women in such situations helped?

___ No help is given (1)
___ treated and left to go to usual home (2)
___ advised to report cases at police Victim Support Unit (3)
___ provided counselling services (4)
____ other specify (88)

____ don't know (99)

(c) FEMALE INFERTILITY AND DIVORCE

1. Do you record any cases of women with infertility who experience divorce resulting from their condition?

   ___ No (0)
   ___ Yes (1)

2. If yes, can you estimate a percentage per year of such cases in the clients you attend to at your clinic?

   ____ 0-10 (1)
   ____ 11-21 (2)
   ____ 22-32 (3)
   ____ other specify (88)
   ____ don't know (99)

3. Do these women experience cases were their partners resort to polygamy or have other women in hope of bearing a child?

   ___ No (0)
   ___ Yes (1)

4. If yes, can you estimate a percentage per year of such cases in the clients you attend to at your clinic?

   ____ 0-10 (1)
   ____ 11-21 (2)
   ____ 22-32 (3)
   ____ other specify (88)
   ____ don't know (99)

(d) FEMALE INFERTILITY AND STIGMATIZATION

1. Have clients at your clinic reported any experience of stigmatization in their community resulting from their condition?

   ___ No (0)
   ___ Yes (1)

2. What form of stigmatization do they experience?

___ Exclusion from decision making and community gatherings (1)

___ Economic stigma – no access to land and property (2)

___ No respect from community and fellow women (3)

___ Marital instability (4)

____ other specify (88)

____ don't know (99)

3. What are some of the consequences of this stigma for these women?

___ Mental instability/illness (1)

___ Loss of jobs (2)

___ Suicide (3)

___ Insomnia (4)

____ Depression (5)

____ Social Isolation (6)

____ other specify (88)

____ don't know (99)

4. From whom do they mainly experience this stigma in their communities?

___ Husbands (1)

___ In-laws (2)

___ Other wives (in cases of polygamous unions) (3)

___ Society/ Community (4)

____ other specify (88)

____ don't know (99)

5. Do the women with infertility state that stigmatization would cease if their condition is resolved?

___ No (0)

___ Yes (1)

(e) FEMALE INFERTILITY AND ECONOMIC EFFECT

1. From the 3 localities, estimate the percentage of clients you attend to at the clinic?

___ High Density areas

___ Medium Density areas

___ Low Density areas

2. Estimate the percentage of the income levels of women with infertility who you attend to at the clinic?

____ High income

____ Medium income

____ Low income

3. In your opinion, does female infertility have a bearing on the economic status of a person?

___ No (0)

___ Yes (1)

(f) INFERTILITY AND INCOME LOSS THROUGH TREATMENT SEEKING BEHAVIORS.

1. Do you refer women seeking treatment to any other clinics or hospitals within or outside the country?

___ No (0)

___ Yes (1)

2. If yes, where do you mostly refer these women?

____ UTH (1)

____ Lusaka IVF Clinic (2)

____ other specify (88)

____ don't know (99)

3. Could you give an average estimate of how much income loss and expenditure goes to these treatment seeking behaviors?

____ 2500 – 5000 (1)

____ (5000 – 10000)

____ (10000- 25000)

____ other specify (88)

____ don't know (99)

4. For those who cannot afford the treatment, what solutions do you offer them?

____ Nothing (1)

____ Refer to free treatment centers (2)

____ other specify (88)

____ don’t know (99)

5. Does the government play any role in ensuring that women who seek treatment have access to proper and affordable access to treatment facilities?

___ No (0)

___ Yes (1)

6. Explain the role of government in providing care to such women.

____ provide free services (1)

____ other specify (88)

____ don’t know (99)

7. Are these patients’ partners supportive of their quest for solutions to their conditions?

___ No (0)

___ Yes (1)

8. What is the percentage of those supportive partners out of the total women who seek help?

___ Below 10 percent (1)

___ 10 to 20 percent (2)

___ Between 20 and 40 percent (3)

____ other specify (88)

____ don’t know (99)

Appendix 6: Research Instrument 2

Client Interview on Women Infertility at the University Teaching Hospital

CLIENT GENERAL INFORMATION	
Date:	Code:

SCREENING QUESTION:

G1. Has a medical personnel diagnosed you with female infertility?

___ No (0) DO NOT PROCEED

___ Yes (1) PROCEED

SECTION A (BACKGROUND INFORMATION)

H1. RESIDENCE

___High density ……1

___Medium density……2

___Low density ……3

H2. AGE

___15-19 ……. 1

___20-24 ……. 2

___25-29 …….3

___30-34 …….4

___35-39 …….5

___40-44 …….6

___45-49 …….7

H3. AGE OF MARRIAGE

___2- 4 ……. ……1

___5-7…….2

___8 and above..…3

H4. AGE AT MARRIAGE

___15-19 ……. 1

___20-24 ……. 2

___25-29 …….3

___30-34 …….4

___35-39 …….5

___40-44 …….6

___45-49 …….7

H5. YEARS TRYING FOR A BABY

___2-4……..1

___5-7……2

___More than 8 years…..…..3

SECTION B (SOCIO-ECONOMIC INFORMATION)

I1. RELIGION/DENOMINATION

___Catholic…….. 1

___Adventist……..2

___Witness…….3

___Pentecostal……4

___Muslim……..5

___Apostolic……6

___Other Specify…… 88

I2. EMPLOYMENT STATUS

___Employed ……..1

___Self Employed…….2

___Unemployed……3

I3. EMPLOYMENT TYPE

___Formal……..1

___Informal……..2

___Unemployed…….3

___Other ……88

I4. INCOME ACTIVITY

___Employment ……1

___Business ……1

___Farming……..……3

___None……4

I5. MAIN INCOME ACTIVITY

___Employment ……1

___Business ……..1

___Farming…….3

___None……. 4

___Other…….88

I6. MONTHLY INCOME

___1000-2500 ……..1

___2600-4100……2

___4200-5700……3

___5800 and above..…….4

___Does not receive income…..5

I7. EDUCATION LEVEL

___Primary…….1

___Lower Secondary…….2

___Upper Secondary…….3

___College Diploma……4

___University Degree……..….5

___Other Specify…….. 88

SECTION C MAIN QUESTIONNAIRE

INSTRUCTIONS (Tick or enter code for appropriate responses and specify other responses)

(a) CLINICAL INFORMATION ON FEMALE INFERTILITY

1. How would you define your infertility condition?

    ____ The inability to conceive and bare a live child (1)
    ____ The inability to conceive after two years of regular unprotected sex (2)
    ____ The inability to carry a pregnancy to live birth (3)
    ____ other specify (88)
    ____ don't know (99)

2. Can you state what caused your infertility condition?

    ____ Age of a woman (at first marriage) (1)
    ____ Sexually transmitted Infections (2)
    ____ Hormonal Imbalances (3)
    ____ Fibroids (4)
    ____ Sterilization (5)
    ____ Endometriosis (blocked pelvis) (6)
    ____ Genetically Inherited (7)
    ____ other specify (88)
    ____ don't know (99)
    ____ Refused (77)

3. When did you discover that you had the condition?

    ___ 2-3 year ago (1)
    ___ 4-5 years ago (2)
    ____ 6-7 years ago (3)
    ____ More than 8 years ago (4)

4. How did you become aware of your infertility condition?

    ____ After trying to conceive for more than 2 years (1)

____ I went to the clinic for a regular gynecology checkup (2)

____ I had stomach problems for a while (3)

____ I was involved in an accident and went for general check-up (4)

____ Had irregular periods for a while (5)

____ other specify (88)

____ don't know (99)

____ Refused (77)

5. How long have you been attending this fertility clinic?

___ 1- 6 months (1)

___ 7 – 12 months (2)

___ 1 – 2 years (3)

____ other specify (88)

____ don't know (99)

____ Refused (77)

6. Did you seek treatment anywhere else before attending conventional clinics?

___ No (0)

___ Yes (1)

7. If yes, where were you previously seeking treatment or help?

___ Traditional healers (1)

___ Churches and prayers (2)

____ other specify (88)

____ don't know (99)

____ Refused (77)

8. Have you been provided with a treatment course for your infertility condition as yet?

___ No (0)

___ Yes (1)

9. Can you describe the treatment course provided?

___ only tests done and no further treatment (1)

___ tests done and further treatment given (2)

___ Surgical procedure carried out (3)

___ Hormonal treatments given (4)

___ IVF treatment advised (5)

___ IVF treatment in process (6)

____ other specify (88)

____ don't know (99)

____ Refused (77)

(b) FEMALE INFERTILITY AND GENDER BASED VIOLENCE (GBV)

1. Does female infertility lead to domestic violence?

   ___ No (0)

   ___ Yes (1)

2. Have you experienced domestic violence from your partner as a result of your infertility condition?

   ___ No (0)

   ___ Yes (1)

3. If yes, in what form was /or has this violence been?

   ___ Emotional (1)

   ___ Psychological (2)

   ___ Physical (3)

   ____ other specify (88)

   ____ don't know (99)

   ____ Refused (77)

4. Have you reported these cases of abuse?

   ___ No (0)… **skip to question 7**

   ___ Yes (1)…. **proceed to question 5.**

5. If yes, where have you reported?

   ___ Police victim support unit (1)

   ___ Church pastor, priest or councilor (2)

   ____ other specify (88)

   ____ don't know (99)

   ____ Refused (77)

6. If No, why have you not reported?

   ___ Afraid my partner will leave me (1)

___ I feel it is okay for my partner to treat me that way (2)

___ My friends/family advised me not to (3)

___ I blame myself for his behavior (4)

____ I don't see any need to (5)

____ other specify (88)

____ don't know (99)

____ Refused (77)

7. How often are these cases of violence from your partner?

___ Once a week (1)

___ More than twice a week (2)

___ Once a month (3)

____ Twice a month (4)

____ Every time he drinks (5)

____ Unpredictable, happens anytime (6)

____ other specify (88)

____ don't know (99)

____ Refused (77)

(c) FEMALE INFERTILITY AND DIVORCE

1. Does female infertility lead to divorce?

___ No (0)

___ Yes (1)

2. Give a reason for your response.

___ I know people that have been divorced (1)

___ I know people whose partners have taken in another woman (2)

___ I have personally been divorced before (3)

____ other specify (88)

____ don't know (99)

____ Refused (77)

3. Have you experienced a divorce resulting from your infertility condition?

___ No (0)

___ Yes (1)

4. If yes, during the divorce, did your spouse blame you for childlessness in the home?

___ No (0)

___ Yes (1)

5. Do you know any women who have been divorced due to their infertility conditions?

___ No (0)

___ Yes (1)

6. How many women do you know of?

___ 1-4 (1)

___ 5-8 (2)

___ More than 9 (3)

(d) FEMALE INFERTILITY AND STIGMATIZATION

1. Do women with infertility condition experience stigma in your community?

___ No (0)

___ Yes (1)

2. What kind of stigma do they experience?

___ Exclusion from decision making and community gatherings (1)

___ Economic stigma – no access to land and property (2)

___ No respect from community and fellow women (3)

___ Marital instability (4)

____Emotional (5)

____Physical (6)

____Psychological (7)

____ other specify (88)

____ don't know (99)

3. How do men treat women with infertility condition in your community?

___ They discriminate against them (1)

___ They despise them (2)

___ They avoid them (3)

____ other specify (88)

____ don't know (99)

4. Have you experienced any stigma from community members?

___ No (0)

___ Yes (1)

5. If yes, in what form was the stigma?

___ Exclusion from decision making and community gatherings (1)

___ Economic stigma – no access to land and property (2)

___ No respect from community and fellow women (3)

___ Marital instability (4)

____Emotional (5)

____Physical (6)

____Psychological (7)

____ other specify (88)

____ don't know (99)

6. How do you feel about your condition?

___ Depressed (1)

___ Helpless (2)

___ Worthless (3)

___ Isolated (4)

___ Left out among my peers (5)

____ other specify (88)

____ don't know (99)

(e) FEMALE INFERTILITY AND ECONOMIC EFFECT

1. In your opinion, does female infertility have a bearing on the economic status of a woman?

___ No (0)

___ Yes (1)

2. Has the infertility condition you have had any financial and economic bearing on your economic status as a woman?

___No (0)

___ Yes (1)

3. Could you state the economic bearing your condition has had on both you and your family? How much income have you lost through treatment seeking?

____1000-2500 (1)

____ 2600 – 4900 (2)
____ 5000 – 10000 (3)
____ More than 11000 (4)

4. Have you sort treatment anywhere else besides this clinic and you could not afford it?

___ No (0)
___ Yes (1)

5. If yes, where:

___ UTH
___ Lusaka IVF clinic
___ Abroad

6. Has your partner been supportive in your quest for solutions to your condition?

___ No (0)
___ Yes (1)

7. How supportive has he been?

___ Supportive (1)
___ Very supportive (2)
___ Extremely supportive (3)

F) INFERTILITY AND FURTHER TREATMENTS

1. Have you sought any other treatment other than medical treatment?

___ Yes (1) go to Q2

___ No (0)

2. What kind of alternative treatment have you sought?

__ Counselling (1)

__ Traditional Healer (2)

__ Prayers at church (3)

__ 0ther Specify (88)

3. How helpful has the type of alternative treatment you have sought been for you?

__ Not helpful (1)

__ Helpful (2)

__ Very helpful (3)

4. Have you ever contemplated suicide because of your condition?

__ Yes (1)

__ No (0)

Appendix 7: Research Instrument 3

Non-structured interviews with (marriage counsellors) **on Socio-Economic Aspects of Women Infertility**

Township: ……

Date: ……

(a) In your opinion, what is female infertility?

(b) FEMALE INFERTILITY AND GENDER BASED VIOLENCE (GBV)

1. Does a woman's infertility cause violence in a marriage?

   ---
2. If affirmative, what reasons can you give for a woman's infertility to generate domestic violence?

   ---
3. From your experience as a marriage counselor, how frequent do you council women who have experienced GBV due to their condition?

   ---
4. How many cases do you handle in a year?

(b) FEMALE INFERTILITY AND DIVORCE

1. Does a woman's infertility cause a divorce in a marriage?

---

2. If affirmative, in what particular sense does a woman's infertility cause a divorce?

---
3. From your experience as a marriage counselor, how frequent do you council women who have experienced a divorce due to their condition?

---
4. How many cases do you handle in a year?

(d) FEMALE INFERTILITY AND STIGMATIZATION

1. In your own experience or as a community, are women with infertility stigmatized?

---
2. Cite ways in which this stigmatization occurs in the community.

(e) FEMALE INFERTILITY AND ECONOMIC EFFECT

1. Does does female infertility have a bearing on the economic status of a person?

---
2. Cite ways in which female infertility bears on the economic status of the affected woman.

---
3. How do you think society can help these women cope with their situation?

---
4. How do these women react to their condition?

---
5. How do you think government can assist with this problem?

Appendix 8: Research Instrument 4

Questionnaire for Women in the Community on Infertility

RESPONDENT'S GENERAL INFORMATION	
Date:	Code:
Residence:	Age:
Marital Status:	Income Activity:

INSTRUCTIONS (Tick or enter code for appropriate responses and specify other responses)

(a) FEMALE INFERTILITY AND GENDER BASED VIOLENCE (GBV)

1. State what you understand by the term female infertility.

   _____ The inability to conceive and bare a live child (1)

   ____ The inability to conceive after two years of regular unprotected sex (2)

   _____ The inability to carry a pregnancy to live birth (3)

   ____ other specify (88)

   ____ don't know (99)

2. Does female infertility causes domestic violence?

   ___ No (0)

   ___ Yes (1)

3. Have you experienced or witnessed GBV resulting from female infertility in your community?

   ___ No (0)

   ___ Yes (1)

4. In what form has this violence been?

   ___ emotional (1)

   ___ psychological (2)

   ___ physical (3)

   ____ other specify (88)

   ____ don't know (99)

   ____ Refused (77)

5. How many people do you personally know that have experienced GBV due to being infertile?

___ 1-5 (1)
___ 5-10
____ other specify (88)
____ don't know (99)

6. Have any of them reported their abuse anywhere?

___ No (1)… **skip to question 7**
___ Yes (2)…. **proceed to question 5.**

7. If yes, where have they reported?

___ Police victim support unit (1)
___ Church pastor, priest or councilor (2)
____ other specify (88)
____ don't know (99)
____ Refused (77)

8. If No, why have they not reported?

___ Afraid their partner will leave me (1)
___ They feel it is okay for my partner to treat them that way (2)
___ Their friends/family advised not to (3)
___ They blame themselves for his behavior (4)
____ other specify (88)
____ don't know (99)
____ Refused (77)

(b) FEMALE INFERTILITY AND DIVORCE

1. Does female infertility cause divorce?

___ No (0)
___ Yes (1)

2. Give a reason for your response.

___ I know people who have been divorced (1)
___ I have personally been divorced before (2)

____ other specify (88)

____ don't know (99)

3. Have you experienced or witnessed a divorce resulting from female infertility in your community?

___ No (0)

___ Yes (1)

4. During the divorce, do men blame women for childlessness in the home?

___ No (0)

___ Yes (1)

(c) FEMALE INFERTILITY AND STIGMATIZATION

1. Do women with infertility experience stigma in your community?

___ No (0)

___ Yes (1)

2. What kind of stigma do they experience?

___ Exclusion from decision making and community gatherings (1)

___ Economic stigma – no access to land and property (2)

___ No respect from community and fellow women (3)

___ Marital instability (4)

____ other specify (88)

____ don't know (99)

3. How do men treat women with infertility condition in your community?

__ They discriminate against them (1)

___ They despise them (2)

___ They avoid them (3)

____ other specify (88)

____ don't know (99)

4. If you have the infertility condition, have you experienced any stigma from community members?

___ No (0)

___ Yes (1)

5. If yes, in what form was the stigma?

___ Exclusion from decision making and community gatherings (1)

___ Economic stigma – no access to land and property (2)

___ No respect from community and fellow women (3)

___ Marital instability (4)

____ other specify (88)

____ don't know (99)

(D) FEMALE INFERTILITY AND ECONOMIC EFFECT

1. In your opinion, does female infertility have a bearing on the economic status of a woman?

   ___ No (0)

   ___ Yes (1)

2. Have you personally had infertility related income loss? If yes, approximately how much?

   ___ No (0)

   ___ Yes (1) state amount_____

3. Could you state the economic bearing the condition has had on both you and your family or anyone you know? How much income is lost through treatment seeking?

   ____ 2500 – 5000 (1)

   ____ (5000 – 10000) (2)

   ____ (10000- 25000) (3)

   ____ other specify (88)

   ____ don't know (99)

4. Do men avoid marrying women with an infertility condition?

   ___ No (0)

   ___ Yes (1)

5. Give reasons for your answer.

   ___ Men want to have children to obtain social status. (1)

   ___ Men need children to carry on the family name (2)

   ___ Men feel women who can't have children are worthless (3)

   ____ other specify (88)

   ____ don't know (99)

********** **Thank you for your participation** **********

Appendix 9: Research Instrument 5

Questionnaire for Men in the Community on Infertility

RESPONDENT'S GENERAL INFORMATION	
Date:	Code:
Residence:	Age:
Marital Status:	Income Activity:

INSTRUCTIONS (Tick or enter code for appropriate responses and specify other responses)

(a) FEMALE INFERTILITY AND GENDER BASED VIOLENCE (GBV)

1. State what you understand by the term female infertility.
   _____ The inability to conceive and bare a live child (1)
   _____ The inability to conceive after two years of regular unprotected sex (2)
   _____ The inability to carry a pregnancy to live birth (3)
   ____ other specify (88)
   ____ don't know (99)
2. Does female infertility causes domestic violence?
   ___ No (0)
   ___ Yes (1)
3. Have you experienced or witnessed GBV resulting from female infertility in your community?
   ___ No (0)
   ___ Yes (1)
4. Who are the perpetrators?
   ___ Men (1)
   ___ In-laws (2)
   ____ other specify (88)
   ____ don't know (99)

(b) FEMALE INFERTILITY AND DIVORCE

1. Does female infertility cause divorce?

   ___ No (0)

   ___ Yes (1)

2. Give a reason for your response.

   ___ I know people who have been divorced (1)

   ___ I have personally been divorced before (2)

   ____ other specify (88)

   ____ don't know (99)

3. Have you experienced or witnessed a divorce resulting from female infertility in your community?

   ___ No (0)

   ___ Yes (1)

4. During the divorce, do men blame women for childlessness in the home?

   ___ No (0)

   ___ Yes (1)

5. Have you personally had an infertility related divorce?

   ___ No (0)

   ___ Yes (1)

(c) FEMALE INFERTILITY AND STIGMATIZATION

1. Do women with infertility experience stigma in your community?

   ___ No (0)

   ___ Yes (1)

2. What kind of stigma do they experience?

   ___ Exclusion from decision making and community gatherings (1)

   ___ Economic stigma – no access to land and property (2)

   ___ No respect from community and fellow women (3)

   ___ Marital instability (4)

   ____ other specify (88)

   ____ don't know (99)

3. How do men treat women with infertility condition in your community?

___ They discriminate against them (1)

___ They despise them (2)

___ They avoid them (3)

____ other specify (88)

____ don't know (99)

(c) FEMALE INFERTILITY AND ECONOMIC EFFECT

1. In your opinion, does female infertility have a bearing on the economic status of a woman?

   ___ No (0)

   ___ Yes (1)

2. Have you personally had infertility related income loss? If yes, approximately how much?

   ___ No (0)

   ___ Yes (1) state amount_____

3. Could you state the economic bearing the condition has had on both you and your family or anyone you know? How much income is lost through treatment seeking?

   ____ 2500 – 5000 (1)

   ____ (5000 – 10000) (2)

   ____ (10000- 25000) (3)

   ____ other specify (88)

   ____ don't know (99)

4. Would you personally avoid marrying a woman with an infertility condition?

   ___ No (0)

   ___ Yes (1)

5. Give reasons to your response. As a man…

   ___ I want to have children to obtain social status. (1)

   ___ I need children to carry on the family name (2)

   ___ I feel women who can't have children are worthless (3)

   ____ other specify (88)

   ____ don't know (99)

********** **Thank you for your participation** **********