KWAME NKRUMAH UNIVERSITY OF SCIENCE AND TECHNOLOGY

KUMASI, GHANA

COLLEGE OF HEALTH SCIENCES

SCHOOL OF PUBLIC HEALTH

DEPARTMENT OF POPULATION, FAMILY AND REPRODUCTIVE HEALTH

MALES' INVOLVEMENT IN FERTILITY TREATMENT IN EJISU MUNICIPALITY IN THE ASHANTI REGION OF GHANA

BY

AGGREY PRISCILLA ABA

NOVEMBER 2019

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A THESIS SUBMITTED TO THE DEPARTMENT OF POPULATION, FAMILY AND REPRODUCTIVE HEALTH, COLLEGE OF HEALTH SCIENCES, SCHOOL OF PUBLIC HEALTH, IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE AWARD OF

MASTER OF PUBLIC HEALTH DEGREE IN POPULATION AND REPRODUCTIVE HEALTH

NOVEMBER 2019

DECLARATION

I, Aggrey Priscilla Aba, hereby declare that, this piece of work is the result of my original research, except for references to other people's works, which have been acknowledged duly. I hereby also declare that this work has neither in whole nor in part been presented for any degree in this university or elsewhere.

AGGREY PRISCILLA ABA	……	…….
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(SUPERVISOR)	Signature	Date

PROF. EASMON OTUPIRI	……..	……
(HEAD OF DEPARTMENT)	Signature	Date

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DEDICATION

This research work is dedicated to my beloved mother, Dr. Mrs. Janet Amoanimah Aggrey. She is indefatigable and she inspires me a lot.

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ABSTRACT

Background

Infertility is a global challenge confronting couples and even partners in consensual unions. Efforts to address the phenomena has largely focused on females to the neglect of men who ought to be equally brought on board as key players. Therefore, there is a need for empirical evidence on the determinant of male involvement in fertility treatment.

Methods

The study adopted a quantitative approach using a cross-sectional study design. The study population was 423 married men selected using a simple random sampling technique. A structured questionnaire was administered to the participants and data were analysed using STATA 15. Statistical significance for all testing was set as 0.05.

Results

The study identified that most of the respondents (57.45%) had their education to the secondary level and more than half of the respondents (50.12 %) knew the correct definition of what infertility is. Majority of the respondents (76.83%) agreed that financial constraints and stigmatization (61.94%) were some of the challenges affecting males' involvement in fertility treatment. Socio-demographic characteristics of married men such as marriage type (p-value=0.00), level of education (pvalue=0.01), employment status (p-value=0.04), occupation (Public service worker, p-value=0.04; trading, p-value=0.02), Monthly income (GH 3001 and above, pvalue=0.04), religion (p-value=0.03) and ethnic group (Ewe, p-value=0.01; Nzema, pvalue=0.02) influenced males' involvement in fertility treatment.

Moreover, reproductive characteristics of married men such as ever been able to impregnate their wives (p-value=0.00), ever been able to impregnate another woman (p-value=0.00), and number of children (4-6 children, p-value=0.02) influenced their level of involvement in fertility treatment.

Conclusion

Majority of married men believed that infertility is the problem of both couples however; they were reluctant to accompany their wives for treatment since they saw it as a sole responsibility of their wives. Therefore, married men should be educated by the Ejisu Municipal Health Directorate to accompany their wives for treatment since it would involve both for complete management.

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

Infertility is a significant global health problem, that has been known to affect roughly 15% of couples throughout the world with a higher percentage of these couples who might need medical treatment for conception (Durairajanayagam, 2018). Infertility has been known to be highly prevalent in the Eastern Europe, Oceana, North Africa or Middle East, and within Sub-Saharan Africa (Alasmari et al., 2018). Globally, 1.9% of couples aged 20-44 who desired to have children could not have their first live birth whiles 10.5% of couples with a previous live birth were unable to have an additional live birth (Autilio et al., 2015; Durairajanayagam, 2018). Infertility is defined by the WHO as the inability of a sexually active couple, who are using no form of contraception, to conceive after one year of regular sexual intercourse (Montanino et al., 2016). This clearly indicates that infertility involves more than one person and that might not necessarily always be a female factor (Ma et al., 2015).

It has been documented in several studies that despite the significant role of men in reproduction, men have largely been left out of the mainstream of reproductive health services (Mmbando, 2010). In a study to evaluate the factors that effect male involvement in reproductive health in Tanzania, sociocultural factors such as cultural dominance and the generational gap among family members were identified as a contributory factor that influenced males' involvement in reproductive health (Taha et al., 2016). Infertility has several sociocultural complications for couples.

The inability of a couple to have a child often result in being greatly ostracized, shunned, divorced on the part of any of the partners which may result in mental disorder, suicide and denial from family or community traditions (Letourneau & Fair, 2019).

Male factor infertility is caused by numerous and multifactorial agents including poor sperm motility, teratozoospermia, increased sperm viscosity, poor blastocyst developing, etc. (Poongothai et al,, 2009). Studies have reported a global decline in the human sperm counts from 50% to 60% quality (Alasmari et al., 2018). Male fertility can be influenced by various factors and thus the decline in the semen quality have been attributed to environmental and/or occupational factors coupled with certain lifestyle practices that contribute the deterioration of the quality of semen (Wu et al., 2019). These in effect emphasize the need to involve men in fertility treatment, even though most of the reproductive health programs have focused mainly on females. Effects of infertility amongst couples and the associated need for health care management have been known to relate to the cultural realities of specific regions. The burden of infertility amongst most couples are often perceived to be the fault of the women, since pregnancy as well as child birth are seen in a woman (Stojanov et al., 2018).

1.2 Problem Statement

Infertility in developing countries often raise distinct and complex issues as compared to developed countries (Lohiya et al., 2016).

Several studies reviewed have indicated that researches on fertility treatment focused solely on women and this has been attributed to the fact that women are generally perceived to be the center of infertility causes.

According to Fledderjohann (2012), Infertility does have consequences that do affect social interactions, marital stability and mental health, but these consequences are perceived not to be shared equally by couples. This is because men are mostly perceived not to be involved in fertility treatment in countries like Ghana.

It is perceived that several traditional reproductive health programs have been known to exclusively focus on women and less on men. The various programs that are designed to deal with family planning, prevention of unwanted pregnancies and the promotion of safe parenthood consider women as their most significant clients.

Most health programmes on reproductive health in Ghana focused on antenatal and post-natal care, family planning services and child vaccination mostly targeting women to a greater extent compared to men (Odoi-Agyarko, 2013). Also, most of the studies on male involvement in reproductive health focused on their uptake of family planning services (Adongo at al., 2013; Bawah, 2002) and males' participation in maternal health services (Aborgio, 2013; Aborgio et al., 2013) with little or no attention to their involvement in fertility treatment. However, men have strong reproductive health decision-making powers regarding the number of children and choice of contraceptives (Ministry of Health, 2009). The identity of womanhood has been centered on motherhood, accounting for differential experiences of infertility (Boafo, 2010).

This makes it imperative to investigate males' involvement in fertility treatment in Ejisu as lesson learning for the municipality, the Region and Ghana as a whole.

1. 3 Significance of Study

Infertility causes marital tension, which often leads to divorce. Women are frequently the ones blamed for the infertility and whilst some men engage in polygyny to have children. Several men in Ghana do not see the need for involvement in fertility treatment

and perceived that the fruitfulness of the womb is the responsibility of the women since they have been designed naturally to carry babies. Some men do well by following their wives to the fertility clinic but refuse to get involved in fertility assessment procedures. There is an acknowledged paucity of research information on male participation in fertility management. This study is significant as it contributes to addressing the dearth of information on what remains the barriers or enablers of male involvement in fertility treatment. This would serve as a lesson learning for the Municipality, the Region and policy makers in addressing the gaps associated with male involvement in fertility treatment. Also, the study would contribute to limited evident on male involvement in fertility treatment, which will help as a reference material for students and researchers for future referencing.

1.4 Conceptual Framework

Figure 1.1 describes male involvement in fertility treatment. This construct looks at factors such as knowledge (general knowledge and misconceptions) and attitudes (myths, perceptions, belief and barriers) of males' on fertility treatment involvement.

It also looks at how the reproductive characteristics (first time pregnancy, number of pregnancies, number of children and desired number of children) and sociodemographic factors (age, number of wives or partners, educational level, employment status, occupation, monthly income, religion and ethnicity) of males do influence their involvement in fertility treatment. The framework does also look at the challenges such as financial constraints, availability of the fertility treatment services,

accessibility (proximity) of the fertility treatment services, stigma, ignorance, religious beliefs and cultural practices associated with male involvement in fertility treatment as shown below in figure 1.1.

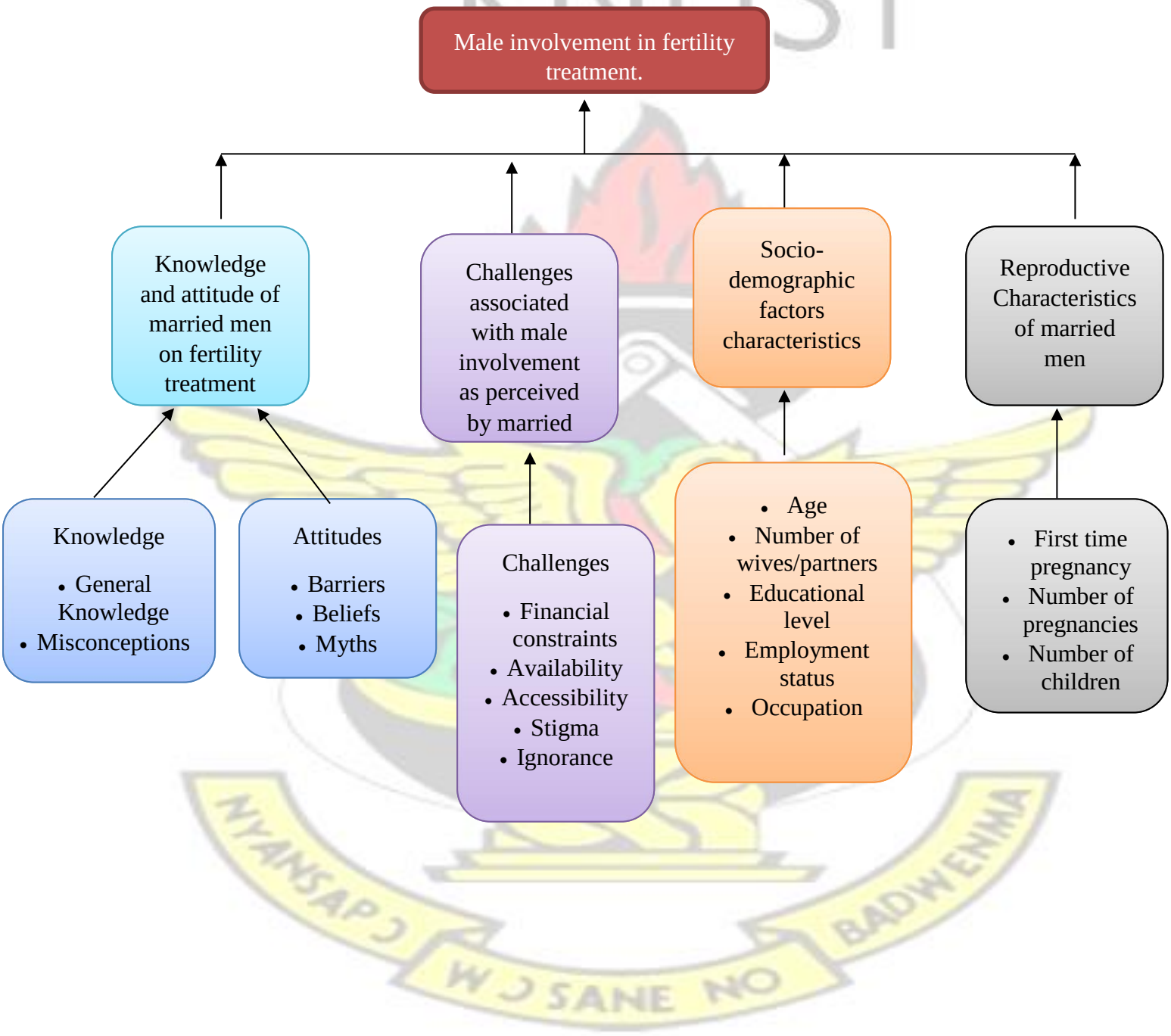


Figure 1.1: Conceptual Framework of male involvement in fertility treatment *Source:*

Author's Construct, 2019.

1.5 Research Questions

1. What is the level of knowledge and attitude of men towards their involvement in fertility treatment in Ejisu municipality in the Ashanti Region of Ghana?

2. What are the challenges associated with male involvement in fertility treatment in Ejisu municipality in the Ashanti Region of Ghana.?

3. What are the socio-demographic factors of men influencing their involvement in fertility treatment in Ejisu municipality in the Ashanti Region of Ghana?

4. What are the reproductive characteristics of men influencing their involvement in fertility treatment in Ejisu municipality in the Ashanti Region of Ghana?

1.6 Study Objectives

1.6.1 Main Objectives

To assess male's involvement in fertility treatment in eight communities in Ejisu municipality in the Ashanti Region of Ghana.

1.6.2 Specific Objectives

1. To assess the level of knowledge and attitude of married men on fertility treatment.

2. To assess challenges associated with male involvement in fertility treatment

3. To establish socio-demographic factors influencing male involvement in fertility treatment.

4. To establish reproductive characteristics of married men influencing their involvement in fertility treatment.

1.7 Profile of the Study

1.7.1 Brief Description of Ejisu Municipal Assembly

The Ejisu Municipal Assembly is amongst the seven Municipal assemblies in the Ashanti Region of Ghana, located in the South-Eastern part of the Region and shares boundaries with Kwabre, Afigya-Sekyere, Sekyere East and West to the North; Asante Akim North and South and Kumasi Metropolis to the West. From to the Ministry of Land Government And Rural Development, the capital city of the Municipal is Ejisu. From the Population and Housing Census in 2010, the municipal had a population of 170,471 and a growth rate of 2.7% per annum. Males comprise 68,648 (47.8%) while as the females represent 75,114 (52.2%). 72.5% of the population comprises those who live in the rural area. The municipal has a sex ration of 91.4 of which when compared to the regional average is 94. Christianity is the prevalent religion in the municipal (GSS, 2010).

1.7.2 Health Care delivery in the Municipality

There are 42 communities in the Municipal. For the purpose of Health Administration, the municipal is divided into two sub-municipals namely; Ejisu and Onwe-Kwaso. The total staff strength is 721. There are thirty-six (36) health facilities with Ninety-Three (93) outreach points. The distribution of the various types of health facilities in the municipal is described in table below:

Table 1.1: Health Facilities

TYPE OF FACILITIES	NUMBER-36
Hospital	10
Health Centers	3
Maternity Homes & Clinics	13
Community-based Health Planning & Services (CHPS) Compound	3
Total	29

Source: Ejisu Health Directorate, 2019

1.8 Scope of Study

The focus of this study is to assess males' involvement in fertility treatment in Ejisu municipality in the Ashanti Region of Ghana. Specifically, the study would assess the level of knowledge and attitude of married men on fertility treatment, the challenges associated with male involvement in fertility treatment, socio-demographic factors and reproductive characteristics of married men influencing males' involvement in fertility treatment.

1.9 Organization of the Report

Chapter one looks at the introduction which comprises of the background information, problem statement, significance of the study, conceptual framework, research questions, main objectives, specific objectives, profile of study area, scope of the study and organization of report.

Chapter two comprise of literature review covering the specific objectives of the study.

Chapter three focuses on methodology which includes the study type and design, study population, sample size and sampling method, study variables, pre-testing of data collection tool, data handling and data analysis, ethical consideration and assumptions of the study. Chapter four consists of the results of the study. Chapter five involves the discussion of the results we had from the chapter four quoting the relevant literature to confirm the findings of the study. Chapter six conclusively forms the conclusions and lists the recommendations made at the end of the study constructed from the results.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This section provides a thorough review of literature on male infertility, and the barrier to male's involvement in fertility treatment.

2.2 Knowledge and attitude of married men on fertility treatment

According to Foster et al., (2008), when one has knowledge on male infertility, it helps individual preserve his fertility. Knowledge of male infertility comprises of knowledge on the risk factors of male infertility and the available treatment. It also includes knowledge on prevention of male infertility and how to identify male infertility and among others (Sabarre et al., 2013). Poor knowledge on male infertility is in its self a

cause of infertility (Hampton & Mazza, 2013). There is evidence of poor knowledge about infertility among married men. In a study conducted by Geelhoed et al., (2002) the Brong-Ahafo region of Ghana, out of over two thousand respondents, 53.5% of the respondents could not identify the cause of infertility. A study by Umelo et al., (2015) reported that only 9.5% of their 400 respondents had good knowledge of infertility. Many participants were ignorant of the common causes of male infertility while only 9.5% had good knowledge of roots of male infertility (Fu et al., 2015). Dyer et al., (2005) observed that when couples are faced with infertility it was rarely attributed to men, due to the low knowledge of male infertility.

Meanwhile, educational level of males has also been reported to influence their knowledge about male factor infertility and the need to access fertility treatment services. Bunting and Boivin in 2008 reported that the highest percentage of men who had adequate knowledge about male fertility and its treatment had had a higher form of education in their lifetime (Bunting & Boivin, 2008).

Moreover, age and religion have been reported to influence the level of knowledge of married men on male infertility. A study by Geelhoed et al., (2002) established that women had better knowledge on infertility than men. In a cross-sectional survey conducted in a tertiary institution in the south-southern part of Nigeria, adequate knowledge of males in relation to infertility and its treatment was found to enhance the chances of infertile couple achieving pregnancy. Bassey et al., (2018) used structured questionnaires to evaluate the knowledge and perception of males and females towards infertility and fertility treatment. There was a 1:1 male to female ratio of 146 staff of the university in the south-southern part of Nigeria aged 21-30 years. Bassey et al., (2018) found out that more than 90% of the respondents had adequate knowledge on

infertility and the various available fertility treatments. Meanwhile, male respondents who had post-graduate and tertiary education were found to have better attitude and perception towards fertility treatment (p=0.05) (Bassey et al., 2018).

Hammarberg et al., (2017) searched the electronic records of Embase, Medline and PsycINFO to investigate the knowledge and attitude of men relating to fertility treatments, infertility and children with the use of relevant fertility keyword search terms. The findings of their study suggest that most men had inadequate knowledge about male fertility treatment.

Majority of the men in their study perceived that the ideal circumstances in having children and thus seek for fertility treatment is having completed studies, being in a secure and adoring marriage, having a dependable income (Hammarberg et al., 2017).

Furthermore, in a study conducted by Alabdrabalnabi et al., (2013) at the outpatient clinic of King Abdulaziz Medical City, they found out there was generally poor level of knowledge and attitude concerning infertility and fertility treatment among males. Meanwhile, some of the misconceptions about infertility among the males were that infertility are supernatural causes (58.8%), black magic (67.5%), and contraceptive pills (42.9%). Moreover, among the married men, respondents with infertility had more satisfactory attitudes towards fertility treatment medications. In this study, the alternative treatments adopted by the infertile males to improve fertility included engaging in physical exercises (39%), practicing Rugia (61%), quitting smoking (12%), and eating certain kinds of food (22%). Also, the fetish healer was conveyed as the primary and secondary preference for infertility treatment by 6.7% and 44.2% of the men (Abolfotouh et al., 2013).

In a cross-sectional study conducted on men in a United States primary care population on the knowledge and attitude of married towards infertility and its treatment, out of the 310 men presented in the study, 52% of them were very or fairly conversant with infertility with only 25% who were aware of the treatments available for infertility. Meanwhile, 21% had knowledge of surgery as a method of treatment of fertility whereas 35% had heard of medications as treatment for male infertility. Moreover, familiarity and awareness with infertility and its treatment was higher in men with high socioeconomic statuses. Also, Gerhard et al. (2014) found out that attitudes towards infertility varied by race with con-Caucasian men who saw infertility as a serios condition that can reduce the quality of life of a man and thus require immediate treatment.

In another cross-sectional study on the attitudes, myths and knowledge of Pakistani adult population towards infertility plus its treatment, Ali et al. (2011) found inadequate knowledge of infertility and its treatment among a substantial majority of the men. Moreover, in their study, only 25% were able to identify the stage at which infertility is pathological requiring treatment, with 53% who were misinformed that the use of OCPs, and IUCD may cause infertility. Superstitious beliefs such as evil forces and supernatural powers as the source of infertility were found to affect the attitude of the men towards fertility treatment. Meanwhile, seeking other fertility treatment remained the most popular option for only 28% of the men presented in this study.

2.3 Challenges Associated with Male Involvement in Fertility Treatment Services

The prevalence of infertility in the United States alone is estimated between 7% and 10% with 7.3 million couples seeking care for this condition (Gerhard et al., 2014). Despite the scientific advances in reproductive health and assisted reproduction, the

high cost of treatment, lack of access to service, and lack of awareness of treatment options make infertility an area especially prone to treatment disparities (Pachauri, 2014). Generally, people have different perceptions about infertility and male infertility. These perceptions shape their attitudes towards male fertility treatments. There is increase in the perception that male infertility is caused by the use of contraceptives especially female contraceptives (Vouking et al., 2014). Many men are of the contradictory views about the risk of infertility and tend to believe that problems in conceiving are more of a concern to the woman. A recent investigation found that while doctors were concerned about the extent of male infertility, many men were ignorant that they could have problems begetting a child (Tahvilzadeh et

al., 2016).

In a study conducted in some rural districts in Uganda on the male involvement in reproductive health services, overall narrowed awareness towards the particular role of men in reproductive health as well as lack of time were the major challengers that were thought to hinder married men in their involvement in issues related to fertility (Kabagenyi et al., 2014).

2.4 Socio-demographic and Reproductive Characteristics of Married Men Influencing Male Involvement in Fertility Treatment Services

Studies conducted on these topics are few hence not having adequate information on them.

In recent studies, socio-demographic parameters such as race or ethnicity, age, measures of socioeconomic status and religion have all been studied as barriers to male's involvement in fertility treatment services (Barrera et al., 2019). A recent systematic review of the Society for Assisted Reproductive Technology data suggested that *in vitro*

fertilization outcomes do vary by race, but a significant limitation of these data was incomplete race reporting in 35% of cases, and SES factors were not included in the analysis (Kim et al., 2015). In their study Smith et al., (2013) found that household income and education, but not race, were important predictors of seeking treatment among males. There was association between general level of education and participants' perceptions on infertility and treatment. Participants with higher levels of education gave more accurate responses and believed less in myths about infertility (Geelhoed et al., 2002). Educated participants gave more biologically correct explanations of causes, and subscribed to the modern explanation for infertility. It is believed that marital status, age and religion also affect the various perceptions about male infertility and the treatment services available for men (Mahey et al., 2018).

Furthermore, studies from states in the United States with legally-mandated insurance coverage of infertility show that racial disparities persist, suggesting that factors besides cost contribute to the disparities described (Vassilakopoulou et al., 2016). Drivers of disparities are certainly many, but patient factors, such as beliefs and awareness of infertility and its treatment remain poorly understood. Current studies show that men are less likely to seek services for infertility as likened to that of women (Sharma et al., 2017). Additionally, despite proposals from the American Society of Reproductive Medicine (ASRM), most men from infertile couples do not undergo any form of male evaluation (Riley & Jungheim, 2016). Much of the existing information on attitudes and treatment-seeking behaviors concerning to infertility is mostly based on data gathered from women (Stojanov et al., 2018). Data about men's beliefs and awareness of infertility and its treatment are thus limited and understudied.

Bishwajit et al., (2017) conducted a study on factors related with the involvement of males in reproductive health issues in Bangladesh, of the 1196 men involved in the study, only 40% were reported to be actively involved in fertility treatment services.

In a cross-sectional survey on the determinants of male involvement in reproductive healthcare services, the mean age of the men presented in the study was 34 years with a mean of 3.7 years of schooling. As at the time of their study, Shahjahan et al., (2013) found out that the main occupation of the respondents was rickshaw-pulling and driving for men within the urban cities whereas farming was the major occupation for the men in the rural areas. The findings of their study revealed a significant association of the bivariate analysis between education, occupation, income, access to media, and the number of living children and the involvement of the men in fertility treatment services.

CHAPTER THREE

METHODOLOGY

3.0 Introduction

This part of the study details the methods that were used in conducting the study.

3.1 Study Type and Design

The study was quantitative using cross-sectional study design. Cross-sectional studies are carried out at one time point or over a short period and are mostly used to estimate

the prevalence of aftermath of interest for a given populace, normally for the purposes of public health planning (Levin, 2006). This design is appropriate considering the limited timing of the study since cross-sectional study designs are take shorter duration and relatively inexpensive as compared with the other designs. The study was conducted between July 2019 and September 2019.

3.2 Study Population

The study population involved males in their reproductive ages of 18 and 60 years who were married men or co-habiting with their partners living in eight (8) communities in Ejisu Municipality of Ashanti Region Ghana.

Inclusion Criteria

1. All married men between eighteen years and sixty years.
2. Males who are between eighteen years and sixty years and are co-habiting with their female partners.

Exclusion Criteria

1. All females
2. Males who are married but less than 18 years and above 60 years

3.3 Sample Size and Sampling Method

3.3.1 Sample Size

A sample size of 423 people was calculated by using a general proportion of 50% with 95% Confidence interval and an allowable margin of error of 5%.

Using the sample size formula:

$N=z^2pq/d^2$ Where:

N=sample size

Z= is a constant, using 95% confidence level

From the statistical distribution table 95%= 1.96

P= estimated prevalence of adults with the characteristics under study

q= (1-p)

Using a general proportion of 50%, then Pq= (0.5)(1-0.5)

d= statistically tolerated error (0.05)

By substituting the values into the formula

$N = (1.96)^2(0.5)\ (0.5)/\ (0.05)^2$

=0.9604/0.0025

=384.16

N (sample size estimated) is 384

10% Non-response is 38.4

384.16+ 38.4= 422.56

Therefore, estimated total sample size is approximately 423 respondents.

3.3.2 Sampling Method

The respondents were selected from eight communities in Ejisu Municipality namely; are Krapa, Ejisu, Kwamo, Fumesua, Adarko- Jarchie, Akyeakrom, Tikrom and Besease. A two stage sampling technique was adopted for this study. At the stage one,

Ejisu Municipality was purposely selected. Adopting a stratified sampling technique, the municipal was clustered into four major clusters. A simple random method was used to select two communities from each cluster. Males who were married or co-habiting with their partners were purposively selected. At the secondary stage, simple random sampling technique was used to select proportional number of men who meet the inclusion from each of the clusters. This was done by spinning a pen at the centre of the community, the household where the pen's head pointed to became the starting point for the research team. This was done for all the eight communities. A total of 53 participants were recruited from each of the eight stratums.

3.4 Study Variables

Table 3.1: Study Variables

Objectives	**Dependent Variable**	**Independent Variable**	**Data Collection Method**	**Scale Of Measurement**	**Type Of Statistical Analysis**
1. To assess the level of knowledge and attitude of married men on fertility treatment.	Fertility treatment.	Knowledge and Attitudes.	Questionnaire	Nominal	Descriptive

2. To assess challenges associated with male involvement in fertility treatment as perceived by married men.	Male involvement in fertility	Challenges	Questionnaire	Nominal	Descriptive
3. To establish sociodemographic factors influencing male involvement in fertility treatment.	Male involvement in fertility	Sociodemographic factors of males	Questionnaire	Ordinal	Inferential
4. To establish reproductive characteristics of married men influencing their	Male involvement in fertility	Reproductive characteristics of married men	Questionnaire	Ordinal	Descriptive and Inferential
involvement in fertility treatment.					

Source: Author's Construct, 2019

3.5 Data Collection Technique and Tools

Primary data was gathered with the use of a structured questionnaire and was administered to consented people during data collection. The questionnaire was administered in English and translated in Twi language, a widely spoken and understood language in the municipal. The questionnaire comprised of questions on participant's socio-demographic factors, knowledge and attitude of married men on

fertility treatment, challenges associated with male involvement in fertility treatment services as perceived by married men and reproductive characteristics of the married men. Health inclined workers were trained as research assistants collected the data. Each eligible person within the clustered community was approached and asked for consent after which the questionnaire was administered.

3.6 Data Handling and Analysis

Data collected from the questionnaire was double-checked, cleaned, entered into an excel spreadsheet and then was transferred to the statistical software (STATA) 15. The descriptive data was presented using frequencies, percentages, tables and charts where necessary. Multivariate regression analysis was performed to establish sociodemographic factors and reproductive characteristics of married men influencing male involvement in fertility treatment. Statistical significance for all testing was set as 0.05.

3.7 Ethical Consideration

Ethical approval was sought from the Committee for Human Research, Populations and Ethics (CHRPE) with the reference number of CHRPE/AP/545/19 at Kwame Nkrumah University Of Science And Technology. In addition, a written consent was obtained from individuals who agree to be part of this study using a consent form. Participation in the study was voluntary, the rational and the procedures of the study were explained to the eligible participants with the aid of information sheet to be prepared in English Language and explained to the respondents in the local language Twi. Study participants were required not to provide their names during the interview and hence information received from the respondents will be strictly confidential.

3.8 Limitations

1. The population of married men or men co-habiting with their partners of each community was unknown, hence the sample size (423) was divided amongst the eight communities.
2. The study focused on using quantitative approach only instead of adopting also a qualitative approach to evaluate views of the participants.

CHAPTER FOUR

RESULTS

4.0 Introduction

This chapter describes the information gathered from the participants to assess the level of knowledge and attitude of married men on fertility treatment, and the challenges associated with male involvement in fertility treatment as perceived by married men. This chapter also provides information on socio-demographic factors and the reproductive characteristics influencing male involvement in fertility treatment.

4.1 Socio-Demographic Characteristics of Participants

Table 4.1 clearly shows that the mean age for the participants was 38.35 ± .48 where majority of the respondents (92.67%) were involved in monogamous marriage and the rest were involved in polygamous marriage.

In terms of the educational background of participants, more than half of the respondents (57.45%) had secondary/vocational education whereas 20.33% had primary education, 15.60% had tertiary education, and 6.62% had no formal education.

With respect to the employment status, majority of the respondents (64.07%) were self-employed while 33.33% of them were formally employed and 2.6% of them were unemployed.

It was identified that less than half of the respondents (40.66%) were involved in occupations such as masonry, electrician, painters, tailors, barbering where as 27.90% of them were involved in trading and 13.0% of them were public sector workers, 8.98% of them were involved in driving, 6.38% of them were farmers and 3.07% of them were involved in clerical duties.

With regards to the religion, majority of the respondents (82.03%) were Christians while 14.18% of them were Muslims, 2.13% of them were Traditionalists and 1.65% of them belonged to other religions.

Most of the respondents (37.83%) received a monthly salary of less than GH 600 while 34.99% of them received between GH 600 and 1,000, 25.30% of them received within GH 1,001 and 3,000 and 1.89% of them receive GH 3,000 and above.

Most of the participants, representing 63.59% belonged to the Asante ethnic group whilst 9.69%, 8.75%, 2.36%, 0.95% and 14.60% of them were Ewes, Fantes, Dagombas,, Nzemas and others respectively.

Table 4.1: Socio- Demographic Characteristics of Participants

Characteristic	Frequency (n = 423)	Percentage (%)
Age (Mean ± S.D)	38.35 ± .48	
Marriage Type		
Monogamy	392	92.67
Polygyny	31	7.33
Educational Background		
Primary	86	20.33
Secondary/ Vocational	243	57.45
Tertiary	66	15.60
No Formal Education	28	6.62
Employment Status		
Employed	141	33.33
Self-employed	271	64.07
Unemployed	11	2.6
Occupation		
Farming	27	6.38
Clerical	13	3.07

Public Service Worker	55	13.00
Trading	118	27.90
Driving	38	8.98
Other	172	40.66
Monthly Income		
Less 600	160	37.83
600-1000	148	34.99
1001-3000	107	25.30
3001 and above	8	1.89
Religion		
Christianity	347	82.03

Source: Author's survey, 2019

Cont. Table 4.1: Socio- Demographic Characteristics Of Participants Data

Islamic	60	14.18
Traditionalism	9	2.13
Other	7	1.65
Ethnic Group		
Asante	269	63.59
Fante	37	8.75
Ewe	41	9.69
Nzema	4	0.95
Dagomba	10	2.36
Other	62	14.66

Source: Author's survey, 2019

4.2 Level of Knowledge and attitude of married men on fertility treatment

4.2.1 Level of Knowledge on Fertility treatment

As detailed in Table 4.2, majority of the respondents (89.83%) agreed that untreated sexually transmitted diseases could affect fertility. Majority of the respondents (80.61%) were in agreement that frequent exposure to heat may affect sperm production. With regards to extreme exposure to environmental factors affecting fertility, majority of the respondents (73.52%) agreed that they do affect fertility. Majority of the respondents (73.52%) agreed that fertility in women declines with increasing age. Majority of the respondents (72.10%) agreed that drinking of alcohol affects fertility. Moreover, majority of the respondents (69.74%) agreed that anabolic steroids could influence fertility. With excess stress affecting fertility, majority of the respondents (64.30%) agreed it does affect fertility. Majority of the respondents (63.12%) believed that tobacco and marijuana affect fertility. More than half of the respondents (52.25%) agreed that fertility in men declines after 40 years and more than half (50.12%) knew the correct definition of infertility.

Table 4.2: General Knowledge on Fertility by Participants

Variables	**Yes (%)**	**No (%)**
Correct definition of Infertility	212 (50.12%)	211 (49.88%)
Fertility in men declines after 40 years.	221 (52.25%)	202 (47.75%)
Fertility in women declines with increasing age.	311 (73.52%)	112 (26.48 %)
Tobacco and Marijuana affect fertility.	267 (63.12%)	156 (36.88%)
Drinking of alcohol affects fertility.	305 (72.10%)	118 (27.90)

Extreme exposure to certain environmental factors can affect fertility.	311 (73.52%)	112 (26.48%)
Frequent exposure to heat and long driving hours on a hot seat may affect sperm production.	341 (80.61%)	82 (19.39%)
Anabolic steroids taken for bodybuilding or sporting purposes can affect fertility.	295 (69.74%)	128 (30.28%)
Mumps in early childhood can affect fertility in males.	137 (32.39%)	286 (67.61%)
Untreated sexually transmitted diseases can affect fertility.	380(89.83%)	43 (10.17%)
Male partner can contribute significantly to the state of childlessness among couples.	356 (84.16%)	67 (15.84%)
Excess stress contributes to fertility.	272 (64.30%)	125 (29.62%)

Source: Author's survey, 2019

4.2.2 Knowledge on Treatment Options By Participants.

From the detailed information on treatment options in Table 4.3, majority of the respondents (80.61%) agreed that they would undertake of regular examination and treatment of disorders that delay fertility. Majority of the respondents (70.38%) agreed they would use of homemade herbal concoction as treatment option for infertility while as majority of the respondents (73.05%) agreed that getting drugs over the counter would not be a treatment option for infertility. Majority of the respondents (68.79%) also agreed that the use of aphrodisiac drug or bitters would not a treatment option when struggling with infertility. Interestingly, majority of the respondent (61.70%) did not agreed to perform IVF is as a treatment option for infertility.

Table 4.3: Knowledge on Treatment Options by Participants

Variables	Yes (%)	No (%)
Use of homemade herbal concoction prescribed by the elderly people or a friend.	297 (70.38%)	125 (29.62%)
Undertaking regular test/examination and treatment of disorders that can delay fertility in the clinic or hospital.	341 (80.61%)	82 (19.39%)
Performing IVF (in vitro fertilization) or Opting for Surrogacy.	162 (38.30%)	261 (61.70%)
Use of an aphrodisiac drug or bitters to treat fertility.	132 (31.21%)	291 (68.79%)
Go to get drugs from the over the counter drugs store.	114 (26.95%)	309 (73.05%)

Source: Author's survey, 2019

4.2.3 Misconceptions on Infertility by Respondents

As shown in Table 4.4, majority of the respondents (84.16%) agreed that female partners are always the cause of childlessness in an infertile relationships. As in family planning been the cause of infertility, majority of the respondents (79.91%) agreed that it does. As a treatment option for infertility, majority of the respondents (61.23%) consented that they trust God's timing for their own children. More than half of the respondents (58.39%) believe that infertility is caused by witchcraft, curses, or other supernatural causes. Most of the respondents (81.32%) believe that there is the need for one to seek for fertility treatment though they can perform sexually well. Majority of the respondents (71.87%) didn't agree that a man is fertile if he maintains erection during sexual intercourse. As in a man not responsible for infertility if he had a child in the past, majority of the respondents (64.30%) were not in support of that.

Table 4.4: Misconceptions on Infertility by Participants

Variables	Yes (%)	No (%)
Family planning causes infertility.	338 (79.91%)	85 (20.09%)
A man is not the cause of infertility if he had a child in the past.	151 (35.70%)	272 (64.30%)
Man maintaining an erection during sexual intercourse with a woman means he is fertile.	119 (28.13%)	304 (71.87%)
Female partner is always the cause of childlessness in an infertile relationship.	356 (84.16%)	67 (15.84%)
Infertility is caused by witchcraft, curses, or other supernatural causes.	247(58.39%)	176 (41.61%)
Trusting God's timing for my own child for child when infertile.	259 (61.23%)	164 (38.77%)
No need for treatment because I can perform sexually	79 (18.68%)	344 (81.32%)

Source: Author's survey, 2019

4.2.4 Attitudes of Married Men on Fertility Treatment

As detailed in Table 4.5, majority of the respondents (96.45%) agreed that males should be part of the fertility treatment when experiencing infertility. Majority of the respondents (95.98%) believed that one should seek for medical help with regards to infertility and also from the table, majority of the respondents (85.11%) are of the view that they would consider infertility treatment as an option if they were unable to give birth naturally. Majority of the respondents (81.09%) agreed that they can have a child and may be infertile a year later. With regards to infertility been a concern to the man and the wife, majority of the respondents (82.03%) agreed that it should be a concern to both.

In seeking for fertility treatment together with wife, majority of the respondents (66.67%) agreed that they wouldn't seek for fertility treatment together. On the contrary, majority of the respondents (91.96%) agreed that cultural practices were not hindrance in seeking for fertility treatment for infertility in men. Majority of the respondents (84.40%) believe that religion is not a hindrance in seeking for fertility treatment for infertile men.

Table 4.5: Attitudes of Married Men on Treatment

Variables	**Yes (%)**	**No (%)**
Cultural practices as a hindrance in seeking for fertility treatment for infertility in men	34 (8.04%)	389 (91.96%)
Religion as a hindrance in seeking for fertility treatment for infertility in men	66 (15.60%)	357 (84.40%)
One should seek for medical help with regards to infertility	406 (95.98%)	17 (4.02%)
Males should be part of the fertility treatment when experiencing infertility	408 (96.45%)	15 (3.55%)
Would you consider infertility treatment as an option in case you are unable to give birth through natural means.	360 (85.11%)	63 (14.89%)

You can have a child and may be infertile a year later.	343 (81.09%)	80 (18.91%)
If No does it means you won't seek for fertility treatment together with your wife?	50 (66.67%)	25 (33.33%)
Infertility should be a concern to both man and wife	347 (82.03%)	76 (17.97%)

Source: Author's survey, 2019

As shown in Figure 4.1, more than half of the respondents (55.56%) agreed that infertility is firstly attributed to both couple whereas the rest of the respondents (38.30%) and (6.15%) believed that it is attributed to the wife and to the males respectively.

More than half of the respondents (55.56%) agreed that the couple should seek for fertility treatment while as the remaining respondents (37.12%) agreed that the wives should be the ones to seek for infertility treatment and the rest of the respondents (7.33%) believe that men should rather seek for infertility treatment.

Interestingly, majority of the respondents (89.19%) agreed that infertility should be the concern of wife whereas the rest of the respondents (10.81%) agreed that infertility should be the concern of husbands.

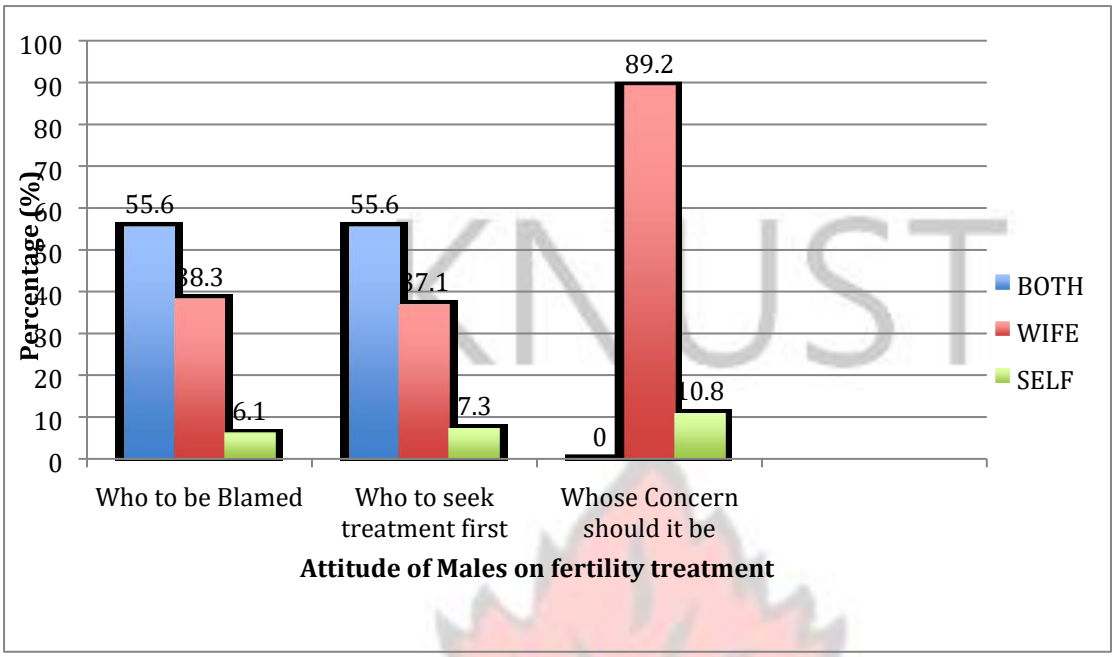


Figure 4.1 Attitudes of Married Men on Treatment

Source: Author's survey, 2019

4.3 Challenges Associated With Male Involvement in Fertility Treatment

As detailed in table 4.6, majority of the respondents (93.62%) agreed that they wouldn't want someone else's sperm cell to be used to impregnate their wives in case it is been provided as a treatment option for fertility. Majority of the respondents (76.83%) agreed that the treatment is expensive likewise majority of the respondents (74.23%) agreed that they are unaware of the treatment options for infertility. For it been stigmatizing for men to seek for fertility treatment, majority of the respondents (61.94%) agreed that it was while as the majority of the respondents (60.99%) believe that the issue of unavailability or poor access to quality fertility treatment were the challenges confronting males' involvement in fertility treatment.

Table 4.6: Challenges Associated With Male Involvement in Fertility Treatment

Variables	Yes (%)	No (%)
Stigmatizing for men to seek for fertility treatment.	262 (61.94%)	161 (38.06%)
Difficult to discuss emotions and difficulties with someone about the issue of infertility	174 (41.13%)	249 (58.87%)
Afraid of what the diagnosis will be.	172 (40.66%)	251(59.34%)
It is expensive.	325 (76.83%)	98 (23.17%)
It is against my beliefs.	69 (16.31%)	354 (83.69%)
The investigation procedures scare me away.	117(27.66%)	306 (72.34%)
Fear that my diagnosis may be discussed amongst workers and not made confidential.	136 (32.15%)	287 (67.85%)
Women are given preferential treatment than us.	148 (34.99%)	275 (65.01%)
I don't want someone else's sperm cell to be used to impregnate my wife.	396 (93.62%)	27 (6.38%)
Unavailability or poor access to quality fertility treatment.	258 (60.99%)	165 (39.01%)
Unawareness of treatment options for fertility.	314 (74.23%)	109 (25.77%)

Source: Author's survey, 2019

4.4 Socio-demographic Factors Influencing Males' Involvement in Fertility Treatment

In univariate and multivariate regression analysis, the results depict that sociodemographic characteristics such as marriage type, level of education, employment status, occupation, monthly income, religion, and ethnic group were more

likely to be determinants for males' involvement in fertility treatment as indicated in Table 4.7.

For instance, married men in polygamous marriages were 6 times more likely to be involved in a fertility treatment than married men in monogamous marriages (Adjusted OR= 6.210, 95%CI = 3.153-7.232). Also, married men with primary and tertiary education were 49% less likely (Adjusted OR = 0.517, 95%CI = 0.319-0.819) and 41% less likely (Adjusted OR = 0.597, 95%CI = 0.153-0.732) to be involved in fertility treatment respectively as compared to those with secondary education. Again, married men who were employed were 3 times more likely (Adjusted OR = 3.331, 95%CI. = 2.193-3.304) to be involved in fertility treatment as compared with those who are self-employed. Moslems were 4 times more likely (Adjusted OR = 4.036, 95%CI. = 1.420-4.304) to be involved in fertility treatment as compared to Christians. Finally, traditionalists were 67% less likely (Adjusted OR = 0.331, 95%CI. = 0.193-0.364) to be involved in fertility treatment as compared to Christians.

Table 4.7: Socio-demographic factors influencing male involvement in fertility treatment

Variables	Univariate Logistic Regression			Multivariate Logistics Regression		
	Odd Ratio	**95% Confidence Interval**	**p-value**	**Adjusted Odd Ratio**	**95% Confidence Interval**	**p-value**
Marriage Type			[0.00]			0.00
Monogamy	Ref			Ref		
Polygyny	6.194	(3.114 – 7.201)	**0.02***	6.210	(3.153 – 7.232)	**0.04***
Highest Level of Education			[0.01]			
Secondary/Vocational	Ref			Ref		
Primary	0.392	(0.113 – 0.418)	**0.01***	0.517	(0.319 – 0.819)	**0.02***
Tertiary	0.429	(0.332 – 0.720)	**0.01***	0.597	(0.153 – 0.732)	**0.02***
No formal Education	0.448	(0.291 – 0. 523)	0.21	0.369	(0.297 – 0.380)	0.19
Employment Status			[0.04]			
Self-employed	Ref			Ref		
Employed	4.118	(2.097 – 4.230)	**0.00***	3.331	(2.193 – 3.364)	**0.00***

Unemployed	2.119	(1.951 – 2.363)	0.29	2.483	(1.973 – 2.697)	0.46
Occupation			[0.09]			
Other	Ref			Ref		
Farming	1.645	(0.332 – 1.702)	0.32	1.697	(0.991 – 2.453)	0.91
Clerical	2.866	(0.913 – 3.818)	0.46	2.817	(0.510 – 3.619)	0.84
Public Service Worker	0.284	(0.091 – 1.323)	**0.04***	0.369	(0.197 – 1.005)	**0.03***
Trading	0.403	(0.042 – 1.007)	**0.02***	0.569	(0.338 – 1.702)	**0.01***
Driving	1.918	(0.137 – 2.064)	0.17	2.481	(0.986 – 2.412)	0.13
Monthly Income			[0.12]			
Less than 600	Ref			Ref		
600 – 1,000	3.268	(1.305 – 3.677)	0.12	3.309	(1.318 – 3.508)	0.56
1001 – 3,000	5.943	(3.229 – 6.048)	0.09	6.021	(2.998 – 6.587)	0.72
3001 and above	0.121	(0.058 – 1.388)	**0.04***	0.345	(0.147 – 0.446)	**0.04***
Religion			[0.03]			
Christianity	Ref			Ref		

Islamic	4.022	(3.041 – 5.117)	**0.02***	4.036	(1.420 – 4.304)	**0.00***
Traditionalism	0.118	(0.097 – 0.230)	**0.00***	0.331	(0.193 – 0.364)	**0.02***
Other	0.194	(0.114 – 0.201)	0.19	0.210	(0.153 – 0.232)	0.09
Ethnic group			[0.29]			0.10
Asante	Ref			Ref		
Fante	0.329	(0.144 – 0. 419)	0.35	0.344	(0.291 – 0.339)	0.09
Ewe	0.648	(0.332 – 0.720)	**0.01***	0.697	(0.153 – 0.232)	**0.00***
Nzema	0.792	(0.413 – 0.818)	**0.02***	0.817	(0.319 – 0.819)	**0.00***
Dagomba	0.448	(0.291 – 0. 523)	0.48	0.369	(0.297 – 0.380)	0.11
Other	0.564	(0.109 – 0.694)	0.27	0.572	(0.319 – 0.619)	0.19

*p < 0.05; OR significant at 95% CI; OR (95% CI), unadjusted odds ratio from simple logistic regression with accompanying 95% confidence interval; aOR adjusted odds ratio determined using multiple regression. –n2 log likelihood = 144.231; Cox & Snell R^2 = 0.170; Nagelkerke R^2 = 0.314.

Source: Author's survey, 2019

4.5 Reproductive Characteristics of Married Men Influencing Males' Involvement in Fertility Treatment

Figure 4.2 below clearly depicts that majority of the respondents (79.20%) had their wives ever been pregnant for them. Also, majority of the respondents (61.47%) had never been pregnant with another woman as detailed in figure 4.3.

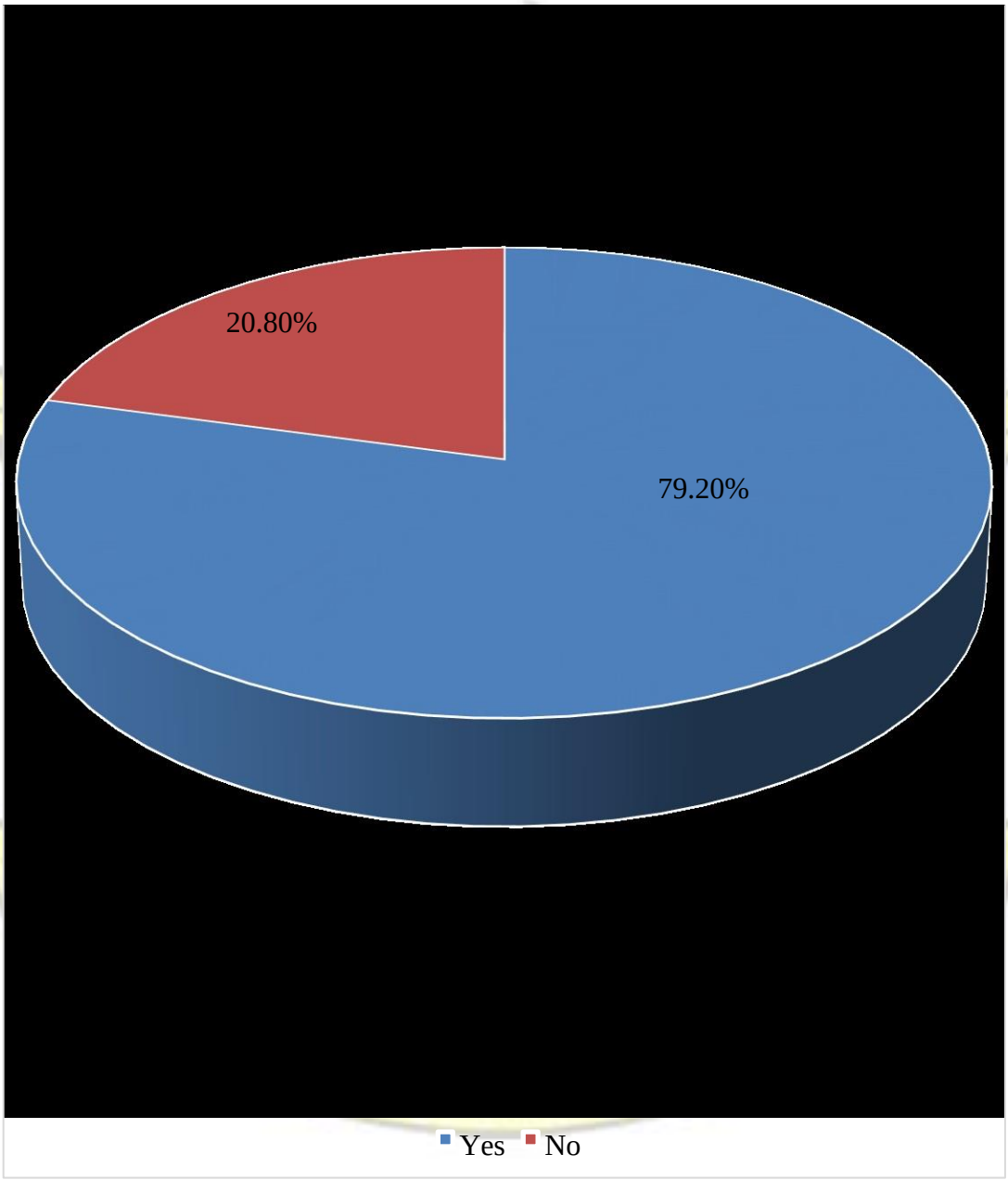


Figure 4.2 Married men ever been prengant with wife

Source: Author's survey, 2019

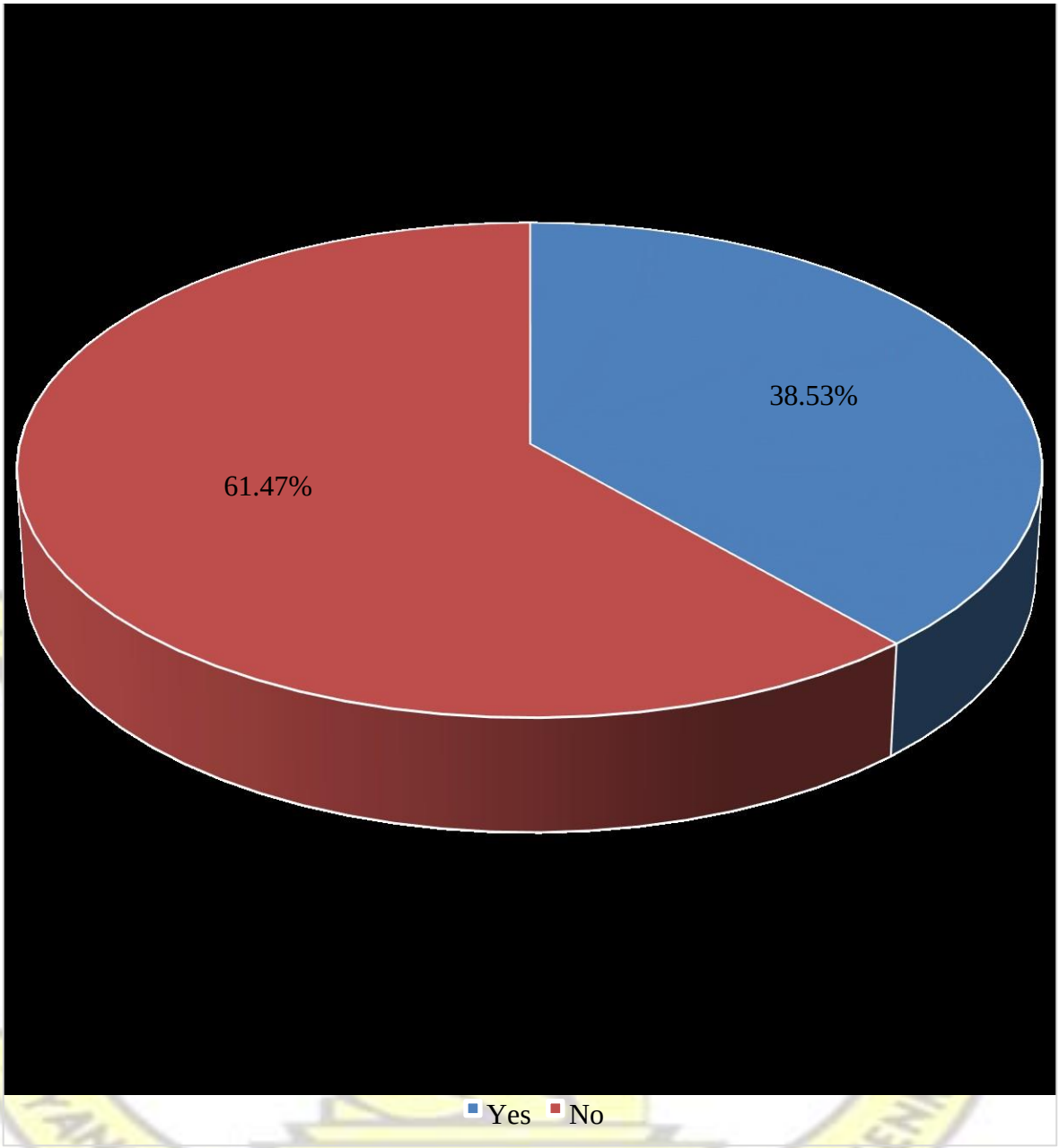


Figure 4.3 Married men ever been prengant with another woman

Source: Author's survey, 2019

Table 4.8 below shows that more than half of the respondents (56.26%) had 1-3 pregnancies, whereas the rest 18.91%, 3.55%, 0.95%, and 20.33% had 4-6 pregnancies, 7-9 pregnancies, above 9 pregnancies and no pregnancy respectively with their wives.

Majority of the respondents (60.43%) had no pregnancy with any woman whereas 33.41%, 5.69%, and 0.47% of the men had 1-3, 4-6 and above 9 pregnancies respectively with other woman or women.

More than half of the respondents (55.32%) had 1-3 children with their wives while 16.08% and 0.47% of them had 4-6 and above 9 children with their wives respectively and 26% of the respondents had no child.

With respect to the number of children with other women, majority of the respondents (66.43%) had no child with other women whereas 31.91%, 1.42% and 0.24% had 1-3, 4-6, and above 9 children respectively with other women.

Most of the respondents (49.17%) had 1-3 children, where as 24.59%, 2.84% and 0.95% of them had 4-6, 7-9 and above 9 children, respectively and 22.46% of the respondents had no child.

With regards to the number of desired children the respondents wished to have, most of them representing 48.94% desired to have 4-6 children, while 29.08%, 9.22% and 12.29 % of them had 1-3, 7-9 and above 9 children, respectively and 0.47% of them desired not to have a child in their life.

Table 4.8: Reproductive Characteristics of Married Men

Characteristics	1-3	4-6	7-9	Above 9	None
Number of pregnancies with wife.	238 (56.26%)	80 (18.91%)	15 (3.55%)	4 (0.95%)	86 (20.33%)
Number of pregnancies with another woman or other women.	141 (33.41%)	24 (5.69%)	0	2 (0.47%)	255 (60.43%)
Number of children with wife.	234 (55.32%)	68 (16.08%)	9 (2.13%)	2 (0.47%)	110 (26.0%)
Number of children with another woman or other women.	135 (31.91%)	6 (1.42%)	0	1 (0.24%)	281 (66.43%)
Total number of children.	208 (49.17%)	104 (24.59%)	12 (2.84%)	4 (0.95%)	95 (22.46%)
Desired number of children.	123 (29.08%)	207 (48.94%)	39 (9.22%)	52 (12.29%)	2 (0.47%)

Source: Author's survey, 2019

In univariate and multivariate logistic regression, the results depicts that reproductive characteristics such as married men whose wife had ever been pregnant, other who have impregnated other women and number of children were more likely to be determinants for males' involvement in fertility treatment as indicated in Table 4.9. For instance, married men who have not been able to impregnate their wives were 9 times more likely to be involved in fertility treatment (Adjusted OR= 9.493, 95%CI = 3.178-9.544) as compared to those who have ever impregnated their wives. Also, married men who

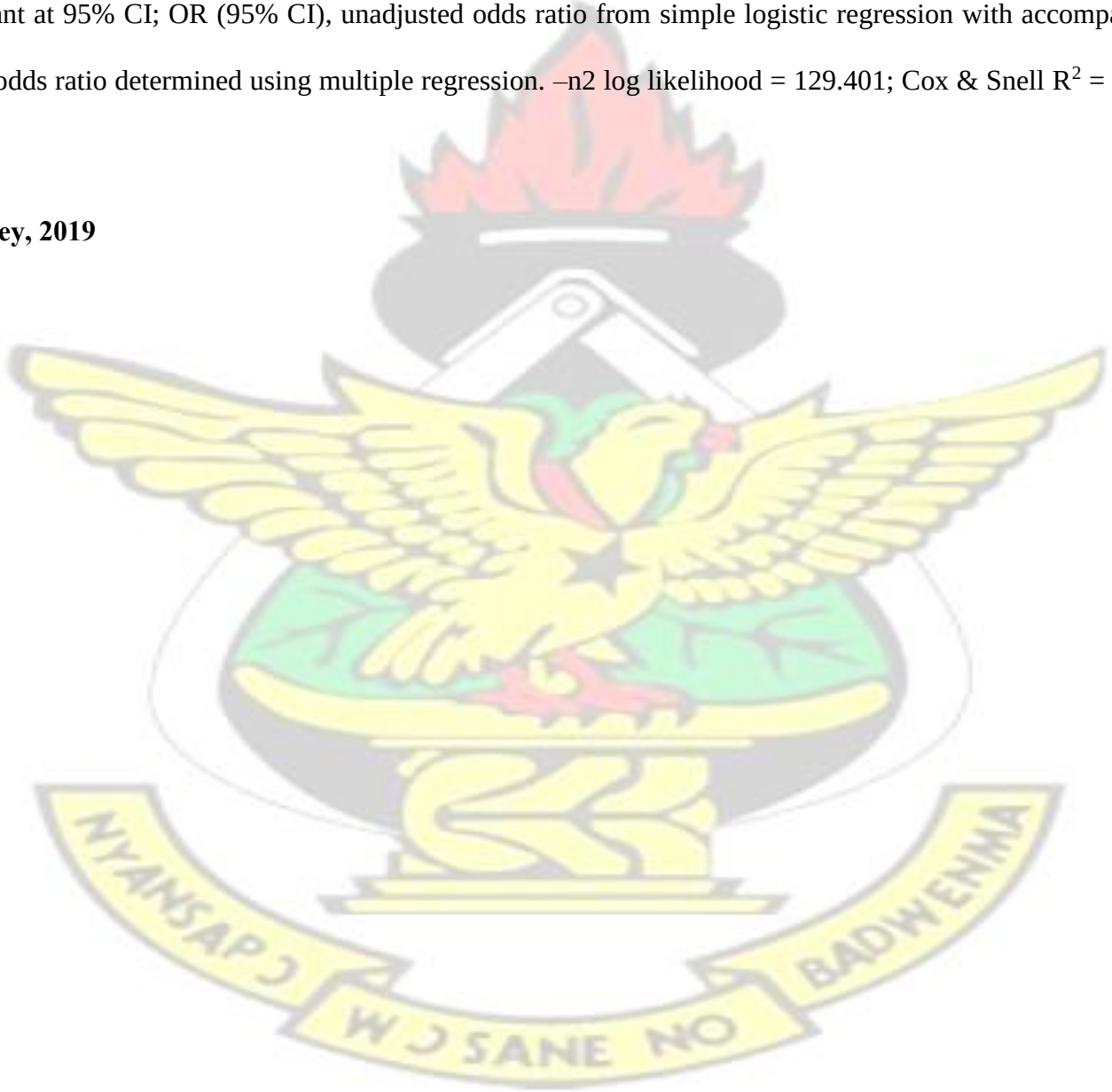
have impregnated other women were 0.659 less likely (Adjusted OR = 0.659, 95%CI = 0.236-0.806) to be involved in fertility treatment as compared to those who have not impregnated another woman.

Table 4.10: Reproductive characteristics of men influencing involvement fertility treatment

Variables	Univariate Logistic Regression			Multivariate Logistic Regression		
	Odd Ratio	**95% Confidence Interval**	**p-value**	**Adjusted Odd Ratio**	**95% Confidence Interval**	**p-value**
Wife Ever been Pregnant			[0.00]			
Yes	Ref			Ref		
No	9.286	(4.142 – 9.310)	**0.00***	9.493	(3.178 – 9.544)	**0.00***
Ever been Pregnant with other women			[0.00]			
No	Ref			Ref		
Yes	0.343	(0.211 – 0.475)	**0.01***	0.659	(0.236 – 0.806)	**0.02***
Number of Children			[0.11]			
1-3	Ref			Ref		
4-6	0.291	(0.146 – 0.337)	**0.02***	0.849	(0.416 – 0.911)	**0.02***
7-9	0.486	(0.215 – 0.510)	0.31	0.390	(0.256 – 0.422)	0.57
Above 9	0.258	(0.191 – 0.316)	0.22	0.381	(0.242 – 0.404)	0.69
None	0.340	(0.271 – 0.410)	0.43	0.449	(0.318 – 0.472)	0.18

*p < 0.05; OR significant at 95% CI; OR (95% CI), unadjusted odds ratio from simple logistic regression with accompanying 95% confidence interval; aOR adjusted odds ratio determined using multiple regression. –n2 log likelihood = 129.401; Cox & Snell R^2 = 0.185; Nagelkerke R^2 = 0.298

Source: Author's survey, 2019



CHAPTER FIVE

DISCUSSIONS

5.1 Demographic Characteristics of Participants

The mean age for participants was 38.35 ± 0.48 with most of the participants involved in monogamous marriage. Erickson (1994) labels age groupings into young adulthood (20-30 years), middle adulthood (31-45 years), and late adulthood (46 years and above). According to these age classifications, the study maintains that most of the respondents were in their middle adulthood stages. Most of the participants have had some level of formal education ranging from primary to tertiary education. The formal education obtained by the participants guaranteed their perceived heightened knowledge in fertility issues. Moreover, the participants were engaged in their own businesses such as farming, trading, driving, masonry, carpentry, tailoring, and painting. Majority of the respondents are in the informal sector because more than half of the participants have their education up to the secondary level and most of them make an income within the range of 600-1000 cedis.

5.2 Level of Knowledge and Attitude of Married Men on Fertility Treatment

In this study, it was identified that participants had good knowledge on infertility. Participants agreed to the fact that fertility declines with age, consumption of alcohol and anabolic steroids, untreated sexually transmitted diseases, excess stress, frequent and extreme exposure to hot conditions. However, participants had poor knowledge with the fact that the contraction of mumps at early childhood could affect the fertility in men. Findings are similar to that identified by Bassey et al., (2018) who found that married men have good knowledge in fertility issues. On the contrary, findings are inconsistent with that identified by Geelhoed et al., (2002), Umelo et al., (2015), and

Fu et al., (2015) who recorded that 46.5%, 9.5%, and 9.5%, respectively have some level of knowledge on infertility. However, the findings were also inconsistent with that of Hammaberg et al., (2017). The disparity within the findings can be attributed to urbanization, effectiveness of public health units, and formal education levels of individuals (Bunting & Boivin, 2008). Lack of knowledge on male infertility is in its self a cause of infertility (Hampton & Mazza, 2013). The knowledge gap in these was particularly in relation to the impact of age on fertility, and fertile time of menstrual cycle. Having knowledge on male infertility goes a long way to helping individuals preserve their fertility. Good knowledge on male infertility encourages for instance lifestyle changes and taking precaution to prevent male infertility (Foster et al., 2008).

With regards to treatment options for fertility, participants had good knowledge on the treatment option to undertake when facing infertility. Majority of the respondents agreed to go to the hospital to seek for treatment when battling with infertility.

In as much as most of them desired to go to the hospital, most of the participants desired to use homemade concoction if the hospital treatment was expensive or ineffective. Most of the participants were not in agreement to opt for IVF or surrogacy as a treatment option. Findings are similar with that identified by Alabdrabalnabi et al., (2013) where married men had more satisfactory attitudes towards fertility treatment medications. However, the fertility treatment options usually adopted by married men are physical exercises, practicing rugia, quitting smoking, and eating certain kinds of food, attending to fetish priest (Abolfotouh et al., 2013). Since infertility in males could be caused and aggravated by psychological stresses, psychological interventions are valuable treatment options (Patel et al., 2016).

Interestingly, the best treatment option for infertility is to visit a qualified health facility to identify the actual cause of the infertility (WHO, 2017).

One misconception on infertility was majority of the participants were of the view that family planning caused infertility. This finding is consistent with that of Apanga & Adam, (2015) and Tabong & Adongo, (2013) who found misconception on family planning practices, as a cause of infertility was a major reason for low patronage of family planning practices. This finding may be due to the limited and inadequate knowledge on family planning methods among Ghanaian men. Other misconceptions identified by the participants on infertility were that, the usage of family planning methods by the females does cause infertility amongst couples. Witchcraft, curses and other supernatural causes were also identified as a misconception toward infertility among couples. Moreover, participants had the misconception those female partners were always the cause of infertility amongst couple. As a treatment option for fertility, the participants believed that treatment is expensive; hence they are going to wait on God for his own timing for pregnancy.

This finding is consistent with finding of Alabdrabalnabi et al., (2013) and Ali et al., (2011), which identified supernatural and black magic issues as the major causes of infertility among couples. Also, in agreement with our findings was a report from Apanga & Adam, (2015) who found that some men in the Northern region of Ghana were of the view that males' infertility was as a result of by sacrificing one's manhood to the gods. Superstitious beliefs such as evil forces and supernatural powers as the source of infertility affect the attitude of the men towards fertility treatment. Therefore, these misconceptions are likely to increase the infertility problems among married men since infertility is purely a health condition and do not have any attachments with supernatural and black magic issues (Hampton & Mazza, 2013). This trend of

associating infertility to spirituality and black magic are significantly conspicuous within the African regions than the European regions.

In this study, participants agreed that infertility is the problem of both couples and are poised to seeking for fertility treatment when they have difficulties with fertility irrespective of their religion and cultural practices. However, they agreed that they wouldn't attend seek for fertility treatment together with their spouses since infertility is the concern of wives. Findings are consistent with that identified by Gerhard et al., (2014) which identified that married men feel concerned with infertility and will visit the hospital to seek for treatment.

5.3 Challenges Associated with Males' Involvement in Fertility Treatment

Married men were confronted with the issues of stigmatization, expensiveness of fertility treatment, not wanting someone's sperm to be used to impregnate their wives, unavailability of poor access to quality fertility treatment, and unawareness of treatment options for fertility as the major hindrances toward their involvement in fertility treatments. Findings are similar to that identified in the study carried out by Pachauri (2014) which identified that high cost of treatment, lack of access to service, and lack of awareness of treatment options make the seeking of infertility treatment a difficult situation for married men. However, other challenges identified in another study revealed that lack of awareness towards the particular role of men in reproductive health as well as lack of time were the major hindrances to married men involvement in fertility treatments (Kabagenyi et al., 2014). The costs of infertility treatments consist of direct costs including physician and nurse's services, medications, laboratory tests, ultrasound scans, the ART procedure itself, hospital charges and administrative costs. Immediate indirect costs are losses of working hours and travel costs and are generally

regarded as low. However, much more significant possible indirect costs come from hospitalization fees of couples as a result of infertility treatments (Ata & Seli 2010).

5.4 Socio-demographic Factors Influencing Males' Involvement in Fertility Treatment

A significant relationship existed between males' involvement in fertility treatment and marriage type, level of education, employment status, and religion. Therefore, it can be deduced that the type of marriage, level of education, employment status, and religious affiliation of an individuals has an influence on the person's involvement in fertility treatment. Similar findings were identified in the studies carried out by (Tao et al., 2012; Kim et al., 2015 & Barrera et al., 2019) which identified that type of marriage, level of education, employment status, and religious affiliation of an individuals as significantly related to the person's involvement in fertility treatment. From our findings, higher level of education did not increase males' involvement in fertility treatment. This finding is contrary to the findings of Anderson et al., (2009) who found that education increased health-seeking behavior including reproductive health among men. Individuals with higher levels of education were more likely to give accurate responses and believed less in myths about infertility (Geelhoed et al., 2002). Educated participants gave more biologically correct explanations to causes and subscribed to the modern explanation for infertility. It is believed that marital status, age and religion also affect the various perceptions about male infertility and the treatment services available for men (Mahey et al., 2018).

5.5 Reproductive Characteristics of Married Men Influencing Males'

Involvement in Fertility Treatment

A significant relationship was found to exist between males' involvement in fertility treatment and wife ever been pregnant and other woman ever been pregnant for them. Men whose wives have never been pregnant were found to be nine times more likely to seek fertility treatment than men with children. This finding is consistent with that of Kessler et al., (2013) who found that, men without children attached more importance to reproductive health behaviors compared to men with children. Men whose wives do not have children commonly perceive that they may be responsible for their childlessness and therefore seek reproductive health treatments and/or become conscious of matters pertaining to reproductive health.

The number of children the men had was seen not to be significantly influence by their involvement in fertility treatment. In line with this findings were the results of Langdridge et al., (2005) who found that only age and length of marriage of men were able to influence their involvement and attitudes towards reproductive health. The reason for this finding is that there have been considerable changes in childbearing decision making in the 21st century, due to rise in contraceptive use and economic downturn in most countries, including Ghana.

CHAPTER SIX

CONCLUSION AND RECOMMENDATIONS

6.0 Introduction

This chapter presents a conclusion based on the findings identified in this study as juxtaposed with the objectives of this study. Moreover, recommendations are outlined

with recourse to the findings of this study in order to provide a holistic approach to males' involvement in fertility treatment.

6.1 Conclusion

Socio-Demographic Characteristics

The mean age for the participants was 38.35 ± .48. Also, majority of the respondents were involved in monogamous marriage, had obtained formal education, were selfemployed, Christians and were Asantes.

Level of Knowledge and Attitude of Married Men on Fertility Treatment

Majority of the respondents' level of knowledge on the fact that fertility decline with age, consumption of alcohol and anabolic steroids, untreated sexually transmitted diseases, excess stress, frequent and extreme exposure to hot conditions was high. However, most of the respondents had low level of knowledge on the influence of the contraction of mumps at early childhood on fertility in men. Also, majority of them attitude towards men involving in fertility treatment was good as they believed that fertility treatment is a responsibility of both couples.

Challenges Associated with Males' Involvement in Fertility Treatment

The challenges confronting males' involvement in fertility treatment were stigmatization, expensiveness of fertility treatment, not wanting someone's sperm to be used to impregnate their wives, unavailability of poor access to quality fertility treatment, and unawareness of treatment options for fertility.

Socio-demographic Factors Influencing Males' Involvement in Fertility

Treatment

Socio-demographic characteristics of married men such as marriage type, level of education, employment status, occupation, monthly income, religion and ethnic group influenced males' involvement in fertility treatment.

Reproductive Characteristics of Married Men Influencing Males' Involvement in Fertility Treatment

Reproductive characteristics of married men such as ever been able to impregnate their wives, ever been able to impregnate other woman and number of children influenced their level of involvement in fertility treatment.

6.2 Recommendations

The following recommendations are proffered based on the results of the study;

1. Men should seek for infertility treatment together with their wives so that it can be wholly managed for the couple since infertility is not the problem of the woman but of the couple.

2. Fertility treatments pose a lot of financial stress on males and their families.

   The Ministry of Health and the Ministry of Finance should implement programs that can take care of some of the cost of fertility treatment. Health insurance should be made to cover most of the cost incurred during fertility management. Private fertility hospitals should be made to standardize their charges to prevent extremely exorbitant charges for fertility services rendered by the Ministry of Health.

3. Management of the Ejisu Municipal Health Directorate should have collaboration with the district assembly members, staff of the hospitals and

clinics in the municipal to provide educational forum biannually for the men in the various communities on male infertility and address the concerns of men.

4. Further study should be conducted to evaluate the predictors' of males' involvement in fertility treatment among single men with the use of a qualitative study design.
5. Health education within religious organizations should be encouraged by the Leaders of the Health Promotion Team in the municipal, Ashanti region and Ghana as a whole. This education should be geared towards the explanation of scientific assisted reproduction and alternative reproductive methods. This will help reduce resistance towards sperm donation, intra-uterine fertilization and adoption. Also, religious beliefs on causes of infertility not based on medical examination can be reduced with health programs targeted at faith-based organizations.

REFERENCES

Abolfotouh, M.A., Alabdrabalnabi, A.A., Albacker, R.B., Al-Jughaiman, U.A. and Hassan, S.N. 2013. Knowledge, attitude and practices of infertility among Saudi couples. *International journal of general medicine*, *6*, p.563.

Aborigo, R.A., Allotey, P. and Reidpath, D. 2013. Contextualizing maternal morbidity through community case reviews. *J Women's Health Care*, *2*, p.e112.

Adongo, P.B., Tapsoba, P., Phillips, J.F., Tabong, P.T.N., Stone, A., Kuffour, E., Esantsi, S.F. and Akweongo, P. 2013. The role of community-based health planning and services strategy in involving males in the provision of family

planning services: a qualitative study in Southern Ghana. *Reproductive health*, *10*(1), p.36.

Agarwal, A., Mulgund, A., Hamada, A. and Chyatte, M.R. 2015. A unique view on male infertility around the globe. *Reproductive biology and endocrinology*, *13*(1), p.37.

Alasmari, W., Edris, F., Albar, Z., Eskandar, M., Sultan, C., Alboush, A. and Alasmari, A. 2018. Comparable Reproductive Outcomes of ICSI for Couples with Unexplained Infertility and Couples with Male Factor Infertility. *Middle East Fertility Society Journal*, *23*(4), pp.393-398.

Ali, S., Sophie, R., Imam, A.M., Khan, F.I., Ali, S.F., Shaikh, A. and Farid-ulHasnain, S. 2011. Knowledge, perceptions and myths regarding infertility among selected adult population in Pakistan: a cross-sectional study. *BMC Public Health*, *11*(1), p.760.

Aitken, R.J. and Sawyer, D. 2003. The human spermatozoon—not waving but drowning. In *Advances in male mediated developmental toxicity* (pp. 85-98).

Anderson, J.E., Farr, S.L., Jamieson, D.J., Warner, L. and Macaluso, M. 2009. Infertility services reported by men in the United States: national survey data. *Fertility and sterility*, *91*(6), pp.2466-2470.

Apanga, P.A. and Adam, M.A. 2015. Factors influencing the uptake of family planning services in the Talensi District, Ghana. *Pan African Medical Journal*, *20*(1).

Autilio, C.H.I.A.R.A., Morelli, R., Milardi, D.O.M.E.N.I.C.O., Grande, G.I.U.S.E.P.P.E., Marana, R.I.C.C.A.R.D.O., Pontecorvi, A., Zuppi, C.E.C.I.L.I.A. and Baroni, S. 2015. Soluble urokinase-type plasminogen activator receptor as a putative marker of male accessory gland inflammation.

Andrology, *3*(6), pp.1054-1061.

Barrera, C.M., Kawwass, J.F., Boulet, S.L., Nelson, J.M. and Perrine, C.G. 2019. Fertility treatment use and breastfeeding outcomes. *American journal of obstetrics and gynecology*, *220*(3), pp.261-e1.

Bassey, I.A.E., Isiwele, E.M., Omotoso, A., Ushie, E.D. and Ekwere, P.D. 2018 Knowledge, Perceptions and Attitudes towards Male Infertility: A Cross Sectional Survey in a Tertiary Institution in South-Southern Nigeria. *Age*, *20*, pp.21-30.

Bawah, A.A. 2002. Spousal communication and family planning behavior in Navrongo: a longitudinal assessment. *Studies in Family Planning*, *33*(2), pp.185-194.

Belyaev, I., Dean, A., Eger, H., Hubmann, G., Jandrisovits, R., Kern, M., Kundi, M., Moshammer, H., Lercher, P., Müller, K. and Oberfeld, G. 2016. EUROPAEM EMF Guideline 2016 for the prevention, diagnosis and treatment of EMF-related health problems and illnesses. *Reviews on environmental health*, *31*(3), pp.363397.

Bishwajit, G., Tang, S., Yaya, S., Ide, S., Fu, H., Wang, M., He, Z., Da, F. and Feng, Z. 2017. Factors associated with male involvement in reproductive care in Bangladesh. *BMC public health*, *17*(1), p.3.

Boafo, I.M. 2010. Threatened identities: the experience of HIV-mothers in sub-Saharan Africa. *Legon Journal of Sociology*, *4*(1), pp.55-74.

Durairajanayagam, D., 2018. Lifestyle causes of male infertility. *Arab journal of urology*, *16*(1), pp.10-20.

Geelhoed, D.W., Nayembil, D., Asare, K., Van Leeuwen, J.S. and Van Roosmalen, J. 2002. Contraception and induced abortion in rural Ghana. *Tropical Medicine & International Health*, *7*(8), pp.708-716.Gerhard, R.S., Ritenour, C.W., Goodman, M., Vashi, D. and Hsiao, W., 2014. Awareness of and attitudes towards infertility and its treatment: a cross-sectional survey of men in a United States primary care population. *Asian journal of andrology*, *16*(6), p.858.

Ghana. Statistical Service, 2014. *2010 population and housing census report*. Ghana Statistical Service.

Gyasi-Sarpong, C.K., Maison, P.O.M. and Koranteng, A.K. 2017. The pattern of male infertility in Kumasi, Ghana. *African Journal for Infertility and Assisted Conception*, *2*(1), p.3.

Fledderjohann, J.J., 2012. 'Zero is not good for me': implications of infertility in Ghana. *Human Reproduction*, *27*(5), pp.1383-1390.

Frost, J.J., Sonfield, A., Zolna, M.R. and Finer, L.B. 2014. Return on investment: a fuller assessment of the benefits and cost savings of the US publicly funded family planning program. *The Milbank Quarterly*, *92*(4), pp.696-749.

Hammarberg, K., Collins, V., Holden, C., Young, K. and McLachlan, R. 2017. Men's knowledge, attitudes and behaviours relating to fertility. *Human Reproduction Update*, *23*(4), pp.458-480.

Hiadzi, R.A. and Woodward, B.J. 2019. Infertility treatment decision-making in Ghana and contestations that may arise: a prospective sociological study. *Global Reproductive Health*, *4*(2), p.e32.

Jarow, J.P., Sharlip, I.D., Belker, A.M., Lipshultz, L.I., Sigman, M., Thomas, A.J.,

Schlegel, P.N., Howards, S.S., Nehra, A., Damewood, M.D. and Overstreet, J.W. 2002. Best practice policies for male infertility. *The Journal of urology*, *167*(5), pp.2138-2144.

Jørgensen, N., Andersen, A.G., Eustache, F., Irvine, D.S., Suominen, J., Petersen, J.H., Andersen, A.N., Auger, J., Cawood, E.H., Horte, A. and Jensen, T.K. 2001. Regional differences in semen quality in Europe. *Human reproduction*, *16*(5), pp.1012-1019.

Jung, J.H., Kim, M.H., Kim, J., Baik, S.K., Koh, S.B., Park, H.J. and Seo, J.T. 2016. Treatment of leukocytospermia in male infertility: a systematic review. *The world journal of men's health*, *34*(3), pp.165-172.

Kabagenyi, A., Jennings, L., Reid, A., Nalwadda, G., Ntozi, J. and Atuyambe, L. 2014. Barriers to male involvement in contraceptive uptake and reproductive health services: a qualitative study of men and women's perceptions in two rural districts in Uganda. *Reproductive health*, *11*(1), p.21.

Kessler, L.M., Craig, B.M., Saigal, C. and Quinn, G.P. 2013. Starting a family: characteristics associated with men's reproductive preferences. *American journal of men's health*, *7*(3), pp.198-205.

Kim, M.S., Kim, J., Youm, H.W., Park, J.Y., Choi, H.Y. and Jee, B.C. 2015. Embryonic development in human oocytes fertilized by split insemination. *Obstetrics & gynecology science*, *58*(3), pp.217-222.

Langdridge, D., Sheeran, P. and Connolly, K. 2005. Understanding the reasons for parenthood. *Journal of reproductive and infant psychology*, *23*(2), pp.121-133.

Lewis, S.E., Aitken, R.J., Conner, S.J., De Iuliis, G., Evenson, D.P., Henkel, R., Giwercman, A. and Gharagozloo, P. 2013. The impact of sperm DNA damage in assisted conception and beyond: recent advances in diagnosis and treatment. *Reproductive biomedicine online*, *27*(4), pp.325-337.

Letourneau, J. and Fair, D. 2019. Oncofertility in urologic oncology: Fertility preservation for women undergoing cancer treatment. In *Urologic Oncology: Seminars and Original Investigations*. Elsevier.

Levin, K.A. 2006. Study design III: Cross-sectional studies. *Evidence-based dentistry*, *7*(1), p.24.

Lohiya, N.K., Balasubramanian, K. and Ansari, A.S. 2016. Indian folklore medicine in managing men's health and wellness. *Andrologia*, *48*(8), pp.894-907.

Mahey, R., Gupta, M., Kandpal, S., Malhotra, N., Vanamail, P., Singh, N. and Kriplani, A. 2018. Fertility awareness and knowledge among Indian women attending an infertility clinic: a cross-sectional study. *BMC women's health*, *18*(1), p.177.

Mascarenhas, M.N., Flaxman, S.R., Boerma, T., Vanderpoel, S. and Stevens, G.A. 2012. National, regional, and global trends in infertility prevalence since 1990: a systematic analysis of 277 health surveys. *PLoS medicine*, *9*(12), p.e1001356.

Nadeem, F., Fahim, A. and Bugti, S. 2012. Effects of cigarette smoking on male fertility. *Turkish Journal of Medical Sciences*, *42*(Sup. 2), pp.1400-1405.

Odoi-Agyarko, H. 2003. Profile of reproductive health situation in Ghana. *For World Health Organization, Ghana*.

Onyango, M.A., Owoko, S. and Oguttu, M. 2010. Factors that influence male involvement in sexual and reproductive health in western Kenya: a qualitative study. *African journal of reproductive health*, *14*(4).

Pachauri, S. 2014. Priority strategies for India's family planning programme. *The Indian journal of medical research*, *140*(Suppl 1), p.S137.

Poongothai, J.E.N.S., Gopenath, T.S. and Manonayaki, S.W.A.M.I.N.A.T.H.A.N. 2009. Genetics of human male infertility. *Singapore Med J*, *50*(4), pp.336-347.

Punab, M., Poolamets, O., Paju, P., Vihljajev, V., Pomm, K., Ladva, R., Korrovits, P. and Laan, M. 2016. Causes of male infertility: a 9-year prospective monocentre study on 1737 patients with reduced total sperm counts. *Human reproduction*, *32*(1), pp.18-31.

Riley, J.K. and Jungheim, E.S. 2016. Is there a role for diet in ameliorating the reproductive sequelae associated with chronic low-grade inflammation in polycystic ovary syndrome and obesity?. *Fertility and sterility*, *106*(3), pp.520-527.

Samadaee-Gelehkolaee, K., Mccarthy, B.W., Khalilian, A., Hamzehgardeshi, Z., Peyvandi, S., Elyasi, F. and Shahidi, M. 2016. Factors associated with marital satisfaction in infertile couple: a comprehensive literature review. *Global journal of health science*, *8*(5), p.96.

Schmidt, L., Holstein, B.E., Boivin, J., Tjørnhøj-Thomsen, T., Blaabjerg, J., Hald, F., Rasmussen, P.E. and Nyboe Andersen, A. 2003. High ratings of satisfaction with fertility treatment are common: findings from the Copenhagen Multi-centre Psychosocial Infertility (COMPI) Research Programme. *Human Reproduction*, *18*(12), pp.2638-2646.

Shahjahan, M., Mumu, S.J., Afroz, A., Chowdhury, H.A., Kabir, R. and Ahmed, K. 2013. Determinants of male participation in reproductive healthcare services: a cross-sectional study. *Reproductive health*, *10*(1), p.27.

Sharma, M., Arya, D., Bhagour, K. and Gupta, R.S. 2017. Natural aphrodisiac and fertility enhancement measures in males: A review. *Current Medicine Research and Practice*, *7*(2), pp.51-58.

Smith, T.B., Baker, M.A., Connaughton, H.S., Habenicht, U. and Aitken, R.J. 2013. Functional deletion of Txndc2 and Txndc3 increases the susceptibility of spermatozoa to age-related oxidative stress. *Free Radical Biology and Medicine*, *65*, pp.872-881.

Solanke, B.L. 2018. Drivers of Unmet Need for Family Planning among Women of Advanced Reproductive Age in Urban Western Africa. *Family Planning*, p.95.

Stojanov, M., Baud, D., Greub, G. and Vulliemoz, N. 2018. Male infertility: the intracellular bacterial hypothesis. *New microbes and new infections*.

Tahvilzadeh, M., Hajimahmoodi, M., Toliyat, T., Karimi, M. and Rahimi, R. 2016. An evidence-based approach to medicinal plants for the treatment of sperm abnormalities in traditional P ersian medicine. *Andrologia*, *48*(8), pp.860-879.

Tsounapi, P., Honda, M., Dimitriadis, F., Kawamoto, B., Hikita, K., Muraoka, K., Saito, M., Sofikitis, N. and Takenaka, A. 2017. Impact of antioxidants on seminal vesicles function and fertilizing potential in diabetic rats. *Asian journal of andrology*, *19*(6), p.639.

Wu, H., Huffman, A.M., Whitcomb, B.W., Josyula, S., Labrie, S., Tougias, E., Rahil, T., Sites, C.K. and Pilsner, J.R. 2019. Sperm mitochondrial DNA measures and

semen parameters among men undergoing fertility treatment. *Reproductive biomedicine online*, *38*(1), pp.66-75.

Vassilakopoulou, M., Boostandoost, E., Papaxoinis, G., Rouge, T.D.L.M., Khayat, D. and Psyrri, A. 2016. Anticancer treatment and fertility: effect of therapeutic modalities on reproductive system and functions. *Critical reviews in oncology/hematology*, *97*, pp.328-334.

Vouking, M.Z., Evina, C.D. and Tadenfok, C.N. 2014. Male involvement in family planning decision making in sub-Saharan Africa-what the evidence suggests. *The Pan African Medical Journal*, *19*.

APPENDICES

Appendix 1: Questionnaire

KWAME NKRUMAH UNIVERSITY OF SCIENCE AND TECHNOLOGY

SCHOOL OF PUBLIC HEALTH

QUESTIONNAIRE ON "MALES' INVOLVEMENT IN FERTILITY TREATMENT IN EJISU MUNICIPALITY IN THE ASHANTI REGION OF GHANA. "

This questionnaire has been developed to assess the level of male involvement and associated factors in fertility treatment services utilization among married men in Ejisu *municipality. Please be informed that this study is purely academic and that all information obtained shall be kept with utmost confidentiality. The outcome of this research may be used for academic and general purposes such as research reports, conference papers or books. Please tick/state where appropriate.*

Thank you for your acceptance

INSTRUCTION: Please fill the spaces provided. Mark (√) where applicable and specify where necessary.

SECTION A: SOCIO-DEMOGRAPHIC CHARACTERISTICS OF THE MARRIED MEN.

1. Community: …….. 2. Age: ……

3. Marriage type

a. Monogamy (one wife) [ ] b. Polygyny (More than one wife) [ ] 4.

What is your highest level of education? Please select the most appropriate.

a. Primary [ ] b. Secondary / Vocational [ ] c. Tertiary [ ] d. No formal education [ ]

5. What is your employment status?

a. Employed [ ] b. Self-employed [ ] c. Unemployed [ ]

6. What is your occupation?

a. Farming [ ] b. Clerical [ ] c. Public Service worker [ ] d. Trading[ ] e. Driving f. Other (specify)……

7. What is your monthly income?

a. less than 600 b. 600-1000 c.1001-3000 d.3001 and above

8. Which religion do you belong to?

a. Christianity [ ] b. Islamic [ ] c. Traditionalism [ ] d. Other (specify) …….

9. What is your ethnic group?

a. Asante b. Fante c. Ewe. d. Nzema e. Dagomba f. Other [……]

SECTION B I: KNOWLEDGE

GENERAL KNOWLEDGE AND MISCONCEPTIONS ON INFERTILITY	YES	NO
Is infertility the inability of a couple to achieve a clinically recognizable pregnancy after 12 months of regular unprotected intercourse?		
Do you know that fertility declines sharply after 40 years?		
Do you know that increasing age can affect fertility in both males and females?		
Do you know that smoking tobacco or marijuana can affect fertility?		
Do you know that alcohol usage can affect fertility?		
Do you know that extreme exposure to **certain environmental factors,** such as pesticides and other chemicals, and radiation can affect fertility?		
Do you know Frequent exposure to heat, such hot tubs, and long driving hours on a hot seat can raise the basic body temperature and may affect sperm production?		
Do you know anabolic steroids taken for bodybuilding or sporting purposes can affect fertility?		
Do you know that mumps in early childhood can affect fertility in males?		
Does family planning cause infertility?		
Infertility is caused by untreated sexually transmitted diseases, example gonorrhea?		
Do you think that a man is not the cause of infertility if he had a child in the past?		
Do you think that as long as a man can maintain an erection during sexual intercourse with a woman means he is fertile?		
Do you think that a male partner can contribute significantly to the state of childlessness among couples?		
Is the female partner always the cause of childlessness in an infertile relationship?		
Do know that frequent wearing of tight underwear by male can affect the quality of their sperms hence affect fertility?		
Infertility is caused by witchcraft, curses, or other supernatural causes		
Excess stress contributes to fertility		
Trusting God's timing for my own child		

Adoption		
Use of home made herbal concoction prescribed by the elderly people or a friend.		
Undertaking regular test/examination and treatment of disorders that can delay fertility in the clinic or hospital.		
Performing IVF (in vitro fertilization) or Opting for Surrogacy		
No need for treatment because I can perform sexually		
Use of an aphrodisiac drug or bitters to treat fertility		
Go to get drugs from the over the counter drugs store		

SECTION B II: ATTITUDES

ATTITUDES OF MALES ON FERTILITY TREATMENT	YES	NO
Who do you first attribute infertility amongst couples to? Wife [ ] Self [ ] Both[ ]		
Who should first seek for fertility treatment? Wife [ ] Self [ ] Both[ ]		
Are there any cultural practices that prevent you from seeking fertility treatment, as a treatment option for infertility for men?		
If yes, what are the various cultural practices that prevent you from doing the above…….		
Does your religion prevent you from seeking fertility treatment as treatment option for men?		
Do you think one should seek for medical help with regards to infertility?		
If you have a child with someone before, do you think you can be infertile a year later?		
If No does it means you won't seek for fertility treatment together with your wife?		
Males should be part of the fertility treatment when experiencing infertility		
Infertility should be a concern to both man and wife		
If no whose concern should it be? Wife [ ] Self [ ]		
Would you consider infertility treatment as an option in case you are unable to give birth through natural means.		

SECTION C: CHALLENGES

CHALLENGES ASSOCIATED WITH MALE INVOLVEMENT	YES	NO
It is stigmatizing for men to seek for fertility treatment		
It is difficult to discuss emotions and difficulties with someone about the issue of infertility		
Afraid of what the diagnosis will be?		
It is expensive		
Its against my beliefs		
The investigation procedures scares me off		
Fear that my diagnosis may be discussed amongst workers and not made confidential		
Women are given preferential treatment than us		
I don't want someone else's sperm cell to be used to impregnate my wife		
Unavailability or poor access to quality fertility treatment		
Unawareness of treatment options for fertility		

SECTION D: REPRODUCTIVE CHARACTERISTICS

1. Has you wife ever been pregnant before for you in her lifetime? (Include miscarriages, abortions and stillbirth? a. Yes [ ] b. No [ ]
2. How many pregnancies have you had with her? a. 1-3 [ ] b. 4-6 [ ] c. 7-9 [ ] d. Above 9 [ ]
3. Has any woman aside your wife been ever been pregnant for you in your lifetime? (Include miscarriages, abortions and stillbirth? a. Yes [ ] b. No [ ]
4. How many pregnancies did you had with her or them?

a.1-3 [ ] b. 4-6 [ ] c. 7-9 [ ] d. Above 9 [ ]

5. How many children do you have with your wife now?

a.1-3 [ ] b. 4-6 [ ] c. 7-9 [ ] d. Above 9 [ ] e. None

6. Do you have any child with any woman? a. Yes [ ] b. No [ ]
7. How many are they?

a. 1-3 [ ] b. 4-6 [ ] c. 7-9 [ ] d. Above 9 [ ] e. None

8. How many children do you have now?

a. 1-3 [ ] b. 4-6 [ ] c. 7-9 [ ] d. Above 9 [ ] e. None

9. How many children do you desire to have in total?

a. 1-3 [ ] b. 4-6 [ ] c. 7-9 [ ] d. Above 9 [ ] e. None

Appendix 2: Consent Form and Information Sheet

Consent Form

Title of Project: Males involvement in fertility treatment in Ejisu municipality in Ashanti Region of Ghana.

Name of Researcher: Aggrey Priscilla Aba.

Please cross box [ ]

1. I confirm that I have read and understand the information sheet dated ……/……/…….. for the above study and have had the opportunity to ask questions. [ ]
2. I understand that my participation is totally voluntary and that I am free to withdraw at any time, without giving any reason, without my legal rights being infringed upon. [ ]

3. I agree to take part in the above study. [ ]

---------- ---------/---------/---------- ----------

Name of Participant Date

Signature/thumbprint

---------- ---------/---------/---------- ----------

Name of Person taking consent Date Signature

---------- ----------/----------/---------- ----------

Researcher: Aggrey Priscilla Aba Date Signature

Information Sheet for Clients

You are being invited to take part in a research study, aimed at assessing male's involvement in fertility treatment. Before you decide to take part in this study, it is important for you to understand why the research is being done and what it will involve. Please take some time to read the following information carefully and discuss it with others if you wish. Ask the researcher if there is anything that is not clear or if you would want more information. Take time to decide whether or not you wish to take part.

Who is conducting the study?

Aggrey Priscilla Aba, a student being supervised by Dr. Kofi Akohene Mensah of Kwame Nkrumah University of Science and Technology, Department of Population, Family and Reproductive Health, Kumasi, is conducting the study.

What is the purpose of the study?

The study is about is assessing males' involvement in fertility treatment so as to identify factors that do influence males' involvement when seeking for fertility treatment. This research will serve as an information tool for hospitals that do provide fertility services to their clients. It would also serve as a lesson learning for the Municipality, the Region and policy makers in addressing the gaps associated with male involvement in fertility treatment. Also, the study would contribute to limited evident on male involvement in fertility treatment, which will serve as a reference

material for students and researchers for future referencing. The fieldwork for this study will commence on July 2019 and will continue until August 2019.

Why have I been asked to take part?

You have been selected so as to help us know your views on factors that influences males' involvement in fertility treatment.

What would be involved?

A structured questionnaire will be administered to you at a place where privacy and comfort is ensured. The questions will ask about knowledge and attitude of married men on fertility treatment, challenges associated with male involvement in fertility treatment as perceived by married men, socio-demographic factors and reproductive characteristics influencing male involvement in fertility treatment. These questions asked should not last more than 25 minutes.

What happens next?

If you are interested in taking part in this study then a consent form will be given to you to sign to affirm your willingness to take part in the study.

Do I have to take part?

It is up to you to decide whether or not to take part. If you do decide to take part you will be given this information sheet to keep and be asked to sign a consent form. If you decide to take part you are still free to withdraw at any time and without giving reason.

What are the benefits of taking part?

There may be no direct benefits of filling the questionnaire. However, you will be providing useful and important information, which will help us identify factors that influences males' involvement in fertility treatment.

Will my taking part in this study be kept confidential?

All information that is collected about you during the course of the study will be kept strictly confidential. No names will be recorded and so it will not be linked to you in anyway in the report of this study. However, your participation in this study is entirely voluntary.

What will happen to the results of the research study?

The results of the study will be presented to the Community Health Department of Kwame Nkrumah University of Science and Technology and also published in academic journals. If you wish, you can obtain a copy of the published results by contacting Aggrey Priscilla Aba. You will of course not be identified in the final report or publication.

Who is organizing and funding the research?

Aggrey Priscilla Aba, a student at the Kwame Nkrumah University of Science and Technology under the supervision from an academic lecturer, is undertaking the research. The student is funding this research.

Thank you for reading this.

Appendix 3: Ethical Approval

KWAME NKRUMAH UNIVERSITY OF SCIENCE AND TECHNOLOGY
COLLEGE OF HEALTH SCIENCES
SCHOOL OF MEDICAL SCIENCES / KOMFO ANOKYE TEACHING HOSPITAL
COMMITTEE ON HUMAN RESEARCH, PUBLICATION AND ETHICS

Our Ref: CHRPE/AP/545/19

11th September, 2019.

Miss Aggrey Priscilla Aba
Department of Population Family
and Reproductive Health
School of Public Health
KNUST-KUMASI.

Dear Madam,

LETTER OF APPROVAL

Protocol Title: ***"Males' Involvement in Fertility Treatment in Ejisu Municipality in the Ashanti Region of Ghana."***

Proposed Site: ***Ejisu Municipality.***

Sponsor: ***Principal Investigator.***

Your submission to the Committee on Human Research, Publications and Ethics on the above-named protocol refers.

The Committee reviewed the following documents:

- A Completed CHRPE Application Form.
- Participant Information Leaflet and Consent Form.
- Research Protocol.
- Questionnaire.

The Committee has considered the ethical merit of your submission and approved the protocol. The approval is for a fixed period of one year, beginning 11th September, 2019 to 10th September, 2020 renewable thereafter. The Committee may however, suspend or withdraw ethical approval at any time if your study is found to contravene the approved protocol.

Data gathered for the study should be used for the approved purposes only. Permission should be sought from the Committee if any amendment to the protocol or use, other than submitted, is made of your research data.

The Committee should be notified of the actual start date of the project and would expect a report on your study, annually or at the close of the project, whichever one comes first. It should also be informed of any publication arising from the study.

Thank you, Madam, for your application.

Yours faithfully,

Osomfo Prof. Sir J. W. Acheampong MD, FWACP
Chairman

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