**SCHOOL OF PUBLIC HEALTH**
**COLLEGE OF HEALTH SCIENCES**
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# COPING WITH ASSISTED REPRODUCTIVE TECHNOLOGY: EVIDENCE FROM CLIENTS SEEKING INFERTILITY INTERVENTIONS IN SELECTED PRIVATE HEALTH FACILITIES IN GHANA

**BY**

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## DECLARATION

I hereby declare that this thesis is the product of my original independent research conducted in some selected fertility centres in the Greater Accra Region under the supervision of Professor Augustine Ankomah, Dr. Abubakar Manu and Dr. Agnes M. Kotoh.I affirm that this work has neither been published nor submitted in whole nor in part to any institution for any academic award. All references made to other researcher's work have been duly acknowledged.

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## DEDICATION

I dedicate this thesis to the Almighty God for the strength and wisdom bestowed on me throughout the period, and to my dear husband Dr. Mathew K. Y. Kyei and my dear, children Maame Adwoa Owusua Kyei, Paa Yaw Kodua Kyei and Nana Kwabena Bamfo Kyei.

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| | | |
|---|---|---|
| AIH | - | Artificial Insemination by Husband |
| ART | - | Assisted Reproductive Technologies |
| DI | - | Donor Insemination |
| DNA | - | Deoxyribonucleic Acid |
| FERSOG | - | Fertility Society of Ghana |
| GIFT | - | Gamete Intra Fallopian Transfer |
| HSG | - | Hysterosalpingogram |
| ICMART | - | The International Committee Monitoring Assisted Reproductive Technologies |
| ICSI | - | Intra Cycloplasmic Sperm Injection |
| IUI | - | Intrauterine Insemination |
| IVF | - | In vitro Fertilization |
| PESA | - | Percutaneous Epididymal Sperm Aspiration |
| TET | - | Tubal Embryo Transfer |
| ZIFT | - | Zygote Intrafallopian Transfer |

## TERMINOLOGIES

- **Infertility**: failure to conceive after at least one year of unprotected sex
- **Assisted Reproductive Technologies**: various forms of treatment that helps couple with infertility to achieve pregnancy.
- **Coping Strategies**: ways adopted by individuals seeking Assisted Reproductive Technologies in managing the stress or challenges of infertility.

## ABSTRACT

**BACKGROUND**: Infertility remains a challenge for some couples globally. Recent evidence shows that one in every six couples will face fertility problem in their reproductive age. For the past four decades, Assisted Reproductive Technology (ART) has been an effective intervention for infertility. The complexities associated with the ART presents many challenges to couples including psychological, social, and emotional difficulties. These challenges underscore the relevance of coping particularly during the process of the ART.

**Objectives:** This study therefore sought to understand the challenges associated with ART and the various coping strategies infertile couples adopt when seeking ART.

**Methods:** The study employed convergent parallel mixed method design. Exploratory phenomenological approach and cross-sectional survey were used for the qualitative and the quantitative studies respectively. Overall, 12 women and 6 men participated in the qualitative study, whereas 211 women participated in the quantitative study. The qualitative study employed purposive sampling technique and the quantitative used convenience sampling technique to recruit the respondents. The qualitative data was collected using in-depth interviews and the Ways of Coping questionnaire was used to collect the quantitative data. Analysis of the quantitative data was done using content analysis technique whereas the quantitative data was analysed using the Stata version 14.0. Descriptive statistics such as the mean, frequencies were determined from the quantitative data. Inferential statistics such as Chi-square test of independence, Fishers exact test, one-way analysis of variance and Kruskal Wallis were used to determine association between each of the predictors of coping and levels of coping strategy.

**Results**: The study revealed couples with infertility problems highly value biological children due to social stigmatization about childlessness. Some respondents indicated

that they have suffered various forms of psychological, emotional, and social afflictions because of their inability to have their own children. Respondents utilised ART the best alternative solution to infertility problem. Factors such as advanced age of the woman, pressure from families, particularly mothers-in-law, and friends influenced respondents' uptake of ART. Furthermore, various ART uptake challenges, identified included anxiety about treatment outcome, high cost of ART, and long distance to ART centres. The study respondents used different coping strategies to cope with ART. These included confrontational, distance, self-control, social support, acceptance responsibility, escape-avoidance, problem solving and positive reappraisal coping strategy. The most highly used coping strategy was positive-reappraisal (n = 104, 49.3%). Fertility centre and cause of infertility were the two covariates that were significantly related to overall coping strategy. None of the covariates were associated with the positive reappraisal coping strategy.

**Conclusions:** Having children in marriage in the Ghanaian society is very crucial. Even though ART offers a better solution to infertility, it has its own associated challenges necessitating the adoption of various forms of coping strategies. Given the importance couples attach to biological children, evidence of infertility prevalence in Ghana, Government should consider integrating ART services into the existing obstetric and gynecological facilities to serve as an alternate solution to the challenges of infertility in Ghana. Again, the reproductive health unit of the Ghana Health Service should sensitise the general public about the availability of ART, its effectiveness as well as the associated benefits. This will reduce the negative consequences of childlessness in the Ghanaian society. Given the emotional and psychological challenges reported by the clients in this study, it is recommended that counseling units should be established in these centres to offer services to clients at every stage of the treatment.

# CHAPTER ONE

# INTRODUCTION

## 1.1 Background

Infertility remains a challenge for most couples globally (WHO, 2018). Recent evidence shows that one in every six couples will face fertility problem in their reproductive age (Farquhar, Marjoribanks, 2018). Infertility is defined as failure to achieve a clinical pregnancy after regular unprotected sexual intercourse for 12 months or more (Farquhar, Rishworth, Brown, Nelen, & Marjoribanks, 2015; WHO, 2018; Zegers-Hochschild et al., 2009). Demographically, infertility is described as a couple's inability to become pregnant with a live birth after five years exposure, with consistent union status, lack of contraceptive use, non-lactating status, and maintaining a desire for a child (Mascarenhas, Cheung, Mathers, & Stevens, 2012; WHO, 2018).

Globally, infertility prevalence is estimated as 10% (Moghadam, Delpisheh, & Sayehmiri, 2014). However, the prevalence is higher in countries such as South Asia, Sub-Saharan Africa, Middle East, North Africa, Central and Eastern Europe, and Central Asia (Mascarenhas, Cheung, Mathers, & Stevens, 2012). The variations in infertility prevalence across the globe is demonstrated by several studies (Datta et al., 2016; Louis et al., 2013; Polis et al., 2017). For example, infertility prevalence of 31.1% is estimated in low and middle countries (Polis et al., 2017). In high income countries such as Britain and United States of America, infertility prevalence was estimated as 12.5% among women and 10.1 % among men (Datta et al., 2016) and 12.0% (Louis et al., 2013) respectively.

There are two main classifications of Infertility: primary and secondary infertility (Polis et al., 2017; WHO, 2018). Primary infertility is described as a situation whereby a couple is unable to ever bear a child, either due to the inability to become pregnant or the inability to carry a pregnancy to a live birth (WHO, 2018). On the other hand, a couple is described as being faced with secondary infertility if they are unable to bear a child, either due to the inability to become pregnant or the inability to carry a pregnancy to a live birth following either a previous pregnancy or a previous inability to carry a pregnancy to a live birth (WHO, 2018).

Generally, secondary infertility is more prevalent than primary infertility (Benksim, Elkhoudri, Ait Addi, Baali, & Cherkaoui, 2018; Polis and Colleague (2017); Mascarenhas et al., 2013). For example, Polis et al (2017) found high prevalence of secondary infertility 34.1% compared to primary infertility of 17.4% in their studies involving studies in low and middle-income countries. The cause of infertility varies among males and females due to their biological composition as a result of their differences in hormones and their anatomy. Factors such as sexually transmitted diseases, hormonal abnormalities, genito-urinary tract infections, and lifestyle related factors including obesity, nutrition, smoking, alcohol consumption are implicated as contributing factors to infertility for both men and women (Abarikwu, 2013; Deyhoul, Mohamaddoost, & Hosseini, 2017 Härkönen, 2016; Emokpae & Uadia,2015)

Specifically, in men, varicocele has been found to be one of the commonest cause of infertility. Varicocele is a situation whereby the veins surrounding the testicles become large and the heat in the blood affects the sperm size and shape is one in men (Redmon,Carey, Pryor 2002). In addition, single or a combination of low sperm

concentration, poor sperm motility, and abnormal morphology could account for male related cause of infertility among men (Kumar & Singh, 2015). In women, infertility can be caused by the presence or absence of ovulation, Polycystic Ovary Syndrome (PCOS), functional hypothalamic amenorrhea, fallopian tube obstruction, hormonal disorder, and abnormal uterine contour (Cooke, Dyer, Serour, & Devroey, Sills et al. 2011; Ombelet, 2008; Levine & Stern, 2010;) In fact, a recent study indicates that about 20% - 30% of infertility cases are attributable to male factors whereas female factors account for 50% and the remaining 20% - 30% are due to a combination of male and female factors (Agarwal, Mulgund, Hamada, Chyatte, 2015). Despite the significant contribution of male factors to infertility, the problem is still widely perceived as women social issue ( Cheung, et al., 2012; Inhorn & Patrizio, 2014; Tabong & Adongo, 2013; Mascarenhas,). This is supported by evidence that women face accusation of being the cause of childlessness in many settings ( Akande, 2008;Yao, Chan, & Chan, 2018; Tabong & Adongo, 2013a; Mascarenhas, Cheung, et al., 2012; Sami & Ali, 2012; Dyer, Abrahams, Hoffman, & Spuy, 2002;).

Infertility has many consequences, it affects the mental and social wellbeing of the affected individual ( Hasanpoor-Azghdy, Simbar, & Vedadhir, 2014;Tabong & Adongo, 2013; Vayena, Rowe, & Griffin, 2002). For example, a study by Rouchou (2013) identified anxiety, depression, divorce, violence, and abuse as some of the psychological and social consequences of infertility in developing countries. Other studies have also documented challenges such as psychological distress, discrimination, social isolation, lack of economic security and stigmatization as probable effects of infertility ( Chachamovich et al., 2010; Maroufizadeh, Ghaheri, & Omani Samani, 2017; Koert & Daniluk, 2017).The degree of the consequence varies from one area to another. In some

communities, men and women are often denied proper death rites due to their failure to bear children when they were alive (Papreen et al., 2000). Various degrees of economic burden are also associated with infertility ( Dyer & Patel, 2012) coupled with time cost to the affected person Smith, 2013 ;Wu, Elliott, Katz,). The cost of infertility treatment can be above the budget of an ordinary infertile couple in a lower income country and this could act as barrier to access of those interventions (Widge & Cleland, 2009). Despite the consequences of infertility, policies to address challenges of infertility in developing countries have been largely neglected. Much emphasis is rather placed on policies that aim at reducing population growth such as the promotion of family planning (Cousineau & Domar, 2007). It is therefore critical that infertility is recognised as an important issue as indicated in the international health agenda by the 1994 United Nations International conference (Inhorn, 2009).

For the past four decades, effective interventions for infertility such as Assisted Reproductive Technologies (ART) have existed (Steptoe & Edwards, 1978; Farquhar, Marjoribanks, 2018; Goldstein et al., 2015). ART as a procedure aims at establishing pregnancy by in vitro handling of both human oocyst and sperm, or of embryos (Farquhar & Marjoribanks, 2018; Farquhar et al., 2009). There has been reported success stories of ART intervention (Steptoe & Edwards, 1976, Steptoe & Edwards, 1978). The first pregnancy following ART was reported in 1976 (Steptoe & Edwards, 1976), and the first birth from ART was recorded in 1978 (Steptoe & Edwards, 1978). The process involved in ART is multidimensional and requires strict adherence to the steps involved (Farquhar & Marjoribanks, 2018). For the purpose of this study, the steps has been divided into three phases: phase one is at the initial stage of the treatment, and going through assessment and evaluation before being assigned to the specific ART; phase two

involves clients who are going through the actual treatment process (hormonal treatment), embryo transfer or awaiting pregnancy test; and phase three consist of clients who have had a successful hormonal treatment and are pregnant or delivered after the treatment (Farquhar et al., 2015; Glujovsky, Blake, Farquhar, & Bardach, 2012).

The complexities associated with the ART cycles present many challenges to couples including stress, psychological and emotional difficulties (Gameiro, Boivin, Peronace, & Verhaak, 2012; Verhaak, Lintsen, Evers, & Braat, 2010; Boivin,Griffiths, Venetis, 2011). For instance, a systematic review conducted by Gameiro et al (2012) indicated the reasons why clients discontinued ART at a point in time. According to the authors, psychological burden such as depression and stress,side effect of the treatment, and other health related factors were some of the important reasons for discontinuity of fertility treatment (Gameiro, et al 2012. Furthermore, fertility treatment is costly and therefore, once couples opt for it, efforts should be made at each phase of treatment to make it successful (Farquhar et al., 2015; Daar & Merali, 2002). This underscores the importance of coping particularly during the process of ART. Coping strategies have been categorised into two main forms: problem-solving strategies and emotion-focused coping strategies (Taylor & Stanton, 2007). Problem solving strategies are means by which an individual going through a stressful event, puts in efforts to do something active, in order to decrease the stressful event. Emotion-focused strategies on the other hand are means by which the emotional consequences of stressful or potentially stressful events are regulated (Taylor & Stanton, 2007). However, in many instances, people who go through stressful events use both forms of coping strategies (Taylor & Stanton, 2007).Infertility and infertility interventions, are both stressful, and as a result, the individual need coping strategies to go through (Gourounti et al., 2012).

In the Ghanaian context, infertility presents a huge challenge for most couples. These couples are burdened emotionally, psychological, and socially. Some of these couples have initiated some fertility treatment but little is known about how they cope with the challenges that these treatment options present to them. This study therefore seeks to understand the challenges associated with infertility and infertility interventions and the various coping strategies infertile couples adopt during this stage of their lives.

### 1.2 Problem Statement

Infertility remains a global public health concern, particularly in developing countries (WHO, 2018; Patrizio, 2015). In Ghana, no national estimate of infertility prevalence exists. The only study which documented the prevalence of infertility was conducted in 2002 among rural settlers in the northern part of the country (Geelhoed, Nayembil, Asare, Van Leeuwen, & Van Roosmalen, 2002). The authors reported infertility prevalence of 11.8% among women and 15.8% among men (Geelhoed, Nayembil, Asare, Van Leeuwen, & Van Roosmalen, 2002).

It is well documented that infertility is associated with social, psychological, and emotional challenges (Koert, 2017; Pedro, Hansanpoor-Azghdy, Simbar, & Vedadhir, 2015; Andipatin, 2014; McCarthy, Chiu, 2011; Hollos, Larsen, 2008).Studies conducted on infertility in Ghana support the findings of these studies by showing that infertile couples experience depression, stress, stigmatisation, and marital instability (Donkor & Sandell, 2009; Naab et al., 2013; Fledderjohann, 2012). Despite these experiences, there are inadequate supportive structures for infertile couples and this has resulted in many

Ghanaian married women exploring fertility solutions from traditional healers, witch doctors, and spiritualists in Ghana (Osei, 2016).

Even though, advancement in Science has made it practically possible for pregnancy to be achieved artificially by the use of ART (Surrey, 2015; Nardelli, Stafinski, Motan, Klein, & Menon, 2014), its accessibility and affordability remain a challenge in many settings (Makuch & Bahamondes, 2012; Murage, Muteshi, & Githae, 2011; Chambers, Sullivan, Ishihara, Chapman, & Adamson, 2009). For example, Murage et al. (2011) found high cost of ART and patients' low financial strength as some of the barriers to ART utilization in Kenya. In Ghana, only few ART centres are operational, and these facilities are privately managed (Gerrits, 2016), a situation not much different from the overall state in Sub-Saharan Africa (Inhorn & Patrizio, 2014). In recent years, however, there has been massive expansion of ART centres and use in many developing countries including Ghana. As a result, many infertile couples are accessing these modalities to address the challenging issue of childlessness. A study by Donkor and Sandall (2009) in Ghana explored how women with infertility coped with infertility; but little is known about how infertile women seeking ART cope with the challenges of ART in Ghana. This study, therefore seeks to identify the challenges associated with the various stages ART and the coping strategies adopted by clients undergoing ART in Ghana.

### 1.3 Justification of the Study

Infertility is a stressful life situation, and it often creates depressive symptoms among couples, especially among the women. Couples or individuals going through this condition may resort to various forms of ART. The various forms of ART such as IVF, Intra uterine insemination (IUI) that couples go through are usually challenging and

stressful. Consequently, couples tend to adopt various coping mechanisms while seeking ART to gain control over the situation at hand. Couples' ability to cope and decrease the stresses they encounter during the various phases of the treatment may help them attain a successful treatment. This study will help identify the challenges these clients go through as well as the coping strategies they employ during the period of seeking treatment. This study will form the basis for effective counseling of couples opting for ART.

### 1.4 General Objective

The main goal of the study was to identify the challenges associated with ART and the coping strategies used by clients undergoing ART treatment.

#### 1.4.1 Specific Objectives

The specific objectives of the study are to:

1. Explore the beliefs about the value of children in the Ghanaian context
2. Explore the psychosocial experiences of women with infertility in Ghana
3. Explore the perception of infertile clients on Assisted Reproductive Technologies (ART)
4. Identify challenges of clients seeking ART in relation to each stage of treatment.
5. Determine the socio-demographic correlates and predictors of coping strategies used in ART

## 1.5 Research Questions

The following questions guided the study:

1. What are the beliefs associated with children in the Ghanaian context?
2. What are the psychosocial experiences of women with infertility in Ghana?
3. What are the perceptions of infertile clients on Assisted Reproductive Technologies (ART)?
4. What are the challenges of clients seeking ART in relation to each stage of treatment?
5. What are the factors associated with coping strategies of clients seeking ART?

## 1.6 Conceptual framework

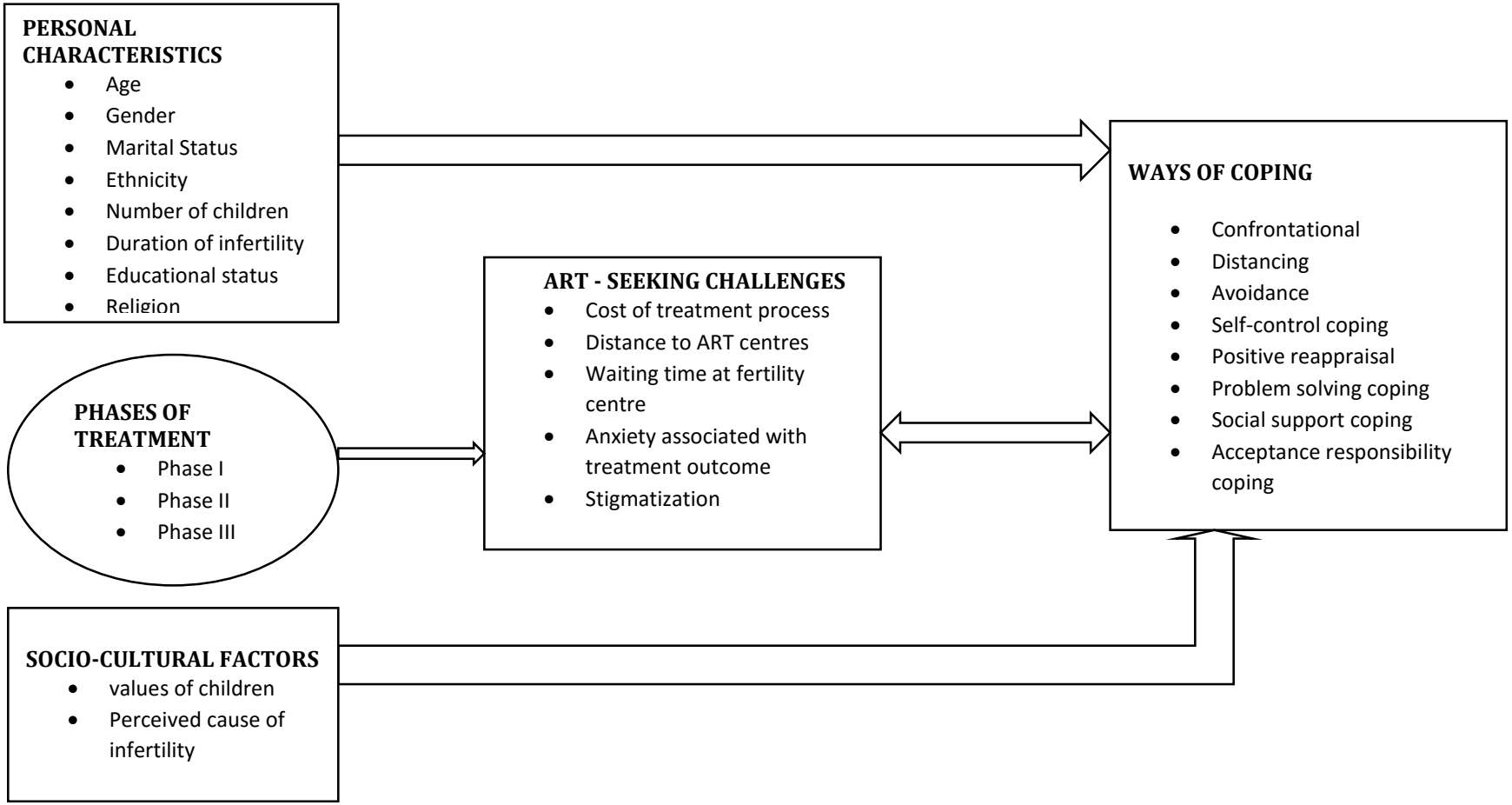


**Figure 1.0: Conceptual Framework on Ways of Coping with Assisted Reproductive Technologies:(Developed by the Author)**

### 1.6.1 Description of Conceptual Framework

The conceptual framework (Figure 1.0) was designed to provide a sound conceptual underpinning in understanding challenges faced by clients with infertility and undergoing ART, as well as the coping strategies adopted. The framework is made up of four constructs namely the personal characteristics, socio-cultural factors, phases of treatment, and ART seeking challenges. The framework assumes that personal and treatment-related characteristics such as age, gender, marital status, ethnicity, treatment phase of ART, number of children, duration of infertility are more likely to predispose clients with infertility to various challenges. Some of these challenges include cost of treatment process, distance to ART centres, waiting time at fertility centre, anxiety associated with treatment outcome, and stigmatization.

Furthermore, socio-cultural factors including educational status, religion, employment status, beliefs about children, perceived cause of infertility could also influence the type of ART seeking challenges. These challenges are also more likely to influence the type of coping strategy to be used.

# CHAPTER TWO

# LITERATURE REVIEW

## 2.0 Introduction

Literature review provides a scientific and theoretical knowledge about a research problem enabling synthesis of what is already known and unknown (Burns, Grove, Gray, 2015; Polit & Beck, 2014). This chapter therefore discusses relevant literature in relation to the objectives of the study. Search engines such as Google Scholar, Medline, Scopus, PubMed, and Cumulative Index to Nursing and Allied Health Literature (CINHAL) were utilized. Key words including "Infertility", "Coping strategies", "Assisted Reproductive Technology", "Assisted Reproductive Treatments", Psycho-social experiences", were used for the search. Peer review articles published in English language were used. Bolean operators such as "AND", "OR", and "NOT" were used in combination to explore a wider scope of literature in the study area. The review is organized according to the specific objectives.

## 2.1 Global Burden of Infertility

The prevalence of infertility differs geographically and even within countries. Evidence suggests that a higher proportion of couples with infertility reside in low and middle-income countries particularly in Sub-Saharan Africa (Polis et al., 2017; Sharma, Mittal, & Aggarwal, 2009). This is supported by a study conducted by Polis et al. (2017) which found infertility prevalence of about 31.1% in low and middle - income countries. Furthermore, a recent systematic review of studies in the Middle East and North Africa found infertility prevalence estimate for both primary and secondary infertility as 17.2% (Eldib & Tashani, 2018). In developing countries, over 186 million couple are affected by both primary and secondary infertility (Abolfotouh, Alabdrabalnabi, Albacker, Al-

Jughaiman, & Hassan, 2013; Inhorn, 2009). In Northern Nigeria, infertility was found to be 23.9% (Dattijo, Andreadis, Aminu, Umar, & Black, 2016).

Infertility can be viewed from two main perspectives where there have ever been pregnancy and subsequently there is difficulty achieving pregnancy and also where the individual has never conceived or achieved pregnancy (WHO, 2018; Polis et al., 2017). It is therefore classified into two different types as experienced by couples at a point in time. These are primary and secondary infertility. A systematic analysis of 277 health surveys estimating global, regional, and national estimates of prevalence of infertility by Mascarenhas, Flaxman, et al. (2012), found out that in 2010, 1.9% of women aged 20–44 years who wanted to have children were unable to have their first live birth (primary infertility), and 10.5% of women with a previous live birth were unable to have an additional live birth (secondary infertility). The researchers found that the levels of infertility were similar in 1990 and 2010, with only a slight overall decrease in primary infertility (0.1%), and a modest overall increase in secondary infertility (0.4%). Generally, secondary infertility is common particularly in Africa (Benksim, Elkhoudri, Ait Addi, Baali, & Cherkaoui, 2018; Polis et al., 2017; Mascarenhas et al., 2013). However, a study conducted in Morocco found the prevalence of primary infertility to be higher than secondary infertility (Benbella, Aboulmakarim, Hardizi, Zaidouni, & Bezad, 2018). Overall, 77.2% primary infertility and 22.8% secondary infertility were found among 1265 infertile couples (Benbella et al., 2018).

### 2.2 Beliefs about the Value of Children in Marriage

The desire to have children is one of the basic human instincts. To most couple, having children is an important concern to complete their goal in life. This is well documented

in several studies (Liamputtong & Benza, 2018) (Daibes, Safadi, Athamneh, Anees, & Constantino, 2018; Dyer, 2007; Hess, Ross, & Gililland, 2018; Moyo & Mahwati, 2013; Behjati-Ardakani, Navabakhsh & Hosseini,2016; Tabong & Adongo, 2013; Hasanpoor-azghdy, Simbar, & Vedadhir, 2014; Naab, Brown, Heidrich, 2012). For example, a study conducted among Zimbabwean women in Melbourne identified the cultural meanings attached to childbearing. It was found that children are considered as a social security for parents. This was noted because of the expectation of parents to be cared for by their children in their old age (Liamputtong & Benza, 2018). In Jordan, children particularly boys are perceived as a means of power for women as they are valued and considered as an avenue for continuity of patrilineal lineage (Daibes et al., 2017). In China, children are crucial in maintaining marital quality ((Yao, Chan, & Chan, 2018). In South Africa, children are perceived to provide social security, assist with work and secure rights of property and inheritance (Dyer, 2007). In Ghana, children are considered relevance for the maintenance of the family lineage and inheritance. In addition, because surnames are mostly the father's name, the existence of the family name could only be continued when a child is born and named after the family name accordingly (Tabong & Adongo, 2013). Furthermore, infertile couple are believed to be incapable of obtaining membership in the ancestral world and stand the risk of not living again after death (Tabong & Adongo, 2013). In Zimbabwe, Moyo and Mahwati (2013) documented that fertility is the way of expressing one's masculinity in the society. In this vain, getting pregnant and giving birth are regarded as a social norm expected after marriage. A man's ability to impregnate the wife gives him some identity which distinguishes him from other men (Moyo & Mahwati 2013). In Nigeria, the Yoruba's attach so much importance to having children in marriage such that it enables the couple to have material gains once they are able to give birth (Olusola & Ojo, 2017). In Rwanda, children are valued because of their

role in ensuring honourable burial of their parents. It is believed that their absence in marriage could lead to the couples not receiving a befitting burial when they die (Hess, Ross, & Gililland, 2018). In effect, a woman's ability to give birth stabilizes her status in the family and the community (Hasanpoor-azghdy, Simbar, & Vedadhir, 2014).

It is also worth mentioning that the value placed on male children differ from female children (Daibes et al., 2017; Naab, 2013; Ohagwu et al., 2014). In many cultures particularly in Africa, male children are preferred to female children (Naab, 2013; Ohagwu et al., 2014; This is demonstrated by a study in Nigeria whereby 58.6% of women desired a male child in their current pregnancies and only 20.1% wished for female babies, and 21.3% had no specific preference (Ohagwu et al., 2014). Many reasons are cited for the preference of a male child including protection of marriages and as a way of satisfying the husband (Ohagwu et al., 2014).

The economic value of children has been one of the age-old benefit of every family for reproduction (Behjati-Ardakani, Navabakhsh and Hosseini, 2016; Tabong & Adongo, 2013). In the age of the agricultural economy, children served a source of labour in the field. The larger the family size the larger the field of land that can be cultivated. In fact, in some rural communities, this motivation still exists and it is common to see larger family sizes especially in the lower income countries for the provision of farming labour in contrast to the much smaller family sizes of urban settlers due to industrialization (Behjati-Ardakani, Navabakhsh and Hosseini, 2016).

The significance of children as discussed above explains the reasons why a delay in childbearing induces unpleasant reactions from in-laws, neighbors, and friends (Rosanna,

Hess, Ross & Gililland, 2018; Mayada et al., 2017; Hasanpoor-Azghdy, Simbar, Vedadhi, 2015). In many instances and settings, women are blamed for the infertility problem (Bokaie, Simbar, Ardekani, Majd, 2016; Yao, Chan, & Chan, 2018; Tabong & Adongo, 2013; Mascarenhas, Cheung, et al., 2012; Sami & Ali, 2012; Dyer, Abrahams, Hoffman, & Spuy, 2002; Akande, 2008; Ali, Al-Rashed, Azeez, & Merchant, 2011; Fledderjohann, 2012; Hollos & Larsen, 2008; McGovern et al., 2017). Some believe that the infertility is a consequence of a curse (Pedro & Andipatin, 2014), others believe that infertility occur as a result of sins committed against God by the affected individuals (Bokaie, Simbar, Ardekani, Majd, 2016).

Various cultures in Africa and other developing countries forbid infertility to an extent that after marriage if a couple is unable to give birth after one year of unprotected sex, the couple or the woman is considered cursed. A study conducted by Olusola and Ojo (2012) discovered that come cultural beliefs among the Yoruba people of Nigeria tagged women who are unable to give birth in their communities are accused of being responsible for childlessness.On the contrary, Dyer (2007) contended that childbearing in the advanced industrialized economies is done primarily for happiness and personal well-being.

In the religious context, children are regarded as gifts from God (Dyer, 2007; Jamshidimanesh et al., 2012; Liamputtong & Benza, 2018; Mirlashari, Demirkol, Salsali, Rafiey, & Jahanbani, 2012;Naab, 2014). For example in South Africa,Pedro & Andipatin, (2014) documented that children are believed to be a gift from God that is offered to good women and infertility is perceived as a consequence of sin against God which could be as a result of  sex before marriage.

The importance of children to married couples seem similar among all societies around the world with slight differences from society to society. The value people in general attach to children has cultural, social, political and economic dimensions (Behjati-Ardakani, Navabakhsh and Hosseini, 2016). The challenges also associated with infertility increases infertile women persistence toward the achievement of pregnancy through exploration of modern and traditional methods of treatment (Daibes et al., 2018).

### 2.3 Psycho-social Experiences of Infertile Couples

Several evidence have showed that infertility present various forms of psychosocial consequences to the affected individuals (Hess et al., 2018; Donkor, Naab, & Kussiwaah, 2017; Cousineau & Domar, 2007; Daibes et al., 2017; Fido & Zahid, 2004; Fledderjohann, 2012; Jamshidimanesh et al., 2012; Koert & Daniluk, 2017; Sultan & Tahir, 2011; Sultan & Tahir, 2011; Pedro & Andipatin, 2014; Jamshidimanesh et al., 2012; Maroufizadeh, Hosseini, Foroushani, Omani-samani, & Amini, 2018). For example, a qualitative study conducted in Iran among 25 women with both primary and secondary infertility found that childlessness was associated with psychological problems such as depression, guilt, loneliness, regret, and worry (Hasanpoor-azghdy, Simbar, & Vedadhir, 2014). Similarly, findings from interpretive phenomenological study involving 15 women known to be permanently infertile in Canada showed that the women experienced various forms of psychological and social difficulties including feelings of grief, regrets, and isolation (Koert & Daniluk, 2017). High levels of infertility stress, feeling of inadequacy, frustration, discrimination, threat of divorce, emotional abuse by husband's family was found among Turkish women with infertility (Karaca & Ulsal, 2014). Psychiatric disorders and even suicide have been reported in certain extreme cases (Felskov et al., 2013; Kjaer et al., 2014).

Depression is well reported i**n the** literature to affect the psychological wellbeing of couples with infertility (Yusuf, 2016; Lakatos, Szigeti, Ujma, Sexty, & Balog, 2017; Mccarthy & Chiu, 2011). A study which compared level of depression among infertile women and fertile women using Spielberger Trait Anxiety Inventory (STAI-T), and Shortened Beck Depression Inventory (BDI) identified clinical symptoms of depression in 44.8% of the infertile women as against 24.2% among the fertile women. These symptoms were associated with age, social concern, sexual concern and maternal relationship stress (Lakatos et al., 2017). In Nigeria, a study reported a depression prevalence of 52.7% among infertile women in Ogbomosland Oladeji & OlaOlorun, 2018). A recent study shows that women experience higher infertility related depression more than their spouses (Maroufizadeh, Hosseini, Foroushani, Omani-samani, & Amini, 2018). The higher psychological distress on females in the case of infertility could be due to the higher social ill treatment they receive relative to the males. This is because women are the physical embodiment of fertility since they get pregnant not men and when a woman is not able to get pregnant most of the blame is heaped on her. The impact of counseling on reduction of depression, anxiety, depression has been reported. A study which measured depression, anxiety and stress (DAS) in infertile women and further assessed the impact of counseling on depression, anxiety and stress levels using a standardized scale found that there was a significant reduction in depression, anxiety, and stress in the study group compared to the control group after three months of counseling (Kousalya, & Jayashree, 2013).

Stress has also been documented among infertile couples (Karaca & Ulsal, 2014; Patel et al., 2016; Wiweko, Anggraheni, Elvira, & Lubis, 2017; Yusuf, 2016; Naab, Brown, Heidrich, 2012). Patel and others (2016) in their study which aimed at identifying the

prevalence and infertility specific stress among women diagnosed with primary infertility reported stress prevalence of 80%. The authors further indicated that years of marriage, duration of infertility, type of infertility, history of gynaecological history and others are some of the predictors of infertility related stress (Patel, 2016). According to Wiweko et al. (2017), stress manifested in a form of fatigue and it is reduced to some extent by social support. Again, it has the tendency of having a negative impact on the social functioning of the individual experiencing it (Oladeji & OlaOlorun, 2018). Another psychological problem faced by infertile couples is anxiety (Lakatos et al., 2017; Fido & Zahid, 2004; Yusuf, 2016; Drosdzol & Skrzypulec, 2009; Shoaib, Shah, Ahmad, & Mansoor, 2016). Recent study found anxiety prevalence of 33% among 1128 infertile patient in Iran and women were 2.26 times more likely to have anxiety symptoms than males (Maroufizadeh et al., 2018).

Infertility also attracts some social consequences. For example, a convergent mixed method study which sought to examine infertility induced psychological distress and coping strategies among women in Mali found that infertile women experience tension and strife in their marriages. In addition, criticisms from relations and stigmatization by community members were prevalent (Hess, Ross, & Gililland, 2018). A study conducted in Ghana found that childless couples, especially women are excluded from some traditional practices that involves women (Donkor,2008). In Northern Ghana, infertile women suffered stigma and social ridicule in silence (Tabong & Adongo, 2013). In Iran, infertile women faced abuse including physical and psychological violence (Behboodi-moghadam et al., 2012).

Furthermore, studies have shown that intimacy among couples with infertility problem may also change upon diagnosis of infertility and this has a detrimental effect on their sexual life (Obeidat, Hamlan, & Callister, 2014; Donkor, Naab & Kussiwaah, 2017; Cousineau & Domar, 2007; Sultan & Tahir, 2011). For example, in Ghana, anxiety, depression, worrying, lack of concentration and reduced sexual satisfaction were recorded among infertile couples (Donkor, Naab & Kussiwaah, 2017; Cousineau & Domar, 2007; Sultan & Tahir, 2011). It is also documented that irrespective of the cause and type of infertility, there may be a change in the manner of communication among the couples resulting in changes, not only in mood but also decreased libido (Drosdzol & Skyrzpulec, 2009; Peterson et al., 2007).

Sultan and Tahir (2011) also showed that the level of psychological impact on an infertile person decreased with the persons' age for both sexes. One possible explanation for this observation could be that age affords the infertile couple experience to be able to handle the psychological stressors associated with infertility. This ideal of age and experience is supported by another data in the same work that observed a similar decrease in psychological stress with age (Sultan and Tahir (2011)

Women with infertility also become submissive and they isolate themselves from others (Daibes et al., 2018). Similarly, a study by Fledderjohann (2012) found that infertile women in Ghana encounter social stigma, marital challenges, ostracism, insults, mocking and exclusion from conversation reserved for adults. The authors further indicated that blame shifting still occur even when the aetiology is a male factor because of the belief that childbearing is the sole responsibility of the woman (Fledderjohann, 2012). In Tanzania, marital instability was reported among infertile couples. Women with

infertility were more than twice as likely to have been married more than once (Hollos & Larsen, 2008). In Canada, grief, isolation, regrets, and the feeling of powerlessness characterized infertility among infertile couple (Koert & Daniluk, 2017). In South Africa, infertile women experienced shock, anger, frustration and sadness (Pedro & Andipatin, 2014). In Iran, infertile women faced abuse including physical and psychological violence (Jamshidimanesh et al., 2012). Inhorn (2009) described infertility as a condition that is likely to lead to "marital demise, physical violence, emotional abuse, social exclusion, community exile, poverty, old age insecurity, increased risk of HIV/AIDS, and death.

Ballen and Bos (2009) found that the main social effect of infertility includes stigma, isolation, rejection and exclusion. Other negative consequences include marital instability and divorce (Rosanna, Hess, Ross & Gililland, 2018; Mayada et al., 2017; Behboodi-moghadam et al., 2012; Neelofar & Ali, 2011, Hollos & Larsen, 2008, Fido & Zahid, 2004). These social effects depend on the value different societies place on children. The effects also differ from one society to another; however, the most common social effect is stigma and more prevalent in low-income areas of the world. Economic effect also featured strongly in the Ballen and Bos (2009) report. They reported that the economic effect takes the form of the cost for infertility treatments.

Infertility is seen as a great concern in Africa, Ghana not being an exception as a result of its social implications and the stigma that is often attached to it (Donkor, 2008; Donkor & Sandall, 2011; Naab, 2013; Tabong & Adongo, 2013; Ikechebelu, Adinma, Orie, & Ikegwuonu, 2003). A previous study conducted in Nigeria found out that reproductive failure had far reaching social implications, where the main reason for

marriage is to have children irrespective of whether the couple are in love (Megafu & Ozumba, 1991). The above challenges occur because of the value placed on children in many settings (Hasanpoor-azghdy, Simbar, & Vedadhir, 2014).

### 2.4 Coping Strategies of Infertile Clients

Coping has been defined as a set of conscious or unconscious behaviors directed toward managing stressful life events (Lee et al., 2010). Within a cognitive model of coping, Folkman and Lazarus (1984) defined coping as one's constantly changing cognitive and behavioral efforts to manage specific external and/or internal demands that are appraised as taxing or exceeding the person's resources. Coping strategies refer to the specific efforts, both behavioral and psychological, that people employ to master, tolerate, reduce, or minimize stressful events.

Infertility is usually associated with huge psychosocial stressors that if not properly managed can be harmful to the sufferer. Infertility has been found to be a major source of stress that could adversely affect the mental health of infertile couples (De Berardis et al., 2014). However, the magnitude of the impact depends on certain personal coping strategies the couples adopt (Aflakseir & Zarei, 2013), which have been proven to be effective in minimizing the negative impact of the stressful situations.

In the Christian communities, infertile couples use coping strategies such as praying, fasting and waiting for the best time from God with the hope that God's time is the best and that time will certainly come (Dhont et al., 2010; Donkor & Sandall, 2009; Hess et al., 2018; Pedro & Andipatin, 2014; Romeiro, Caldeira, Brady, Hall, & Timmins, 2017; Karaca & Unsal, 2014; Aflakseir & Zarei, 2013). For example, about 88% women with

infertility who were Christian in a Ghanaian study said their hope is for the Lord to bless them with children and therefore coped with constant prayer (Donkor & Sandall, 2011). In South Africa, some infertile couples did not lose faith in their God even after failed attempt to be pregnant (Pedro & Andipatin, 2014). In some instances, women with infertility ask for prayers during women's meeting in church (Hess et al., 2018). Passive avoidance coping strategy is a strategy whereby women with infertility wished for a miracle and a positive changed has also been documented (Aflakseir & Zarei, 2013). On the hand, some women with infertility who are Moslems seek spiritual support from their leaders. For example, it is reported that some Moslem leaders write words from the Quaran and the name of Allah on a slate and wash for the woman with infertility to drink with the belief that she will conceive and get a child (Hess et al., 2018).

Other studies have reported increased distress among women who employ religious coping strategies. These categories of women were indicated to use negative methods of religious coping such as being furious with God for their infertility (Pargament et al., 1998; Ryan et al., 2012).

Other coping strategies such as expression of emotions was used by 37% of women with infertility challenge in Ghana (Donkor & Sandall, 2011). Child adoption has also been used by others to cope with their infertility in Pakistan (Sami & Ali, 2011). Some individuals adopt children informally from their family relations and friends as a means of fulfilling their role as parents. Interestingly, there is a debate on the acceptance of this approach in some context founded on the basis that adoption cannot be equivalent to your own child (Arya & Dibb, 2016; Turner & Nachtigal, 2010)

Vinitha, Angelita and Shobha (2015) in their study found the following as the major stress coping strategies used by women with fertility problems; seeking social support, positive reappraisal, self-controlling, distancing, planful problem solving, confrontative, escape avoidance and accepting responsibility (Vinitha, Angelita and Shobha, 2015). Also, Joshi, Singh and Bindu (2009) assessed the same stress coping strategies and found that women with fertility problems scored much lower than women without fertility issues (Joshi, Singh and Bindu, 2009). Jordan and Revenson (1999) reported that men and women used the Ways of Coping strategies and performed similar in the use of the strategies. However, women were found to use strategies that involved escape and avoidance, positive reframing of the situation, and seeking social support to a greater extent than men (Jordan and Revenson, 1999).

In addition, Hess et al (2018) conducted a study in Mali and found that people with issues of infertility use treatment (traditional/biomedical), religion and isolation as coping strategies for infertility.

### 2.5 Orthodox Treatment Options for infertility

The orthodox treatment method uses medicine or drugs and surgery in order to correct the abnormality causing the infertility. Current scientific innovation has enabled various fertility treatments to be carried out on couples with infertility to assist them achieve pregnancy. With the challenge that couples face, many fertility centres and clinics have sprung up purposely to help address these infertility issues. However, new reproductive technologies are either unavailable or very costly in developing countries (Ombelet et al., 2008). Cwikel, Gidron, and Sheiner (2004), in their study indicated that infertility extends beyond the loss of human potential; it comes with many more challenges that

needs to be tackled. In the quest of infertile couples to resolve the problem of infertility, they patronize various treatment options. Currently, the most effective form of interventions is the ART (Farquhar, Marjoribanks, 2018; Goldstein et al., 2015)

ART are innovative technologies which refers to treatments or procedures such as In vitro fertilization (IVF), handling of human oocytes and sperm or embryos for establishing a pregnancy. In general terms, ART refers to methods used to achieve pregnancy by artificial or partially artificial means. It has been seen to make a significant effect on the lives of many infertile couples. However, it has also been the source of great disappointment to those couples for whom ART has proven unsuccessful and to many more infertile people around the world who have no access to these technologies (WHO 2002; Lunenfeld & Van Steirteghem, 2004). ART have been found to be different from other medical procedures because they do not extend or improve life, but they create life and give hope to individuals who are looking for children for various reasons.

Even though it has been found to give hope to people (WHO, 2018), the process as stated by some studies has been found to be expensive (Habbema, 2018; Okafor et al. 2017; Sohrabvand & Jafarabadi, 2005; Connolly, Hoorens, & Chambers, 2010; Chambers, Sullivan, Ishihara, Chapman & Adamson, 2009), invasive and as a result may cause some complications to some individuals who seek the treatment (Schieve et al., 2002). It is one of many procedures in biomedicine that is increasingly complex. Since 1978, nearly one million babies have been born worldwide as a result of ART of one form or another (Sutcliffe & Ludwig, 2007).

ART is a demanding and stressful treatment for patients, requiring daily hormone injections, ultrasound scans, semen analysis and invasive procedures, such as oocyte retrieval (Santos, Kuijk, & Macklon, 2010). Furthermore, ART is the best option for infertile couples, and failure will probably mean they will remain childless. It is therefore not surprising that both women and men demonstrate elevated levels of anxiety during IVF treatment, especially at oocyte retrieval and pregnancy testing.

### 2.6 Traditional Treatment Options for infertility

Traditional medical regimens form part of the treatment modules that infertile couples usually seek in situations of childlessness. Most of these herbal clinics or medicine men are within the informal sector of the health industry in African and especially Ghana. The lack of data on the chemical compositions, mechanism of action of the herbal medicine and the efficacy, the concoctions used in their treatment modules makes it difficult to trust the treatment sometimes. The knowledge of these traditional treatments clinics or medicine men in African usually takes the form of radio advertisement and direct referrals, and sometimes herbal vans (Aziato & Antwi, 2016).

The use of herbal medicine in particular for infertility treatment is widespread in Africa (James et al., 2018; Kaadaaga et al., 2014; Donkor, 2008). For example, in Sierra Leone, herbal medicine called Lufa acutangular is predominantly used by infertile women (James et al., 2018).. In Ghana, herbal medicine were used to prepare soup and enema for infertile women (Donkor, 2008). Hess et al. (2018) described some of the traditional methodologies used in treating infertility in Africa. Women used rituals, sacrifices, and medicines made from plants, roots, tree bark, and branches to treat infertility. Either topical applications or brewing were employed (Hess et al., 2018). The worrying aspect

is that, in most cases these women conceal their usage from their physicians as found in Uganda where 76.2% of infertile women in a study of herbal medicine but failed to disclosed their physicians (Kaadaaga et al., 2014). In other part of the world, herbal medicines are used to complement the success of ART (Lans, Taylor-Swanson, & Westfall, 2018).

Contrary to the African traditional medical practice, there is huge data on Chinese traditional medical treatments for infertility. The available data shows that Chinese traditional treatment uses knowledge of the problem causing the infertility to prescribe treatment. A meta-analysis of Chinese traditional medical treatment for infertility by Reid and Staurt (2011) found Chinese herbal medicine can improve pregnancy rate by 2-fold within four months period compared to Western orthodox medicine. Their review findings also suggested reduction in treatment time frames, emotional and financial burden.

### 2.7 Sources of information for infertile couples

Infertility has now become a global public health issue with negative social, economic and psychology effects on the sufferers. Availability of information on the causes, effects, treatment options and coping strategies will help lessen the plight of the sufferers. Petterson et al. (2012) found that most childless couples get information on infertility from school, family, media, friends and doctors/gynecologist. Although these are the most widely used means of obtaining information on infertility, the reliability of the information provided is questionable. For example, the family member, friend or even the media used might not have the requisite knowledge on the matter and misinformation will do the patient more harm than good. There are professional

associations and organizations set to provide information and support to childless couples like the Association of Childless Couples of Ghana (ACCOG) (Osei, 2014). However, most of these organizations are located within the urban areas making it difficult for rural settlers to access their services.

### 2.8 Forms of Assisted Reproductive Technologies

Over the last four decades, ART has increased the chances of conception (Steptoe & Edwards, 1978; Farquhar, Marjoribanks, 2018; Goldstein et al., 2015). The number of countries now practicing ART has increased and it is available throughout Asia, the Middle East, South America, and parts of Africa. Different techniques of ART play important roles in infertility treatment (Widge, 2005). One of the most common ART includes but not limited to in vitro fertilization. Besides, there are other methods such as Intra Cytoplasmic Sperm Injection (ICSI), Gamete Intra fallopian Transfer (GIFT), Zygote Intra Fallopian Transfer (ZIFT), and Tubal Embryo Transfer (TET). Gamete and embryo cryopreservation, oocyte and embryo donation and gestational surrogacy have their roles in the process of ART (Cobo et al., 2008). IVF remains the most widely used procedure in the treatment of infertility and has a success rate of 23.8% (Nyboe et al., 2001). It has been reported that ART, especially IVF has been performed successfully in parts of Africa countries which indicate that ART are feasible in low resource settings if staffs are trained and equipment are available (Kibwana, 2003). The most widely practiced in the sub region include Artificial Insemination in Husband (AIH), Donor Insemination (DI), and In vitro fertilization (IVF) (Orhue & Aziken, 2008). The choice of a particular procedure or intervention depends on the cause of the infertility. Similarly, in Ghana, the ART commonly practiced in the fertility centres include IUI, IVF, ICSI and Percutaneous sperm aspiration (PESA). (Gerrits, 2016)

## 2.9 Health Seeking Behavior to Achieve Pregnancy

With regards to people's health seeking behaviour for infertility, Barden (2007) found that slightly less than 60% sought medical or indigenous treatment for fertility problems. Bunting and Boivin (2007) in their study reported that 55% of the infertile population seek medical advice in the hope of achieving parenthood. On the other hand, some other infertile women believed that emotional stress like worrying and tension account for their inability to conceive or failure with fertility treatment (Lord & Robertson, 2005) but doctors consider the stress factor to be negligible (Boivin et al. 2011). Women in Africa appear to use fertility services when they are relatively young and seek biomedical care below the age of 24 years compared to the developed countries ( oivin et al., 2007). On the contrary, a study Barden-O'Fallon, (2005) indicated that African women tend to seek help later compared to developed regions once they experience infertility (Barden-O'Fallon, 2005).

## 2.10 Factors influencing the Use of ART as Infertility Treatment

Infertility has a detrimental effect on relationships and it puts strain on both women and men (Karaca & Ulsal, 2014; Patel et al., 2016; Wiweko, Anggraheni, Elvira, & Lubis, 2017; Yusuf, 2016; Naab, Brown, Heidrich, 2012; Fido & Zahid, 2004). Attitudes toward ART are very much influenced by the specific cultural and social context and couples usually seek treatment for infertility as a result of social, religious and cultural influences (Widge, 2002).

In some jurisdictions, ART are frowned upon owing to specific customs and values (Jegede & Fayemiwo 2010). It is important to indicate that dearth of literature exist in this area and the few focuses on barriers to the use of ART. One of such barriers is

religion (Okafor et al., 2017). Many people especially in Africa hold strong religious belief. The belief that children are gift from God and therefore in his own time will provide is an important barrier to ART utilization (Okafor et al., 2017). Also, cultural belief attached to procreation, the meaning of IVF as a process, and partner inadequate cooperation are considered as barriers to ART use in Nigeria (Okafor et al., 2017). Salam and Salam (2016) recounted the genesis of some reactions of religious organisation during the early days of ART. According to the authors, ART is now accepted by a number of religious groups. However, Roman Catholics do not accept ART whereas other denominations such as Anglicans, Sunni Moslems accept most of its forms except gamete or embryo donation (Salam and Salam, 2016).

High cost of ART plays a significant role in its utilisation (Omokanye, 2017) as well as availability of ART centres (Oche et al., 2018). It is a known fact that ART is highly expensive and less accessible (Makuch & Bahamondes, 2012; Murage, Muteshi, & Githae, 2011; Chambers, Sullivan, Ishihara, Chapman, & Adamson, 2009; Inhorn & Patrizio, 2014). For example, In Kenya, the low financial status of patients makes it impossible for them to afford the high cost of ART (Murage & colleagues, 2011). The cost of an ART procedure in Brazil in the public facilities is between US$2,000-3,000 per cycle compared to around US$6,000 per cycle in the private sector ((Makuch & Bahamondes, 2012). In Brazil, long waiting time at the clinic and the complexity of scheduling process were important barriers to the use of ART (Makuch & Bahamondes, 2012)

## 2.11 Knowledge on Infertility and ART

The practice ART has increased globally with about 80% of the global population living in ART-approved-and-practiced countries (Collins, 2002). Knowledge of infertile couples about ART is a fundamental consideration as this helps to optimize the infertility treatment. Sohrabvand & Jafarabadis (2009) found that those individuals who had knowledge on the Process of ART tend to comply better whiles seeking treatment than those who do not have knowledge about the treatment.

In an international study among 17,500 individuals from ten countries in Europe, Middle-East, and South Africa, it was found that most of the people had little knowledge about fertility and reproductive process (Abolfotouh et al., 2013). Infertility, when addressed with increased awareness, acceptance, and access to artificial reproductive technology (ART) services, had led to an increasing number of individuals and couples utilizing ART to fulfill their reproductive desires. It must be noted that the level of awareness about ART among infertile couples, in spite of the history of ART, is not sufficient (Abbasi-Shavazi, Inhorn, Razeghi-Nasrabad, & Toloo, 2008).

In Ghana for instance, much has not been documented on the knowledge of individuals whiles seeking ART. It is therefore important to determine the knowledge that couple and individuals seeking ART have so as to inform ways of improving their level of treatment compliance.

## 2.12 Challenges of Assisted Reproductive Technology

ART, over the past decades have been seen to give hope to individual seeking for children, however it does not come without challenges (Chen, Chang, Tsai, & Juang,

2018; Peterson et al., 2007; Smeenk et al., 2001; Habbema, 2018; Okafor et al. 2017; Sohrabvand & Jafarabadi, 2005; Connolly, Hoorens, & Chambers, 2010; Chambers, Sullivan, Ishihara, Chapman & Adamson, 2009). The challenges span from psychological problems to cost implications of ART (Chen, Chang, Tsai, & Juang, 2018; Habbema, 2018; Okafor et al. 2017; Sohrabvand & Jafarabadi, 2005; Connolly, Hoorens, & Chambers, 2010; Chambers, Sullivan, Ishihara, Chapman & Adamson, 2009). The client seeking the various forms of treatment and with the support of the treatment centres must overcome these different forms of challenges if there is going to be hope of success. As observed by Polina (2014), the emergence of assisted reproductive technologies have given rise to multiple themes as well as cultural issues. These have to do with human rights, morality and gender roles. Cultural and religious values and beliefs, as well as the health care infrastructure and economic development, influence the level of services provided by fertility centres in any country. The decision about whether to start infertility treatments is very difficult and can provoke anxiety (Chen, Chang, Tsai, & Juang, 2018; Peterson et al., 2007; Smeenk et al., 2001). Nevertheless, negative emotions before starting ART might not always be detrimental for outcomes (Maroufizadeh, Karimi, Vesali, & Samani, 2015). Negative emotions and stress also vary during the course of treatment (Verhaak et al., 2007).

The treatments for infertility whether medical monitoring or hormonal therapy have led to physical, economic, and emotional effects. ART such as IVF and intra cytoplasmic sperm injection are complex and stressful, and can enhance an individual's or a couple's distress (Boivin, 2003). Several other research works have also emphasized on the need for effective communication between practitioners and the couples undergoing ART treatment procedures. Various researchers have documented that effective Physician-

Couple communication is directly proportional to positive ART treatment outcomes such as compliance and improved patient satisfaction, self-regulation and eventually coping (Stewart, 1995; Matusitz & Spear, 2014). Gameiro et al. (2012) found out from his study that poor communication and ineffective relationship building between physicians and couples undergoing ART treatment could be a cause of couple's dissatisfaction with the treatment and one of the main reasons why patients may terminate treatment or change clinic. Effective physician-couple communication has however been described as very complex and challenging to achieve. Leone et al. (2017) and Lolas (1999) reported that one reason that makes effective communication between physicians and couple challenging is the fact that a couple should be seen as a unit on one hand, but on the other, is comprised of two distinct individuals who possess different opinions and reactions (Lolas, 1999; Leone et al., 2017).

The success or failure of infertility treatment is another important factor that can alter the burden of psychological disorder. Failure of ART can exacerbate psychological problems (Peterson, 2005). Even after successfully completing the treatment process, a previous study have also shown that, although psychological symptoms can be somewhat resolved after fertility and pregnancy, the emotional adverse of infertility can remain for a long time (Cousineau & Domar, 2007). Klonoff-Cohen (2005) found that the success of ART may be reduced by psychological stress, anxiety, depression and feeling of distress. Ebbesen et al. (2009) also reported that the chances of achieving a successful ART is strongly reduced by the stress associated with participating in the ART treatment program itself. Several researchers works have also documented that infants conceived through ART like Intracytoplasmic sperm injection (ICSI) and In Vitro Fertilisation (IVF) are likely to suffer low birth-weightiness and early birth (Helmerhorst et al., 2004;

Jackson et al., 2004). Hansen et al. (2002) discovered that infants born through ART are two times more likely to suffer major birth defect.

### 2.12.1 Psychosocial Challenges of ART

Boivin (2003) describe psychosocial challenges, as issues that relate to social factors that are interrelated to the thought and behavior of an individual. It basically assesses the individual's perception of self as the individual's ability to function well during the period of seeking ART. The client may face a number of psychological and social issues, which may have impact on the treatment process. The purpose of psychosocial assessment of clients seeking ART is very important so as to identify specific challenges in the life of the client.

Various studies have focused on the psychosocial challenges that client face during each phase of seeking ART (Chen, Chang, Tsai, & Juang, 2018; Peterson et al., 2007; Smeenk et al., 2001). The level of psychosocial challenge varies according to the phase of treatment. A study by Holter, Anderheim, Bergh, & Möller (2006) found that women and men's emotional reactions after their first IVF cycle are dependent on whether they achieved a pregnancy or not. Those who failed to become pregnant rated their emotions worse, whereas those who became pregnant rated their emotions better than before treatment started. Men reacted as strongly as their wives did when pregnancy was not achieved, in the sense that they reported their emotions worse on the third measurement occasion as compared with the first occasion in a similar pattern as their wives. The results however show that for most couples, IVF treatment did not have any negative impact on their relationship during the period of time studied, independent of the

outcome of the IVF. It seemed as if most of the spouses tried to be close to and support each other during and immediately after ( Holter et al., 2006).

Salvatore et al. (2001) found in a study of the psychological profile among women seeking an IVF indicated that the women seeking IVF treatment showed an increased level of anxiety, emotional tension, apathy, sensitivity, and a different marital relationship pattern where the women felt unsatisfied with their emotional and sexual relationships, as compared with a control group of gynecological patients without any infertility problems.

Again, several studies have presented results concerning patients' experience of different treatment cycles. Holter et al. (2006), observed that first and last treatment cycles were associated with greater anxiety among women, whereas in a similar study by Boivin & Schmidt (2005), they found the highest levels of distress which was moderate to be in women who experience treatment failure. There was however no relationship between distress and years of infertility (Holter et al., 2006).

Another report indicated that there was an intensity of grief reactions reported among women after a failed first cycle of treatment. Women with repeated cycles facing a further risk of developing severe depressive symptoms (Verhaak et al., 2007). (Boivin, Griffiths, &Venetis(2011) cited a study that most ART patients expect treatment to be stressful, and in 30% of the cases, couples prematurely end ART treatment due to the psychological burden associated with it (Olivius, 2004).

### 2.12.2 Economic and Geographic Accessibility

Effective infertility treatments and ART are generally inaccessible in the resource-poor settings (Makuch & Bahamondes, 2012; Murage, Muteshi, & Githae, 2011; Chambers, Sullivan, Ishihara, Chapman, & Adamson, 2009; Inhorn & Patrizio, 2014; Balen & Gerrits, 2001). Access could be geographical or economic. Geographical access takes into consideration the location of the fertility centres in relation to the client's usual residence location. The centres and physicians providing assisted reproductive technologies are often located in cities and therefore makes it often time consuming and expensive for couples from more remote areas to access.

In Ghana, most of the fertility clinics are geographically inaccessible as their availability is restricted to urban centres in only three out of the 10 regions of the country. With regards to economic access, ART is limited by economic status, as it is not easily affordable. The mean cost of a single IVF cycle in an international survey of 25 countries ranged from $1300 in Iran to $6400 in Hong Kong (Nachtigall, 2006). In all of these countries, the cost of a single cycle was more than half of an average individual's annual income. Hence the ability to raise the needed funds practically serves to limit access to these technologies for most couples. With these findings, it is obvious that relatively few of the world's infertile men and women can be said to have complete and equitable access to the complete range of infertility treatments at affordable levels (Nachtigall, 2006). It has been noted that the financial burden of ART is much heavier in low-resource countries, where state-subsidization rarely exist (Inhorn, 2009).

In Sub Saharan Africa, assisted reproductive technologies are available but mostly delivered by the private sector (Gerrits, 2016), making the service accessible only to the

middle and upper classes (Ajayi, Bolton, & Parsons, 2000). In Nigeria, a cycle of IVF costs an equivalent of about $ 2000 – $ 2700 (250,000 to 350,000 Naira) (Ola, 2012). As a result, for an average Nigerian, ART is not currently affordable and easily accessible. The treatments are restricted to the private sector contributing to the high cost as it is not done in the public sector because of lack of funds. In Ghana, anecdotal evidence shows that no government subsidy is available for client seeking ART. The average cost of ART ranges between ¢30000 and 50000 ($5263-8771) depending on the facility and the number of cycles

### 2.12.3 Ethical Challenges

There are numerous ethical and social questions associated with the treatment for infertility through assisted reproduction. The pride and joy that come with couples raising their own child leave most couples with infertility worried and distressed and so resort to ART treatments in order to give birth to their own biological children. Irrespective of the fact that ART such as In-vitro Fertilization (IVF), Gamete Intra Fallopian Transfer (GIFT), Intracytoplasmic Sperm Injection (ICSI) give hope to couples with infertility, still a number of cultures detest its implementation (Jegede & Fayemiwo 2010).

ART has many facets that contribute to the ethical arguments surrounding it. It tends to give another meaning to parenting since it involves many people contributing to the procedure. This is done so as to maximize the chances of a successful pregnancy. In many countries, questions of parentage and legitimacy of children born as a result of ART involving a donor are unresolved. There are objections to this, which are often based on preconceived ideas of what should constitute a family unit (Ola, 2012). As a

result of these challenges in relation to the different aspects of this technology, many serious socio- economic as well as psychological issues come to the fore.

### 2.13 Coping Strategies Used by Couples Undergoing ART

ART is associated with so many challenges (Gameiro, Boivin, Peronace, & Verhaak, 2012; Verhaak, Lintsen, Evers, & Braat, 2010; Boivin,Griffiths, Venetis, 2011). Due to these challenges, ART users adopt different coping mechanisms to deal with it (Lee et al., 2009; Schmidt, Christensen, & Holstein, 2005; Mohammadi, Samani, Navid, Maroufizadeh, & Sabeti, 2018). Folkman and Lazarus (1988) way of coping has been used extensively to identify types of coping strategies used by clients undergoing ART. Confrontational coping strategy has been well documented in literature (Mohammadi et al., 2018; Peterson 2006, Edelmann et al., 1994). For example, in the USA, a study by Peterson, et al. (2006) found that women used proportionately greater amounts of confrontational coping strategies whiles seeking ART. Also, social support is crucial in achieving successful of ART treatment outcome (Gameiro et al., 2016). This is supported by other studies conducted elsewhere which indicate the significant role of social support during the ART process (Mohammadi et al., 2018; Gameiro et al., 2016).

The use of escape avoidance has been used by infertile couples in previous studies (Peterson et al., 2006; Schmidt, 2006). For example, a study conducted in Jordan found that avoidance of social interaction was common among the infertile couples. According to the authors, the underlying reason was to avoid reflecting on their infertility experiences.

## 2.14 Summary of the Literature Review

The literature is organised according to the specific objectives of the study. Various beliefs about significance of children in Ghana and beyond were reviewed. In addition, psychosocial experiences of women with infertility and how infertile women cope with infertility experiences were reviewed. Furthermore, factors which influences ART utilisation and its challenges were done. Coping strategies of women seeking ART has also been reviewed.

# CHAPTER THREE

# METHODOLOGY

## 3.0 Introduction

This section presents the methods used in this study. It includes the study design, study settings, target population, sampling, and sampling methods. In addition, the description of variables, data collection tools, data analysis, ethical considerations, and quality control have been discussed. Refer to figure 3.2 for a diagrammatic summary of the methodology.

## 3.1 Study Design

Research design is a blueprint for conducting a study (Polit & Beck, 2014; Burns, Grove & Gray, 2015). In this study, a mixed method approach (Cronholm & Hjalmarsson, 2011; Burns, Grove & Gray, 2015; Polit & Beck, 2014), specifically, the convergent parallel mixed method was used (Creswell & Pablo-Clark, 2011). The mixed method approach generates a broad knowledge about a phenomenon and produces a trustworthy result unlike the use of two separate approaches (Cronholm & Hjalmarsson, 2011). Green et al. (2016) posit that a mixed method design can be used concurrently or sequentially in a particular study. Specific to this study, a convergent parallel mixed method approach in which a researcher collects quantitative and qualitative data concurrently, analyses the two data separately at the same time, and then compares the results to see if the findings confirm or disconfirm each other was used (Creswell & Clark, 2011; Kettles, 2011; O'Neill 2017; Leech & Onwuegbuzie, 2009). The most important consideration in the convergent parallel mixed method is the need to integrate both the qualitative and quantitative data in any of the stages of the research process (Green et al., 2016). The integration could be done at the time of data collection, during

analysis, or during interpretation (Green et al., 2016). However, this present study integrated the quantitative and the qualitative data at the discussion stage where the results of the qualitative and quantitative were interpreted (Creswell & Pablo-Clark, 2011).

With respect to the qualitative design, exploratory phenomenology approach was used (Burns & Grove, 2015; Polit & Beck, 2014). This was appropriate because of the interest of the researcher had in understanding the meanings clients with infertility attach to their experiences (Grossoehme, 2014; Burns & Grove, 2015; Polit & Beck, 2014). Furthermore, given the fact that little was known about the challenges infertile clients faced and the type of coping strategies used, a qualitative phenomenological approach was best suited for this study in the context of Ghana.

On the other hand, the quantitative aspect of this study employed a cross-sectional study design. Cross-sectional survey involves the collection of data during a single period of study without a follow up (Setia, 2016; Polit & Beck, 2014; Levin, 2006). The measurement focuses on the outcome and the exposures in the participants at the same time (Setia, 2016).

### 3.2 Study Settings

The study was conducted in some selected private fertility centres in the Greater Accra region. The region is the smallest in size among the ten administrative regions in Ghana (Ghana Statistical Service, 2013). The region lies within longitude 0.0747E and latitude 5.8143 N. It is bounded on the north by the Eastern Region, Volta Region on the East,

Gulf of Guinea on the south, and on the west by the Central Region (Ghana Statistical Service, 2013).

Greater Accra has a coastline of approximately 225 kilometers, stretching from Kokrobite in the west to Ada in the east. It occupies a total land surface of 3,245 square kilometres and 1.4% of the total land area of Ghana(fig 3.1).According to the recent population and housing census report, Greater Accra region has a population of 4,010,050 (Ghana Statistical Service, 2013), accounting for 16.3% of Ghana's total population. It is the most urbanised region in the country with 87.4% of its total population living in urban centres. The region has one teaching hospital, one regional hospital and several district hospital that offer both curative and preventive services to the citizenry. Reproductive health services are also offered in these hospitals. However, Assisted Reproductive Technology(ART) are mostly done by private facilities in the region with less or no involvement of public health facilities. Refer to the Table 3.1.

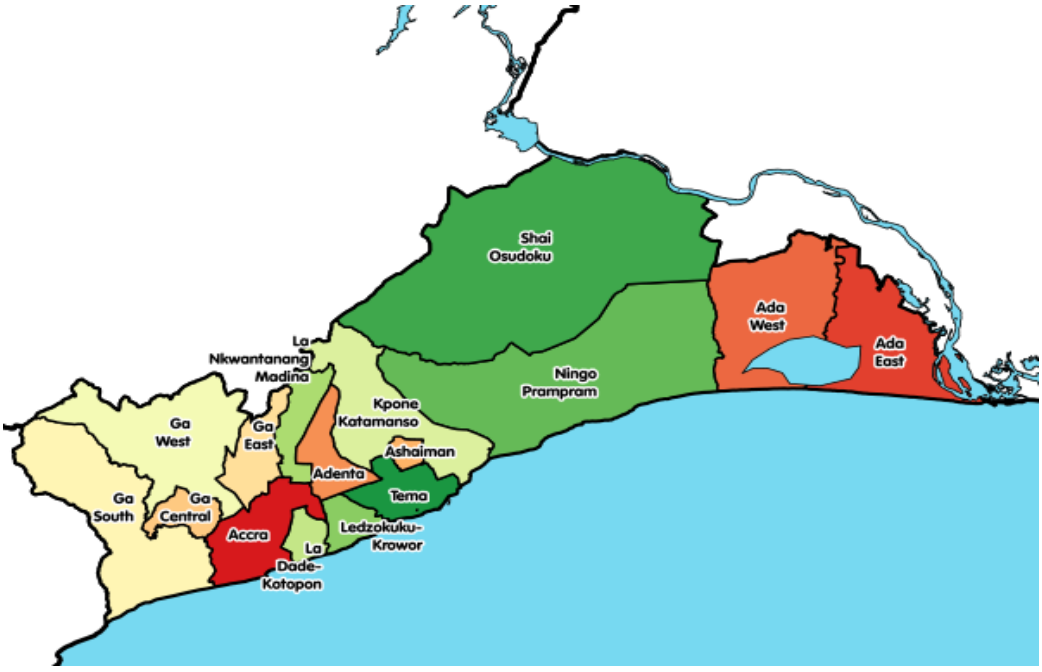


**Figure 3.1: The map of Greater Accra Region (Source: https://en.wikipedia.org/wiki/Greater Accra Region. Accessed 29/10/18)**

### 3.2.1 Health Infrastructure and Fertility Healthcare Services

The Greater Accra Region has various social amenities including several government and private health facilities. About four-fifths of the households in the region have access to health facilities. These health facilities include privately owned fertility hospitals, which offer Assisted Reproductive Technology services to members of the population who have challenges with infertility. According to the Fertility Society of Ghana (FERSOG), which was launched in September, 2016 with the aim of bringing together all the stakeholders under one umbrella, there are about thirteen (13) recognised fertility centres in Ghana, out of which eleven (l1) facilities are located in the Greater Accra region, one (1) located in the Ashanti Region and one (1) in the Western Region. These fertility centres provide various forms of ART in the country.

Baldur-Felskov, B., Kjaer, S. K., Albieri, V., Steding-Jessen, M., Kjaer, T., Johansen, C., ... & Jensen, A. (2013). Psychiatric disorders in women with fertility problems: results from a large Danish register-based cohort study. Human reproduction, 28(3), 683-690.

Out of the 11 facilities in the greater Accra region, Five were used as data collection sites because at the time of data collection,two out of the eleven were not in full operation of ART services and one of the facilities had collapsed. These five facilities had clients undergoing various types of ART processes. Various types of ART including In Vitro Fertilisation (IVF), Intra Cytoplasmic Sperm Injection (ICSI), Intrauterine Insemination (IUI), sperm donation, embryo donation, oocyte donation, sperm freezing, oocyte freezing, embryo freezing and sperm DNA fragmentation (comprehensive semen analysis). The sites include Jubail Fertility Hospital in Sakumono, Lister Hospital and Fertility Centre, Finney Hospital and Fertility Centre at Weija, Tema Women’s Hospital

in Tema and Lapaz Community Hospital, located in Lapaz. A brief overview of these centres is presented below:

#### 3.2.1.1 Facility One: Lister Hospital and Fertility Centre

Lister Hospital and Fertility Centre is widely recognised as one of the leading centres in West Africa (Lister Hospital and Fertility Centre, 2006). It is located at the Airport Hills on the Spintex Road, in the Greater Accra Region of Ghana. It was established in 2003 and is currently one of the most technologically advanced private hospitals in the country. It offers modern and advanced medical treatment for both in and out patients. It has highly trained medical staff, an Obstetrician Gynecologist consultant and fertility specialist with several years of experience in the field working with a team of doctors, nurses and scientists whom have specialised in various forms of Assisted Reproduction Technologies and also provide extensive general and specialist health care and diagnostic services (Lister Hospital and Fertility Centre, 2006).

### 3.2.2 Facility Two: Jubail Specialist Hospital

It was established in 1996 and IVF started in 2007. It is located in Community 13, Sakumono in the Greater Accra Region. It offers services for both in and out patient treatments. The services provided in the facility include IVF, ICSI, IUI, embryo and sperm storage, and fertility counseling.

### 3.2.3 Facility Three: Finney Hospital and Fertility Centre

Finney Hospital and Fertility Centre is located at Mile 11 Junction of New Bortianor, McCarthy Hill- Weija Road. The facility offers both in-patient and outpatient services

including general and specialised services. The fertility centre offers assisted conception services which includes IUI, IVF, ICSI, and third-party IVF.

### 3.2.4 Facility Four: Tema Women's Hospital

Tema Women's Hospital was established in April 1996 with the aim of providing health care with dignity. In 1999, the fertility centre was established. The hospital is located in Tema Community 11, in the Greater Accra region. The facility provides services in obstetrics and gynecology, as well as general clinic for both in-patient and out- patient.

### 3.2.5 Facility Five: Lapaz Community Hospital and Fertility Centre

The hospital is located at Lapaz in the Greater Accra Region. It was established on the 19th September 2003. The facility offers various forms of ART, including surgical sperm retrieval, IVF, ICSI, and IUI.

## 3.3 Study Respondents

The study respondents for the qualitative study involved men and women who had been diagnosed with either primary or secondary infertility and were undergoing ART. More women *(n*=12, 67%) and a few men *(n*= 6, 33%) were interviewed because the women underwent all of the treatment phase and so were present at the fertility centres throughout the period of treatment. The men, in contrast, usually go through the first phase of treatment for sperm donation (Peterson, 2006) and so were not often available at the various fertility centres. The respondents were purposively selected for the in-depth interviews.

The respondents for the quantitative study were all women (n=100%) undergoing ART. These women were at the various phases of the treatment. In phase one, clients had just begun the treatment process and had gone through the initial assessment and evaluation before being assigned to the specific ART. Phase two (2) involved clients who were going through the actual treatment process (hormonal treatment) or embryo transfer and were waiting on pregnancy tests. Phase 3, which are the final stage, comprise clients who had a successful hormonal treatment, tested positive for pregnancy or had been delivered of babies after they undergone through the treatment. The selection of women entirely for the quantitative part of this study was informed by the fact that, women go through all the phases of ART: and therefore, were in a better position to describe how they cope at the different levels of the treatment.

### 3.4 Inclusion Criteria

The inclusion criteria have been presented according to the two research designs used.

#### 3.4.1 Inclusion Criteria for Qualitative Design

- Male and female clients diagnosed with either primary or secondary infertility and were seeking ART in any of the selected fertility centres and consented to participate in the study.

#### 3.4.2 Inclusion Criteria for Quantitative Design

- Female clients diagnosed with either primary or secondary infertility and were undergoing ART in any of the selected fertility centres
- Female clients with infertility who consented to participate in the study.

### 3.5 Exclusion Criteria

#### 3.5.1 Qualitative/Quantitative Exclusion Criteria

- Male and female Clients with infertility who were opting for surrogacy as a means of ART were excluded because this form of ART had different processes and therefore clients were more likely to have different challenges as well as different coping strategies.

### 3.6 Sample and Sampling Technique

The qualitative study used the purposive sampling technique to recruit the study respondents (cf.Etikan et al., 2016; Palinkas et al., 2015; Burns & Grove, 2015; Polit & Beck, 2014). Purposive sampling technique is a type of non-probability sampling technique whereby a researcher consciously selects certain respondents based on the inclusion criteria with the aim of obtaining rich information using in-depth interviews (Burns, Grove &Gray, 2015). Overall, eighteen (18) respondents who were at different stages of the treatment were recruited for the elicitation of information the researcher used as data for the study.

The convenience sampling technique was used to recruit respondents into the quantitative study (Burns & Grove, 2015; Polit & Beck, 2014; Etikan et al., 2016). Etikan and colleagues (2016) described the convenience sampling technique as a type of nonprobability sampling technique where respondents are selected based on some criteria including easy accessibility, geographical proximity, and availability at a given time, or the willingness to participate.

### 3.6.1 Quantitative Sampling

The sample size was calculated using the Cochran's (1977) formula as follows:

$$n = \frac{(r+1)\left(Z_{\frac{\alpha}{2}}\right)^2 \times p(1-p)}{e^2} \times deff$$

$n$ is the sample size required, $Z_{\frac{\alpha}{2}} = 1.96$ is the standard normal variate for a two tailed test, $p = 9.0\%$ is the proportion of population seeking assisted reproductive technologies (Daar & Merali, 2002,World Health Organisation), $e = 5.0\%$ is the margin of error, $deff = 1.5$ is the design effect. Substituting these figures in the equation and assuming a non-response rate ($r$ ) of 12.0% gave a sample size of approximately **212**.

The 12% adjustment for non-response rate was intended to increase the sample size to achieve statistical power .Although 10% adjustment for nonresponse rate could help obtain the minimum sample size to achieve statistical power, the additional 2% adjustment was intended to further increase the sample size to achieve more power and minimize statistical error in an attempt to approximate the population parameters in accordance with the central limit theorem.

### 3.7 Selection of Facilities

The number of facilities divided the total sample size and each facility had equal number of samples selected. For the qualitative data collection, twelve women (12) and six (6) men were selected. In each facility, two (2) women and One (1) man seeking treatment were selected. However, four (4) women and two (2) men were selected from Lapaz Community Hospital because the men availed themselves more as compared to other facilities. Refer to table 3.1 for details.

With regard to the quantitative data, the samples were equally allocated among the facilities because of similarities in their bed capacities. The number of facilities divided the total sample size and therefore forty-two (42) women were recruited from each fertility hospital; with the exception of LCH, where forty-three (43) respondents were selected. The respondents were recruited from each of the three phases of treatment. Overall, seventy respondents were sampled from treatment phase one and three whereas seventy-one respondents were sampled from phase two. Refer table 3.2 for details.

**Table 3.1: Selection of Facilities for Qualitative Data**

| | Female Respondents | | | Male Respondents | | | Total Respondents |
|---|---|---|---|---|---|---|---|
| Treatment phase | PH1 | PH2 | PH3 | PH1 | PH2 | PH3 | TOTAL |
| Facility | | | | | | | |
| Jubail Hosp | 1 | 1 | - | 1 | - | - | 3 |
| Lister Hosp | 1 | 1 | - | - | 1 | - | 3 |
| Tema Women Hosp | - | 1 | 1 | 1 | - | | 3 |
| Finney Hosp | - | 1 | 1 | - | 1 | - | 3 |
| Lapaz Comm,Hosp | 1 | 2 | 1 | - | 1 | 1 | 6 |
| **TOTAL** | 3 | 6 | 3 | 2 | 3 | 1 | **18 Respondents** |

**Table 3. 2: Selection of Facilities for Quantitative Data**

| Facility | Phases of ART | | | |
|---|---|---|---|---|
| | **Phase 1 (Pre treatment)** | **Phase 2 (Hormonal treatment)** | **Phase 3 (Pregnancy or otherwise)** | |
| Jubail Hosp | 14Clients | 14Clients | 14Clients | 42clients |
| Lister Hosp | 14Clients | 14Clients | 14Clients | 42clients |
| Finney Hosp | 14Clients | 14Clients | 14Clients | 42clients |
| Tema Women | 14Clients | 14Clients | 14Clients | 42clients |
| Lapaz Comm | 14Clients | 15Clients | 14Clients | 43clients |
| **TOTAL** | **70clients** | **71clients** | **70clients** | **211clients** |

### 3.8 Data Collection Instrument

In gathering the qualitative data, in-depth interviews using a semi structured interview guide was used. This was intended to obtain insight into the respondents' experiences with infertility and ART coping mechanisms (Munhall, 2012). The interview guide was developed based on literature and consultation with experts in the field of qualitative research and infertility. Some of the questions explored during the interview included the knowledge and perception of the respondents about ART, the reasons underlying their decision to seek ART, the challenges they encounter at every stage of treatment as well as the coping strategies they adopt. The interview guide was piloted using two respondents and the comments were used to improve the clarity of the guide.

On the other hand, the quantitative data collection was done using a questionnaire, which measures Ways of Coping (WOC), developed by Folkman and Lazarus (1988). Some modifications were made on the instrument to ensure cultural appropriateness of the

items. The overall Cronbach's alpha of 0.79 was then determined in this study to establish the reliability of the instrument. The WOC questionnaire has been used widely by various studies in different areas (eg Mohammadi, Samani, Navid, Maroufizadeh, & Sabeti, 2018; Schmidt, Christensen & Holstein, 2005; Hashim, Soliman, & Mansour, 2012). For example, in Egypt, Hashim, Soliman, & Mansour (2012) used WOC to identify couples' adjustment to failed ART after counseling. In this present study, the questionnaire was used to identify the ways by which respondents coped while seeking ART. This set of questions covered a variety of areas related to coping that the couple may have engaged in dealing with the fertility treatment problems. In fact, some items (16 questions) that was unclear and unrelated to the subject area (coping with ART) were either rephrased or deleted: 50 out of the 66 items in the WOC questionnaire were finally used. The questionnaire assessed the thoughts and actions that an individual uses to cope with these stressful encounters, which could be clinical or nonclinical. The original WOC is a 66-item questionnaire that has been grouped under eight domains. Each domain had a minimum of four items and a maximum of eight items under the eight themes that measure coping. These themes are confrontation, distancing, self-control, social support, accepting responsibilities, escape avoidance, problem solving and positive reappraisal (Folkman &Lazarus (1988). Refer to Table 3.3 for a summary of the WOC tool. The respondents responded on a 4 point scale: 1=not used, 2= somewhat used, 3= used quite a bit and 4=used a great deal (Refer Appendix 3 for detailed questionnaire used).

### 3.9 Data Collection Procedure/Methods

This section involves the description of the data collection procedure as well as the methods used. It involves both quantitative and qualitative methods, where data was

collected concurrently. Following ethical clearance from the Ghana Health Service Ethical Review Committee, the researcher visited the selected facilities to discuss the purpose of the study with the management of a selected facility and to seek permission. All the facilities granted approval for recruitment of the respondents from their centres.

The qualitative data was collected using in-depth interviews. The respondents who met the inclusion criteria were contacted and recruited by the Obstetric/Gynecologist or the embryologist and they were linked to the researcher. The researcher further explained the purpose of the study to the respondents before they were given a consent form to sign. To ensure privacy, the interviews were conducted in private rooms at the fertility centres. The rooms for the interviews were well enclosed and therefore it was impossible for an outsider to hear the issues being discussed. The researcher conducted all the interviews. The interviews were audio-recorded after the respondents granted the researcher the permission to do so. In all, six clients refused to participate in the study and cited reasons such as lack of interest to share their experiences, unwillingness to discuss the sensitive nature of ART, and inadequate time, since the primary aim of their visit was to receive prescribed injections and to return to work. Data saturation was reached by the 13$^{th}$ respondents however, an additional five interviews were conducted to ascertain whether new relevant issues would emerged (Polit & Beck, 2014). Each interview lasted for about forty-five minutes to one hour. All the interviews were conducted in English language. The period for data collection spanned over nine (9) months.

Furthermore, the quantitative data was collected from respondents who were not included in the qualitative data. This occurred because the respondents were unwilling to stay longer since their primary focus was on the treatment. The researcher and three

trained research assistants did the administration of the questionnaires. These research assistants were made to sign confidentiality agreement before commencing the data collection. This was done to protect the respondents' right to privacy. The respondents were given the questionnaires to fill out after signing the consent form. The answering of the questionnaire lasted between 10 to 15 minutes. The questionnaire spanned across socio- demographic characteristics of the respondents to infertility-related health information questions. The questions included age, educational level, income status, marital status, length of marriage number of children, primary or secondary infertility (ever been pregnant or not), cause of infertility and how long they had been seeking infertility treatment and challenges during ART.

**Table 3.3: Summary of Ways of Coping Tool**

| COPING STRATERGY THEMES | DESCRIPTION | SCALES |
|---|---|---|
| Confrontational Coping Strategy | These are the strategies in which the person presents an active attitude related to the stressing agent. It is an aggressive strategy for coping with situations | • Stood my ground and fought for what I wanted.<br>• Tried to get the person responsible to change his or her mind.<br>• I expressed anger to the person(s) who caused the problem<br>• I let my feelings out somehow.<br>• Took a big chance or did something very risky<br>• I did something which I didn't think would work, but at least I was doing something |
| Distancing Coping Strategy | It is a defensive strategy the individual avoids the threat in an effort to change the situation. Denying the fact of their illness to themselves and not considering what other people say | • Made light of the situation<br>• Refused to get too serious about it<br>• Went on as if nothing had happened.<br>• Didn't let it get to me, refused to think too much about it.<br>• Tried to forget the whole thing.<br>• Tried to look on the bright side of things.<br>• Went along with fate; sometimes I just have bad luck. |
| Self-control Coping Strategy | It regards the person's efforts in trying to control emotions when facing stressful stimuli | • I tried to keep my feelings to myself<br>• Kept others from knowing how bad things were.<br>• Tried not to burn my bridges, but leave things open somewhat.<br>• I tried not to act too hastily<br>• I tried to keep my feelings from interfering with other things too much.<br>• I thought about how a person I admire would handle this situation and used that as a model |
| Social Support coping strategy | It is a coping strategy that takes into account the support found in people and the environment. It is a positive psychosocial factor | • Talked to someone to find out more about the situation.<br>• Talked to someone who could do something concrete about the problem.<br>• I asked a relative or friend I respected for advice.<br>• Talked to someone about how I was feeling.<br>• Accepted sympathy and understanding from someone.<br>• I got professional help. |
| Acceptance Responsibility Coping Srategy | It is used to accept reality and commit to the process of coping with a stressing situation | • Criticised or lectured myself.<br>• Realised I brought the problem on myself<br>• I made a promise to myself that things would be different next time<br>• I apologised or did something to make up. |
| Escape-Avoidance Coping Strategy | It consists of fantasising about possible solutions for the problem | • Wished that the situation would go away or somehow be over with |

| | | |
|---|---|---|
| | without taking any actions to actually change them. It as an effort to escape and/or avoid the stressing agent. | • Hoped a miracle would happen.<br>• Had fantasies or wishes about how things might turn out.<br>• Tried to make myself feel better by eating<br>• Avoided being with people in general.<br>• Refused to believe that it had happened.<br>• Took it out on other people.<br>• Slept more than usual |
| Problem Solving Coping Strategy | It presumes appropriate planning to cope with stressing agents. Instead of avoiding it or distancing themselves from daily life, one choose to solve the problem by changing their attitudes, making them able to cope with the pressure from people and the environment around them, decreasing or eliminating the stress-generating source. | • I knew what had to be done, so I doubled my efforts to make things work.<br>• I made a plan of action and followed it.<br>• Just concentrated on what I had to do next<br>• Changed something so things would turn out all right.<br>• Drew on my past experiences; I was in a similar situation before.<br>• Came up with a couple of different solutions to the problem. |
| Positive Reappraisal Coping Strategy | it is a coping strategy guided towards controlling emotions that regard sadness as re-interpretation, growth and personal change arising from a conflict situation. | • Changed or grew as a person in a good way.<br>• I came out of the experience better than when I went in<br>• Found new faith.<br>• Rediscovered what is important in life.<br>• I prayed<br>• I changed something about myself<br>• I was inspired to do something creative. |

### 3.10 Data Analyses

The data was analysed based on the data collected. Qualitative and quantitative data were analysed separately and the details has been presented below.

#### 3.10.1 Qualitative Data Analysis

The qualitative data was analysed using a content analysis technique with NVIVO version 10.0 software.All the audio recorded in-depth interviews (IDIs) were transcribed verbatim and they were all in the English language and therefore there was no need for transcription from local language to English. The transcriptions were done by the researcher. This afforded the researcher the opportunity to immerse herself in the data

and be familiar with the content. After several readings, the researcher coded the transcript (Polit & Beck, 2014; Burns, Grove, Gray, 2015; Creswell, 2014). Coding is the process of reading the data, breaking the text down into subparts, and giving a label to that part of the text to form categories (Burns, Grove& Gray, 2015; Wong, 2008) Themes were then generated from the codes (Lacey & Luff, 2009). This stage of the data analysis was crucial (Wong, 2008) since it serves as the pivotal link between data collection and the meaning of the data. The concluding step in data analysis is the interpretation of the results. In this study, various themes were identified from the coded data and sub-themes emerged from the themes that describe the experiences of the respondents. Refer to Table 3.4 for details of the themes and subthemes.

**Table 3.4: Themes and Sub-Themes for In-depth Interviews**

| Theme | Sub Themes |
|---|---|
| A. Beliefs about the value of children | 1. Cultural significance<br>2. Couple satisfaction<br>3. Family inheritance<br>4. Companionship<br>5. Affection |
| B. Experiences with infertility | 1. Psychological experiences<br>2. Social experiences of infertile clients<br>3. Divorce<br>**4.** Stigma |
| C. Coping strategies of infertile clients | 1. Faith based Strategies<br>2. Displacement<br>3. Fostering |
| D. Source of ART information | 1. Media<br>2. Friends referral<br>3. Hospital referral |
| E. Contributing factors to the uptake of ART | 1. Years of Marriage<br>2. Quest for biological children |
| F. Pre-**ART** health seeking practices of infertile clients | 1. Herbal treatment<br>2. Use of Orthodox medication |
| G. Challenges associated with assisted reproductive technologies | 1. Pre-treatment challenge/initial treatment (Phase 1)<br>• Cost of treatment<br>• Anxiety of success<br>• Facility Challenges<br>2. Challenges during treatment (Phase2)<br>• Anxiety of success about the outcome of this process.<br>• Treatment challenges<br>• Finance<br>• Work challenges<br>• Distance to facilities<br>3. Post Treatment Challenges (Phase3)<br>• Anxiety about Pregnancy<br>• Finance<br>• Pregnancy Challenges |
| H. Coping with assisted reproductive technology | 1. Faith based coping<br>2. Confrontational /risk taking<br>3. Positive-Reappraisal<br>4. Family/spousal support<br>**5.** Self Determination |
| | 1. Concealment from family |

I. Concealment of ART treatment
2. Reasons for concealment
1. Disclosure to family and friends
J. Disclosure of Assisted Reproductive Technology

**SOURCE: Emerged from the In-depth Interviews**

### 3.11 Quantitative Analysis

#### 3.11.1 Data Processing/Analysis

This study assessed the effect of socio- demographic factors, place of seeking care (fertility centre), cause of infertility and treatment phase on the overall coping strategy of women seeking childbirth.

#### 3.11.2 Data processing

The quantitative data was manually entered into excel and was cleaned by running preliminary frequencies of all the variables to check for inaccuracies. Cleaned data was then imported into Stata version 14.0 for analysis. Missing data was handled using pairwise deletion.

#### 3.11.3 Descriptive statistics

Frequency distribution was obtained from categorical variables such as age, sex, marital status, years of marriage and phases of treatment, which are presented in tables. The mean coping strategy was calculated for each of the eight coping subdomains. Based on the percentile distribution of the mean scores, the respondents were grouped into low, moderate, high and very high coping groups based on the categorization on their percentiles. Specifically, respondents obtaining a mean score below the $25^{th}$ percentile value were classified as low, moderate ($25^{th}$-$50^{th}$ percentile), high ($50^{th}$ -$75^{th}$ percentile) and very high (>$75^{th}$ percentile value). To determine the coping strategies commonly

used by the respondents seeking ART, the percentile group of the respondents discussed previously was used. Specifically, respondents in the $50^{th}$ to $100^{th}$ percentiles were coded as "yes" (1) to indicate that they have used the various coping strategies highly. In the similar manner, those in the low percentiles were coded as "no" (2), reflecting a low usage of the various coping strategies (Refer table 5.22).

### 3.12 Inferential analysis

The Chi-square test of independence and Fisher's exact test, were used to determine the association between the study variables; whereas group differences were examined using the one-way analysis of variance and Kruskal Wallis test for normally and non-normally -distributed outcome variables, respectively. To quantify the effect of these predictors on coping strategy, the mean coping scores were maintained as quantitative continuous variable and series of multiple linear regression models with robust standard errors were fitted to determine the relative effect of these predictors.

Detailed residual analysis was conducted to check for normality, homoscedasticity, leverage and linearity assumption. In the case where the residuals were not normally distributed, the outcome variable was log-transformed to approximate normality before fitting the model. Variance inflation factors were used to determine the presence of multi collinearity in the fitted models. That is, the overall coping strategy was re-categorised into the ordinal scales (low, moderate, high, very high) and ordered logit model was fitted to quantify the effect of the predictors.

The proportional odds assumption required for coefficient estimates of the ordered logit models to be valid was investigated using the likelihood-ratio test of proportionality of

odds. In other words, ordered logistic regression assumes that the coefficients that describe the relationship between, say, the low coping strategy versus all higher categories of the response variable are the same as those that describe the relationship between the next lowest category and all higher categories. Similar statistical analytic technique was adopted in determining the effect of socio demographic factors, place of seeking care (fertility centre), cause of infertility and treatment phase on each of the eight domains of coping strategy. All tests were done at 5% level of significance.

### 3.13 Methodological Rigour (Trustworthiness) of the Qualitative Design

Trustworthiness refers to the soundness of a study in terms of planning, data collection, analysis, and reporting (Guba & Lincoln, 1985; Polit & Beck, 2014). According to Lincoln and Guba (1985), trustworthiness involves credibility, transferability, dependability and confirmability.

#### 3.13.1 Credibility

Credibility refers to the confidence in the truth of the data (Polit & Beck, 2014). Credibility was achieved in this study by piloting the interview guide using two respondents. This was to establish whether the protocol was robust enough to obtain appropriate response to the research questions. In addition, the transcription, field diaries, and voice records were compiled into an audit trail.

#### 3.13.2 Dependability

It refers to stability of the data over time and over conditions (Polit & Beck, 2014). According to Lincoln and Guba's (1985) framework, dependability deals with how reliable data will be over time as well as its accuracy and consistency. To ensure

dependability of the findings in this study, the methodological processes were documented in detail to enable future researchers to repeat the process. Also, the researcher and supervisory team examined the data collected throughout the entire research work.

### 3.13.3 Confirmability

According to Polit et al. (2014), confirmability refers to neutrality or objectivity of data. Guba et al (2015) also described it as the extent to which independent researchers can review and conclude that the study findings are accurate. To ensure confirmability in this study the researcher used audit trials by which careful documentation of the researcher's beliefs, methods adopted, and decisions made were done for the data collected, and its interpretation. In addition, an independent reviewer reviewed the proposal and the data instruments to its appropriateness.

### 3.13.4 Transferability

According to Cuba and Lincoln (1985), transferability is the extent to which the study findings can be transferred to other settings with similar characteristics. This was achieved by describing the context within which the study was conducted including the methodology. Furthermore, responses of the respondents are reported verbatim in a form of quotes.

## 3.14 Reliability and Validity of the Instrument for Quantitative

Reliability is the consistency of a measure (Burns, Grove &Gray, 2015; Heale & Twycross, 2015; Polit & Beck, 2014). To ensure reliability, a reliability analysis using Cronbach's alpha was done with all the items measuring coping, hence overall

Cronbach alpha of 0.79.This indicates that it was reliable. Pretesting of the instrument was also done using ten respondents in a similar fertility centre in Kumasi and items that lacked clarity were deleted.

### 3.14.1 Validity

Validity is the extent to which an instrument measures accurately what it is intended to measure (Heale & Twycross, 2015; Polit & Beck, 2014; Ouzouni & Nakakis, 2011). In this study, validity was ensured by adapting a validated a coping scale. In addition, a review of the instrument was done by the supervisors who are quantitative experts to ensure that the content and constructs of the instrumented measured coping strategies. Items that were ambiguous or lacked cultural relevance were deleted.

## 3.15 Description of Study Variables

The dependent variable was the levels of coping that was measured as a composite variable. The independent variables included the various phases of treatment that included phase 1, phase 2, and phase3. The other independent variables included socio-demographic factors such as age, sex, ethnicity, religion, residence, and family background, level of income, marital status, and occupation.

## 3.16 Ethical Considerations

Research ethics refers to a system of moral value that is concerned with the degree to which research procedures adhere to professional, legal, and sociological obligations to the study respondents (Polit & Beck 2014). In this study, the following necessary ethical issues were considered:

- Ethical approval was obtained from the Ghana Health Service Ethical Review

Committee (Protocol number: GHS/REC:02/01/2017; Refer appendix 4).

- Permission for data collection was sought from the heads of the various fertility centres used for the study
- Informed consent was obtained from the study respondents. This was done after explaining the purpose of the study including the risk and benefits to the respondents. Respondents were given the opportunity to ask questions before the written consent form was signed. Refer to appendices 1 and 2 for details Confidentiality as well as anonymity of the study respondents was ensured.
- In the qualitative results, pseudonyms have been used to replace the identity of the respondents so that none of them could be linked to the quotes.

### 3.17 Quality Control Measures

The following quality control measures were employed to ensure validity and reliability of the data:

- A days' training was organised for three research assistants to ensure that they understood the instrument for the data collection.
- Pre-testing of the data collection tools was done to ensure ascertain their reliable.
- Each questionnaire had a code for easy identification and retrieval where necessary.
- A detailed labeling of variables and record names was ensured to avoid confusion.
- The researcher supervised and monitored the activities of the research assistants to make sure the data was collected as discussed.
- The interviews were halted when about five of the respondents experienced an emotional and psychological breakdown when recounting their experiences. The

researcher who doubled as a counsellor provided support for these respondents until they were stable enough and consented to continue with the interview session.

- Double recording was done by the researcher, using two recorders per a session, as well as notes taking to assist proper recording of the respondents' views.
- Data was protected by putting filled questionnaires under lock and key as well as password on the recorders used which was only accessible to the researcher.

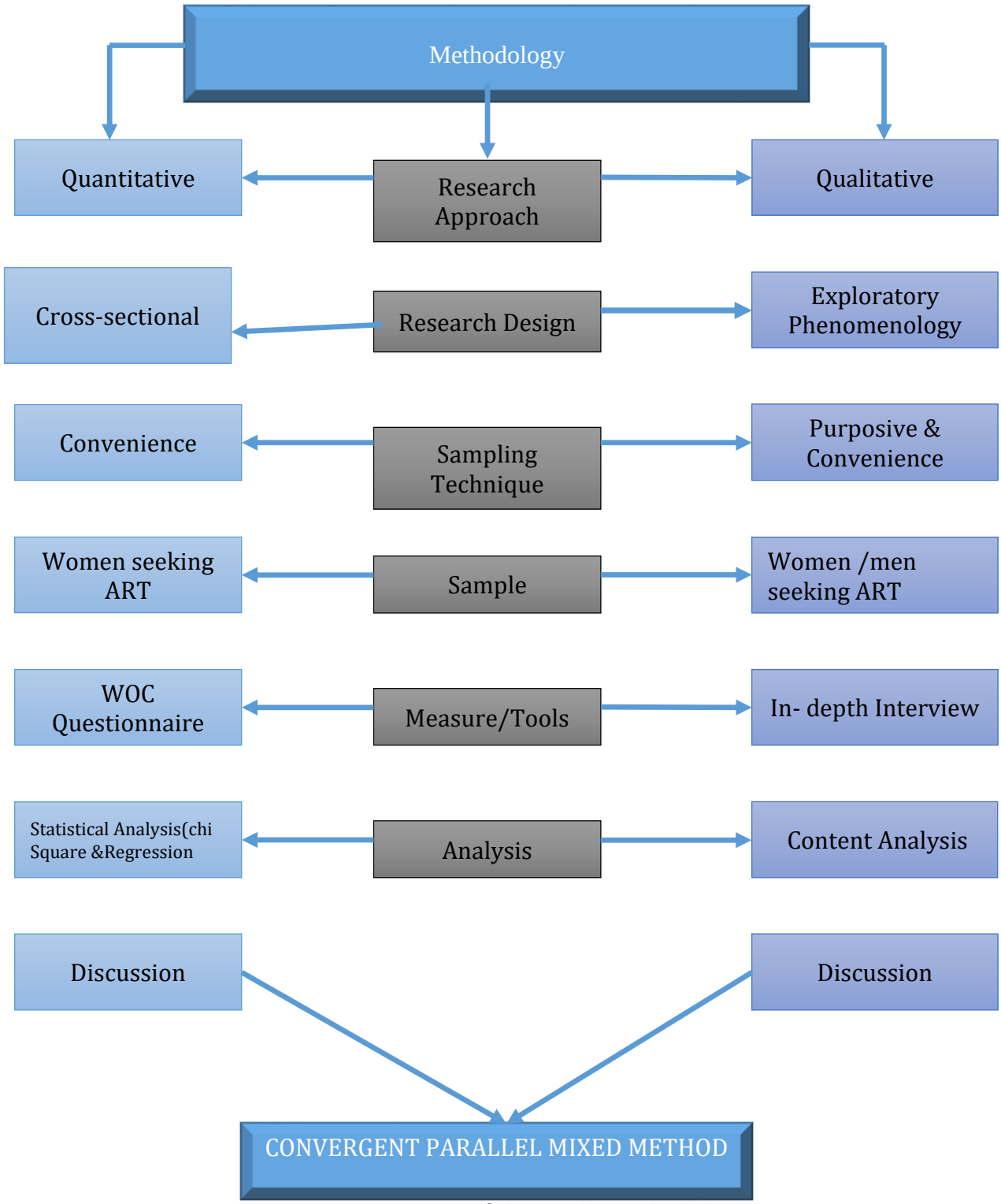


**Figure 3.2: Diagrammatic Representation of the Study Methodology**

# CHAPTER FOUR

# QUALITATIVE RESULTS

## 4.1ntroduction

In chapter three, the various strategies and procedures used to collect data were presented. As indicated previously, both qualitative and quantitative data gathering approaches were used. The current chapter presents the results of the qualitative data whose collection involved the use of in-depth interviews. The interviews centred primarily on the challenges and coping strategies utilised by women seeking ART. The first section of the results presents the socio demographic characteristics of individuals seeking ART in some selected private hospitals. The subsequent results are presented according to the stated objectives of this section. Major themes that emerged in this section include: values of children in marriage, psychosocial experiences of clients with infertility, sources of ART information, factors influencing the uptake of ART, pre ART health seeking practices, pre-treatment challenges, challenges during ART, Post-treatment challenges, coping strategies of infertile clients seeking ART and disclosure of ART. Overall, eleven main themes and forty sub-themes emerged. The presentations of the results are supported by verbatim quotes of the respondents' responses using pseudonyms (IDI F: female respondents, IDI M: male respondents). (Refer Table 3.4 for themes and subthemes)

## 4.2 Background characteristics

The study enlisted eighteen (18) respondents (six males and twelve females) who were seeking ART for the in-depth interview. More women were recruited for the IDI because they were mainly found at the fertility centres, and went through all the treatment phases. The males on the other hand had less of the treatment process to go through and were

found mainly in the Phase 1 (initial stage of the treatment process). The female respondents were between the ages of 31 and 55, whiles the male respondents were between the ages of 32-50. Those who had ever had children before seeking ART (secondary infertility) were three and those who had never had a child (Primary infertility) were fifteen (15). Three of the respondents were Moslems and 15 were Christians. Those found to be gainfully employed were seventeen (17), and one person was unemployed. With regards to respondents' ethnic background, eight were Akans, three were Ewes, three were Dagombas, two Gonjas, one Frafra and one was a Ga. All the respondents were married and fell within the middle-income status by being either self-employed or working in the private or government sectors. The number of years the respondents had experienced infertility ranged between 2-27 years. Table 4.1 presents the socio-demographic characteristics of the respondents.

IDI F represents indepth interviews for females and IDI M indicates indepth interviews for males.

**Table 4.1: Socio demographic characteristics of respondents seeking assisted reproductive technologies**

| RESPONDENTS | Age | Sex | No of Chn | Religion | Occupation | Ethnicity | No of years married | Income |
|---|---|---|---|---|---|---|---|---|
| IDI 1 | 36 | F | 0 | Christian | Employed | Akan | 9 | Middle income |
| IDI 2 | 36 | F | 0 | Christian | Employed | Frafra | 11 | Middle income |
| IDI 3 | 33 | M | 1 | Moslem | Employed | Ewe | 2 | Middle income |
| IDI 4 | 42 | F | 0 | Christian | Employed | Ewe | 13 | Middle income |
| IDI 5 | 35 | M | 0 | Christian | Employed | Ewe | 8 | Middle income |
| IDI 6 | 43 | F | 0 | Moslem | Employed | Dagomba | 12 | Middle income |
| IDI 7 | 32 | M | 0 | Christian | Employed | Akan | 4 | Middle income |
| IDI 8 | 45 | M | 0 | Moslem | Employed | Dagomba | 5 | Middle income |
| IDI 9 | 36 | M | 0 | Christian | Employed | Akan | 5 | Middle income |
| IDI 10 | 31 | F | 1 | Christian | Employed | Ga | 6 | Middle income |
| IDI 11 | 40 | F | 0 | Christian | Unemployed | Akan | 12 | Middle income |
| IDI 12 | 33 | F | 0 | Christian | Employed | Dagomba | 9 | Middle income |
| IDI 13 | 31 | F | 0 | Christian | Employed | Akan | 2 | Middle income |
| IDI 14 | 34 | F | 0 | Christian | Employed | Akan | 5 | Middle income |
| IDI 15 | 36 | F | 2 | Christian | Employed | Gonga | 7 | Middle income |
| IDI 16 | 47 | F | 0 | Christian | Employed | Akan | 11 | Middle income |
| IDI 17 | 50 | M | 0 | Christian | Employed | Gonga | 10 | Middle income |
| IDI 18 | 55 | F | 0 | Christian | Employed | Akan | 27 | Middle income |

### 4.3 Beliefs about the Value of Children in Marriage

According to a number of the study respondents, children are valued in the Ghanaian society. The individual beliefs about children vary from person-to-person and culture-to-culture. Some of the value placed on children includes cultural significance, couple satisfaction, family inheritance, companionship and affection to the individual.

#### 4.3.1 Cultural significance

Children are seen to be very important in most societies, especially in Sub- Saharan Africa. The study revealed different beliefs held by respondents regarding children in marriage. Respondents indicated that culture plays an important role in the description of a woman. According to a number of the respondents, the main determinant of womanhood is an individual's ability to give birth to their own children. Also, one receives honour in society if they have children of their own. So those who are unable to

meet this, after some period in marriage, are treated differently. A female respondent shared her view as follows:

> *"As you know, children are very important in our society in Africa. According to my culture, women are defined by their ability to have children. When you don't have kids of your own you get stigmatised at some point. You are seen as not doing what society expects of you especially after you are married for a year or two. They say all sorts of things about you and sometimes they start pouring insults on you".* ***[IDI F136 years]***

Another respondent reported:

> *"Children are very important to me especially in my community. The way it is, if you don't have a child of your own in our society, you are not honoured. We are Africans and I tell you somebody will even brand you as a witch to justify why you have not given birth. Some also see you as a wicked person and that is why you've not been blessed with a child."* ***[IDI M1 33 years]***

### 4.3.2 Couple satisfaction

Continuity of family name is connected to individual having his/her own child. This gives the individual the opportunity to name the child after family members. Many women derive gratification from having children named after their husband. It is considered as a prestige particularly for the man to have a child named after him. So wives are happy when they are able to bear children and have one named after their husbands.

> *"I'll be happy to have children in my home so as my husband will be happy to have a child named after him."* **[IDI F2** ***31 years*****]**

Male respondents also held similar views, one of them said;

> *"I feel* children *give joy to couples. You have them, they continue your family line otherwise, your name is lost forever when you die. Can you imagine going through all the hustles of life and at the end of it all you don't have children to*

*continue your legacy, they become useless. That is the more reason why you should get your kids to take over from you.”* ***[IDI M2 35years]***

Some respondents, particularly females, considered childbirth as a means of assisting their husbands in fulfilling family obligations. It is deemed absolutely appropriate for a man to have at least one child, especially a male in some cultures, to add to his lineage. This is very crucial for men who are the only male among their siblings.

*“My husband is an Ashanti and the only male among his siblings so he needs to get a male child of his own so the family tree continuous. As for us females, when we marry, the children belong to our husbands so my husband should also have one that will continue his family.”* ***[IDI F3 43 years]***

### 4.3.3 Family inheritance

Some people believe that one of the hallmarks of a successful adulthood is the ability to work hard and acquire properties, which are expected to support the individual when they are old. This is passed onto the individual’s biological children to maintain the family wealth. Therefore, majority of the respondents recognised children as essential to family inheritance. Some of the views shared by women included:

*“As for children, they are very important to me in so many ways. My husband likes children because somebody who has properties would one day like to pass what he has to his children when he is no more. So if he doesn’t have children to inherit him, his properties will go waste.”* ***[IDI F4 40 years ]***

*“When you leave everything on earth and you have nobody to take care of the things, then what is the essence of all the struggles? That is why we are under pressure to have children. We don’t just “want it, we need it.’ Wanting something is for fun but we need it before we can be complete as husband and wife.”* ***[IDI F5 42 years]***

### 4.3.4 Companionship

The study also revealed that children provide additional companionship to couples. It is therefore the desire of couples experiencing infertility to have their own children, believing that they will provide emotional support and also run errands for them when the need arises.

> *"If you have a child and you are worried, your child could distract you, which will prevent you from worrying. When they are around you, it gives you much joy and their absence can bring loneliness in the marriage even though the two of you are there." [**IDI F4 40 years**]*

> *"As for children, they are very important to me. You know children bring happiness in marriage and also I'm the only child so if I also don't give birth then my descendants are getting finished. In the house where I live with my husband, we live alone and when he travels to go and work and I become lonely in the house. I am sure if there are children in the house it'll bring happiness to me in particular. You cannot comfort yourself alone with television and the child could do something for you to laugh at least, you'll have somebody to run errands." **[IDI F633 years]***

> *"I may say that the main reason why people get married is to have children to play with." **[IDI F5 42 years].***

### 4.3.5 Affection

Some respondents indicated their reason for wanting children as being their affection and attachment to children of other people. The reason being that, it is fun to be with and children, they make one happy. This seems to be the main driving force for some infertile couples yearning to have children.

> *"Children are very important to me, personally, I like children. I'm happy whenever I see children. Not because I want children to take care of me when I'm old but I simply love children" [**IDI F7* **36** ***years**]*

> *"As humans, if you are there and you don't have a child you are not happy especially if you've married and there are no children, you find it difficult with the family especially the man's side. We the northerners we value*

*children more than anything and I personally get attracted to children"* ***[IDI F 8 47 years]***

### 4.3.6 Support

The study also revealed that, in our part of the world, where state organised social systems for the elderly and vulnerable are not well established, people depend on their families, especially children, to take care and support them during their old age or when they are incapacitated. This underpins some couples' desire to have children. Even couples who have a child still consider the number inadequate to support them in their old age: Some respondents had these to say:

> *"Just like my dad gave birth to me and I'm now helping him (her dad) as he's grown old, when I give birth, the way I take care of my dad, my child will also one day take care of me."* ***[IDI F5 42 years]***

> *"They* (children) *are important because as we are strong today, you become old and might need some assistance so if you don't have a child which child will come and assist you****."[IDI F8 47 years]***

## 4.4 Psychosocial experiences of infertile clients

Psychosocial experiences of clients with infertility embodies various aspects such as experiences with infertility, psychological experience, social experience, perception of infertile clients on ART, source of ART information, factors influencing the uptake of ART, Pre-ART health seeking practices of infertile clients, and Disclosure of Assisted Reproductive Technology.

### 4.4.1 Psychological experiences with Infertility

Couples, especially in the African culture, who go through a period of infertility after marriage do experience various forms of trauma including psychological and social

experiences, They do experience emotional stress such as worry, anxiety, and feelings of hopelessness as well as having suicidal thoughts. These were some of the psychological problems that were found to characterise infertility.

#### 4.4.1.1 Worrying / Sadness

Some respondents described the distressing feelings experienced when it comes to their inability to have children. They reported how they go through a period of sadness and sometimes weep, especially at programmes that involve children or when others talk about their children. They worry about what other people say about them when it comes to their infertility challenges.

> *"My wife is always crying especially whenever she gets to know that any of her friends have given birth. Almost every month, before her menses, she goes to buy pregnancy kit at a pharmacy shop close by and when she tests negative for pregnancy, she is so down and sometimes weeps. It bothers me to see her sad always*." [**IDI M4 45 *years*]**

> *" At times, when you are there, there is no love, there is no happiness and your in-law doesn't have that love for you no matter what. They don't see what you are doing for them but only think that you have come to spend or waste their son's money. It saddens my heart always."* **[IDI F9]**

> *" When you marry and don't have children, you will not be happy but if you have a child, you are comforted. If you don't have a child and you talk about someone else's child, what will be done to you is regrettable. You will be asked questions like whether you take care of a child or asked whether you are a human being. People have insulted and laughed at us, so as a woman if you marry and don't give birth, you will never be happy. Even if the man loves you, you will never be happy just because you don't have a child."* ***[IDI F136 years]***

Another male respondent also said,

> *"My greatest worry now is how to get my own children to also spend money on them and see them through school, Hmmmm even if it is one, I will appreciate it because someone's own is*

*not like your own. I have really suffered for long because of this problem**.” [*IDI M4 45 *years***]**

#### 4.4.1.2 Anxiety about Future

Some respondents in the study expressed anxiety and fear of the future due to their inability to have children. They stated that children are seen as assets for the future as it's expected of them to support their parents in their old age. They therefore expressed some fear when it comes to the future without a child. Some respondents' views are as follows:

*"I don't know what the future holds for me as a woman without a child. Right now, I feel scared of who would take care of me when I am old without a child. You can't rely on other people's children. Even now, getting someone's child to send on an errand is a problem, how much more the future**." [IDI F3 43 years]***

*"As the years go by, I feel a bit nervous about my inability to bring forth. It often get worse whenever I'm in the midst of people who have children and tend to talk about picking their wards from school or talk about getting them their needs when school is reopening." **[IDI F5 42 years]***

#### 4.4.1.3 Hopelessness

The study discovered that some clients at fertility centres with infertility problems go through a state of worthlessness due to their inability to have children of their own. They felt it was not worth being in a marriage for a long period of time and not being fruitful.

The view of the respondent below attest to this

*" I have come to a point in life that I feel worthless. You know, after so many years of marriage it would have been nice to have kids to boast of. Unfortunately, my story is different. I have struggled for fifteen years looking for a kid to make my home complete but no result**." [IDI F231 years]***

#### 4.4.1.4 Suicidal Ideations

The study showed that some individuals who face challenges with infertility feel it would have been better for them to die than to be alive and go through the difficulty of infertility due to the utterances of some members of their families and friends, feel it would have been better for them to die than to be alive and go through the difficulty of infertility. A respondent shared his view as presented below:

> *"There was a time that I felt it would be better if I die. At that time, I was in the same room with one of my siblings and he realized that I was not happy so he told me that there was somebody with the same problem and that I should be patient."* ***[IDI M3 36 years]***

> *"Even my own brother who comes after me has ever insulted me several times that I'm not a man, "I marry and the women leave me and all the women have children. Sometimes I weep. There was a time that I felt it would be better if I die****." [IDI M3 36years]***

### 4.5 Social Experiences of Infertile Clients

In addition to the psychological problems indicated earlier, some respondents also suffered undue family pressure, divorce, and stigma as a result of their infertility problem.

#### 4.5.1 Pressures from Family and Friends

Some of the respondents reported of some pressure from the family and friends to get pregnant. A number of them mentioned that mother–in laws were the main source of pressure, especially where their husbands are the only son of their mothers. In some cases, the mothers-in-laws questioned the womanhood of their daughter-in-law when there is no evidence of childbirth in their unions. Some respondents suffered humiliations and public ridicule from their in-laws. In a few cases, mothers directly asked their

daughters when they will be giving them grandchildren. Some female respondents recounted their experiences as follows:

> *"There is so much pressure from my in-laws. If you don't have a child, at a point, they keep disturbing you and asking all kinds of questions and even watch you when you pass by with an unusual look. My case is worse because my husband is the only son to her mother so imagine the pressure on me, it is not easy."* **[IDI F8 47 *years*]**

> *"It's my mother who has been asking usually that she needs grand children from me because among all her children, I'm the only one who hadn't given birth."* ***[IDI F7 36 years]***

A male respondent also shared his ordeal in the following comment;

> *"I do have a lot of pressure from my family and friends. I'm the only man in my family and my mum is worrying me that she needs her grandson or her grandchildren and that is the pressure I'm having. My siblings are also complaining, but I tell them I'm not God."* **[IDI M2 35 *years*]**

On the contrary, some few respondents indicated that they had less or no pressure from family and relatives or their in-laws.

> *My in laws never talk about me not getting pregnant. Maybe they say it but they have never approached me." [**IDI F7 36 years**]*

Additionally, some respondents indicated that they experienced external pressure from friends and colleagues at workplaces and churches. A male respondent expressed his experience by indicating that there was so much pressure on them (the couple), especially on his wife to give birth. Family members periodically asked when his wife was going to conceive were a familiarity. The frequency of the question of their fruitfulness is discomforting and disheartening as they are always reminded their predicament by such a question. Some respondents had this to say:

*"Mainly, the pressure comes from the society, at church, work place, and friends. At times they get to know that we married before others, yet, they are conceiving and we are not and therefore they start getting particular interest in our affairs. That brings a bit of pressure."* **[IDI M5 50 *years*]**

*"People say a lot of things to my wife. They always asked her when she is going to give birth. There is a bit of pressure from the people who come to her shop. Even when she is sick, they say she might be pregnant."* **[IDI M6 45 *years*]**

### 4.5.2 Divorce

One of the challenges associated with couples' inability to have children is divorce. Some individuals move from one marriage to another because of infertility. This happens when the blame is put on one party; this has resulted in the frequent reports of divorces among couples experiencing infertility. A male and a female respondent recounted their experiences in the following comments.

*"I am here because I have been married several times with no child. First I married a woman who had given birth once and we were together for eight to nine years but no child. At that time, I was a very strong Christian so when they said anything, I told them that God is alive and that if God gives me, I'll receive it so we kept seeking for a child to no avail and she divorced me. Then I married another woman, she has also had given birth before and had a child, but when we got married, for about two years, there was no child and she also left. Then I married again for the third time, a woman who had five children already and we've also been married for two years without a child and she too left and I married my current wife."* **[IDI M3 36 *years*]**

*"When he* (husband) *marries and the woman doesn't give birth, he divorces the woman and he is done that to three women and I'm the fourth woman he is marrying. He initially went to a hospital and after treatment; he wasn't successful so he had made up his mind not to marry again till he met me. So after the marriage ceremony, I told him to let us take some steps towards giving birth". **[IDI F9 55 years]***

### 4.5.3 Stigma

Individuals with the problem of infertility are often humiliated in their societies even among their family members as indicated by some respondents. Some expressed that their inability to have children have been linked to the fact that they had illegal abortions when they were young.

> *"Some people say I did a lot of abortions and that is why I'm not giving birth."* ***[*IDI F8 47 *years*].**

> *"Some of my friends actually laugh at me sometimes because most of my friends are married and have kids and I have a wife for two years without kids. A friend visited us and wanted to know if the cause of our childlessness was due to abortions when my wife was young. "* **[IDI M2 35 *years*]**

### 4.6 Knowledge of Infertile Clients regarding ART

This entails how respondents view and understand the ART processes as well as details of how the treatment works. Majority of the respondents of this study had an idea of the treatment process that occurs within the fertility centres. Some were able to describe the treatment process whiles others mentioned specific types of treatments that were carried out based on the individual's diagnosis. The respondents indicated that they had been informed that it might either succeed or not. The following are the typical descriptions of the ART as some respondents presented during interview:

> *"I know that egg from the woman and sperm from the man is taken and the two put outside the womb to grow before putting it back into the womb of the woman. Some people get good results but in some cases it fails." [*IDI F2 31 *years*]

> *"What I know is that during the process, you'll be given an injection to stimulate the production of more eggs then they'll take the eggs and your husband's sperms and fertilise it and the foetus implanted in your womb for the baby to develop; that is what I know about IVF."* ***[IDI F11 40 years]***

However, some respondents who were going through the process could neither remember what exactly the process was about nor knew exactly how the treatment worked because they were still in the process.

> *"I know this treatment is artificial insemination. I don't know much about it though. I asked about it but what I'm more particular about the treatments what so even if I was told, I've forgotten."* **[IDI M1 33 *years*]**

> *"I don't know the exact form of treatment that will be given to me because we just started and we are yet to be told which one will be good for us based on the test that will be conducted on us. I have read a bit on my own but still waiting for details from the doctor. I know there are various types*." **[IDI M2 35 *years]***

The information that the respondents had regarding how the fertility centres went about the treatment was mostly from the facilities. Some clients did not know anything about the process at the onset. Most of the respondents indicated that they were given education at the facilities through a one on one teaching and they were also given pamphlets to read. One of them said;

> *"Initially when I came, I didn't know much about this process. I knew about artificial insemination but I didn't know it was called IVF and I didn't know the processes of getting to that final stage. The nurse told us that they'll take your sperm and inseminate into the woman. Because my wife's womb was ok, we opted for the IVF because that one has a higher chance of having the baby than the others.* " **[IDI M6 45 *years*]**

> *"When we came to the hospital they explained to me some dos and don'ts of the treatment process. I was asked not to have sex with my wife three days before coming to the hospital because they'll need some sperms for lab test and also not to drink much alcohol and anything containing caffeine. These were not good for me and that it destroys the cells in the sperms."* ***[IDI M4 45 years]***

### 4.7 Source of ART information

Respondents are often given information on where to seek the treatment, and how the treatment works, from individuals who have gone through it or through radio advertisement placed by the fertility centres. Respondents indicated various means by which they got to know the ART centres. The main sources of information were mentioned. The media, recommendation by people who have utilised the ART services and hospital referral to the fertility centres.

#### 4.7.1 Media

Some respondents had the information about the treatment process through the Internet and television advertisement before the treatment was started.

> *"I got to know about this facility through the Internet, I had a problem a very long time ago I was moving from hospital to hospital so I went on the Internet and saw this hospital, which said they assist people to get pregnant. It was about infertility in women so I told my husband that we should come and search for the hospital so he said I should come."* **[IDI F11 40 *years*]**

> *"I will say that my wife and I have had problems with child bearing since we got married about 4 years ago so we went to a hospital for treatment but we were not successful. One day after work, my wife told me she was watching television and saw an advertisement about a hospital that assists couples in getting pregnant and so she took the number and directions to the hospital and followed up*." **[IDI M4 45 *years*]**

#### 4.7.2 Friends Referral

Some respondents indicated that they got to know the ART centres through recommendations of the facilities by their friends who had ever gone to such fertility centres to seek treatment. Some of the respondents in confirming this had this to say; and

> *"After looking for a child for several years, a friend of mine was concerned about my inability to get pregnant then said,*

*why don't I go to Accra where she knows of a fertility centre that assists couples to give birth. "* **[IDI F3 43 *years*]**

*"We have been married for two years and we are having problems in terms of having kids. We've been to so many places and a family friend recommended this place and we decided to try it and see. She told me she had the same problem with the husband; she got married for four years and there was no pregnancy so she came here with the husband, they were tested and they were put on drugs and they now have four babies."* **[IDI F2 31 *years*]**

*" I went to visit a friend whom I knew was not able to give birth for a long period after marriage but finally did. When I went to visit her and I asked what she finally did to give birth, she said it's a doctor here who helped her to get pregnant through ART and she introduced me to the doctor to also help me." [***IDI F1 36 *years*]**

### 4.7.3 Hospital Referral

Some respondents got to know about ART centres through referral from other doctors who were attending to them. They tried other means and when it was not successful, the doctors referred them to these fertility centres there for further management. In the comments of the respondents below, the confirmation to the assertion that other health professionals also serve as pointers to these facilities is confirmed.

*"After six months of marriage, I wasn't getting pregnant, I went to a hospital and the doctor ran some tests, examined us and told us our condition required assisted reproduction. He said he knew people who have done it and became successful. That was the first time I got to know this treatment option. "****[IDI F2 31 years]***

*"I went to a hospital and complained to the doctor about my inability to get pregnant after marrying for 13 years and after some investigations, he indicated that I had a problem. He then referred me to see a doctor who can help me get pregnant."* **[IDI F7 36 *years*]**

### 4.8 Factors Influencing the Uptake of ART

These are factors that influenced the respondents to seek ART treatment, after previous treatment options did not succeed.

#### 4.8.1 Contributing Factors to the Uptake of ART

The individual's decision to seek ART has been found to be numerous. Couples seek ART because of various reasons. Some of these reasons include the number of years they have been married without children, the age of the couple, failure of adopted children or step children to regard them and treat them as their own biological children, and also because these couples want to have their own biological children.

In this study, respondents indicated that the factors that informed their decision to consider ART as a treatment option were multifactorial. For some of them, prolonged period of marriage without biological children influenced them to seek ART.

##### 4.8.1.1 Number of Years Married without Children

Some respondents specified the number of years of marriage without any child, as the reason for seeking ART. They indicated that they have been trying the natural means of getting pregnant as well as other means. After years of not being successful, they sort ART

> *"I have been married for nine years and have been going to so many places after the first and second year, trying traditional medicine and I haven't succeeded."* **[IDI F6 33 *years*]**

> *"I have been married for eleven to twelve years with no children. I have been taking fertility drugs and others. I just realised I don't have to wait for the natural way, I need to try something extra I haven't tried before so this is my first IVF. So after ten years I decided that age is not on my side so I had to come for this treatment"* **(IDI F1 36 *years*)**

#### 4.8.1.2 Quest for Biological Children

Some respondents also indicated that they opted for ART because even though they have adopted children, they would like their own biological children who will call them their "mother" in their lifetime.

> *"Once I have life, at least I also have to get somebody to call me mama and that is the reason why I've made it my aim to also get a child because there are a lot of children who call me mama but want my own child."* [IDI F1140 *years*]

#### 4.8.1.3 Personal Satisfaction

Some respondents expressed that their partners had children before marriage and they again cheated on them shortly after marriage to have children. This brought some resentment and therefore they needed to also have their own biological children to be satisfied in life.

> *"Before we got married my husband had a son and I took the son as my own. People don't even know that I am not his biological mother because I adopted him when he was like a baby. He is about sixteen years now. Recently I heard that he had kids outside our marriage again, and this spiked my desire to get my own child to make me complete in life*." **[IDI F1 36 *years*]**

> *"After marrying for 27 years, I wasn't giving birth and it has been a burden throughout, to the extent that my husband cheated on me with another woman and gave birth to five children. That was just four years after we got married without a child. The bitterness influenced my decision to look for my own children no matter the price I have to pay."* [**IDI F12 42 *years*]**

A male respondent recounted how his wife with infertility suddenly decided to have her own child using any available means. According to the respondent, his wife decided to have her own child when she felt unrecognised and unaccepted by the stepson as her biological mother through a conversation that ensued between the child and his friends. He said;

> *"My wife insisted one day that she wanted to have her own biological child. This happened because I had a child before marriage and this child was living with us until one day my child was playing with a friend who warned him that his mother will beat him if she comes to meet the kind of play my son was involved in. Unfortunately, my son replied that "my mother doesn't live here, she lives somewhere else" and the other child further questioned if my wife was not his mum. My wife overheard them. The child mentioned his mother's name, described his mother and where the mother lives and all that. My wife then begged me to support her get her own child."* [**IDI M445 years]**

### 4.9 Pre-ART Health Seeking Practices of Infertile Clients

Before the commencement of ART, a number of the respondents moved from one place to another for solutions to their challenge of infertility, some of which includes; prayer camps, doctors and hospital shopping. Some travelled outside Ghana to consult renowned spiritual leaders for possible solutions to their problems but had proved futile. The following are the typical health seeking practices of some of the study respondents.

> *"I've been to so many places like* Côte d'Ivoire *to seek for treatment but I was not successful. When Pastor T. B Joshua came to Ghana, I went there but I was not able to see him. I visited Nigeria purposely to meet him but I could not meet him. I had to return home because I was running out of money. I finally went to see Obinim, and I was able to talk to him and it's been a year now and nothing has happened to my problem. This clinic is my last stop. If I don't succeed then the only option left is to give everything to God". **[IDI M3 36 years]***

#### 4.9.1 Herbal Treatment

Other respondents of this current study used herbal treatments to assist them to get a child. In spite of the bitterness of the concoction, respondents had no option than to drink in order to achieve pregnancy. In expressing their experiencies, some respondents had these to say;

*"I tried so many things including herbal medicine. Some of which were very bitter but I had to drink because I was desperate to use all means to get my own child."* [**IDI F1242 *years*]**

"Some mother in-laws were identified as key providers of the herbal preparations. However, most of the respondents terminated the intake of the concoctions when they failed to realise an effect***."[IDI F5 42 years]***

*"My mother brought some herbal medicine for my wife to drink. After taking it for six months and was unable to get pregnant, she stopped."* **[IDI M2 35 *years*]**

*"My mother in-law insisted that I drink herbal medicine that she brought because it helped a lot of people in her village to become pregnant. In fact, she was checking on me every morning to be sure that I have taken it and sometimes even ask me to drink in her presence." [IDI F6 33 years]*

### 4.10 Pre-treatment Challenges (Phase 1)

The study identified various challenges clients are confronted with while they go through ART. These challenges vary from one client to the other as well as one stage of treatment to the other. Phase1 is the stage in which client had begun the treatment process and going through assessment before the actual treatment begins. During this stage of treatment, most respondents said the high cost of ART was the major challenge, as well as the distance to the facility from their homes.

#### 4.10.1 Cost of Treatment

The entire process was considered very expensive by a number of respondents.

Some respondents shared their views:

*"It is very very expensive. Beside the money we pay to the hospital, we stay in a hotel because of the distance and all these put financial burden on us making it highly expensive".*
***[IDI M133 years]***

*"In terms of finance, we have to pull from our own coffers. As you know, we cannot go to somebody for money and tell the person we are going to use it for this kind of treatment. You*

*have no option but to see it as your own cross. To be honest with you, it's very huge for young couple like us."* ***[IDI F2 31 years]***

One respondent indicated that she resorted to a loan to start the ART process;

*"Money has been a challenge, it's not easy some of us we have to take a loan. Every step of this process involves money and it can be a real challenge. The transportation alone from the house to this place is expensive."* **[IDI F8 47 *years*]**

Some respondents recognised the cost implications of ART but were very much determined to raise the money needed to initiate ART.

*"I have been told it is expensive**.** I am sure with the little money I brought, I will be able to start the treatment that is if the doctor mentions the cost and it's not too high. If the cost is high such that we cannot get the money to pay, I will move heaven and earth to look for money."* **[IDI M3 36 *years*]**

### 4.10.2 Distance Challenges

The distance some of the clients of these fertility centres have to commune from their homes or region to the facilities is a challenge. They travel long distances to seek ART and some of the respondents indicated that they had to look for accommodation near the facilities since they do not have any relative close to the fertility centres.

*"We come here by road and we cover almost 500miles in our coming in alone and we arrive so tired. It is not an easy journey."* **[IDI M6 45 *years*]**

*"Coming here from our home is quite far but we are managing. It affects my work. We pick about three cars before we get to this area. I am still waiting for the laboratory results to know if I will be coming daily again or not."* [**IDI M5 50 *years*]**

### 4.10.3 Challenges of Clients Seeking ART

Due to the complex nature of the ART process, clients who go through it encounter some challenges at every phase, some of which are similar across the treatment phases and others vary.

### 4.10.4 Challenges during Treatment (Phase 2)

Phase 2 of the ART is when the clients go through a period of hormonal treatment, taking of injections and where egg transfer is carried out and pregnancy test is conducted. Respondents who were going through the actual treatment also expressed different forms of challenges during this period. They expressed difficulties ranging from stress, finance, work and distance to the facilities.

A respondent recounted how anxious she was during the process of the ART:

> *"Sometimes I'm a bit anxious about the whole process. It's not easy to sometimes think it's going to be successful. You know how the human mind sometimes works. It can play tricks on you even when you think all is well, your mind tells you something else but I'm trying to be less anxious.* ***Because of the situation, I get scared with the least thing I see. Sometimes, I get worried and keep thinking whether it's going to be successful or not."*** **[IDI F9 55 *years*]**

#### 4.10.4.1 Treatment challenges

Respondents felt this stage of treatment was stressful, as they had to go to the hospital every day for at least two weeks to take their injections. This sometimes had effect on their work as well as their sleeping pattern. A respondent shared how she gets alarmed when her time for injection is getting near;

> *"I have received more injections within this few days compared to my life time injections received. I always panic when it's getting close to time for the injection because of the pain that comes with it****". /*****IDI F2 31 *years*]**

For others, the time of the injection is their challenge:

> *"The stress is numerous. One of my personal stresses is that, I wake up early in the morning to come here for my injections and go to work. The going up and down and getting home late around 9pm and again you have to wake up in the morning to come here is really difficult".* **[IDI F11 40 *years*]**

#### 4.10.4.2 Finance

The respondents at this stage of treatment also specified finance as a challenge. They indicated that the payment for the entire process at this stage makes it challenging.

> *"As for the cost of treatment, hmmm, it is very expensive. The tests you'll do, examination for the woman, every phase you pay and so I'll say it's very costly. I can't say the exact amount but I can give you an estimate of about GHC40,000 for both of us so far."* **[IDI M6 45 *years*]**

**Another participant also said:**

> *" Hmmm, financially, if you accept to have an IVF then you have to be well grounded. The whole process is so expensive that if you are not determined, the cost will scare you".* **[IDI F10 34 *years*]**

#### 4.10.4.3 Work Challenges

Aside the expensive treatment, it affects their work as they have to be in the facility almost every day for their injections. As a result, they usually get to work quite late and sometimes have to take excuse duties to cover up.

> *"The treatment does have its own challenges because I had to take excuse from the office. They gave me a two weeks excuse duty and I have to spend like five weeks in the initial process, but today is not part of my excuse duty so I have to think of something for the two weeks left."* [**IDI F8 47 *years*]**

> *"This process is very stressful. Times that you have to take the injections, if you have to go to work, you'll now have to*

*ask permission every morning or every afternoon or every evening to come and take injections. It tags you as someone with so many excuses at work. One day, in an attempt to seek permission to go for my injection, my supervisor told me I am asking too much permission and if I am not careful I will be given a query.***" [IDI F2 31 *years*]**

Evidence from the qualitative study revealed also that the respondents complained of how the clinical appointment almost every morning negatively affected their work and business. The following is a quote from a respondent:

*"Being here every morning is really having a toll on my business. My wife cannot drive and so I have to drive her every morning to the fertility centre and pick her up later in the day. In all, it's all-good because sometimes you need to sacrifice for things that you need so badly".* ***[IDI M6 45 years]***

#### 4.10.4.4 Distance to Facilities/Accommodation

This stage of treatment according to the respondents requires that they go to the facilities daily to take injections and undergo some investigations. This affects their normal routines considering the distance from their homes to the facilities. Some indicated that they had to hire a temporary accommodation close to the facilities since they live at quite a distance and this applies also to those coming from other regions for the treatment.

*"I live at Sakumono, I have a temporary accommodation that I hire and its expensive but a bit closer to this place so sometimes I pick a car or if I want to exercise, I walk."* [**IDI F1 36 *years***]

*" The hospitals are far from where I stay. Sometimes I travel for more than 6 hours to see my doctor. In some occasions, I am unable to return home and I have to find a place to spend the night away from home."***[IDI F11 40 *years*]**.

A respondent also mentioned accommodation as a challenge.

> *"Our biggest headache has been getting accommodation. You know we don't live here but we need to stay till the initial process is over. It is difficult getting a place to rent and we are still looking round."* [**IDI F3 43 *years*]**

### 4.10.5 Post Treatment Challenges (PHASE 3)

This is the final stage where the individual is either tested positive for pregnancy, or has given birth. Respondents in this study had series of challenges that ranged from finance, anxiety about pregnancy, distance and treatment challenges.

### 4.10.6 Anxiety about Pregnancy

Respondents expressed anxiety about the outcome of the pregnancy as to whether it will go to term or not. A respondent said,

> *"It is not easy! even when you have the money and you go through the process that is not all. If you've not given birth, you don't have your peace of mind and you are always afraid something will happen. The scary part is when you hear that someone has miscarriage. Till you give birth, you don't have your peace of mind. You just try to take your mind off it but whatever it is, you keep thinking about it."* ***[IDI F6 33 years]***

Another respondent also shared her ordeal as presented below;

> *"In the beginning, I was a bit anxious and I got panicked about the pregnancy that it might not get to term, due to the various stories we have heard about this treatment and outcome. With the least thing, I rush to the hospital."* [**IDI F12 42 *years*].**

### 4.10.7 Finance

Finance was also a major challenge in this stage. Respondents indicated that without money, one cannot go through the process and by the time one gets to this stage, a lot of money has been spent. A respondent shared her experience;

> *"Financially, when it comes to this treatment, if you don't have money, you can't do it. You can't come here with empty hands. I stopped working at a point because having the child was important to me. Luckily, I had some money to pay all my bills, not easy though".***(IDI F12 42 *years*]**

> *"We have used a lot of money. I don't want to even think about how much, but the most important thing is that I have had what I want. We had to save a lot of money for this treatment and all the savings are gone. Transportation alone has been a lot but as I said, I thank God for helping me get pregnant."* ***[IDI F6 33 years]***

### 4.10.8 Pregnancy Challenges

A number of respondents mentioned that they faced pregnancy related problems. Notwithstanding, majority of them considered it normal for every woman who gets pregnant. They attributed the problems to hormonal changes.

A respondent narrated her experiences as follows;

> *"The pregnancy gives me problems and I must say that it's normal. The spitting, vomiting and other things are normal. I manage to do things myself and it's not all the time that you feel weak, there are times that you feel strong". (**IDI F4 40 years**)*

Some of the respondents unfortunately went through the final stage without success and therefore went through difficulties such as being worried or sad about the negative outcome of the pregnancy. One of these respondents who had an unsuccessful outcome shared her ordeal,

*"After they did it for me, on the eleventh day at dawn, I realised that I was bleeding so I called the hospital to inform them. I cried till I called my husband and I decided that I wouldn't stay, I packed my things and left for the house. My husband was worried because I was crying and he had to console me. He was worried that we didn't get what we wanted because he wished that I also had my child. He doesn't have a child too. He kept encouraging me that it is not the end of life. In everything, you have to give thanks to God because I don't know why it happened this way but I'm hoping for the best next time."* **[IDI F11 40 *years*]**

### 4.10.9 Work Challenges

A respondent indicated that because of the stage of pregnancy, she had to quit work;

*"I run my own business. I have a shop and I've not been to work since March when they did the transfer of the eggs and implanted in my womb. Unfortunately, I don't have anyone to take over and that is why I closed it. I am losing a lot of money during this period but the nature of my work will not be safe for the IVF I have done*." *[IDI F12 42 years]*.

## 4.11 Coping Strategies of Infertile Clients Seeking ART

Coping strategies are conscious efforts to reduce the stressful situations.

### 4.11.1 Confrontational Coping Strategy

Confrontational coping is a type of coping where by the individual directly challenges the kind of stressor they are facing**.** Some respondents were satisfied with the fact that an option of ART existed to offer them the possibility of having their own children. However, they indicated the treatment may not work but they will still go through the process, because they have been married for so long. Some respondent expressed this as follows:

*"The treatment is good but it doesn't always work however, if it were not to be this, there wouldn't have been hope for*

*people like me who dreamt of getting pregnant within 5 months of marriage but the plans could not materialise for me to achieve pregnancy in the natural way"* ***[IDI F8 47 years]***

*" I have been married for quite some time now with no child and I feel I should do something about it but if I do what I'm supposed to do about it and it doesn't work then I'll stop."* **[IDI F2 31 *years*]**

### 4.11.2 Distance Coping

The qualitative study revealed that some respondents used distance coping strategy, this where client coped with the ART by making light of the challenges they encountered. This was evident in the in- depth interview conducted with evidence as follows:

*"I have come here to seek help and my hope is that it will be positive. Even though people say that the treatment can fail, I still want to give it a try. I am sure I will go back home with a sign of pregnancy and eventually give birth."* **[IDI F1 *years*]**

*"I know that the process of the treatment is very cumbersome but at the end of the day, the outcome is what matters so I will keep pressing on."* **[IDI F3 43 *years*]**

*"We all know life is unfair. Sometimes it favours some people than others. I got married on the same day as my friend and now she has 3 children and look at me struggling to get one child. I am sure that I'm not lucky in life with child bearing. But I wont give up until treatment is successful." [IDI F10 34 years]*

### 4.11.3 Self Determination

Many of the respondents indicated that they supported themselves throughout the ART process at every stage of treatment. They were determined that no matter the outcome, they will keep on trying the treatment till they are successful.

The following quotations affirm this;

> *"My hope of getting kids has increased since I started the treatment. So far, I have hope that it will work because day in, day out, when they do the scans, we get positive result that show the eggs are maturing in size. I am very hopeful that I will even get twins, boy and girl. Sometimes as human as I am, I become anxious about the possible outcome. However, I am going to be hopeful till the end."* **[*IDI F2 31 years*]**

> *"As I was saying I encouraged myself that if the treatment is not successful today, tomorrow it will be well because I've heard that it's not everybody who goes through the procedure for the first time and become successful. Some have to go through the process for three times before getting positive outcome and I'm praying that it doesn't get to the third time." [**IDI F736 years]***

### 4.11.4 Spousal -Support Coping Strategy

Self-Support coping strategy is a means of keeping feelings one goes through to oneself and trying to keep these feelings from interfering with daily activities. Evidence from the qualitative interview showed that there are different support systems for respondents when seeking ART. This was evident in some of the responses provided by the research respondents below:

> *"My husband has been very understanding and supportive throughout this period. In times of difficulties, he is always there. In fact, his strength keeps me going. I remember a time when I was emotionally down because of a comment I heard from a pastor during an outdooring of a baby by a close friend that a child is a gift from God and every true Christian should not struggle to have the gift of children. Surprisingly, my husband being the only male among his siblings was able to encourage me that he did not marry me just for children."* **[*IDI F2 31 years*]**

> *"My husband has been my greatest support. He goes with me everywhere to seek help. When it happens like that, it gives me more energy to go ahead with the treatment. When I'm happy, he'll also be happy so when he sees where your happiness is, a man who is God fearing will support you*

*throughout what the doctor says, unless a man who is not God fearing who will say that the fault is not from him and will go outside the marriage to have children. Mostly, the men do that but unless a God fearing man who will remember the vows he has made and will not go outside the marriage***." [IDI F4 40** ***years*****]**

A respondent said her husband's support is an act of compensation for wrongdoing**:**

*"He is supporting me because I had a problem with him. He cheated and now has children outside which he knows I am aware of. Now he's trying to say let me support her get hers. It is because he made a mistake somewhere and wants to make me happy that is why he is supporting me. I still accept his support because he is my husband".* ***[IDI F12 42 years]***

A respondent indicated that her husband solely funded the treatment.

*"My husband is working hard to make sure we meet every financial need and he is doing that alone because he didn't want me to work, he wanted God to bless us with a child first before I start working."* [***IDI F542 years***]

A respondent on the other hand indicated that they had to take loans from their various banks in order to get money to go through this process.

*"I took a loan and my husband also took a loan and we added some little money somewhere to it. So I was doing that till I finished paying and after I finished paying then I came for the process."* ***[IDI F3 43 years****]*

### 4.11.5 Escape-Avoidance Coping Strategy

It is a means of avoiding the stressing agent as well as all other factors that reminds one of the challenges being faced**.** The qualitative study revealed that even though some respondents needed children, they were not in a rush to have their own biological children and they were also less anxious about when they were going to have it (children). They believed that anxiety could affect one's ability to get pregnant. They

kept on trusting God and lead their lives normally by trying to occupy themselves. The following statements illustrates the findings:

> *"At a point in my life when I wasn't getting a child, I was visiting some children's home and wanted to adopt one. I really made up my mind but my husband didn't like the idea and so I abandoned it. He encourages me and tells me I'll get pregnant and therefore I should relax and wait for Gods timing. He also loves children but if it's not coming, what can he do."* [**IDI F4 40 *years***]

> *"I decided I was going to do marriage counseling just because of childbirth and I will still do it. People realised that I had faith because I do not worry even without children. People around me seem to look at me in a way that they couldn't read me directly, whether I care about that thing or I don't care, though a lot of nasty things were coming but I didn't care."* **[IDI F6 33 *years***]

Some of the study study respondents adopted children informally from their family relations and friends; as a means of fulfilling their role as parents. Even though some of the respondents were not satisfied with adoption as a solution to their problem, they still considered it as an option but not a permanent way out of their problem.

Two female respondents shared their experiences as follows;

> *"When I got married 15years years ago, my greatest desires was to have children. After five years I realized it was becoming difficult. I tried several hospitals and treatment but it didn't work. One day, I discussed with my husband that I wanted to adopt a child because I love children. He agreed and I began to look around. I contacted my cousin, a single parent with six children to allow us stay with the youngest child and take care of her. She agreed to our request and I have been living with this child for the past ten years. But now, I feel I need my own because one day she can easily go back to her mother and abandon me. You can't trust human beings***." [IDI F 11 40 *years*]**

> *"My husband had a messenger in his office, whose wife became pregnant with triplets. The couple had four children already and their income made it impossible to take care of the seven children. Meanwhile we were struggling to get even*

*one child. The man approached my husband one day, asking that we help take care of at least one of the children, we discussed it and we agreed. For the past 15 years, we have been living with this child. His presence doesn't make me feel I don't have a child.**" [IDI F4 40 years]***

On the other hand, some respondents believed that assisting someone else's child would result in being blessed by God with one's own biological child.

*"There is a saying that taking care of someone's comes with a blessing of yours being taken care of. We went for my sister in-law's son to take care of him as a seed to receive our own child from God. Few years down the line, we have been blessed with pregnancy and we've been told they are twins. I believe it is as a result of the blessing hand we gave to my in-law."* **[IDI F 8 47 *years*]**

### 4.11.6 Positive-Reappraisal Coping

Positive-Reappraisal coping is a process of re-evaluating the challenges to find unexpected benefits or personal growth. The study revealed that, most respondents were able to go through the challenge of infertility by having a strong faith and trusting God to give them a child. The respondents described their coping strategies as follows:

*"I depend on God for a miracle in his own time. I haven't heard of anybody who hasn't given birth in my family before and therefore I said to myself that I won't be the first for this to happen to me. I kept the faith and trust God to make a way by praying more than before. "**[IDI F2 31 years]***

*"I take consolation in the fact that in everything that happens, you have to give thanks to God. May be this experience will let me appreciate the children that God will give me."***[IDI M4]**

Majority coped with prayer and others drew inspiration from biblical examples of people some of the study respondents:

*"As a Christian, my faith is in the word of God. By reading the Bible, especially where it talks about children as a gift from God, I am encouraged that one day I will receive my*

*portion from my maker. My prayer throughout this procedure is that God will glorify himself so that my struggle will not be in vain. The biblical example of Sarah encourages me the most."* **[*IDI F3 43 years*]**

*"I have walked in this journey with a lot of faith. You have to take a step of faith because I knew God would do it. And the Bible says a man without faith cannot stand the test of time. It got to a point where I had no hope; no man could help me, taking of herbs, seeing various doctors so I had to depend on my God to see me through. And I must say, he hasn't disappointed me. I was the one sorrowing; my husband had children so I thank God for putting a smile on my face. It's God who has blessed me with these children so he'll give me the strength to take care of them".* **[*IDI F12 42 years*]**

*"I'm not that anxious about the process we are going through. My hope is already high so I'll rather be disappointed if it doesn't happen but I'm hoping and praying because my wife didn't have so many complications. Sometimes people come here and their eggs can't bear them children, their womb can bear them but from the scan and everything is okay so my hopes are very, very high and I'm praying because as they say it's not 100%, so after it whatever they tell you to do, you do it very well and by God's grace all shall be well"* **[IDI M6 45 *years*]**

Some respondents were emotional about the whole process and overwhelmed at this stage of treatment. They could not believe they were pregnant after so many years of trying to get pregnant and not being successful. They felt it was by God's grace. They proclaim God has been good to them and they have to try their best to keep the pregnancy so they needed to stay at home. A respondent has this to share as she expresses her experiences;

*"I am a living testimony of the treatment because after marrying for 13 years, I've not been able to get pregnant but coming here, today I say to the Glory of God that I am pregnant through this intervention. The process of achieving pregnancy has not affected me. I always take consolation in God in whatever I do. When you read the word of God, it comforts you because God does things in his own time so I see this as being God's time. Paul said*

*many are the thoughts of man but the thoughts of God are the ones, which are important. I have always pondered over these words when I'm getting troubled. I thank God he's made me smile".* ***[ IDI F12 42 years]***

### 4.11.7 Disclosure of Assisted Reproductive Technology.

Although some individuals who through assisted reproductive treatment refuse to disclose it to close family members, some others ask for support, such as prayers during the entire process.

### 4.11.8 Disclosure to Family and Friends

There were respondents who had shared with some friends and family members the treatment process. They informed only people they trusted. Some of the people they informed had gone through the process and they had introduced them to the process and so expect that they will help them go through it. Respondents selected a few people that they communicated to because the process is a sensitive one and you cannot inform everyone before you go ahead to do it.

> *"We only told one of his (my husband's sisters we are going to seek for treatment at a fertility hospital. She is the only one we informed because with the sensitive nature of this treatment, you can't tell people you don't trust .Therefore it's not everyone who should know"[**IDI F9 55 years]***

> *"We were comfortable informing our mentors before coming here, because they had similar challenge when they got married and we were convinced that they could be of help knowing their background. Coincidentally, our mentors have been married for ten years without children and they are going through similar challenge and have opted for same treatment**" (IDI F2 31 years).***

> *"You know, matters like these are sensitive and need not to be shared with so many people. Perhaps, the one you might trust could be the one who would let out your secret. For the relationship we've had with them* (mentor) *for many*

*years, we were sure that they would keep our information secret. As for my husband's brother, we informed him because he hosts us when we come for appointment and therefore we had no option than to let him know".* **[*IDI F3 43 years*]**

Some respondents however revealed the treatment process to their close relatives

*"As for my coming here to seek treatment, it is only my mother and my younger sister who knows about it. I don't want anyone else to know because people talk a lot and also for spiritual protection. It's God who gives children so when God gives you, you don't have to tell people, when they see it, that's fine. So I don't have any reason except for safety. I am not trying to get pregnant because of anyone but for myself and my husband so I don't see the reason why I should be announcing it."* ***[IDI F4 40 years]***

*"The only people who know that I'm coming here to seek treatment are my husband, my younger sister and my friend. I want people to know but not too early because you don't know who loves you. They say they love you but within them, it's not true so at times when you are doing something, you have to also hide small and pray to God so that God will see you through because you can tell people and when you come and don't succeed, they'll tend to say something different. When you are doing it, you have to hide a bit from people and once you succeed everyone else will get to know."* ***[IDI F8 47 years]***

### 4.12 Summary

This study was to explore infertility and Assisted Reproductive Technologies in some selected fertility centres in the Greater Accra Region. This chapter revealed that there were some beliefs with regards to infertility and the need for one to have a child.

The values about children varied from person-to-person and culture-to-culture. Some of the value placed on children included cultural significance, couple satisfaction, family inheritance, companionship and affection to the individual. Again, the couples with infertility do experience emotional stress such as worry, felt anxious and feelings of

hopelessness as well as having suicidal thoughts and stigma and the study revealed that these prompted them to seek ART. Respondents indicated that they got to know the ART centres through the media, recommendation by people who have utilised the ART services and hospital referrals. Before commencement of ART, they sought help through various means, including prayer camps, doctors and hospital shopping.

Some challenges clients of fertility centres encounter during the commencement of ART, some challenges were explored in this chapter. Most respondents indicated that the high cost of ART was the major challenge. In addition, were stress, finance, work and distance to the facilities, anxiety about pregnancy, and treatment challenges. Also, the chapter revealed that some individuals who go through ART refuse to disclose the process to close family members; some others disclose for support and for assistance such as prayers during the entire process.

# CHAPTER FIVE

# QUANTITATIVE RESULTS

## 5.0 Introduction

For the quantitative component of the study, the data was obtained from 211 respondents who were seeking ART at five (5) fertility centres in the Greater Accra region (Jubail Hospital (JH), Finney Fertility Hospital (FH), Lister Hospital (LH), Tema Women's Hospital (TWH) and Lapaz Community Hospital (LCH). The first section of the chapter presents the socio demographic characteristics of individuals seeking ART in the aforementioned hospitals, as well as the challenges they reportedly encounter whiles seeking treatment. The subsequent section provides the results of the analyses, the mechanisms used in the treatment process, the challenges encountered, and how women cope with the process. Eight Ways of coping (confrontational, distancing, self-control, social support, acceptance-responsibility, escape-avoidance problem solving and positive-reappraisal coping) were examined in relations to the study's independent variables (age, educational level, ethnic groups, religion, occupation, previous child, treatment phase, fertility centre, years looking for a child and the cause of infertility).

## 5.1 Socio-demographics Characteristics of Study Respondents

This section presents the socio-demographic characteristics of the study respondents presented using frequencies and percentages (Table 5.1). More than half of the respondents (*n* = 115; 55%) had completed tertiary education, 48(23%) had Primary or Junior high education and 45(22%) had attained Senior High education. With regards to the distribution by tribe, nearly half 102(48%) were Akans, whiles Ga/Dangbe formed the minority 31(15%). Majority of the respondents (n = 152, 74%) were Christians with the minority 20 (10%) being Muslims. With regards to employment status of the

respondents, the study revealed that most of respondents were employed (94%, *n* =199). In relation to the type of infertility, two-thirds (*n* = 133, 64%) of the respondents have never had a child prior to treatment (primary infertility), whiles 74 (36%) ever had a child (secondary infertility). Close to half (46%) of the respondents were in Phase-2 of their treatment process.

For the client distribution by facility where they sought ART, LCH had the highest client 99(47%). More than half (56%) of the respondents reported that the cause of infertility was due a problem with the female partner, whiles 6% believed that the causes of the infertility were due to a problem with the male and female. Table 5.1 presents information on the socio-demographic characteristics of respondents in the quantitative study.

**Table 5.1: Demographic Characteristics Distribution of Women Seeking Assisted Reproductive Technology in Greater Accra-Ghana.**

| Socio demographic Characteristic | Frequency (n) = | Percent |
|---|---|---|
| **Age in years: mean (± SD)** | 38.3 ± 6.23 | |
| **Educational level** | | |
| <=JHS | 48 | 23.08 |
| SHS | 45 | 21.63 |
| Tertiary | 115 | 55.29 |
| **Ethnic groups** | | |
| Akan | 102 | 48.34 |
| Ewe | 35 | 16.59 |
| Ga/Dangbe | 31<br>43 | 14.69 |
| Others | | 20.38 |
| **Religion** | | |
| Christian | 152 | 74.15 |
| Moslem | 20 | 9.76 |
| Traditional | 33 | 16.1 |
| **Employment status** | | |
| Employed | 199 | 94.31 |
| Unemployed | 12 | 5.69 |
| **Other factors** | | |
| **Previous child** | | |
| No | 133 | 64.25 |
| Yes | 74 | 35.75 |
| **Treatment phase** | | |
| Phase 1 | | |
| Phase 11 | | |
| Phase 111 | 80<br>97<br>34 | 37.91<br><br>45.97<br><br>16.11 |
| **Fertility centre** | | |
| JH | 53 | 25.12 |
| LH | 14 | 6.64 |
| FH | 27 | 12.8 |
| TWH | 18 | 8.53 |
| LCH | 99 | 46.92 |
| **Years looking for child: Median (LQ, UQ)** | 7 (4, 11) | |
| **Cause of infertility** | | |
| Unknown | 54 | 25.71 |
| Male | 26 | 12.38 |
| Female | 118 | 56.19 |
| Both | 12 | 5.71 |

LQ: Lower quartile. UQ: Upper quartile, SD: standard deviation

## 5.2 Challenges of Client seeking Assisted Reproductive Treatment

This section outlines the challenges as expressed by women seeking ART and this forms an important aspect of this study. These challenges included anxiety about the treatment,

effect on work, finance, and distance to facilities, accommodation, waiting time at the facilities, treatment process, and stigmatization.

Table 5.2 shows the challenges that respondents encountered during ART. Majority of the respondents 143 (68%) indicated that they were anxious about the success of the treatment. Some respondents (*n* = 128, 61%) indicated that the time they spent going to the facility affected their work. They either reported late or frequently sought permission from work. A large number of respondents (*n* = 126, 60%) found the amount of money that they spent during the phases of treatment was a challenge. The findings showed that, a higher proportion of the respondents (55%, n=115) reported long distance from their homes to the facility as a challenge. Also, 21 (9.9%) of the respondents indicated that it was difficult securing accommodation in the process of treatment.

**Table 5.2: Challenges of Seeking Assisted Reproductive treatment**

| Challenges | Frequency | Proportion (%) |
|---|---|---|
| Anxiety about treatment outcome | 143 | 67.8 |
| Affect Work | 128 | 60.7 |
| Finance/ Money | 126 | 59.7 |
| Distance to facility | 115 | 54.5 |
| Accommodation | 21 | 9.9 |
| Waiting time at facility | 18 | 8.5 |
| Other (Injection) | 3 | 1.4 |
| Stigmatization | 1 | 0.5 |
| Treatment process | 1 | 0.5 |

### 5.3 Coping Strategies of Infertile Clients Seeking ART

Individuals, who experience infertility, are often stressed as a result of mental and social challenges they go through. Coping strategies are conscious efforts aimed at reducing stressful situations, or stressors. The findings pertaining to coping strategies explored in this study, as noted previously, are discussed in subsequent sections.

### 5.3.1 Confrontational Coping

The results revealed that some respondents used confrontational coping strategy during the ART process. Confrontational coping strategy describes an individual active attitude towards a stressing agent (Folkman, and Lazarus, 1988). This was measured by asking respondents about the extent to which they used the various items under confrontational coping strategies. Example of some of the questions include “I express anger to the person who caused the problem”, and “I did something which I didn’t think would work, but at least I was doing something”.

Table 5.3 provides the results of the association between confrontational coping and the independent variables used in this study. Individuals who had been married for a long period of time were more likely to use confrontational coping. The proportion of respondents with very high confrontational coping was 16.1% (*n*=34), high-29.9%(*n*=63), moderate-16.1%(*n*=34), and low confrontational coping was 37.9 %(*n*=80), Chi square analysis reveals that only the facility centre ($\chi^2$ =41.4,p<0.001) and years of looking for a child ($\chi^2$=16.7, p<0.001) correlated significantly with confrontational coping. Also, respondents who had spent more years in search of a child were more likely to use confrontational coping strategies. ($\chi^2$= 16.7,p<0.001).

**Table 5.3: Bivariate Association between Confrontational Coping and Demographic Characteristics of Women Seeking Assisted Reproductive Technology in Greater Accra-Ghana.**

| | Levels of Confrontational coping | | | | | |
|---|---|---|---|---|---|---|
| **Independent variables** | **Low n (%)** | **Moderate n (%)** | **High n (%)** | **Very High n (%)** | **Chi-square** | **P-value** |
| **Age (Mean ± SD.)** | 37.35 ± 6.05 | 38.03 ± 5.58 | 39.13 ± 6.50 | 39.26 ± 6.65 | 1.29 | 0.280 ᵠ |
| **Educational level** | | | | | 1.46 | 0.962 |
| <=JHS | 17 (35.42) | 9 (18.75) | 14 (29.17) | 8 (16.67) | | |
| SHS | 18 (40.00) | 6 (13.33) | 12 (26.67) | 9 (20.00) | | |
| Tertiary | 43 (37.39) | 18 (15.65) | 37 (32.17) | 17 (14.78) | | |
| **Ethnic groups** | | | | | 6.63 | 0.676 |
| Akan | 38 (37.25) | 16 (15.69) | 33 (32.35) | 15 (14.71) | | |
| Ewe | 15 (42.86) | 6 (17.14) | 10 (28.57) | 4 (11.43) | | |
| Ga/ Dangbe | 10 (32.26) | 5 (16.13) | 12 (38.71) | 4 (12.90) | | |
| Others | 17 (39.53) | 7 (16.28) | 8 (18.60) | 11 (25.58) | | |
| **Religion** | | | | | 3.74 | 0.711 |
| Christian | 54 (35.53) | 24 (15.79) | 48 (31.58) | 26 (17.11) | | |
| Moslem | 8 (40.00) | 5 (25.00) | 5 (25.00) | 2 (10.00) | | |
| Traditional | 15 (45.45) | 3 (9.09) | 9 (27.27) | 6 (18.18) | | |
| **Employment status** | | | | | 2.69 | 0.441 |
| Employed | 75 (37.69) | 34 (17.09) | 58 (29.15) | 32 (16.08) | | |
| Unemployed | 5 (41.67) | 0 (0.00) | 5 (41.67) | 2 (16.67) | | |
| **Previous child** | | | | | 6.89 | 0.076 |
| No | 55 (41.35) | 24 (18.05) | 31 (23.31) | 23 (17.29) | | |
| Yes | 23 (31.08) | 10 (13.51) | 30 (40.54) | 11 (14.86) | | |
| **Treatment phase** | | | | | 1.28 | 0.973 |
| Phase 1 | 30 (37.50) | 13 (16.25) | 25 (31.25) | 12 (15.00) | | |
| Phase 2 | 39 (40.21) | 16 (16.49) | 26 (26.80) | 16 (16.49) | | |
| Phase 3 | 11 (32.35) | 5 (14.71) | 12 (35.29) | 6 (17.65) | | |
| **Fertility centre** | | | | | 41.42 | <0.001*** |
| JH | 26 (49.06) | 6 (11.32) | 11 (20.75) | 10 (18.87) | | |
| LH | 8 (57.14) | 4 (28.57) | 1 (7.14) | 1 (7.14) | | |
| FH | 9 (33.33) | 3 (11.11) | 13 (48.15) | 2 (7.41) | | |
| TWH | 5 (27.78) | 2 (11.11) | 1 (5.56) | 10 (55.56) | | |
| LCH | 32 (32.32) | 19 (19.19) | 37 (37.37) | 11 (11.11) | | |
| **Years looking for child (Median (LQ, UQ))** | 5 (3, 9) | 7 (4, 9) | 8 (4, 14) | 9 (6, 15) | 16.67 | <0.001***¥ |
| **Cause of infertility** | | | | | 12.37 | 0.193 |
| Unknown | 28 (51.85) | 5 (9.26) | 15 (27.78) | 6 (11.11) | | |
| Male | 11 (42.31) | 6 (23.08) | 6 (23.08) | 3 (11.54) | | |
| Female | 37 (31.36) | 22 (18.64) | 38 (32.20) | 21 (17.80) | | |
| Both | 3 (25.00) | 1 (8.33) | 4 (33.33) | 4 (33.33) | | |

φ: One way ANOVA test of equality of mean. ¥: Kruskal Wallis test of equality of median. Ψ: Fisher's exact test %: column percentage. * p <0.05, ** p<0.01, *** p<0.001. SD: standard deviation. LQ: Lower quartile. UQ: Upper quartile

Table 5.4 shows the results of both the simple and multiple linear regression models, with confrontational coping on continuous scale as the outcome variable and demographic factors as the predictors. It emerged that the number of years the respondent spent looking for a child significantly predicted confrontational coping (β = 0.01, 95% CI: 0.01, 0.02, *p* = 0.001). More specifically, a year increase in the number of years spent looking for a child result in 1% increment in the use of confrontational

coping. Similarly, the perceived causes of infertility significantly were predictive of confrontational coping ($p<0.05$). Respondents who indicated the perceived causes of infertility to be males, females, or male and female are 5%, 9% and 12% more likely to use confrontational coping more than those who perceived the causes to be unknown.

**Table 5.4: Multivariate Predictors of Confrontational Coping**

| | Log mean confrontational coping score | | | | | |
|---|---|---|---|---|---|---|
| | Unadjusted effect | | | Adjusted effect | | |
| | B | 95% CI. | P-value | B | 95% CI. | P-value |
| Age | 0.00 | (-0.00, 0.01) | 0.081 | -0.01 | (-0.01, 0.00) | 0.074 |
| Educational level | | | 0.765 | | | 0.699 |
| <= JHS | Ref. | | | | | |
| SHS | -0.03 | (-0.1, 0.05) | | -0.03 | (-0.12, 0.05) | |
| Tertiary | -0.02 | (-0.09, 0.04) | | -0.02 | (-0.09, 0.05) | |
| Ethnic group | | | 0.367 | | | 0.419 |
| Akan | Ref. | | | | | |
| Ewe | -0.05 | (-0.13, 0.02) | | -0.06 | (-0.14, 0.01) | |
| Ga/ Dangbe | 0.01 | (-0.07, 0.09) | | -0.01 | (-0.08, 0.07) | |
| Others | 0.02 | (-0.05, 0.09) | | -0.01 | (-0.11, 0.09) | |
| Religion | | | 0.836 | | | 0.564 |
| Christian | Ref. | | | | | |
| Moslem | -0.03 | (-0.12, 0.06) | | -0.06 | (-0.18, 0.05) | |
| Traditional | | (-0.08, 0.07) | | | (-0.07, 0.08) | |
| Employment status | | | 0.727 | | | 0.596 |
| Employed | Ref. | | | | | |
| unemployed | 0.02 | (-0.09, 0.13) | | -0.03 | (-0.15, 0.08) | |
| Previous child | | | 0.357 | | | 0.440 |
| No | Ref. | | | | | |
| Yes | 0.03 | (-0.03, 0.08) | | 0.03 | (-0.04, 0.09) | |
| Treatment stage | | | 0.496 | | | 0.440 |
| Phase 1 | Ref | | | | | |
| phase 2 | -0.02 | (-0.08, 0.04) | | 0.01 | (-0.05, 0.07) | |
| Phase 3 | 0.02 | (-0.05, 0.10) | | -0.05 | (-0.14, 0.04) | |
| Fertility centre | | | 0.005** | | | 0.379 |
| JH | Ref | | | | | |
| LH | -0.06 | (-0.17, 0.05) | | -0.03 | (-0.16, 0.09) | |
| FH | 0.07 | (-0.02, 0.15) | | 0.06 | (-0.04, 0.16) | |
| TWH | 0.17 | (0.07, 0.27) | | 0.11 | (-0.02, 0.23) | |
| LCH | 0.03 | (-0.03, 0.10) | | 0.01 | (-0.06, 0.08) | |
| Years looking for child | 0.01 | (0.01, 0.02) | <0.001*** | 0.01 | (0.01, 0.02) | <0.001*** |
| Cause of infertility | | | 0.007** | | | 0.023* |
| Unknown | Ref | | | | | |
| Male | 0.04 | (-0.04, 0.13) | | 0.05 | (-0.05, 0.14) | |
| Female | 0.09 | (0.03, 0.15) | | 0.09 | (0.03, 0.16) | |
| Both | 0.16 | (0.05, 0.28) | | 0.12 | (-0.00, 0.25) | |

β: Coefficient parameter estimate. * p<0.05, *** p<0.01, **p<0.001, CI: Confidence Interval. Ref: reference category of the predictor variable Adjusted for

### 5.3.2 Distancing Coping

Distancing coping is a strategy where the individual avoids the threat in an effort to change the situation, and deny the fact of their illness to themselves, without considering what other people say (Folkman, and Lazaurs, 1988). Some items that were used to elicit responses from the clients to measure distance coping includes “tried to forget about the whole thing” and made light of the situation”.

Table 5.5 presents the relationship between distancing coping and the independent variables. The proportions of respondents with the various levels of distance coping strategy were: very high–24.2%(*n*=51), high-18.1%(*n*=38),moderate-23.2%(*n*=49), and low –34.60%(n=73). It was observed that educational level [$\chi^2$=18.5,p=.005],religion, [$\chi^2$ =p=.043],fertility centre[$\chi^2$ =33.3,p=.001] and the cause of infertility[$\chi^2$=23.4,p.005] were related significantly to distance coping. In contrast, the other independent variables (i.e., age, ethnic group, employment status, previous child, treatment phase, and years looking for a child) had no significant relationship with distance coping ($p \geq 0.05$).

**Table 5.5: Bivariate Association between Distance coping strategy and the Demographic characteristics of women seeking Assisted Reproductive Technology in Greater Accra-Ghana.**

| | Levels of Distance coping | | | | | |
|---|---|---|---|---|---|---|
| Covariates | Low *n* (%) | Moderate *n* (%) | High *n* (%) | Very High *n* (%) | Chi-square | P-value |
| Age (Mean ± SD.) | 39.04 ± 5.65 | 37.67 ± 6.77 | 38.26 ± 5.53 | 37.86 ± 7.01 | 0.59 | 0.622 φ |
| Educational level | | | | | 18.50 | 0.005** |
| <=JHS | 13 (27.08) | 14 (29.17) | 12 (25.00) | 9 (18.75) | | |
| SHS | 20 (44.44) | 16 (35.56) | 3 (6.67) | 6 (13.33) | | |
| Tertiary | 38 (33.04) | 18 (15.65) | 23 (20.00) | 36 (31.30) | | |
| Ethnic groups | | | | | 11.13 | 0.267 |
| Akan | 36 (35.29) | 23 (22.55) | 16 (15.69) | 27 (26.47) | | |
| Ewe | 10 (28.57) | 9 (25.71) | 9 (25.71) | 7 (20.00) | | |
| Ga/ Dangbe | 17 (54.84) | 5 (16.13) | 5 (16.13) | 4 (12.90) | | |
| Others | 10 (23.26) | 12 (27.91) | 8 (18.60) | 13 (30.23) | | |
| Religion | | | | | | 0.043* Ψ |
| Christian | 58 (38.16) | 33 (21.71) | 20 (13.16) | 41 (26.97) | | |
| Moslem | 7 (35.00) | 5 (25.00) | 6 (30.00) | 2 (10.00) | | |
| Traditional | 8 (24.24) | 9 (27.27) | 11 (33.33) | 5 (15.15) | | |
| Employment status | | | | | | 0.185 Ψ |
| Employed | 70 (35.18) | 48 (24.12) | 33 (16.58) | 48 (24.12) | | |
| Unemployed | 3 (25.00) | 1 (8.33) | 5 (41.67) | 3 (25.00) | | |
| Previous child | | | | | 3.57 | 0.312 |
| No | 43 (32.33) | 33 (24.81) | 21 (15.79) | 36 (27.07) | | |
| Yes | 29 (39.19) | 16 (21.62) | 16 (21.62) | 13 (17.57) | | |
| Treatment phase | | | | | 2.13 | 0.908 |
| Phase 1 | 27 (33.75) | 20 (25.00) | 12 (15.00) | 21 (26.25) | | |
| Phase 2 | 33 (34.02) | 22 (22.68) | 18 (18.56) | 24 (24.74) | | |
| Phase 3 | 13 (38.24) | 7 (20.59) | 8 (23.53) | 6 (17.65) | | |
| Fertility centre | | | | | 33.28 | 0.001** |
| JH | 14 (26.42) | 14 (26.42) | 5 (9.43) | 20 (37.74) | | |
| LH | 1 (7.14) | 4 (28.57) | 1 (7.14) | 8 (57.14) | | |
| FH | 13 (48.15) | 5 (18.52) | 5 (18.52) | 4 (14.81) | | |
| TWH | 3 (16.67) | 4 (22.22) | 4 (22.22) | 7 (38.89) | | |
| LCH | 42 (42.42) | 22 (22.22) | 23 (23.23) | 12 (12.12) | | |
| Years looking for child (Median (LQ, UQ)) | 7.5 (4, 10.5) | 6 (4, 10) | 8 (5, 12) | 6.5 (3, 12) | 2.42 | 0.491¥ |
| Cause of infertility | | | | | 23.43 | 0.005** |
| Unknown | 14 (25.93) | 13 (24.07) | 7 (12.96) | 20 (37.04) | | |
| Male | 7 (26.92) | 12 (46.15) | 1 (3.85) | 6 (23.08) | | |
| Female | 46 (38.98) | 23 (1949) | 28 (23.73) | 21 (17.80) | | |
| Both | 6 (50.00) | 1 (8.33) | 1 (8.33) | 4 (33.33) | | |

φ: One way ANOVA test of equality of mean. ¥: Kruskal Wallis test of equality of median. Ψ: Fisher's exact test %: column percentage. * p <0.05, ** p<0.01, *** p<0.001. SD: standard deviation. LQ: Lower quartile. UQ: Upper quartile

Table 5.6 depicts multiple linear regression analysis using distance coping on a continuous scale as outcome showed that fertility centres was the only predictive factor of distance coping ($p$=0.008). Specifically, women who visited TWH were 13% less likely to use distance coping relative to the reference group (i.e., JH).

**Table 5.6: Multivariate Predictors of Distancing Coping Strategy**

| | Log mean Distance coping score | | | | | |
|---|---|---|---|---|---|---|
| | Unadjusted effect | | | Adjusted effect | | |
| | B | 95% CI. | P-value | β | 95% CI. | P-value |
| Age | | (-0.01, 0.00) | 0.541 | | (-0.01, 0.01) | 0.637 |
| Educational level | | | 0.051 | | | 0.064 |
| <= JHS | Ref. | | | | | |
| SHS | -0.08 | (-0.18, 0.02) | | -0.06 | (-0.17, 0.05) | |
| Tertiary | 0.03 | (-0.05, 0.11) | | 0.05 | (-0.04, 0.15) | |
| Ethnic group | | | 0.093 | | | 0.559 |
| Akan | Ref. | | | | | |
| Ewe | | (-0.09, 0.10) | | 0.03 | (-0.08, 0.13) | |
| Ga/ Dangbe | -0.09 | (-0.19, 0.01) | | -0.06 | (-0.16, 0.05) | |
| Others | 0.06 | (-0.03, 0.15) | | 0.03 | (-0.11, 0.17) | |
| Religion | | | 0.737 | | | 0.585 |
| Christian | Ref. | | | | | |
| Moslem | -0.04 | (-0.16, 0.08) | | -0.04 | (-0.20, 0.12) | |
| Traditional | 0.01 | (-0.08, 0.11) | | 0.04 | (-0.06, 0.15) | |
| Employment status | | | 0.661 | | | 0.658 |
| Employed | Ref. | | | | | |
| Unemployed | 0.03 | (-0.11, 0.18) | | 0.04 | (-0.12, 0.19) | |
| Previous child | | | 0.041* | | | 0.919 |
| No | Ref. | | | | | |
| Yes | -0.07 | (-0.14, -0.00) | | | (-0.09, 0.08) | |
| Treatment stage | | | 0.845 | | | 0.862 |
| Phase 1 | Ref. | | | | | |
| phase 2 | 0.01 | (-0.06, 0.09) | | 0.02 | (-0.06, 0.11) | |
| Phase 3 | -0.01 | (-0.11, 0.09) | | | (-0.11, 0.12) | |
| Fertility centre | | | <0.001*** | | | 0.008** |
| JH | Ref. | | | | | |
| LH | 0.12 | (-0.02, 0.26) | | 0.09 | (-0.08, 0.25) | |
| FH | -0.12 | (-0.23, -0.01) | | -0.11 | (-0.24, 0.03) | |
| TWH | 0.07 | (-0.06, 0.20) | | 0.07 | (-0.09, 0.24) | |
| LCH | -0.13 | (-0.21, -0.05) | | -0.13 | (-0.23, -0.03) | |
| Years looking for child | -0.00 | (-0.01, 0.00) | 0.575 | -0.00 | (-0.01, 0.01) | 0.813 |
| Cause of infertility | | | 0.136 | | | 0.550 |
| Unknown | Ref. | | | | | |
| Male | -0.09 | (-0.21, 0.02) | | -0.07 | (-0.19, 0.06) | |
| Female | -0.09 | (-0.17, -0.01) | | -0.06 | (-0.15, 0.03) | |
| Both | -0.02 | (-0.18, 0.13) | | -0.03 | (-0.20, 0.14) | |

β: Coefficient parameter estimate. * p<0.05, ** p<0.01, ***p<0.001, CI: Confidence Interval. Ref: reference category of the predictor variable

### 5.3.3 Self-Control Coping Strategy

Self-control coping strategy refers to efforts aimed at controlling emotions when an individual is faced with stressful situations (Folkman, and Lazaurs, 1988). This was measured by asking respondents about the extent to which they used the various items under self-control coping strategy. Examples of some of the questions are “I tried to keep my feelings to myself”, I tried not to act hastily”. The proportions of respondents with the various levels of self-control coping were: very high – 17.5%(*n*=37), high - 28.4%(*n*=60), moderate -27.5%(*n*=58) , low – 26.5%(*n*=56).The results of the association between Self-control coping and the independent variables are summarized in Table 5.7.It can be seen from the table that there was a significant relationship between self-control coping and respondents’ current age and the number of years respondent has been looking for a child ($p<0.05$). However, no significant association was observed between self-control coping and the remaining independent variables (i.e., educational level, ethnic groups, religion, employment status, previous child, treatment phase, fertility centre and cause of infertility).

**Table 5.7: Bivariate Association between Self-Control and the Demographic Characteristics of Women Seeking Assisted Reproductive Technology in Greater Accra-Ghana.**

| | Levels of Self-control coping | | | | | |
|---|---|---|---|---|---|---|
| Covariates | Low N (%) | Moderate N (%) | High N (%) | Very High N (%) | Chi-square | P-value |
| Age (Mean ± SD.) | 38.95 ± 4.84 | 39.95 ± 6.27) | 37.32 ± 6.64 | 36.32 ± 6.75 | 3.40 | 0.019* φ |
| Educational level | | | | | 5.20 | 0.518 |
| <=JHS | 17 (35.42) | 13 (27.08) | 10 (20.83) | 8 (16.67) | | |
| SHS | 14 (31.11) | 10 (22.22) | 12 (26.67) | 9 (20.00) | | |
| Tertiary | 25 (21.74) | 34 (29.57) | 37 (32.17) | 19 (16.52) | | |
| Ethnic groups | | | | | 4.76 | 0.854 |
| Akan | 28 (27.45) | 22 (21.57) | 32 (31.37) | 20 (19.61) | | |
| Ewe | 10 (28.57) | 11 (31.43) | 8 (22.86) | 6 (17.14) | | |
| Ga/ Dangbe | 6 (19.35) | 11 (35.48) | 9 (29.03) | 5 (16.13) | | |
| Others | 12 (27.91) | 14 (32.56) | 11 (25.58) | 6 (13.95) | | |
| Religion | | | | | 2.48 | 0.871 |
| Christian | 41 (26.97) | 42 (27.63) | 42 (27.63) | 27 (17.76) | | |
| Moslem | 7 (35.00) | 6 (30.00) | 6 (30.00) | 1 (5.00) | | |
| Traditional | 8 (24.24) | 9 (27.27) | 10 (30.30) | 6 (18.18) | | |
| Employment status | | | | | | 0.811 Ψ |
| Employed | 54 (27.14) | 55 (27.64) | 56 (28.14) | 34 (17.09) | | |
| Unemployed | 2 (16.67) | 3 (25.00) | 4 (33.33) | 3 (25.00) | | |
| Previous child | | | | | 5.38 | 0.146 |
| No | 38 (28.57) | 30 (22.56) | 43 (32.33) | 22 (16.54) | | |
| Yes | 17 (22.97) | 27 (36.49) | 17 (22.97) | 13 (17.57) | | |
| Treatment phase | | | | | 8.80 | 0.185 |
| Phase 1 | 26 (32.50) | 16 (20.00) | 22 (27.50) | 16 (20.00) | | |
| Phase 2 | 18 (18.56) | 32 (32.99) | 31 (31.96) | 16 (16.49) | | |
| Phase 3 | 12 (35.29) | 10 (29.41) | 7 (20.59) | 5 (14.71) | | |
| Fertility centre | | | | | 9.95 | 0.620 |
| JH | 15 (28.30) | 12 (22.64) | 21 (39.62) | 5 (9.43) | | |
| LH | 4 (28.57) | 4 (28.57) | 4 (28.57) | 2 (14.29) | | |
| FH | 9 (33.33) | 9 (33.33) | 6 (22.22) | 3 (11.11) | | |
| TWH | 4 (22.22) | 6 (33.33) | 4 (22.22) | 4 (22.22) | | |
| LCH | 24 (24.24) | 27 (27.27) | 25 (25.25) | 23 (23.23) | | |
| Years looking for child (Median (LQ, UQ)) | 8 (6, 13) | 6 (4, 12) | 6 (3, 9) | 7 (4, 10.5) | 8.39 | 0.039*¥ |
| Cause of infertility | | | | | | 0.875 |
| Unknown | 13 (24.07) | 16 (29.63) | 17 (31.48) | 8 (14.81) | | |
| Male | 9 (34.62) | 7 (26.92) | 8 (30.77) | 2 (7.69) | | |
| Female | 31 (26.27) | 31 (26.27) | 31 (26.27) | 25 (21.19) | | |
| Both | 3 (25.00) | 4 (33.33) | 4 (33.33) | 1 (8.33) | | |

φ: One way ANOVA test of equality of mean. ¥: Kruskal Wallis test of equality of median. Ψ: Fisher's exact test %: column percentage. * p <0.05, ** p<0.01, *** p<0.001. SD: standard deviation. LQ: Lower quartile. UQ: Upper quartile

Multiple linear regressions were used to assess the effect of demographic factors of women seeking ART on self-control coping strategy. The result of the analysis is presented in Table 5.8. It was observed that respondents current age significantly predicted self-control coping, suggesting that a year increase in the age of a respondent will result in a 2% decrease in self-control score (β: -0.02 95% CI: -0.04, -0.00, *p*

=0.011).,With the exception of age, none of the other independent variables significantly predicted self-control coping *(p* > .05).

**Table 5.8: Multivariate Predictors of Self-control Coping Strategy**

| | Self-control score | | | | | |
|---|---|---|---|---|---|---|
| | Unadjusted effect | | | Adjusted effect | | |
| | β | 95% CI. | P-value | B | 95% CI. | P-value |
| Age | -0.02 | (-0.03, -0.00) | 0.007** | -0.02 | (-0.04, -0.00) | 0.011* |
| Educational level | | | 0.442 | | | 0.670 |
| <= JHS | Ref. | | | | | |
| SHS | 0.11 | (-0.10, 0.31) | | 0.06 | (-0.16, 0.28) | |
| Tertiary | 0.11 | (-0.06, 0.28) | | 0.08 | (-0.1, 0.27) | |
| Ethnic group | | | 0.423 | | | 0.231 |
| Akan | Ref. | | | | | |
| Ewe | -0.10 | (-0.30, 0.09) | | -0.09 | (-0.29, 0.12) | |
| Ga/ Dangbe | 0.05 | (-0.16, 0.25) | | 0.10 | (-0.11, 0.31) | |
| Others | -0.11 | (-0.29, 0.07) | | -0.20 | (-0.47, 0.07) | |
| Religion | | | 0.492 | | | 0.983 |
| Christian | Ref. | | | | | |
| Moslem | -0.14 | (-0.37, 0.09) | | -0.02 | (-0.33, 0.29) | |
| Traditional | 0.00 | (-0.18, 0.19) | | -0.02 | (-0.22, 0.19) | |
| Employment status | | | 0.236 | | | 0.217 |
| Employed | Ref. | | | | | |
| unemployed | 0.18 | (-0.12, 0.47) | | 0.20 | (-0.12, 0.51) | |
| Previous child | | | 0.756 | | | 0.285 |
| No | | | | | | |
| Yes | 0.02 | (-0.12, 0.16) | | 0.09 | (-0.08, 0.26) | |
| Treatment stage | | | 0.706 | | | 0.629 |
| Phase 1 | Ref. | | | | | |
| phase 2 | 0.00 | (-0.15, 0.15) | | -0.04 | (-0.20, 0.13) | |
| Phase 3 | -0.08 | (-0.28, 0.12) | | -0.11 | (-0.35, 0.12) | |
| Fertility centre | | | 0.241 | | | 0.135 |
| JH | Ref. | | | | | |
| LH | -0.07 | (-0.36, 0.23) | | -0.16 | (-0.49, 0.17) | |
| FH | -0.08 | (-0.31, 0.16) | | -0.02 | (-0.28, 0.24) | |
| TWH | 0.09 | (-0.18, 0.36) | | 0.34 | (0.01, 0.67) | |
| LCH | 0.13 | (-0.04, 0.30) | | 0.09 | (-0.10, 0.28) | |
| Years looking for child | -0.01 | (-0.02, 0.00) | 0.067 | | (-0.02, 0.02) | 0.738 |
| Cause of infertility | | | 0.420 | | | 0.217 |
| Unknown | Ref. | | | | | |
| Male | -0.10 | (-0.33, 0.14) | | -0.16 | (-0.41, 0.09) | |
| Female | 0.07 | (-0.09, 0.24) | | 0.08 | (-0.09, 0.25) | |
| Both | -0.02 | (-0.34, 0.29) | | -0.05 | (-0.39, 0.29) | |

β: Coefficient parameter estimate. * p<0.05, ** p<0.01, ***p<0.001, CI: Confidence Interval. Ref: reference category of the predictor variable

### 5.3.4 Social Support Coping Strategy

Social support coping strategy is a coping strategy that takes into account the support found in people and the environment (Folkman and Lazaurs, 1988). Some of these include seeking professional help, talking to someone to find out more about the situation and talking to someone who could do something concrete about the problem.

Table 5.9 presents the association between social support coping strategy and the independent variables. Based on the mean coping score, the proportion of respondents classified as very high, high, moderate, and low were 22.3% (*n*=47), 19.9 % (*n*=42), 28.4%(*n*=60) and 29.4%(*n*=62), respectively. The result revealed that there was significant association between social support coping strategy and treatment phase ($\chi^2$=17.05, *p*=0.009), fertility centre ($\chi^2$=42.04,*p* =<0.001), as well as the cause of fertility ($\chi^2$=24.46,*p*=0.004).

**Table 5.9: Bivariate Association between Social –Support Coping Strategy and the Demographic Characteristics of Women Seeking Assisted Reproductive Technology in Greater Accra-Ghana.**

| | Levels of Self-seek coping | | | | | |
|---|---|---|---|---|---|---|
| Covariates | Low N (%) | Moderate N (%) | High N (%) | Very High N (%) | Chi-square | P-value |
| Age (Mean ± SD.) | 38.21 ± 6.51 | 38.7 ± 6.21 | 36.38 ± 6 | 39.62± 5.86 | 2.15 | 0.095 φ |
| Educational level | | | | | 4.54 | 0.604 |
| <=JHS | 16 (33.33) | 12 (25.00) | 11 (22.92) | 9 (18.75) | | |
| SHS | 13 (28.89) | 9 (20.00) | 11 (24.44) | 12 (26.67) | | |
| Tertiary | 32 (27.83) | 38 (33.04) | 19 (16.52) | 26 (22.61) | | |
| Ethnic groups | | | | | 8.34 | 0.500 |
| Akan | 33 (32.35) | 32 (31.37) | 17 (16.67) | 20 (19.61) | | |
| Ewe | 9 (25.71) | 11 (31.43) | 9 (25.71) | 6 (17.14) | | |
| Ga/ Dangbe | 9 (29.03) | 7 (22.58) | 4 (12.90) | 11 (35.48) | | |
| Others | 11 (25.58) | 10 (23.26) | 12 (27.91) | 10 (23.26) | | |
| Religion | | | | | | |
| Christian | 44 (28.95) | 47 (30.92) | 31 (20.39) | 30 (19.74) | 7.46 | 0.280 |
| Moslem | 6 (30.00) | 6 (30.00) | 4 (20.00) | 4 (20.00) | | |
| Traditional | 10 (30.30) | 5 (15.15) | 5 (15.15) | 13 (39.39) | | |
| Employment status | | | | | | 0.563 Ψ |
| Employed | 59 (29.65) | 58 (29.15) | 38 (19.10) | 44 (22.11) | | |
| Unemployed | 3 (25.00) | 2 (16.67) | 4 (33.33) | 3 (25.00) | | |
| Previous child | | | | | 3.70 | 0.296 |
| No | 39 (29.32) | 36 (27.07) | 32 (24.06) | 26 (19.55) | | |
| Yes | 22 (29.73) | 23 (31.08) | 10 (13.51) | 19 (25.68) | | |
| Treatment phase | | | | | 17.05 | 0.009** |
| Phase 1 | 24 (30.00) | 15 (18.75) | 19 (23.75) | 22 (27.50) | | |
| Phase 2 | 27 (27.84) | 40 (41.24) | 16 (16.49) | 14 (14.43) | | |
| Phase 3 | 11 (32.35) | 5 (14.71) | 7 (20.59) | 11 (32.35) | | |
| Fertility centre | | | | | 42.04 | <0.001** * |
| JH | 26 (49.06) | 13 (24.53) | 13 (24.53) | 1 (1.89) | | |
| LH | 2 (14.29) | 5 (35.71) | 6 (42.86) | 1 (7.14) | | |
| FH | 3 (11.11) | 6 (22.22) | 5 (18.52) | 13 (48.15) | | |
| TWH | 5 (27.78) | 3 (16.67) | 5 (27.78) | 5 (27.78) | | |
| LCH | 26 (26.26) | 33 (33.33) | 13 (13.13) | 27 (27.27) | | |
| Years looking for child (Median (LQ, UQ)) | 7 (3, 10) | 8 (4, 10) | 6 (4, 11) | 8 (4, 15) | 3.48 | 0.324¥ |
| Cause of infertility | | | | | 24.46 | 0.004** |
| Unknown | 18 (33.33) | 13 (24.07) | 13 (24.07) | 10 (18.52) | | |
| Male | 16 (61.54) | 7 (26.92) | 3 (11.54) | 0 (0.00) | | |
| Female | 25 (21.19) | 36 (30.51) | 22 (18.64) | 35 (29.66) | | |
| Both | 3 (25.00) | 3 (25.00) | 4 (33.33) | 2 (16.67) | | |

φ: One way ANOVA test of equality of mean. ¥: Kruskal Wallis test of equality of median. Ψ: Fisher's exact test %: column percentage. * p <0.05, ** p<0.01, *** p<0.001. SD: standard deviation. LQ: Lower quartile. UQ: Upper quartile

Table 5.10, presents a summary of the predictors of social support coping using linear and multiple linear regression analysis. The result shows that the fertility centre and cause of infertility significantly predicted social support coping as the outcome variable. Regarding fertility centre, attending LH, FH & TWH for treatment, relative to JH, is associated with 26%, 29%, and 15% increase in the use of social support coping strategy, respectively. Similarly, a unit increase in the attribution of the causes of infertility to males and females is associated with 17% and 11% increase in the use of social support as a form of coping strategy, respectively.

**Table 5.10: Multivariate Predictors of Social Support Coping Strategy**

| | Log mean of self-seek coping score | | | | | |
|---|---|---|---|---|---|---|
| | Unadjusted effect | | | Adjusted effect | | |
| | β | 95% CI. | P-value | B | 95% CI. | P-value |
| Age | 0.00 | (-0.01, 0.01) | 0.972 | -0.01 | (-0.02, 0.00) | 0.141 |
| Educational level | | | 0.840 | | | 0.615 |
| <= JHS | Ref. | | | | | |
| SHS | 0.04 | (-0.10, 0.17) | | 0.01 | (-0.13, 0.15) | |
| Tertiary | 0.03 | (-0.08, 0.14) | | 0.05 | (-0.06, 0.17) | |
| Ethnic group | | | 0.257 | | | 0.458 |
| Akan | Ref. | | | | | |
| Ewe | 0.08 | (-0.05, 0.21) | | 0.08 | (-0.05, 0.21) | |
| Ga/ Dangbe | 0.10 | (-0.04, 0.23) | | 0.07 | (-0.06, 0.21) | |
| Others | 0.09 | (-0.02, 0.21) | | 0.10 | (-0.07, 0.27) | |
| Religion | | | 0.716 | | | 0.571 |
| Christian | Ref. | | | | | |
| Moslem | 0.04 | (-0.12, 0.19) | | -0.08 | (-0.27, 0.12) | |
| Traditional | 0.05 | (-0.08, 0.17) | | 0.04 | (-0.08, 0.17) | |
| Employment status | | | 0.416 | | | 0.577 |
| Employed | Ref. | | | | | |
| unemployed | 0.08 | (-0.11, 0.27) | | 0.06 | (-0.14, 0.25) | |
| Previous child | | | 0.747 | | | 0.779 |
| No | Ref. | | | | | |
| Yes | -0.02 | (-0.11, 0.08) | | 0.02 | (-0.09, 0.12) | |
| Treatment stage | | | 0.557 | | | 0.485 |
| Phase 1 | Ref. | | | | | |
| phase 2 | -0.04 | (-0.14, 0.05) | | -0.03 | (-0.13, 0.08) | |
| Phase 3 | 0.01 | (-0.12, 0.15) | | -0.09 | (-0.24, 0.06) | |
| Fertility centre | | | 0.001** | | | 0.004** |
| JH | Ref. | | | | | |
| LH | 0.23 | (0.04, 0.42) | | 0.26 | (0.05, 0.47) | |
| FH | 0.31 | (0.16, 0.45) | | 0.29 | (0.12, 0.46) | |
| TWH | 0.23 | (0.06, 0.40) | | 0.20 | (-0.01, 0.41) | |
| LCH | 0.14 | (0.04, 0.25) | | 0.15 | (0.03, 0.27) | |
| Years looking for child | 0.01 | (0.00, 0.01) | 0.120 | 0.01 | (-0.01, 0.02) | 0.372 |
| Cause of infertility | | | 0.006** | | | 0.001** |
| Unknown | Ref. | | | | | |
| Male | -0.17 | (-0.32, -0.02) | | -0.17 | (-0.33, -0.01) | |
| Female | 0.07 | (-0.03, 0.18) | | 0.11 | (0.00, 0.22) | |
| Both | 0.08 | (-0.12, 0.28) | | 0.09 | (-0.12, 0.31) | |

β: Coefficient parameter estimate. * p<0.05, ** p<0.01, ***p<0.001, CI: Confidence Interval. Ref: reference category of the predictor variable

### 5.3.5 Acceptance Responsibility Coping Strategy

Acceptance responsibility coping is a type of copying strategy used to accept reality and commit to the process of coping with a stressing situation (Folkman and Lazaurus, 1988). Some items that relates to acceptance responsibility coping strategies are "I criticized or lectured myself", Realised I brought the problem to myself.

The result of Chi-square analysis of the association between the independent variables such as age and fertility centre and the dependent variable is presented in Table 5.11. Similar to the previous coping subdomains, 23.7%(*n*=54), 16.6% (*n*=35), 34.1% (*n*=72) and 25.6% (*n*=54) of the respondents were classified as very high, high, moderate, and low on acceptance responsibility coping, respectively. The results shows a significant association between acceptance responsibility coping and educational levels ($\chi^2$=21.8, *p* =0.001). Relatedly, fertility centre and acceptance responsibility coping strategy showed statistically significant positive association ($\chi^2$=30.6, *p* =0.002)., The number of years looking for a child was also significantly associated with acceptance responsibility coping strategy. ($\chi^2$=29.6, *p*=0.001).

**Table 5.11: Bivariate Association between Acceptance Coping Strategy and the Demographic Characteristics of Women Seeking Assisted Reproductive Technology in Greater Accra-Ghana.**

| | Levels of Acceptance coping | | | | | |
|---|---|---|---|---|---|---|
| Covariates | Low *n*(%) | Moderate *n*(%) | High *n* (%) | Very High *n* (%) | Chi-square | P-value |
| Age (Mean ± SD.) | 39.07 ± 6.09) | 37.58 ± 6.2 | 39.23 ± 6.94 | 37.84 ± 5.90 | 0.94 | 0.420 φ |
| Educational level | | | | | 21.79 | 0.001* * |
| <=JHS | 21 (43.75) | 10 (20.83) | 7 (14.58) | 10 (20.83) | | |
| SHS | 17 (37.78) | 16 (35.56) | 5 (11.11) | 7 (15.56) | | |
| Tertiary | 16 (13.91) | 44 (38.26) | 23 (20.00) | 32 (27.83) | | |
| Ethnic groups | | | | | 8.49 | 0.486 |
| Akan | 27 (26.47) | 37 (36.27) | 18 (17.65) | 20 (19.61) | | |
| Ewe | 9 (25.71) | 9 (25.71) | 8 (22.86) | 9 (25.71) | | |
| Ga/ Dangbe | 7 (22.58) | 9 (29.03) | 7 (22.58) | 8 (25.81) | | |
| Others | 11 (25.58) | 17 (39.53) | 2 (4.65) | 13 (30.23) | | |
| Religion | | | | | 4.14 | 0.657 |
| Christian | 40 (26.32) | 47 (30.92) | 27 (17.76) | 38 (25.00) | | |
| Moslem | 6 (30.00) | 6 (30.00) | 2 (10.00) | 6 (30.00) | | |
| Traditional | 6 (18.18) | 15 (45.45) | 6 (18.18) | 6 (18.18) | | |
| Employment status | | | | | 4.76 | 0.19 |
| Employed | 51 (25.63) | 71 (35.68) | 32 (16.08) | 45 (22.61) | | |
| Unemployed | 3 (25.00) | 1 (8.33) | 3 (25.00) | 5 (41.67) | | |
| Previous child | | | | | 2.48 | 0.479 |
| No | 38 (28.57) | 42 (31.58) | 21 (15.79) | 32 (24.06) | | |
| Yes | 15 (20.27) | 29 (39.19) | 14 (18.92) | 16 (21.62) | | |
| Treatment phase | | | | | | |
| Phase 1 | 28 (35.00) | 19 (23.75) | 12 (15.00) | 21 (26.25) | 9.18 | 0.164 |
| Phase 2 | 19 (19.59) | 40 (41.24) | 17 (17.53) | 21 (21.65) | | |
| Phase 3 | 7 (20.59) | 13 (38.24) | 6 (17.65) | 8 (23.53) | | |
| Fertility centre | | | | | 30.63 | 0.002* * |
| JH | 13 (24.53) | 16 (30.19) | 11 (20.75) | 13 (24.53) | | |
| LH | 7 (50.00) | 7 (50.00) | 0 (0.00) | 0 (0.00) | | |
| FH | 2 (7.41) | 6 (22.22) | 8 (29.63) | 11(40.74) | | |
| TWH | 6 (33.33) | 3 (16.67) | 1 (5.56) | 8 (44.44) | | |
| LCH | 26 (26.26) | 40 (40.40) | 15 (15.15) | 18 (18.18) | | |
| Years looking for child (Median (LQ, UQ)) | 7 (5, 10) | 5 (3, 10) | 7 (3, 14) | 9 (4, 12) | 4.42 | 0.220¥ |
| Cause of infertility | | | | | 29.60 | 0.001* * |
| Unknown | 14 (25.93) | 32 (59.26) | 3 (5.56) | 5 (9.26) | | |
| Male | 6 (23.08) | 10 (38.46) | 6 (23.08) | 4 (15.38) | | |
| Female | 31 (26.27) | 28 (23.73) | 24 (20.34) | 35 (29.66) | | |
| Both | 3 (25.00) | 2 (16.67) | 2 (16.67) | 5 (41.67) | | |

φ: One way ANOVA test of equality of mean. ¥: Kruskal Wallis test of equality of median. Ψ: Fisher's exact test %: column percentage. * p <0.05, ** p<0.01, *** p<0.001. SD: standard deviation. LQ: Lower quartile. UQ: Upper quartile

The results of the multiple linear regression analysis of the effect of predictors on acceptance coping strategy are shown in Table 5.12. Age was statistically significant and negatively predicts the use of acceptance coping strategy (β = 95% CI: 0.03, -0.00, *p* =0.033) after adjusting for the other demographic characteristics. This indicates that, advancement in age is associated with 1% decrease in the use of acceptance coping

strategy (β= 0.01, 95% CI: -0.03, -0.00). Educational level was positively related to acceptance responsibility. This means that respondents with tertiary and senior high level had 26% and 6% more likely to cope with ART using acceptance coping strategy respectively (β= 0.26, 95% CI: 0.12,0.41) and (β= 0.06, 95% CI: -0.11,0.23). Fertility centre similarly emerged as significant predictor of acceptance responsibility coping strategy ($p$ =0.018), suggesting that respondents who received treatment from FH and TWH are more likely to use acceptance responsibility coping strategy. Similarly, respondents who visited LH are 29% less likely to use acceptance responsibility coping. The number of years looking for a child was statistically significant with acceptance responsibility coping strategy ($p$ = 0.039). This implies that the more years a woman looked for a child, the more likely they will use acceptance responsibility coping strategy. Likewise, respondents who attributed the causes of infertility to males and females are 9%and 20% more likely to use acceptance responsibility coping respectively.

## Table 5.12: Multivariate Predictors of Acceptance Responsibility Coping Strategy

| | Log mean of Acceptance coping score | | | | | |
|---|---|---|---|---|---|---|
| | Unadjusted effect | | | Adjusted effect | | |
| | β | 95% CI. | P-value | B | 95% CI. | P-value |
| Age | | (-0.01, 0.01) | 0.676 | -0.01 | (-0.03,-0.00) | 0.033* |
| Educational level | | | <0.001*** | | | 0.001** |
| <= JHS | Ref. | | | | | |
| SHS | 0.05 | (-0.11, 0.21) | | 0.06 | (-0.11, 0.23) | |
| Tertiary | 0.25 | (0.12, 0.38) | | 0.26 | (0.12, 0.41) | |
| Ethnic group | | | 0.800 | | | 0.946 |
| Akan | Ref. | | | | | |
| Ewe | 0.03 | (-0.13, 0.19) | | -0.04 | (-0.19, 0.12) | |
| Ga/ Dangbe | 0.08 | (-0.09, 0.24) | | -0.03 | (-0.20, 0.13) | |
| Others | 0.04 | (-0.10, 0.19) | | 0.01 | (-0.20, 0.22) | |
| Religion | | | 0.815 | | | 0.646 |
| Christian | Ref. | | | | | |
| Moslem | -0.05 | (-0.25, 0.14) | | -0.07 | (-0.31, 0.17) | |
| Traditional | -0.01 | (-0.17, 0.14) | | 0.05 | (-0.10, 0.21) | |
| Employment status | | | 0.142 | | | 0.615 |
| Employed | Ref. | | | | | |
| unemployed | 0.18 | (-0.06, 0.41) | | 0.06 | (-0.18, 0.30) | |
| Previous child | | | 0.39 | | | 0.181 |
| No | Ref. | | | | | |
| Yes | 0.05 | (-0.07, 0.17) | | 0.09 | (-0.04, 0.22) | |
| Treatment stage | | | 0.543 | | | 0.258 |
| Phase 1 | Ref. | | | | | |
| phase 2 | 0.04 | (-0.08, 0.16) | | | (-0.13, 0.12) | |
| Phase 3 | 0.09 | (-0.07, 0.25) | | -0.14 | (-0.32, 0.04) | |
| Fertility centre | | | <0.001*** | | | 0.018* |
| JH | Ref. | | | | | |
| LH | -0.36 | (-0.59, -0.14) | | -0.29 | (-0.54, -0.03) | |
| FH | 0.24 | (0.06, 0.42) | | 0.21 | (0.01, 0.41) | |
| TWH | 0.02 | (-0.18, 0.23) | | 0.06 | (-0.20, 0.32) | |
| LCH | -0.05 | (-0.17, 0.08) | | -0.04 | (-0.18, 0.11) | |
| Years looking for child | 0.01 | (-0.00, 0.02) | 0.095 | 0.02 | (0.00, 0.03) | 0.013* |
| Cause of infertility | | | 0.050 | | | 0.030* |
| Unknown | Ref. | | | | | |
| Male | 0.10 | (-0.09, 0.28) | | 0.09 | (-0.10, 0.28) | |
| Female | 0.18 | (0.05, 0.30) | | 0.20 | (0.07, 0.33) | |
| Both | 0.22 | (-0.04, 0.47) | | 0.13 | (-0.13, 0.39) | |

β: Coefficient parameter estimate. * p<0.05, ** p<0.01, ***p<0.001, CI: Confidence Interval. Ref: reference category of the predictor variable

### 5.3.6 Escape-Avoidance Coping

Escape-avoidance coping refers to an effort to avoid a stressing agent (Folkman and Lazaurs, 1988). These were determined by some questions such as “hope a miracle would happen”, Had fantasies or wishes about how things might turn out”. Table 5.13 presents a summary of association between the independent variables (e.g., age, years of looking for a child, treatment phase, cause of infertility) and escape –avoidance coping strategy. The proportion of respondents with the various levels of escape-avoidance coping were: very high-19.0%(*n*= 40), high -26.1%(*n*= 55), moderate -11.9%(n= 25), low-43.1%(n=91). The result shows that educational level was significantly associated with escape coping strategy ($\chi^2$=21.8, *p*=0.001).Similarly, the fertility centre where treatment ($\chi^2$=30.6, *p*=0.002), the cause of infertility ($\chi^2$=29.6, *p*=0.001) were significantly associated with escape coping strategy,

**Table 5.13: Bivariate Association between Escape Coping Strategy and the Demographic Characteristics of Women Seeking Assisted Reproductive Technology in Greater Accra-Ghana.**

| | Levels of Escape coping | | | | | |
|---|---|---|---|---|---|---|
| Covariates | Low *n* (%) | Moderate *n* (%) | High *n* (%) | Very High *n* (%) | Chi-square | *P*-value |
| Age (Mean ± SD.) | 38.21 ± 5.98 | 39.28 ± 5.73 | 37.84 ± 6.58 | 38.53 ± 6.73 | 0.94 | 0.420 φ |
| Educational level | | | | | 21.79 | 0.001** |
| <=JHS | 23 (47.92) | 5 (10.42) | 10 (20.83) | 10 (20.83) | | |
| SHS | 22 (48.89) | 8 (17.78) | 10 (22.22) | 5 (11.11) | | |
| Tertiary | 45 (39.13) | 12 (10.43) | 33 (28.70) | 25 (21.74) | | |
| Ethnic groups | | | | | 8.49 | 0.486 |
| Akan | 49 (48.04) | 15 (14.71) | 25 (24.51) | 13 (12.75) | | |
| Ewe | 16 (45.71) | 2 (5.71) | 10 (28.57) | 7 (20.00) | | |
| Ga/ Dangbe | 12 (38.71) | 5 (16.13) | 6 (19.35) | 8 (25.81) | | |
| Others | 14 (32.56) | 3 (6.98) | 14 (32.56) | 12 (27.91) | | |
| Religion | | | | | 4.14 | 0.657 |
| Christian | 65 (42.76) | 18 (11.84) | 40 (26.32) | 29 (19.08) | | |
| Moslem | 8 (40.00) | 1 (5.00) | 7 (35.00) | 4 (20.00) | | |
| Traditional | 14 (42.42) | 6 (18.18) | 7 (21.21) | 6 (18.18) | | |
| Employment status | | | | | 4.76 | 0.19 |
| Employed | 87 (43.72) | 25 (12.56) | 52 (26.13) | 35 (17.59) | | |
| Unemployed | 4 (33.33) | 0 (0.00) | 3 (25.00) | 5 (41.67) | | |
| Previous child | | | | | 2.48 | 0.479 |
| No | 61 (45.86) | 15 (11.28) | 30 (22.56) | 27 (20.30) | | |
| Yes | 30 (40.54) | 7 (9.46) | 24 (32.43) | 13 (17.57) | | |
| Treatment phase | | | | | | |
| Phase 1 | 34 (42.50) | 8 (10.00) | 26 (32.50) | 12 (15.00) | 9.18 | 0.164 |
| Phase 2 | 47 (48.45) | 10 (10.31) | 23 (23.71) | 17 (17.53) | | |
| Phase 3 | 10 (29.41) | 7 (20.59) | 6 (17.65) | 11 (32.35) | | |
| Fertility centre | | | | | 30.63 | 0.002** |
| JH | 23 (43.40) | 4 (7.55) | 15 (28.30) | 11 (20.75) | | |
| LH | 7 (50.00) | 3 (21.43) | 3 (21.43) | 1 (7.14) | | |
| FH | 8 (29.63) | 5 (18.52) | 7 (25.93) | 7 (25.93) | | |
| TWH | 2 (11.11) | 1 (5.56) | 5 (27.78) | 10 (55.56) | | |
| LCH | 51 (51.52) | 12 (12.12) | 25 (25.25) | 11 (11.11) | | |
| Years looking for child (Median (LQ, UQ)) | 7 (4, 10) | 6 (4, 10) | 6 (4, 12.5) | 8 (5, 15) | 4.42 | 0.220¥ |
| Cause of infertility | | | | | 29.60 | 0.001** |
| Unknown | 31 (57.41) | 5 (9.26) | 15 (27.78) | 3 (5.56) | | |
| Male | 10 (38.46) | 3 (11.54) | 8 (30.77) | 5 (19.23) | | |
| Female | 46 (38.98) | 15 (12.71) | 29 (24.58) | 28 (23.73) | | |
| Both | 4 (33.33) | 2 (16.67) | 3 (25.00) | 3 (25.00) | | |

φ: One-way ANOVA test of equality of mean. ¥: Kruskal Wallis test of equality of median. Ψ: Fisher's exact test %: column percentage. * p <0.05, ** p<0.01, *** p<0.001. SD: standard deviation. LQ: Lower quartile. UQ: Upper quartile

The results of the multiple linear regression models involving escape avoidance coping as the outcome variable summarized in Table 5.14. First, age is negatively related to escape avoidance coping, suggesting that every year increase in the age of the respondents will lead to 1% decrease in the use of escape avoidance coping (β=0.01, 95% CI: -0.01,0.00). With respect to fertility centre, respondents who access fertility services from TWH are 18% more likely to use escape avoidance coping, relative to those attending JH (β=0.18, 95% CI: 0.08, -0.28).

**Table 5.14: Multivariate Predictors of Escape Coping Strategy**

| | Log mean of escape coping score | | | | | |
|---|---|---|---|---|---|---|
| | Unadjusted effect | | | Adjusted effect | | |
| | β | 95% CI. | P-value | B | 95% CI. | P-value |
| Age | 0.00 | (-0.00, 0.00) | 0.58 | -0.01 | (-0.01, 0.00) | 0.01* |
| Educational level | | | 0.34 | | | 0.32 |
| <= JHS | Ref. | | | | | |
| SHS | -0.04 | (-0.10, 0.03) | | -0.04 | (-0.11, 0.03) | |
| Tertiary | 0.00 | (-0.05, 0.06) | | | (-0.05, 0.06) | |
| Ethnic group | | | 0.01* | | | 0.29 |
| Akan | Ref. | | | | | |
| Ewe | 0.04 | (-0.02, 0.10) | | 0.01 | (-0.05, 0.07) | |
| Ga/ Dangbe | 0.06 | (0.00, 0.13) | | 0.06 | (-0.00, 0.13) | |
| Others | 0.08 | (0.03, 0.14) | | | (-0.08, 0.08) | |
| Religion | | | 0.78 | | | 0.78 |
| Christian | Ref. | | | | | |
| Moslem | 0.03 | (-0.05, 0.1) | | | (-0.1, 0.09) | |
| Traditional | 0.00 | (-0.06, 0.06) | | 0.02 | (-0.04, 0.08) | |
| Employment status | | | 0.12 | | | 0.55 |
| Employed | Ref. | | | | | |
| unemployed | 0.07 | (-0.02, 0.16) | | 0.03 | (-0.07, 0.12) | |
| Previous child | | | 0.97 | | | 0.24 |
| No | Ref. | | | | | |
| Yes | 0.00 | (-0.04, 0.05) | | 0.03 | (-0.02, 0.08) | |
| Treatment stage | | | 0.24 | | | 0.80 |
| Phase 1 | Ref. | | | | | |
| phase 2 | 0.00 | (-0.05, 0.05) | | | (-0.05, 0.05) | |
| Phase 3 | 0.05 | (-0.01, 0.11) | | -0.02 | (-0.10, 0.05) | |
| Fertility centre | | | <0.001*** | | | 0.01* |
| JH | Ref. | | | | | |
| LH | -0.02 | (-0.11, 0.07) | | -0.01 | (-0.11, 0.09) | |
| FH | 0.02 | (-0.05, 0.09) | | 0.01 | (-0.07, 0.09) | |
| TWH | 0.15 | (0.07, 0.23) | | 0.18 | (0.08, 0.28) | |
| LCH | -0.02 | (-0.07, 0.03) | | -0.03 | (-0.09, 0.03) | |
| Years looking for child | 0.00 | (-0.00, 0.01) | 0.14 | 0.01 | (-0.00, 0.01) | 0.07 |
| Cause of infertility | | | 0.04* | | | <0.001*** |
| Unknown | Ref. | | | | | |
| Male | 0.03 | (-0.04, 0.11) | | 0.01 | (-0.07, 0.09) | |
| Female | 0.07 | (0.02, 0.12) | | 0.08 | (0.02, 0.13) | |
| Both | 0.02 | (-0.08, 0.11) | | -0.08 | (-0.18, 0.03) | |

β: Coefficient parameter estimate. * p<0.05, ** p<0.01, ***p<0.001, CI: Confidence Interval. Ref: reference category of the predictor variable

### 5.3.7 Problem-Solving Coping Strategy

Table 5.15 presents a test of association between the use of problem solving coping strategy and the independent variables. Problem solving coping refers to the use of appropriate planning to cope with stressing events, in this case infertility. Some of the questions discussed under this coping domain includes: “I came up with a couple of different solutions to the problem”, “I made a plan of action and followed it”. The proportion of respondents with very high coping was 16.1%, 23, 7% with high 35.1% with moderate and 25.1% with low problem solving coping strategy.

Having a previous child was significantly associated with problem solving coping ($\chi^2$=10.6, $p$ =0.014). In a similar vein, the fertility centre where treatment was sought ($\chi^2$=30.9, $p$=0.002) and the cause of infertility ($\chi^2$=19.0, $p$=0.026) were significantly associated with the use of problem solving coping.

**Table 5.15: Bivariate Association between Problem Solving Coping Strategy and the Demographic Characteristics of Women Seeking Assisted Reproductive Technology in Greater Accra-Ghana.**

| | Levels of Problem Solving coping | | | | | |
|---|---|---|---|---|---|---|
| Covariates | Low *n*(%) | Moderate *n*(%) | High *n*(%) | Very High *n* (%) | Chi-square | *P*-value |
| Age (Mean ± SD.) | 38.4 ± 6.75 | 38.04 ± 6.07 | 37.68 ± 5.79 | 39.62 ± 6.44 | 0.72 | 0.544 φ |
| Educational level | | | | | | |
| <=JHS | 12 (25.00) | 23 (47.92) | 7 (14.58) | 6 (12.50) | 8.81 | 0.185 |
| SHS | 10 (22.22) | 16 (35.56) | 14 (31.11) | 5 (11.11) | | |
| Tertiary | 31 (26.96) | 33 (28.70) | 28 (24.35) | 23 (20.00) | | |
| Ethnic groups | | | | | 7.28 | 0.608 |
| Akan | 22 (21.57) | 39 (38.24) | 23 (22.55) | 18 (17.65) | | |
| Ewe | 12 (34.29) | 10 (28.57) | 10 (28.57) | 3 (8.57) | | |
| Ga/ Dangbe | 8 (21.81) | 11 (35.48) | 9 (29.03) | 3 (9.68) | | |
| Others | 11 (25.58) | 14 (32.56) | 8 (18.60) | 10 (23.26) | | |
| Religion | | | | | 3.54 | 0.739 |
| Christian | 38 (25.00) | 54 (35.53) | 35 (23.03) | 25 (16.45) | | |
| Moslem | 7 (35.00) | 5 (25.00) | 4 (20.00) | 4 (20.00) | | |
| Traditional | 6 (18.18) | 11 (33.33) | 11 (33.33) | 5 (15.15) | | |
| Employment status | | | | | | 0.426 Ψ |
| Employed | 48 (24.12) | 72 (36.18) | 47 (23.62) | 32 (16.08) | | |
| Unemployed | 5 (41.67) | 2 (16.67) | 3 (25.00) | 2 (16.67) | | |
| Previous child | | | | | 10.57 | 0.014* |
| No | 41 (30.83) | 49 (36.84) | 28 (21.05) | 15 (11.28) | | |
| Yes | 12 (16.22) | 23 (31.08) | 21 (28.38) | 18 (24.32) | | |
| Treatment phase | | | | | 1.64 | 0.950 |
| Phase 1 | 18 (22.50) | 29 (36.25) | 18 (22.50) | 15 (18.75) | | |
| Phase 2 | 27 (27.84) | 34 (35.05) | 23 (23.71) | 13 (13.40) | | |
| Phase 3 | 8 (23.53) | 11 (32.35) | 9 (26.47) | 6 (17.65) | | |
| Fertility centre | | | | | | |
| JH | 22 (41.51) | 15 (28.30) | 10 (18.87) | 6 (11.32) | 30.94 | 0.002** |
| LH | 9 (64.29) | 4 (28.57) | 1 (7.14) | 0 (0.00) | | |
| FH | 5 (18.52) | 9 (33.33) | 9 (33.33) | 4 (14.81) | | |
| TWH | 4 (22.22) | 7 (38.89) | 5 (27.78) | 2 (11.11) | | |
| LCH | 13 (13.13) | 39 (39.39) | 25 (25.25) | 22 (22.22) | | |
| Years looking for child (Median (LQ, UQ)) | 6.5 (3.5, 10) | 7 (4, 11) | 6 (4, 9) | 8.5 (4.5, 15) | 4.44 | 0.218¥ |
| Cause of infertility | | | | | 18.96 | 0.026* |
| Unknown | 20 (37.04) | 15 (27.78) | 13 (24.07) | 6 (11.11) | | |
| Male | 10 (38.46) | 12 (46.15) | 3 (11.54) | 1 (3.85) | | |
| Female | 19 (16.10) | 42 (35.59) | 31 (26.27) | 26 (22.03) | | |
| Both | 4 (33.33) | 4 (33.33) | 3 (25.00) | 1 (8.33) | | |

φ: One way ANOVA test of equality of mean. ¥: Kruskal Wallis test of equality of median. Ψ: Fisher's exact test %: column percentage. * p <0.05, ** p<0.01, *** p<0.001. SD: standard deviation. LQ: Lower quartile. UQ: Upper quartile

The results of the multiple linear regressions predicting problem-solving coping from the independent variables are presented in Table 5.16. It was observed that respondents who had previous child are 6% more likely to use problem-solving coping, compared to those without previous children, increasing age is associated with a 1% decrease in the use of Problem solving coping. The fertility centre also significantly related to Problem solving coping, suggesting that respondents who visited FH, TWH and LCH 13%, 13% and10 % more likely to use problem solving coping than those who visited JH.

## Table 5.16: Multivariate Predictors of Problem Solving Strategy

| | Log mean of On problem solving strategy score | | | | | |
|---|---|---|---|---|---|---|
| | Unadjusted effect | | | Adjusted effect | | |
| | β | 95% CI. | P-value | B | 95% CI. | P-value |
| Age | | (0.00, 0.01) | 0.433 | -0.01 | (-0.01, 0.00) | 0.051 |
| Educational level | | | 0.892 | | | 0.916 |
| <= JHS | Ref. | | | | | |
| SHS | 0.01 | (-0.06, 0.09) | | | (-0.08, 0.07) | |
| Tertiary | 0.01 | (-0.05, 0.08) | | 0.01 | (-0.06, 0.07) | |
| Ethnic group | | | 0.576 | | | 0.563 |
| Akan | Ref. | | | | | |
| Ewe | -0.03 | (-0.10, 0.04) | | -0.05 | (-0.12, 0.03) | |
| Ga/ Dangbe | 0.01 | (-0.07, 0.08) | | 0.01 | (-0.07, 0.08) | |
| Others | 0.02 | (-0.04, 0.09) | | 0.01 | (-0.09, 0.10) | |
| Religion | | | 0.495 | | | 0.756 |
| Christian | Ref. | | | | | |
| Moslem | 0.01 | (-0.08, 0.09) | | -0.02 | (-0.13, 0.09) | |
| Traditional | 0.04 | (-0.03, 0.11) | | 0.02 | (-0.05, 0.09) | |
| Employment status | | | 0.487 | | | 0.264 |
| Employed | Ref. | | | | | |
| Unemployed | -0.04 | (-0.14, 0.07) | | -0.06 | (-0.17, 0.05) | |
| Previous child | | | 0.002** | | | 0.045* |
| No | Ref. | | | | | |
| Yes | 0.08 | (0.03, 0.13) | | 0.06 | (-0.00, 0.12) | |
| Treatment stage | | | 0.750 | | | 0.561 |
| Phase 1 | Ref. | | | | | |
| phase 2 | -0.01 | (-0.06, 0.04) | | -0.01 | (-0.07, 0.05) | |
| Phase 3 | 0.02 | (-0.06, 0.09) | | -0.04 | (-0.13, 0.04) | |
| Fertility centre | | | <0.001*** | | | <0.001*** |
| JH | Ref. | | | | | |
| LH | -0.08 | (-0.18, 0.03) | | -0.08 | (-0.2, 0.04) | |
| FH | 0.12 | (0.04, 0.20) | | 0.13 | (0.04, 0.22) | |
| TWH | 0.11 | (0.02, 0.20) | | 0.13 | (0.01, 0.25) | |
| LCH | 0.12 | (0.06, 0.18) | | 0.10 | (0.04, 0.17) | |
| Years looking for child | 0.00 | (-0.00, 0.01) | 0.164 | | (-0.00, 0.01) | 0.272 |
| Cause of infertility | | | <0.001*** | | | 0.001** |
| Unknown | Ref. | | | | | |
| Male | -0.06 | (-0.14, 0.03) | | -0.08 | (-0.16, 0.01) | |
| Female | 0.09 | (0.04, 0.15) | | 0.07 | (0.01, 0.13) | |
| Both | 0.03 | (-0.08, 0.14) | | -0.01 | (-0.13, 0.11) | |

β: regression coefficient parameter estimate. * p<0.05, ** p<0.01, ***p<0.001, CI: Confidence Interval. Ref: reference category of the predictor variable.

### 5.3.8 Positive - Reappraisal Coping Strategy

Positive reappraisal coping strategy is a coping strategy that guides an individual towards controlling emotions regarding sadness, re-interpretation, growth and personal change arising from a conflict situation (Folkman and Lazarus, 1988). Some strategies used in this domain includes praying, finding a new faith as well as changing something about one's self. The results show that 24.1%($n$=51) of respondents used very high positive reappraisal coping, those with high and moderate positive reappraisal were 25.1% and 24.6% respectively, whiles 26.1%($n$=55) of the respondents used low positive reappraisal coping. The result shows no statistically significant association between positive reappraisal coping strategy and the independent variables (i.e., age, ethnic group, religion, employment status, previous child, treatment stage, fertility centre, years of looking for child, and cause of infertility; see Table 5.17). Similar results were obtained when multiple linear regressions was used to predict positive reappraisal coping from independent variables ($p > 0.05$, see Table 5.18).

**Table 5.17: Bivariate Association between Positive Reappraisal Coping Strategy and the Demographic Characteristics of Women Seeking Assisted Reproductive Technology in Greater Accra-Ghana.**

| | Levels of Positivity coping | | | | | |
|---|---|---|---|---|---|---|
| Covariates | Low *n*(%) | Moderate *n* (%) | High *n* (%) | Very High *n*(%) | Chi-square | P-value |
| Age (Mean ± SD.) | 37.58 ± 5.84 | 38.12 ± 5.81 | 39.19 ± 6.64 | 38.33 ± 6.68 | 0.62 | 0.606 φ |
| Educational level | | | | | 4.40 | 0.623 |
| <=JHS | 14 (29.17) | 12 (25.00) | 14 (29.17) | 8 (16.67) | | |
| SHS | 15 (33.33) | 10 (22.22) | 9 (20.00) | 11 (24.44) | | |
| Tertiary | 25 (21.74) | 30 (26.09) | 29 (25.22) | 31 (26.96) | | |
| Ethnic groups | | | | | 2.10 | 0.990 |
| Akan | 25 (24.51) | 24 (23.53) | 27 (26.47) | 26 (25.49) | | |
| Ewe | 10 (28.57) | 11 (31.43) | 8 (22.86) | 6 (17.14) | | |
| Ga/ Dangbe | 8 (25.81) | 7 (22.58) | 8 (25.81) | 8 (25.81) | | |
| Others | 12 (27.91) | 10 (23.26) | 10 (23.26) | 11 (25.58) | | |
| Religion | | | | | 11.30 | 0.079 |
| Christian | 41 (26.97) | 39 (25.66) | 39 (25.66) | 33 (21.71) | | |
| Moslem | 6 (30.00) | 7 (35.00) | 4 (20.00) | 3 (15.00) | | |
| Traditional | 6 (18.18) | 3 (9.09) | 10 (30.30) | 14 (42.42) | | |
| Employment status | | | | | 2.13 | 0.546 |
| Employed | 51 (25.63) | 49 (24.62) | 52 (26.13) | 47 (23.62) | | |
| Unemployed | 4 (33.33) | 3 (25.00) | 1 (8.33) | 4 (33.33) | | |
| Previous child | | | | | 3.77 | 0.287 |
| No | 41 (30.83) | 31 (23.31) | 33 (24.81) | 28 (21.05) | | |
| Yes | 14 (18.92) | 21 (28.38) | 19 (25.68) | 20 (27.03) | | |
| Treatment phase | | | | | 4.38 | 0.625 |
| Phase 1 | 21 (26.25) | 22 (27.50) | 21 (26.25) | 16 (20.00) | | |
| Phase 2 | 24 (24.74) | 24 (24.74) | 26 (26.80) | 23 (23.71) | | |
| Phase 3 | 10 (29.41) | 6 (17.65) | 6 (17.65) | 12 (35.29) | | |
| Fertility centre | | | | | 17.08 | 0.147 |
| JH | 19 (35.85) | 9 (16.98) | 10 (18.87) | 15 (28.30) | | |
| LH | 4 (28.57) | 5 (35.71) | 1 (7.14) | 4 (28.57) | | |
| FH | 7 (25.93) | 4 (14.81) | 10 (37.04) | 6 (22.22) | | |
| TWH | 7 (38.89) | 3 (16.67) | 3 (16.67) | 5 (27.78) | | |
| LCH | 18 (18.18) | 31 (31.31) | 29 (29.29) | 21 (21.21) | | |
| Years looking for child (Median (LQ, UQ)) | 7 (5, 10) | 8 (4, 13) | 7 (3.5, 11) | 6 (4, 11.5) | 0.93 | 0.818 ¥ |
| Cause of infertility | | | | | | 0.846 Ψ |
| Unknown | 15 (27.78) | 15 (27.78) | 12 (22.22) | 12 (22.22) | | |
| Male | 9 (34.62) | 4 (15.38) | 6 (23.08) | 7 (26.92) | | |
| Female | 27 (22.88) | 30 (25.42) | 30 (25.42) | 31 (26.27) | | |
| Both | 4 (33.33) | 3 (25.00) | 4 (33.33) | 1 (8.33) | | |

φ: One way ANOVA test of equality of mean. ¥: Kruskal Wallis test of equality of median. Ψ: Fisher's exact test %: column percentage. * p <0.05, ** p<0.01, *** p<0.001. SD: standard deviation. LQ: Lower quartile. UQ: Upper quartile

## Table 5.18: Multivariate Predictor of Positive Reappraisal Coping Strategy

| | Positive reappraisal coping score | | | | | |
|---|---|---|---|---|---|---|
| | Unadjusted effect | | | Adjusted effect | | |
| | B | 95% CI. | P-value | B | 95% CI. | P-value |
| Age | 0.00 | (-0.01, 0.01) | 0.417 | 0.00 | (-0.02, 0.01) | 0.566 |
| Educational level | | | | | | 0.117 |
| <= JHS | Ref. | | | | | |
| SHS | -0.05 | (-0.24, 0.15) | | -0.03 | (-0.25, 0.19) | 0.776 |
| Tertiary | 0.13 | (-0.03, 0.29) | | 0.14 | (-0.04, 0.32) | 0.132 |
| Ethnic group | | | 0.737 | | | 0.638 |
| Akan | Ref. | | | | | |
| Ewe | -0.06 | (-0.24, 0.13) | | -0.10 | (-0.31, 0.10) | 0.317 |
| Ga/ Dangbe | 0.04 | (-0.16, 0.23) | | 0.06 | (-0.15, 0.27) | 0.596 |
| Others | 0.06 | (-0.11, 0.23) | | -0.04 | (-0.31, 0.23) | 0.772 |
| Religion | | | 0.101 | | | 0.196 |
| Christian | Ref. | | | | | |
| Moslem | -0.01 | (-0.23, 0.22) | | -0.04 | (-0.35, 0.27) | 0.793 |
| Traditional | 0.19 | (0.01, 0.38) | | 0.18 | (-0.02, 0.38) | 0.081 |
| Employment status | | | 0.770 | | | 0.678 |
| Employed | Ref. | | | | | |
| unemployed | 0.04 | (-0.24, 0.32) | | -0.06 | (-0.37, 0.24) | 0.678 |
| Previous child | | | | | | 0.179 |
| No | Ref. | | | | | |
| Yes | 0.12 | (-0.01, 0.26) | | 0.12 | (-0.05, 0.29) | 0.179 |
| Treatment stage | | | 0.328 | | | 0.814 |
| Phase 1 | Ref. | | | | | |
| phase 2 | 0.05 | (-0.1, 0.19) | | 0.03 | (-0.14, 0.19) | 0.731 |
| Phase 3 | 0.15 | (-0.05, 0.34) | | -0.05 | (-0.28, 0.19) | 0.702 |
| Fertility centre | | | 0.603 | | | 0.694 |
| JH | Ref. | | | | | |
| LH | 0.01 | (-0.27, 0.3) | | 0.06 | (-0.27, 0.39) | 0.725 |
| FH | 0.16 | (-0.07, 0.38) | | 0.18 | (-0.08, 0.44) | 0.174 |
| TWH | 0.09 | (-0.17, 0.35) | | 0.16 | (-0.17, 0.49) | 0.327 |
| LCH | 0.11 | (-0.05, 0.27) | | 0.05 | (-0.13, 0.24) | 0.579 |
| Years looking for child | 0.01 | (-0.00, 0.02) | | 0.01 | (-0.01, 0.02) | 0.476 |
| Cause of infertility | | | 0.319 | | | 0.427 |
| Unknown | Ref. | | | | | |
| Male | 0.05 | (-0.18, 0.28) | | 0.00 | (-0.25, 0.24) | 0.980 |
| Female | 0.14 | (-0.01, 0.30) | | 0.12 | (-0.05, 0.29) | 0.160 |
| Both | 0.04 | (-0.26, 0.34) | | 0.00 | (-0.34, 0.33) | 0.986 |

β: Coefficient parameter estimate. * p<0.05, ** p<0.01, *** p<0.001, CI: Confidence Interval. Ref: reference category of the predictor variable

### 5.3.9 Predictors of Overall Coping

The results of the association between the overall coping strategy and the independent variables are summarized in Table 5.19. The overall coping strategy was generated by summing the various subscales of the coping scale, with high scores reflecting high coping and vice versa. Overall, coping strategy was very high among 24.6% of the respondents, 23.7% were using high coping strategy with 25.6% using either moderate or low coping. According to the bivariate results presented in Table 5.19, fertility centre ($\chi^2$=38.9,$p$ =0.001) and causes of fertility ($\chi^2$=18.2,$p$ =0.034) were significantly related to overall coping strategy. However, the multivariate linear regression, the result, presented in Table 5.20, reveal that the age of the patient, education level, religion, fertility centre, cause of infertility, previous history of child birth and the number of years of looking for a child significantly predicted overall coping strategy.

**Table 5.19: Bivariate Association between Overall Coping Strategy and the Demographic Characteristics of Women Seeking Assisted Reproductive Technology in Greater Accra-Ghana.**

| | Levels of Overall coping | | | | | |
|---|---|---|---|---|---|---|
| Covariates | Low N (%) | Moderate N (%) | High N (%) | Very High N (%) | Chi-square | P-value |
| Age (Mean ± SD) | 38.13 ± 6.45 | 38.56 ± 5.45 | 38.46 ± 6.87 | 38.04 ± 6.30 | 0.09 | 0.967 ᵠ |
| Educational level | | | | | 6.37 | 0.383 |
| <=JHS | 16 (33.33) | 14 (29.17) | 9 (18.75) | 9 (18.75) | | |
| SHS | 14 (31.11) | 12 (26.67) | 10 (22.22) | 9 (20.00) | | |
| Tertiary | 23 (20.00) | 28 (24.35) | 30 (26.09) | 34 (29.57) | | |
| Ethnic groups | | | | | 6.80 | 0.658 |
| Akan | 25 (24.51) | 30 (29.41) | 22 (21.57) | 25 (24.51) | | |
| Ewe | 13 (37.14) | 7 (20.00) | 9 (25.71) | 6 (17.14) | | |
| Ga/ Dangbe | 6 (19.35) | 8 (25.81) | 10 (32.26) | 7 (22.58) | | |
| Others | 10 (23.26) | 10 (23.26) | 9 (20.93) | 14 (32.56) | | |
| Religion | | | | | 7.16 | 0.306 |
| Christian | 42 (27.63) | 40 (26.32) | 34 (22.37) | 36 (23.68) | | |
| Moslem | 7 (35.00) | 6 (30.00) | 2 (10.00) | 5 (25.00) | | |
| Traditional | 5 (15.15) | 6 (18.18) | 11 (33.33) | 11 (33.33) | | |
| Employment status | | | | | 2.16 | 0.539 |
| Employed | 52 (26.13) | 52 (26.13) | 48 (24.12) | 47 (23.62) | | |
| Unemployed | 2 (16.67) | 3 (25.00) | 2 (16.67) | 5 (41.67) | | |
| Previous child | | | | | 2.30 | 0.512 |
| No | 38 (28.57) | 34 (25.56) | 33 (24.81) | 28 (21.05) | | |
| Yes | 16 (21.62) | 21 (28.38) | 16 (21.62) | 21 (28.38) | | |
| Treatment phase | | | | | 3.25 | 0.777 |
| Phase 1 | 20 (25.00) | 18 (22.50) | 19 (23.75) | 23 (28.75) | | |
| Phase 2 | 28 (28.87) | 26 (26.80) | 22 (22.68) | 21 (21.65) | | |
| Phase 3 | 6 (17.65) | 11 (32.35) | 9 (26.47) | 8 (23.53) | | |
| Fertility centre | | | | | 38.90 | <0.001*** |
| JH | 22 (41.51) | 11 (20.75) | 3 (5.66) | 17 (32.08) | | |
| LH | 5 (35.71) | 1 (7.14) | 8 (57.14) | 0 (0.00) | | |
| FH | 1 (3.70) | 9 (33.33) | 10 (37.04) | 7 (25.93) | | |
| TWH | 2 (11.11) | 4 (22.22) | 5 (27.78) | 7 (38.89) | | |
| LCH | 24 (24.24) | 30 (30.30) | 24 (24.24) | 21 (21.21) | | |
| Years looking for child (Median (LQ, UQ)) | 6 (2, 9) | 8 (4, 12) | 6.5 (4, 14) | 7.5 (4, 12) | 6.04 | 0.110 ¥ |
| Cause of infertility | | | | | 18.15 | 0.034* |
| Unknown | 16 (29.63) | 12 (22.22) | 16 (29.63) | 10 (18.52) | | |
| Male | 13 (50.00) | 7 (26.92) | 4 (15.38) | 2 (7.69) | | |
| Female | 23 (19.49) | 31 (26.27) | 29 (24.58) | 35 (29.66) | | |
| Both | 2 (16.67) | 5 (41.67) | 1 (8.33) | 4 (33.33) | | |

φ: One way ANOVA test of equality of mean. ¥: Kruskal Wallis test of equality of median. Ψ: Fisher's exact test %: column percentage. * p <0.05, ** p<0.01, *** p<0.001. SD: standard deviation. LQ: Lower quartile. UQ: Upper quartile

Table 5.20 presents the effect of predictors on overall coping using multiple linear regression models. The results show that age, educational level, fertility centres, years of looking for child and cause of infertility have a statistically significant effect on overall coping. In general, a unit change in any of the aforementioned variables will have an effect on the overall coping strategy of the client. To illustrate, a unit decrease in age is associated with 1% increase in overall coping. Regarding education, respondents who attained higher education are 10% more likely to use overall coping strategy, relative to those with lower education. Moreover, compared with respondents who visited JH, those accessing fertility services at FH and TWH are 17% and 30% more likely to use overall coping. With respect to the perceived causes of infertility, respondents who indicated that females were responsible for the infertility were 16% times more likely to use overall coping, compared with their counterparts who indicated the cause to be unknown.

**Table 5.20: Effect of Demographic Factors of Women Seeking Assisted Reproductive Technology on Overall Coping using Multiple Linear Regression Models**

| | Overall coping score | | | | | |
|---|---|---|---|---|---|---|
| | Unadjusted effect | | | Adjusted effect | | |
| | β | 95% CI. | P-value | B | 95% CI. | P-value |
| Age | | (-0.01, 0.01) | 0.819 | -0.01 | (-0.02, -0.00) | 0.003** |
| Educational level | | | 0.074 | | | 0.032* |
| <= JHS | Ref. | | | Ref | | |
| SHS | -0.01 | (-0.13, 0.11) | | -0.03 | (-0.15, 0.09) | |
| Tertiary | 0.09 | (-0.01, 0.19) | | 0.10 | (0.01, 0.20) | |
| Ethnic group | | | 0.239 | | | 0.748 |
| Akan | Ref. | | | Ref | | |
| Ewe | 0.00 | (-0.12, 0.11) | | -0.03 | (-0.14, 0.08) | |
| Ga/ Dangbe | 0.06 | (-0.06, 0.18) | | 0.05 | (-0.07, 0.16) | |
| Others | 0.10 | (-0.01, 0.20) | | 0.02 | (-0.13, 0.17) | |
| Religion | | | 0.549 | | | 0.201 |
| Christian | Ref | | | Ref | | |
| Moslem | -0.04 | (-0.18, 0.10) | | -0.11 | (-0.28, 0.07) | |
| Traditional | 0.05 | (-0.06, 0.16) | | 0.07 | (-0.04, 0.18) | |
| Employment status | | | 0.150 | | | 0.619 |
| Employed | Ref. | | | Ref | | |
| unemployed | 0.12 | (-0.05, 0.29) | | 0.04 | (-0.13, 0.22) | |
| Previous child | | | 0.341 | | | 0.062 |
| No | Ref. | | | Ref | | |
| Yes | 0.04 | (-0.04, 0.12) | | 0.09 | (-0.00, 0.19) | |
| Treatment stage | | | 0.485 | | | 0.222 |
| Phase 1 | Ref. | | | Ref | | |
| phase 2 | -0.01 | (-0.10, 0.07) | | -0.01 | (-0.10, 0.08) | |
| Phase 3 | 0.06 | (-0.06, 0.17) | | -0.11 | (-0.24, 0.02) | |
| Fertility centre | | | 0.003** | | | 0.014* |
| JH | Ref. | | | Ref | | |
| LH | -0.02 | (-0.18, 0.15) | | 0.00 | (-0.18, 0.19) | |
| FH | 0.17 | (0.04, 0.30) | | 0.17 | (0.03, 0.32) | |
| TWH | 0.27 | (0.12, 0.42) | | 0.30 | (0.11, 0.48) | |
| LCH | 0.07 | (-0.03, 0.16) | | 0.04 | (-0.06, 0.15) | |
| Years looking for child | 0.01 | (0.00, 0.02) | 0.024* | 0.01 | (0.00, 0.02) | 0.013* |
| Cause of infertility | | | 0.001** | | | <0.001*** |
| Unknown | Ref. | | | Ref | | |
| Male | -0.07 | (-0.21, 0.06) | | -0.10 | (-0.24, 0.04) | |
| Female | 0.14 | (0.05, 0.23) | | 0.16 | (0.06, 0.25) | |
| Both | 0.13 | (-0.05, 0.31) | | 0.05 | (-0.14, 0.24) | |

β: regression coefficient parameter estimate. * p<0.05, ** p<0.01, ***p<0.001, CI: Confidence Interval. Ref: reference category of the predictor variable

Table 5.21 provides a snapshot of the predictive relationship between the various coping strategies and the various coping strategies and the independent variables. More specifically, the table shows independent variables that significantly predicted the various coping strategies and those that did not show any significant relationship. As can be seen, the predictors exhibited varying predictive abilities across the coping strategies. This notwithstanding, out of the eight (8) coping strategies, fertility centre was statistically significant with six (6) of them. This was followed by cause of infertility, which was statistically significant for five (5) of the coping strategies. Level of education has the third highest number of coping strategy. Thus, fertility centre and cause of infertility are the two (2) covariates that were statistically significant for the overall coping strategies. None of the covariates were statistically significant against the positivity coping strategy.

**Table 5.21: Summary of Statistically Significant Coping Strategies and the Demographic Characteristics of Women Seeking Assisted Reproductive Technology in Greater Accra-Ghana.**

| | COPING STRATEGIES | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | **Confrontational Coping** | **Distancing Coping** | **Self – control Coping** | **Social support Coping** | **Acceptance Responsibility Coping** | **Escape Avoidance Coping** | **Problem Solving Coping** | **Positive Reappraisal Coping** | **Overall Coping** |
| Age | **ns** | **ns** | ***** | **ns** | **Ns** | **Ns** | **ns** | **ns** | **ns** |
| Educational level | **ns** | ***** | **ns** | **ns** | ***** | ***** | **ns** | **ns** | **ns** |
| Ethnic group | **ns** | **ns** | **ns** | **ns** | **Ns** | **Ns** | **ns** | **ns** | **ns** |
| Religion | **ns** | ***** | **ns** | **ns** | **Ns** | **Ns** | **ns** | **ns** | **ns** |
| Employment status | **ns** | **ns** | **ns** | **ns** | **Ns** | **ns** | **ns** | **ns** | **ns** |
| Previous child | **ns** | **ns** | **ns** | **ns** | **Ns** | **Ns** | ***** | **ns** | **ns** |
| Treatment phase | **ns** | **ns** | **ns** | ***** | **Ns** | **Ns** | **ns** | **ns** | **ns** |
| Fertility centre | ***** | ***** | **ns** | ***** | ***** | ***** | ***** | **ns** | ***** |
| Years looking for child | ***** | **ns** | ***** | **ns** | **Ns** | **Ns** | **ns** | **ns** | **ns** |
| Cause of infertility | **ns** | ***** | **ns** | ***** | ***** | ***** | ***** | **ns** | ***** |

*****= Statistically significant**,** **ns=** Statistically not significant

The proportion of individual who have used the various coping strategies highly is presented in Table 5.22.

The most widely endorsed coping strategy was positive–reappraisal (n=104,49%), followed by both Self- Control Coping and Confrontational Coping (n=97,46%). The least commonly used coping strategies appear to be Problem –Solving (n=84,39.8%) and Acceptance –Responsibility coping (n=85,40.3%)

**Table 5. 22: Frequency of Coping Strategies among Women Seeking ART**

| COPING STRATERGIES | FREQUENCY | PERCENTAGES (%) |
|---|---|---|
| Problem Solving Coping | 84 | 39.8 |
| Acceptance Responsibility Coping | 85 | 40.3 |
| Distance Coping | 89 | 42.2 |
| Self –Seeking Coping | 89 | 42.2 |
| Escape Avoidance Coping | 95 | 45.0 |
| Confrontational Coping | 97 | 46.0 |
| Self-Control Coping | 97 | 46.0 |
| Positive –Reappraisal Coping | 104 | 49.3 |

**NOTE: n=211**

### 5.4 Relationship between the Various Coping Strategies

Table 5.23 presents the correlation between the various coping strategies. First, with the exception of distance and escape -avoidance coping, it was observed that confrontational coping correlated significantly and positively with other categories of coping ($p < 0.05$). Relatedly, distance coping strategy significantly and positively correlated with self-control coping ($p<0.05$). Escape Avoidance, positive reappraisal and overall coping strategies, but correlated negatively with Self Seeking and Problem Solving strategies significantly ($p<0.05$). Also, statistically significant positive relationship was found between Self Seeking Control, Positive and Overall coping strategies ($p<0.05$), while it negatively correlates with self-seeking strategies. Self-seeking, Escape Avoidance strategy, Problem Solving, Positive Reappraisal and Overall coping strategies were

significantly positively correlated ($p$<0.05). Similarly, Escape Avoidance coping strategy had positive relationship with Problem Solving strategy, Problem solving and overall coping strategies ($p$< 0.05). Problem solving coping strategies related positively with Positive Reappraisal strategy and Overall coping strategies ($p$ <0.05).

**Table 5. 23: Bivariate Correlation of Coping Subscales and Overall-coping**

| | **1** | **2** | **3** | **4** | **5** | **6** | **7** | **8** | **9** |
|---|---|---|---|---|---|---|---|---|---|
| **1**. Confrontational coping | 1 | | | | | | | | |
| 2. Distance Coping | -0.10 | 1 | | | | | | | |
| 3. Self-control coping | -0.03 | 0.25** | 1 | | | | | | |
| 4. Self-seeking coping | 0.30*** | -0.15* | -0.14* | 1 | | | | | |
| 5. Acceptance Responsibility | 0.27*** | 0.07 | 0.09 | 0.17* | 1 | | | | |
| 6. Escape-Avoidance coping | 0.26*** | 0.16* | 0.10 | 0.16* | 0.37*** | 1 | | | |
| 7. Planful Problem coping | 0.30*** | -0.22* | 0.13 | 0.41*** | 0.35*** | 0.24*** | 1 | | |
| 8. Positive Reappraisal coping | 0.21* | 0.19** | 0.21** | 0.21*** | 0.29*** | 0.34*** | 0.41*** | 1 | |
| 9. Overall Coping | 0.45** | 0.25*** | 0.34*** | 0.57*** | 0.56*** | 0.56*** | 0.59*** | 0.64*** | 1 |

*= $p < .05$; **= $p < .01$; ***=$p < .001$

# CHAPTER SIX

# DISCUSSION

## 6.0 Introduction

This chapter discusses infertile clients' experiences with infertility, factors that influenced the uptake of ART as an infertility intervention, challenges associated with ART, and how the respondents coped with the process of ART. The findings of the qualitative and the quantitative results are discussed together in conformity with the principle of convergent parallel mixed method (Creswell, 2011). The discussion is guided by the specific objectives of the study.

## 6.1 Socio-Demographic Characteristics of Respondents

Different respondents were recruited for the qualitative and the quantitative components of this study. Overall, 229 individuals participated in the study, and this consisted of 18 respondents for the qualitative and 211 for the quantitative studies. Majority of the respondents were women. This underscores the importance women place on infertility treatment as they are mostly perceived as the main cause of infertility (Kazemi et al., 2016). In addition, women were more available and accessible in the fertility centres compared to their male counterparts. Nevertheless, the role of men cannot be underestimated in this regard (Newton et al., 2006).

Majority of the respondents (n=152, 74%) were Christians. The religious distribution as found in this study is almost similar to the proportion of Christians (71.3%) in Ghana (Ghana Statistical Service, 2012). With regard to the type of infertility, two-thirds (n=133, 64%) of the respondents never had a child prior to treatment (primary infertility), while 74 (36%) ever had a child (secondary infertility). One could argue

that the high representation of the respondents with primary infertility at the fertility centre to seek treatment might be due to the external pressures from family, friends, and society at large to have their own biological children. This is not surprising in the Ghanaian context given the high premium most cultures put on children. The representation of respondents with primary infertility in this study is lower than the 83% reported by Dyer et al. (2002) in South Africa, but higher than the 45% found in Saudi Arabia (Almaslami, Aljunid& Ghailan, 2018).

A number of the respondents sought ART during the latter part of their reproductive age (31 -55 years). Perhaps, the beliefs about the aetiology of infertility, the hope of achieving natural pregnancy and exploration of other forms of infertility treatment including "hospital shopping" accounted for the delays as previously documented ( Boivin et al., 2012). This has an implication on treatment outcome since late initiation of ART is known to be associated with low success rate (Wang et al., 2008) and negative outcome.

### 6.2 Beliefs about the values of children in marriage

The study identified various beliefs associated with childbearing in marriage. A number of the respondents recognised children as a gift from God with enormous benefits. Some of the benefits indicated by the respondents about their beliefs about children are that, they are a source of happiness and a companion for couples. In addition, inheritance of family properties was noted to lie within the remit of children in most Ghanaian cultures and this was widely professed by the respondents. The recognition of children as gifts and the value respondents placed on children, as shown in this study is not different from what has been reported in other countries (Dyer, 2007;

Jamshidimanesh et al., 2012; Liamputtong & Benza, 2018; Mirlashari, Demirkol, Salsali, Rafiey, & Jahanbani, 2012;Naab, 2014). For example, Pedro and Andipatin, (2014) noted in their study that children are considered as a gift from God given to good women as a reward. Dyer (2007) also documented that children are desired for various reasons ranging from personal well-being to happiness. Children are also perceived to provide social security, assist with work and secure rights of property and inheritance in most Africa settings (Dyer, 2007). In Jordan, children particularly boys are perceived as a means of power for women as they are valued and considered an avenue for continuity of patrilineal lineage (Daibes, Al-Btoush, Marji, & Rasmussen, 2017). Naab et al.(2013) also reported that the value of female children is unequal to male children in some settings. The authors found that women who give birth to only females children are still classified as infertile in some African cultures (Naab et al., 2013). Perhaps, these beliefs explain the reasons why children particularly males are highly sought after by married couples in various cultures in Africa.

Despite the desire of many couples to have children, in some cases, their expectations are not met (Fido & Zahid, 2004; Koert & Daniluk, 2017; Pedro & Andipatin, 2014). This was the situation for a number of the respondents in this study. According to some of the respondents, the delay in childbearing induced unpleasant reactions from their in-laws, neighbours, and friends as previously reported in other places in the world (Daibes et al., 2017; Syedeh Batool Hasanpoor-Azghdy, Simbar, & Vedadhir, 2015; Hess, Ross, & Gililland, 2018). This demonstrates the magnitude of the value of children extending beyond the immediate family members of the couples.

In addition, various degrees of pressure originating from in-laws for the individuals to bear children were found. The role of mothers-in-law appears to be key in childbearing since they are mostly enthused about having grandchildren from their children. Anecdotal evidence shows that in some Ghanaian cultures, mothers- in-law decide the fate of their daughters' in-law in the marriage. This happens in a situation where there is a delay in childbirth. A recent study revealed that infertile couples are stigmatised and criticised by their families and the community at large (Hess et al., 2018). In some instances, they suffer humiliation and public ridicule (Cousineau & Domar, 2007; Fledderjohann, 2012) and are denied participation in social functions including decision-making (Dyer et al., 2004).

Different beliefs are also viewed to underlie infertility including the act of evil spirits and witches which causes abnormal menstruation as a form of punishment to a woman (Fido & Zahid, 2004; Koert & Daniluk, 2017; Pedro & Andipatin, 2014). The perception that infertility is linked to previous abortions appears to define women with infertility as promiscuous who are paying for the consequences of previous lifestyle. Even though the known biological reasons contributing to infertility such as tubal blockage and infections are well documented. Some studies have revealed that infertile women are still blamed as the cause of their problem in some parts of the world (Yao, Chan, & Chan, 2018; Tabong & Adongo, 2013; Mascarenhas, Cheung, et al., 2012; Sami & Ali, 2012; Dyer, Abrahams, Hoffman, & Spuy, 2002; Akande, 2008; Ali, Al-Rashed, Azeez, & Merchant, 2011; Fledderjohann, 2012; Hollos & Larsen, 2008; McGovern et al., 2017). In this current study, the cause of infertility was blamed on both to both males and female spouses. This is contrary to other studies where women are perceived as the determinant of childbearing and are required to give birth as part of

their societal responsibility (Yao et al., 2018; Daibes et al., 2017). Failure of women to achieve this societal demand seems to attract negative consequences of infertility compared to men (Daibes et al., 2017). This belief is supported by other findings, which revealed that men cannot be the cause of infertility (Ali et al., 2011; Dyer, Abrahams, Mokoena, & van der Spuy, 2004; Naab, 2014). In order to confirm this belief, some of the male spouses tend to have children outside their marriage as a means of proving their fertility (Hollos & Larsen, 2008), while other men also refused to accompany their wives to social functions, and sometimes, treatment centres to avoid stigmatization (Daibes et al., 2017).

### 6.3 Psycho- social Experiences of Infertile Client on Infertility

Individuals who suffer infertility go through different psychosocial experiences (Cousineau & Domar, 2007; Daibes et al., 2017; Fido & Zahid, 2004; Fledderjohann, 2012; Hess et al., 2018; Jamshidimanesh et al., 2012; Koert & Daniluk, 2017; Sultan & Tahir, 2011). For example, in Canada, Koert & Daniluk, (2017) found that infertile women suffered various degrees of grief, regrets and isolation. In Norway, infertile women experienced shock, anger, frustration and sadness (Pedro & Andipatin, 2014). In Iran, infertile women faced various forms of ,abuse including physical and psychological violence (Jamshidimanesh et al., 2012). In Ghana, anxiety, depression, worrying, lack of concentration and reduced sexual satisfaction were recorded among infertile couples (Cousineau & Domar; 2007 ;Donkor, Naab, & Kussiwaah, 2017; Sultan & Tahir, 2011). This present study also confirmed previous findings in Ghana as the respondents felt worried and sad because of their inability to have children. Their worries were exacerbated anytime they found themselves among children or attended events involving children. Similarly, Daibes et al. (2017) found that conversations

involving children created an embarrassing situation for infertile couples in Jordan. The negative consequences of infertility also include suicidal thoughts (Fatoye, Owolabi, Eegunranti, & Fatoye, 2008; Fido & Zahid, 2004; Fledderjohann, 2012), as well as marital instability, divorce, and social exclusion (Ali et al., 2011; Daibes et al., 2017; Fido & Zahid, 2004; Hess et al., 2018; Hollos & Larsen, 2008; Jamshidimanesh et al., 2012).

### 6.4 Coping with infertility by clients

This study revealed that individuals who experience infertility, were often under stress because of mental and social challenges they go through. The stresses have a major effect on the mental and physical health of the individual. Coping strategies are therefore conscious efforts to reduce the stressful situations. They are actions usually used to deal with those stressors. The qualitative study reveals various coping strategies adopted by the study respondents in dealing with the unpleasant experiences of infertility. The common coping strategy adopted by the respondents in this current study was prayer for miracles. A number of the respondents indicated that they were able to overcome their infertility challenges by having a strong faith and trusting God to give them a child. This is similar to reports in other studies (Dhont et al., 2010; Donkor & Sandall, 2009; Hess et al., 2018; Pedro & Andipatin, 2014; Romeiro, Caldeira, Brady, Hall, & Timmins, 2017).

This finding also corroborates a study conducted in Ghana by Donkor & Sandall (2009) who found that a higher proportion of their respondents who were Christians (88%) believed that their hope and faith in God would answer their prayers to have a child at the appropriate time. In a study conducted in South Africa, respondents indicated that

they had unwavering faith in God to conceive, despite their failed attempts of achieving pregnancy (Pedro & Andipatin, 2014). Religiosity plays a significant role in the life of most Ghanaians and it appears to shape their lives, particularly, the meanings attached to situations and events.

In addition to the findings of this study, it was revealed that some individuals adopt children informally from their family relations and friends as a means of fulfilling their role as parents. Interestingly, some studies have found out different views about the use of adoption as a coping strategy among individuals with infertility. There is a debate on the acceptance of this approach in some context on the basis that adoption cannot be equivalent to one's own child (Arya & Dibb, 2016; Turner & Nachtigal, 2010).

### 6.5 Factors influencing the uptake of ART

There are various reasons that influence infertile couples to seek ART (Omokanye et al., 2017; Okafor, Joe-Ikechebelu, & Ikechebelu, 2017; Präg & Mills, 2017). The belief that infertile couples do not live satisfying lives due to their desire for children play a significant role in seeking alternate solutions (Lau, 2009). In most cases, couples explore various treatment options and use ART as a last resort (Omokanye et al., 2017; Ying, Wu, & Loke, 2015; Ried & Stuart, 2011). For example, in Sierra Leone, herbal medicine called Lufa acutangular was commonly used by infertile women (James et al., 2018). In Uganda, 76.2% of infertile women said they had used herbal medicine as a treatment option for infertility but failed to disclosed its usage to their physicians (Kaadaaga et al., 2014). In Ghana, herbal medicines were used to prepare soup and enema for infertile women (Donkor, 2008). In other jurisdictions, herbal medicines

were used to complement the success of ART (Lans, Taylor-Swanson, & Westfall, 2018).

This present study also identified multifactorial determinants of ART utilisation. It was found that prolonged period of marriage without biological children influenced some of the respondents to consider ART as a treatment option. Other few related studies in Africa rather identified reasons for none use of ART and found religion and cultural beliefs as strong determinants (Okafor et al., 2017). The authors further indicated that most of the respondents held strong belief that provision of a child will be made by their God and therefore ART was not an option. Also, cultural belief attached to procreation, the meaning of IVF as a process, and partner inadequate cooperation are considered as barriers to ART use (Okafor et al., 2017). High cost (Omokanye, 2017) of ART and availability (Oche et al., 2018) of ART centres have also been found to play a role in its low utilisation in Nigeria,despite its high awareness among citizenery.

Furthermore, it has been revealed in this study that some respondents opted for ART because they realised they were advancing in age. Perhaps, the fear of reaching menopausal period which could lead to cessation of ovulation accounted for this observation. Nevertheless, the relevance of ART could best be realised when opted for by women early in life (Kocourkova, Burcin, & Kucera, 2014). Omokanye et al. (2017) also documented the importance of the age of the female in childbearing in Nigeria.

ART was also explored by some women as a step to have their own biological children instead of adoption. Even though adoption is an alternate solution for women suffering from infertility, it is not well accepted in many areas especially in developing countries

(Adewunmi et al., 2012). A more recent study in Ghana found that infertile couples do not opt for adoption because of perceived future uncertainties, psychological dissatisfaction, and possible discrimination by community members (Ti-enkawol, Donkor&Naab, 2016).

Additionally, some respondents also opted for the ART because their partners had children before their union and they felt that having their own biological children would achieve marital stability as found in a previous study (Sydsjo¨, Wadsby, Kjellberg, Sydsjo¨, 2002). More so, other male partners supported their wives to explore ART as a compensation for their unfaithfulness in marriage. It has been shown that male partners who engaged in extra marital affairs with other women and had children outside their marriags appeased their wives with ART. The attitude of some of these male partners triggered the initiation of ART among their female partners as a way of getting their own children and to feel satisfied with life in general (Boivin et al., 2007).

Knowing about the existence of ART services was a major factor for its consideration by couples faced with infertility. The awareness of the ART centres were identified by the respondents through different means. The most cited sources include healthcare providers, friends with previous experience with ART, and media advertisement. This finding corroborated with other studies in other places in the world (Omokanye et al., 2017; Adesiyun, Ameh, Avidime, & Muazu, 2011). For example, Omokanye et al. (2017) found that 87.3% of infertile couples were aware of ART through healthcare providers. Considering the collectivistic nature of Ghana, people who derive the full benefit of ART are more likely to recommend to others who may be in need. In this

present study, the respondents had ideas about the treatment process. Some of the respondents described the complete treatment process indicating the extent of their knowledge about the ART as found elsewhere (Sohrabvand & Jafarabadi, 2005). As part of the hospitals protocol, respondent were also orientated about the treatment stages and the requirement at each stage similar to what was reported by Cousineau & Domar (2007)in which the communication of the process of infertility treatment was done. In contrast to these findings, a study on doctor couple communication during ART suggested that even though communication during ART consultation was crucial, it was complex for the clients who visited the facilities to understand (Leone et al., 2018).

### 6.6 Challenges Associated with Assisted Reproductive Technologies

ART over the years have given hope to millions of couples facing problems of infertility (WHO, 2018); however, the treatment process is not without challenges. In this current study, similar to previous studies of infertility in other parts of the world (eg.,Chen, Chang, Tsai, & Juang, 2018; Peterson et al., 2007; Smeenk et al., 2001), anxiety has been as the commonest challenge among the respondents similar to previous studies. This could be attributed to fear of the unknown outcome of the treatment. Perhaps, the previous knowledge about possible failure of the treatment could have accounted for the anxiety expressed by the respondents. The anxiety was very much reported in the first phase of the treatment.

Both the qualitative and quantitative findings revealed cost of treatment as a challenge to couple undergoing infertility treatment. The entire treatment process was considered expensive by the respondents. This finding is not peculiar to this study; as other studies

have documented high cost of ART (Habbema, 2018; Okafor et al. 2017; Sohrabvand & Jafarabadi, 2005; Connolly, Hoorens, & Chambers, 2010; Chambers, Sullivan, Ishihara, Chapman & Adamson, 2009). For example, Okafor et al. (2017) reported that IVF is highly costly in Nigeria. Similarly, a study which determined the economic impact of ART found the treatment to be expensive from the clients' perspective (Chambers, Sullivan, Ishihara, Chapman & Adamson, 2009; Connolly, Hoorens, & Chambers, 2010). It is worth mentioning that some challenges are peculiar to a specific phase of treatment; though a number of these challenges overlap. In phase one where the assessment is conducted for the clients before actual treatment, high cost of treatment was the most cited challenge. Partly due to the fact that ART services are only provided by private facilities in Ghana and these centres are profit making organisations. No part of the treatment process was subsidised and therefore the clients bore the full cost of the service which consequently posed economic burden on them. This finding supports other studies in low income countries suggesting that the financial implication of ART present a huge burden on client undergoing ART (Inhorn & Birenbaum-Carmeli, 2008; Nachtigall, 2006; Van Balen & Gerrits, 2001). It also supports the assertion that ART could only be accessed by individuals with high socio-economic status (Connolly et al., 2010).

Furthermore, the findings of this study showed that long distance to the facility centres was a major challenge. Majority of the ART centres in Ghana are situated in the Greater Accra region. This therefore makes it difficult for residents outside Accra but need the ART service to access it. Those who overcome this barrier of access are further confronted with difficulties securing accommodation during the period of visits. Some studies have also confirmed inaccessibility of ART services especially in low-

income countries (Earle & Letherby, 2003; Inhorn & Birenbaum-Carmeli, 2008; Van Balen & Gerrits, 2001).

The second phase of the treatment also presents its own challenges. The second phase is a period whereby the clients go through hormonal treatment, taking of injections, egg transfer and pregnancy test to confirm the success of the entire process. Undoubtedly, this phase has been described as a stressful phase. Evidence suggest that the determination of the treatment outcome which is shown by a positive pregnancy test result constitute the most stressful stage of the ART (Verhaak et al., 2006; Ying, Wu & Loke, 2015). At this stage, the investment client has made in the first phase is put to test and the result could be devastating for some clients especially those who are unsuccessful in achieving pregnancy. The respondents cannot imagine having spent productive hours and days honoring physicians' appointments and been subjected to invasive procedures and yet the outcome turns out to be negative. In some instances, a number of the respondents reported that they had to visit the facility centres for a prescribed procedure before reporting to work. Again, some of the respondents obtained excuse duties to justify their absenteeism from work which affected their routine activities (Ying et al., 2015).

The last phase of the treatment process is the period whereby the client is tested positive for pregnancy, goes through pregnancy, and give birth to a live baby or otherwise. Respondents in this study had series of challenges that ranged from finance, anxiety about pregnancy, distance and treatment. At this stage, anxiety about pregnancy was found to be paramount. Respondents were afraid about the outcome of the pregnancy particularly those who tested positive for pregnancy. The emotional

challenges at this stage of the process cannot be underestimated (Hammarberg et al., 2010).This notwithstanding, some respondents also considered the pregnancy as normal and only attributed the problems they encountered to hormonal changes similar to a previous study (Poikkeus et al., 2006). On the other hand, respondents who were unsuccessful with the treatment and tested negative for pregnancy at the end of the process tested negative for pregnancy were worried and sad. This resulted to in clients' experiences of various forms of depressive symptoms.

### 6.7 Coping with assisted reproductive technology (ART)

There is, however, paucity of information on the coping strategies used by couples undergoing ART in current literature particularly in Africa. This study found the coping strategies used by women undergoing ART to fall under the following domains; confrontational, distance, self-control, social support, acceptance responsibility, escape-avoidance, problem-solving, and positive reappraisal coping strategy.

Confrontational coping is a type of coping strategy used when individual going through a stressful situation, presents an active attitude or an aggressive means to deal with the stressing agent (Folkman & Lazarus, 1988). A higher proportion of the respondents used confrontational coping strategy in this study. Specifically, it was the second most used coping strategy among the study respondents (n= 97, 46.0%). Other studies have documented this type of coping strategy among infertile couples undergoing ART elsewhere (Lee et al., 2009; Schmidt, Christensen, & Holstein, 2005; Mohammadi, Samani, Navid, Maroufizadeh, & Sabeti, 2018). A recent study found that infertile women used more of the emotion focused coping style (Mohammadi et al., 2018). In this current study, it emerged that the longer the number of years the woman had been

looking for a child, the more likely that confrontational coping strategy was adopted. This observation could be attributed to the fact that the long duration of looking for a child might have built immunity in them to resist any possible negative expectations. Similarly, if the couple attributed the cause of infertility to a known source (i.e. male, female, or both factors), then confrontational coping was more likely to be used. Knowing the underlying cause of the infertility activate some degree of positive assurance and hope of achieving pregnancy once the caused is addressed. This is not peculiar to Ghana, as other studies from other parts of the world have also documented adoption of confrontational coping strategies for ART (Mohammadi et al., 2018; Peterson 2006, Edelmann et al., 1994). For example, in the USA, a study by Peterson, et al. (2006) found that women used proportionately greater amounts of confrontational coping strategies whiles seeking ART. Considering the sociocultural importance attached to childbearing in Ghana, it may not be surprising for women with infertility to engage in behaviours and activities that could make them conceive.(Donkor, 2008). The adoption of confrontation coping strategy is dependent on the knowledge the individual has about the infertility and the ART intervention (Peterson, 2006, Shu-Hsin Lee, 2010). Those who understand the consequence of their situation response aggressively to have it solved if it is within their means. This perhaps might have accounted for the adoption of ART by the respondents in spite of the known challenges such as high cost of the procedure and others. This is in line with a study by Shu-Hsin (2008) which identified that inspite of the recognition by their respondents that ART success rate is not 100%, they were still willing to pursue it.

Distance coping is a type of coping in which an individual does not accept the fact of an issue stressing them, neither do they consider what other people say about their

situation (Folkman and Lazarus, 1988). The study revealed that, fertility centres was the only variable that was associated with distance coping. This could be ascribed to the fact that respondents received some form of counseling that helped them to deal with myths about the process. It could also be argued that the respondents were reassured by the success stories of other clients who went through the process. One cardinal features of every ART centres in Ghana is exhibition of pictures of couples who have successfully achieved childbirth. This could have also motivated the respondents to look forward for positive outcome. This was observed in the respondents as they explicitly mentioned that they were hopeful and unwavering in their quest to continue the process despite the cumbersome nature of the treatment process. Similar study by Peterson et al. (2006) found distancing coping strategy among infertile women whiles seeking infertility treatment.

Self - control coping strategy is used when a person makes an effort to control his or her emotions when been faced with a stressful agent (Folkman & Lazarus, 1988). It was observed from this current study that some clients going through ART used self-control coping strategy. According to the study, age was found to be the only variable associated with self - control coping. This could be attributed to the fact that advancement in age, could contribute to dealing with stress that one goes through and also due to accumulated life experiences encountered. Generally, individuals build a lot of experiences about life when one is growing up and is able to control some emotions about difficult situations.

Social support coping strategy takes into account the support one receives from people and the environment when going through stressful situations. In this study, support

system throughout the treatment was found to have come from clients' families. The form of support received by the respondents when seeking ART varied at each phase of the treatment based on the need. The main source of support in the process was spousal support, which was key to the clients. However, some of the respondents appear not to have any external support system available. These individuals were determined to undergo the process and move on with life regardless of the outcome of the process. Some studies also indicated that clients supported themselves throughout the ART process at every stage of the treatment (Peterson et al., 2006; Jordan & Revenson, 1999).

The findings of the study also revealed that fertility centres and causes of infertility were associated with social support coping strategy. It could be argued that, given the private nature of the centres, the physicians and other healthcare providers offered support to the respondent in order to satisfy them. Of course, there are competition among these centres in the Ghanaian health system and the users of these centres could be the best agent to attract prospective clients. This perhaps, informed the support structures available in these centres for clients undergoing ART. With regards to the cause of infertility, if both couples were supposedly responsible for the problem, they were more likely to assist each other. Social support is crucial in achieving successful ART treatment outcome (Gameiro et al., 2016). This is supported by other studies conducted elsewhere which indicate the significant role of social support during the ART process (Mohammadi et al., 2018; Gameiro et al., 2016).

Acceptance-responsibility is used when one accepts reality and commit to the process of coping with a stressing situation (Folkman & Lazarus, 1988). Women who were

seeking ART were found to use acceptance responsibility coping in this study. The factors that predicted the use of acceptance responsibility coping strategy included; age, educational level, fertility centre, years looking for a child and the cause of infertility.

Women found to be using this coping strategy were those with higher educational level, similarly, the more years a woman had looked for a child, the more likely they use acceptance responsibility coping strategy. Where the spousal causes of infertility are attributed to male and female, there was an associated increase in the use of acceptance responsibility as a form of coping strategy. A study in China which focused on Chinese women seeking ART revealed that, a number of them used acceptance coping strategies during the process (Wu et al., 2014). Similar findings have been reported by Peterson (2006).

Escape-avoidance consists of efforts to escape or avoid a stressing agent and fantasize about the possible solution to the problem (Folkman & Lazarus, 1988). The study found that there was an association between escape-avoidance coping and educational level, fertility centre, and the cause of infertility. Probably, those who had high educational level might have been exposed to ART information in the past or had researched and read more about the intervention. This could have influenced their belief about the effectiveness of the intervention. Again, despite the fact that respondents were desperately in need of their own biological children, some were preoccupied with taking care of children of other relations. It is believed that an infertile women generosity toward children could attract a special blessing of childbirth from God. In some situations, respondents adopted children informally from their family relations and friends as a means of fulfilling their role as parents. Even among

the respondents who informally adopted children, adoption was not considered as a permanent solution to their infertility challenge. The use of escape avoidance found in this study has been previously reported (Peterson et al., 2006; Schmidt, 2006). A meta-analytic study conducted in Jordan found that avoidance of social interaction was common among the infertile couples. According to the authors, the underlying reason was to avoid reflecting on their infertility experiences. Contrary, a descriptive study conducted by Yazdani et al., (2016), showed that couples undergoing ART used less of escape avoidance strategy as a coping strategy.

Problem-solving coping strategy focuses on appropriate planning towards a stressing agent. This study observed that respondents who had ever had children, their stage of treatment phase, and the cause of infertility were factors that predicted the use of problem-solving coping. This indicates that women, who had secondary infertility were able to plan and to cope with the challenges of ART, partly because they have ever had a child, they were not weighed down by the challenges encountered during the process.

This study further showed that positive reappraisal coping strategy was the most used coping strategy by the respondents (n=104, 49.3%). This was also reflected in the qualitative findings whereby respondents used coping strategies such as praying, finding a new faith, as well as changing something about one's self. This is not surprising in this study since 74% and 10% of the respondents were Christians and Muslims respectively. This finding therefore indicates the contribution of religiosity in the coping strategies of individuals seeking ART. Furthermore, the results of association between positive reappraisal coping strategy and the independent variables (i.e., Age, ethnic group, religion, employment status, previous child, treatment stage,

fertility centre, years of looking for child, and cause of infertility) show no significant relationship.

Faith in God and religiosity was an important coping strategy identified in the qualitative study. The respondents indicated that they were looking up to God for a miracle to happen in their lives through prayer as they go through the process of ART. A number of respondents believed in God for a positive outcome of the intervention. Majority coped with prayer and others drew inspiration from biblical examples of people who had children after so many years of infertility.

For those who had achieved pregnancy, some respondents were emotional about the whole process and overwhelmed with the stage of treatment. They could not believe they were pregnant through this process after so many years of trying to get pregnant and not having been successful. They felt it was by God's grace and recognised the goodness of God in achieving the pregnancy.

Concealment was not part of the coping strategies outlined by Folkman and Lazarus (1988) but identified from the qualitative data. This coping strategy was used by the respondents to prevent other people from knowing the nature of treatment they were undertaking. The overall effect was to avoid possible discrimination of the children born to these women (Hjelmstedt, Widström, Wramsby, & Collins, 2004). The most cited disclosure target was the spouse' of the respondents. Several excuses including travels were used by the respondents to afford them the needed space to go through the process without informing their family relations. Disclosure was withheld until they were successful with the intervention. The implications of hiding pregnancy from

people following the ART is as a result of possible societal stigma and non-acceptance of the child after birth similar to a previous study (Castro-Vázquez, 2016). The reality is that many people do not understand what ART involves and therefore perceive the children that comes out of it as unnatural. Other respondents hid the ART information from their relations and friends to ensure spiritual safety such that anyone with an evil eye would not succeed in destroying the ART process. This finding is not surprising in Ghana considering the role spirituality plays in the Ghanaian context. On the other hand, some respondents selectively disclosed their ART process to their close relatives, and these were people they trusted and were convinced that they will offer them spiritual support in a form of prayer. The selective disclosure occurred because of the sensitivity of the issue and for the purposes of ensuring privacy. This is in line with a study by Finamoreet al. (2007) which revealed that the infertile women concealed their treatment information in order to ensure privacy. Another dimension of the issue is disclosure of method of conception to the child. It has been previously reported that about 89% of women and 81% men decided to disclose to their children about their method of conception. This was to let them feel well desired for. Others kept memories of the ART process show to the children later in life (Hjelmstedt et al., 2004).

### 6.8 Strengths

1. Ascertaining information on infertility is usually challenging as people consider it a private issue. However, this study has been able to explore infertility, a culturally sensitive subject. The methodological innovations employed made the respondents of this study to show keen interest in the subject and opened up to the research team and provided the needed information the study sought.

2. The study is the first of its kind in Ghana, which explored the challenges and coping strategies used by individuals seeking ART. Previous studies have limited the scope to psychosocial experiences with infertility in Ghana and how individuals coped with infertility.
3. The use of data triangulation and methodological triangulation in the study which involved using the same group of respondents in similar facilities and more than one study method (interviews, questionnaires) to gather data, created an innovative way of understanding how individuals seeking ART cope with the process. The convergent parallel mixed method used in this study helped to understand the different perspectives of the respondents.
4. While earlier studies on infertility and ART were limited to female respondents, this study involved both male and female respondents. The involvement of males provided a masculine perspective of infertility, and this enriched the study findings.

### 6.9 Limitations

The study had some limitations that need to be carefully considered in interpreting the findings and its contribution to the practice of ART in Ghana. The limitations of the study includes the following:

1. The study sites were limited to the Greater Accra region of Ghana and therefore there is the possibility of variations, which may not represent the views of individuals seeking ART in other regions particularly the rural settings.
2. Most of the women who participated in the study had attained tertiary education and also fell within the middle-income group. Therefore, the findings cannot be

generalised to women seeking ART with low educational background or those with low-income status.

3. The use of cross sectional design in this study, limits the establishment of cause and effect relationship, and the findings of the qualitative study cannot be generalized. There may be recall bias from the qualitative respondents but this was minimised by careful selection of research questions and through member checking.

# CHAPTER SEVEN

# CONCLUSIONS AND RECOMMENDATIONS

This chapter presents the conclusions stemming out of this study. Based on the findings of the study, the chapter proposes some recommendations with respect to infertility and the use of ART in Ghana.

## 7.1 Conclusions

The following conclusions are made based on the objectives of the study. The study supports that not all women experience pregnancy and deliver in the 'natural way', the causes of which could be attributed to the male, female or both. Having biological children in marriage in the Ghanaian society is very important for couples and individuals who go through infertility. Such couples face a number of negative psychosocial challenges such as, stress, anxiety depression, worry, feeling of hopelessness, having suicidal ideation, undue pressure from family and friends, divorce and stigmatization. Couples in an effort to overcome the psychosocial challenges employ different coping strategies such as faith-based activities (prayer) and also adoption of children. Despite these attempts at coping, the negative experiences drive them to seek different forms of treatment, so they can have their own biological children.

Couples who opt for ART encounter a number of challenges. These challenges are associated with the treatment process, which to some extent is based on the phase of the treatment. ART related challenges include anxiety, stress, the high cost of the treatment and work-related challenges such as absenteeism. Once a successful pregnancy is achieved, its related challenges then come to the fore.

The different challenges encountered during ART, triggered the use of some coping strategies by the clients. These coping strategies included: confrontational, distance, self -control, social-support, acceptance responsibility, escape-avoidance, problem solving and positive-reappraisal coping.

In addition, this study identified a peculiar coping strategy by the respondent. This was concealment; where the clients did not want others to know that they were going through the ART process, as they considered it artificial as compared to the natural order of pregnancy and delivery. However, a few disclosed it to their mentors and people who introduced them to the facility. This was done for support as they went through the process.

### 7.2 Recommendations

The findings of this study have important implications on practice, research and policy. The recommendations are directed to relevant agencies and stakeholders in reproductive health services in Ghana. These agencies include the Ministry of Health, Reproductive Health Unit of the Ghana Health Services, and Fertility centres in Ghana.

1. **Ministry of Health**

a. Government should consider integration of ART services into the existing obstetric and gynaecological facilities as a long-term measure to serve to serve as an alternate solution to the challenges of infertility in Ghana. This will enhance availability, accessibility and affordability of ART services particularly for those in the low socio-economic status. Currently, ART services are provided by private health facilities, which make it unaffordable and prohibitive.

b. The Ministry of Health should consider engaging Private health Insurance companies to fund some aspect of ART services such as laboratory investigations and medications into the insurance scheme. This will further reduce the financial burden of ART on clients with infertility that opts for the services.

**2. Reproductive Health Unit of the Ghana Health Service**

This study found that there were a lot of stigmatization with regards to ART use Therefore, the reproductive health unit should sensitise the general public about the availability of ART, its effectiveness as well as the associated benefits. This will increase its use and subsequently reduce the negative consequences of childlessness in the Ghanaian society.

**3. Fertility Centres**

a. Given the emotional and psychological challenges reported by the clients in this study, it is recommended that counseling units should be established in these centres manned by qualified personnel such as clinical psychologists and Counselors.

b. Clients should be offered counseling and emotional support at every stage of the treatment tailored to the stage of the treatment process. This is important as different challenges are encountered at the different stages of treatment. It is suggested that there should be a pre-treatment counseling, counseling during the treatment, and post treatment counseling.

c. Education on coping strategies should be part of the counseling process. The coping strategy being used by the clients should be identified and strengthened.

d. Clients should be taken through new coping strategies, as this may be useful depending on the phase of treatment.

4. **Future Research Direction**

a. Future research should examine the level of anxiety and its effect on client undergoing ART. This study will inform empirical and innovative strategies to mitigate the negative impact of anxiety on the treatment process.

b. Lastly, future studies should look at factors that influences concealment and disclosure of ART and its implication on the treatment process.

**Contribution to Knowledge**

- This study is one of the first studies on ART in Ghana and one of the few studies in Africa
- The study has provided insight into the challenges and coping strategies used by clients seeking ARTs
- The study proposed a conceptual framework to guide research on coping with ART

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# APPENDICES

## Appendix 1: Informed Consent Form

**Research Title**: Coping with Assisted Reproductive technologies: Evidence from clients seeking fertility intervention in selected private health facilities in Ghana

**Principal Investigator**

Josephine Mpomaa Kyei, Department of Population, Family and Reproductive Health, School of Public Health Sciences, University of Ghana, P.O. Box LG 13, Legon

**Contact**: Mobile 0208154212; **Email**: mamejossy@yahoo.com.

**General Information about the study**

This is a research study being undertaken by a Doctoral student of the School of Public Health, University of Ghana, as part of the requirements for the Doctor of Philosophy in Public Health. The study seeks to assess the challenges and levels of coping among infertility clients seeking assisted reproductive technology.

Studies elsewhere have revealed that individuals with infertility go through a number of challenges as well as develop some mechanisms to cope with the situation while undergoing other treatments but not assisted reproductive technology. In Ghana, little is known about the challenges of infertile couples during the period of seeking assisted reproductive treatment as well as the levels of coping. The aim of this study is to find out the challenges of assisted reproductive technology clients and examine the levels of coping with the challenges at selected fertility centres in Ghana.

You are therefore allowed to take this form home and go through it and take a decision with regards to your participation in the study.

**Procedures**

Women and some men attending the fertility clinics to seek assisted reproductive technology at various phases of treatment will be included in the study. The attending obstetrician gynecologists or the embryologist will recruit the clients on behalf of the research team due to the sensitive nature of the study and in the event of refusal by the client the team will respect it.

The study will involve answering questions from a questionnaire, assessing levels of coping and interviewing some men about their challenges and how they are coping at the fertility centres. If you are eligible and agree to participate, you will be required to respond to some questions. We will ask you questions about your background and a set of questions on your fertility issues and challenges as well as how you are coping during course of your treatment. The interview is expected to last 60 minutes. It will be appreciated if you could participate in this study. This is purely academic research, which forms part of my work for the award of a Doctor of Philosophy in Public Health.

**Risk and Discomforts**

The procedures involved in this study are non-invasive, however some questions a bit sensitive and will cause some psychological discomfort to you as a respondent as we will ask some information about your background, infertility issues and social issues. If you feel uncomfortable to respond to some of the questions, you are free to skip them. Also in case of any psychological breakdown, you will be referred for counseling within the facility.

**Possible Benefits**

There are no direct benefits to the respondent of the study. However, the information you will provide, will contribute to overall knowledge about infertility and assisted reproductive technology in Ghana and results of the study will be used to improve care rendered at the fertility centres in Ghana.

**Voluntary participation and right to refuse**

Your participation in this study is voluntary. During the interview you can choose not to answer any individual question or all the questions. Additionally, you are at liberty to withdraw from the study at any time. However, I will encourage you to fully participate in the study since your opinions and the information you will provide will help to understand the process in handling ARTs at the fertility centres.

**Anonymity and Confidentiality**

You are assured that whatever information is provided on the questionnaire will be handled with strict confidentiality. Your name or personal identification information will not be published in any report, and information submitted would not be shared with anybody who is not part of the study. Some staff of the research team may sometimes review the research records, but no unauthorized individual(s) will be able to access your information.

**Compensation**

A light refreshments will be given to you during your participation of the study, this is to commend you for the participation in the study.

**Contact for Additional Information**

If you have questions later, you may contact:

Josephine Mpomaa Kyei
Department of Population, Family and Reproductive Health
University of Ghana School of Public Health
College of Health Sciences
P.O. Box LG 13, Legon
Mobile: 0208154212
Email: mamejossy@yahoo.com

IRB administrator
**Mrs Hannah Frimpong**□GHS-ERC Administrator□Office: +233 302 681109□Mobile: **233 (0) 243235225 or 0507041223** Email: Hannah.Frimpong@ghsmail.org

**Informed Consent Form**

I. declare that the above document describing the purpose, procedures as well as risks and benefits of the research titled "Coping with Assisted Reproductive technologies: Evidence from clients seeking fertility intervention in selected private health facilities in Ghana " has been thoroughly explained to me in English/Twi/Ga language. I have been given the opportunity to ask any questions about the research answered to my satisfaction. I hereby voluntarily agree to participate as a subject in this study.

…… ……../……/……..

Signature or Mark of Participation Date

**Interpreter Statement**

If respondent cannot read the form himself or herself, an interpreter must sign here.

I, ……interpreted the purpose, procedures as well as risks and benefits of this study to the respondent. All questions were read and interpreted to the respondent who voluntarily agreed to participate as a subject in this research.

**…… ……./……./……**

**Signature of interpreter**

**Date**

**Witness statement:**

A witness must sign here,

I, ……...was present while the purpose, procedures as well as risks and benefits were read / interpreted to the respondent. The respondent voluntarily agreed to participate as a subject in this research and to answer all questions**.**

**…… ……./……./……**

**Signature of witness Date**

**Interviewer's statement:**

I, …… certify that the nature and purpose, the potential benefits and possible risks associated with participating in the study have been explained to the above individual in the English/Twi/Ga language. The respondent has freely agreed to participate in the study.

**Researcher's statements:**

I, …… certify that the nature and purpose, the potential benefits and possible risks associated with participating in the study have been explained to the above individual in the English/Twi/Ga language. The respondent has freely agreed to participate in the study.

**……..** **……/……/……**

**Signature** **Date**

**Appendix 2: In-Depth Interview Guide**

**Title**: Coping with Assisted Reproductive technologies: Evidence from clients seeking fertility intervention in selected private health facilities in Ghana

**Target Respondents:** Women and Men undergoing various phases of Assisted Reproductive treatment .

Respondent's ID…….

A. : Socio-demographic and economic background of respondents

Respondent's Sex…… Age……

Ever had children?

Number of previous children …….

Religion ……..

Educational level……..

Ethnicity…….

Occupation ……

Marital status ……

Income level……

**Icebreaker:**

Tell me a bit about yourself and how you got to know about ART.

**Knowledge and attitude of infertile clients on assisted reproductive technology**

**Knowledge**

**A.** Can you tell me what you know about assisted reproductive technologies?

**Probes:**

i. How did you get to know about ARTs?
ii. Where did you get the information?
iii. How does ARTs works?
iv. Do you know about the various types?
v. Have you ever undergone any form of treatment?
vi. Which one are you aware of?
vii. In your opinion is it effective?

**Attitude**

Probe:

i. How do you feel about this process?
ii. What would you have wished for?
iii. How does it affect you?

**Social, cultural and psychological reasons underlying client ARTs seeking-behavior.**

- In some cultures, having children may not be as important as other cultures.

Coming back home, how are children important and how is it important to us

a. How Importance are children to you? And your spouse? Your parents? Parents of Spouse?
b. Why are you seeking this treatment?

Probes for;

i. Social, cultural and psychological reasons.

ii. Why are you seeking this treatment?

iii. Do you think childbearing is important?

iv. Are your family /in laws/ friends aware of the assisted reproductive treatment?

**Challenges of clients seeking assisted reproductive technology infertility in relation to the stage of ARTs/at each stage of ARTs**

A. Tell me about the process you are going through now.

Probe;

i. How long does it take you to get to the fertility centre?

ii. What does this process involve?

iii. What is the cost involve in seeking this kind of treatment? How do you finance it?

iv. What challenges are you facing at this stage of treatment.

v. Are you anxious about the treatment outcome?

**Coping strategies adopted by clients at each stage of ARTs**

A. What coping strategies do you adapt at this stage of ARTs.

Probe:

i. Work, distance, financing, medication/injections, admissions, family life, extended relations.

ii. How do you manage the payment of the process.

iii. Do you have any form of support from your family?

**Appendix 3: Questionnaire for Quantitative Study**

| | Not Used= 1 | Somewhat Used =2 | Used Quite A Bit =3 | Used a Great Deal =4 |
|---|---|---|---|---|
| 1. Stood my ground and fought for what I wanted | 1 | 2 | 3 | 4 |
| 2. Tried to get the person responsible to change his or her mind | 1 | 2 | 3 | 4 |
| 3. I expressed anger to the person(s) who caused the problem | 1 | 2 | 3 | 4 |
| 4. I let my feelings out somehow | 1 | 2 | 3 | 4 |
| 5. Took a big chance or did something very risky | 1 | 2 | 3 | 4 |
| 6. I did something which I didn't think would work, but at least I was doing something | 1 | 2 | 3 | 4 |
| 7. Made light of the situation; refused to get too serious about it | 1 | 2 | 3 | 4 |
| 8. Went on as if nothing had happened | 1 | 2 | 3 | 4 |
| 9. Tried to forget the whole thing | 1 | 2 | 3 | 4 |
| 10. Didn't let it get to me ;refused to think too much about it | 1 | 2 | 3 | 4 |
| 11. Looked for the silver lining, so to speak; tried to look on the bright side of things | 1 | 2 | 3 | 4 |
| 12. Went along with fate; sometimes I just have bad luck | 1 | 2 | 3 | 4 |
| 13. I tried to keep my feelings to myself | 1 | 2 | 3 | 4 |
| 14. Kept others from knowing how bad things were | 1 | 2 | 3 | 4 |
| 15. Tried not to burn my bridges, but leave things open somewhat | 1 | 2 | 3 | 4 |
| 16. I tried not to act too hastily or follow my first hunch | 1 | 2 | 3 | 4 |
| 17. I tried to keep my feelings from interfering with other things too much | 1 | 2 | 3 | 4 |

| | | | | |
|---|---|---|---|---|
| 18. I thought about how a person I admire would handle this situation and used that as a model | 1 | 2 | 3 | 4 |
| 19. I tried to see things from the other person's point of view. | 1 | 2 | 3 | 4 |
| 20. Talked to someone to find out more about the situation | 1 | 2 | 3 | 4 |
| 21. Talked to someone who could do something concrete about the situation | 1 | 2 | 3 | 4 |
| 22. I asked a relative or friend I respected for advice | 1 | 2 | 3 | 4 |
| 23. Talked to someone about how I was feeling | 1 | 2 | 3 | 4 |
| 24. Accepted sympathy and understanding from someone | 1 | 2 | 3 | 4 |
| 25. I got professional help | 1 | 2 | 3 | 4 |
| 26. Criticized or lectured myself | 1 | 2 | 3 | 4 |
| 27. Realized I brought the problem on myself | 1 | 2 | 3 | 4 |
| 28. I made a promise to myself that things would be different next time | 1 | 2 | 3 | 4 |
| 29. I apologized or did something to make up | 1 | 2 | 3 | 4 |
| 30. Wished that the situation would go away or somehow be over with | 1 | 2 | 3 | 4 |
| 31. Hoped a miracle would happen | 1 | 2 | 3 | 4 |
| 32. Had fantasies or wishes about how things might turn out medication | 1 | 2 | 3 | 4 |
| 33. Avoided being with people in general | 1 | 2 | 3 | 4 |
| 34. Tried to make myself feel better by eating, drinking, smoking, using drugs or | 1 | 2 | 3 | 3 |
| 35. Refused to believe that it had happened | 1 | 2 | 3 | 4 |
| 36. Took it out on other people | 1 | 2 | 3 | 4 |
| 37. Slept more than usual | 1 | 2 | 3 | 4 |
| 38. I knew what had to be done, so I doubled my efforts to make things work | 1 | 2 | 3 | 4 |
| 39. I made a plan of action and followed it | 1 | 2 | 3 | 4 |

| | | | | |
|---|---|---|---|---|
| 40. Just concentrated on what I had to do next – the next step | 1 | 2 | 3 | 4 |
| 41. Changed something so things would turn out all right | 1 | 2 | 3 | 4 |
| 42. Drew on my past experiences; I was in a similar situation before | 1 | 2 | 3 | 4 |
| 43. Came up with a couple of different solutions to the problem | 1 | 2 | 3 | 4 |
| 44. Changed or grew as a person in a good way | 1 | 2 | 3 | 4 |
| 45. I came out of the experience better than when I went in | 1 | 2 | 3 | 4 |
| 46. Found new faith | 1 | 2 | 3 | 4 |
| 47. Rediscovered what is important in life | 1 | 2 | 3 | 4 |
| 48. I prayed | 1 | 2 | 3 | 4 |
| 49. I Changed something about myself | 1 | 2 | 2 | 4 |
| 50. I was inspired to do something creative | 1 | 2 | 3 | 4 |

## Appendix 4: Ethical Clearance

**GHANA HEALTH SERVICE ETHICS REVIEW COMMITTEE**

*In case of reply the number and date of this Letter should be quoted.*

*My Ref. GHS/RDD/ERC/Admin/App/17/411*
*Your Ref. No.*

Research & Development Division
Ghana Health Service
P. O. Box MB 190
Accra
*Tel: +233-302-681109*
*Fax + 233-302-685424*
*Email: ghserc@gmail.com*

Josephine Mpomaa Kyei

The Ghana Health Service Ethics Review Committee has reviewed and given approval for the implementation of your Study Protocol.

| | |
|---|---|
| GHS-ERC Number | **GHS-ERC: 02/01/2017** |
| Project Title | "Infertility and Assisted Reproductive Technology in selected Private Fertility Centres in the Greater Accra Region" |
| Approval Date | 15th March, 2017 |
| Expiry Date | 14th March, 2018 |
| GHS-ERC Decision | **Approved** |

**This approval requires the following from the Principal Investigator**

- Submission of yearly progress report of the study to the Ethics Review Committee (ERC)
- Renewal of ethical approval if the study lasts for more than 12 months,
- Reporting of all serious adverse events related to this study to the ERC within three days verbally and seven days in writing.
- Submission of a final report **after completion** of the study
- Informing ERC if study cannot be implemented or is discontinued and reasons why
- Informing the ERC and your sponsor (where applicable) before any publication of the research findings.

Please note that any modification of the study without ERC approval of the amendment is invalid.

The ERC may observe or cause to be observed procedures and records of the study during and after implementation.

Kindly quote the protocol identification number in all future correspondence in relation to this approved protocol

SIGNED.....
DR. CYNTHIA BANNERMAN
(GHS-ERC CHAIRPERSON)

Cc: The Director, Research & Development Division, Ghana Health Service, Accra