

**THE RELATIONSHIP BETWEEN RELIGIOSITY AND SOCIO-
DEMOGRAPHIC FACTORS, AND ATTITUDES TOWARDS ASSISTED
REPRODUCTION IN GHANA**

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**THIS THESIS IS SUBMITTED TO THE UNIVERSITY OF GHANA, LEGON IN
PARTIAL FULFILMENT OF THE REQUIREMENT FOR THE AWARD OF MPhil
SOCIAL PSYCHOLOGY DEGREE**

JUNE, 2014

DECLARATION

This is to certify that this thesis is the result of research undertaken by Ivy Aduboaba Adjei-Nketiah, under supervision towards the award of Master of Philosophy in Social Psychology Degree in the University of Ghana, Legon.

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ABSTRACT

The aim of the study was to investigate the relationship between an individuals' religiosity and their attitudes towards Assisted Reproduction to resolve infertility in Ghana. The study also examined the relationship between socio-demographic variables and the acceptance of assisted reproductive techniques among participants of the study. The relationship between an individual's cultural estrangement and his attitude towards assisted reproduction was also examined. Many Assisted Reproductive Techniques have become available due to the advancement in medicine and technology. Even though many religions encourage procreation, they have concerns with some of the techniques used in Assisted Reproduction. These concerns include the belief that the use of Assisted Reproductive Technologies poses threats to the marriage relationship. The sanctity of the embryo, during assisted reproduction processes is also of concern to many religions. The objectives of this study were three-fold. First, it sought to find out whether an individual's level of religiosity predicted his attitudes towards Assisted Reproduction. Secondly, the relationship between socio-demographic variables of participants and their acceptance of Assisted Reproductive Techniques was investigated. Thirdly, the study examined the relationship between cultural estrangement and the attitudes of participants towards Assisted Reproduction. Two hundred and sixteen (216) participants comprising members of four major denominations, (Catholic, Protestant, Pentecostal/Charismatic and Moslem) were recruited for this study. They were administered questionnaires which assessed their religiosity, cultural estrangement, and attitudes towards Assisted Reproductive Techniques. Results from this study did not reveal any significant relationship between an individual's level of religiosity and their attitudes towards Assisted Reproduction. Again, no significant relationship was found between an individual's cultural estrangement and their attitudes towards Assisted Reproduction. It was found that people who had completed more years in school had more favourable attitudes towards Assisted Reproduction than those who had completed fewer years in school.

DEDICATION

In memory of my Father, J. K. Ankomah (1939 – 1987).



ACKNOWLEDGEMENT

This work would not have been possible without the help, support and contribution of several people.

My heartfelt gratitude goes to my supervisors, who have provided me with the guidance and the direction that I needed in this endeavour. Dr. A. Afrifa and Professor C. C. Mate Kole, thank you for your time and your wealth of knowledge that was made available to me. I am a thankful beneficiary. Thank you Sirs!

My gratitude also goes to my family who have been there for me through it all. God bless you abundantly.

Finally, to all who have contributed in various ways during this period of study, I am grateful.



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LIST OF ABBREVIATIONS

ART	Assisted Reproductive Techniques
IVF	Invitro Fertilisation
SHS	Senior High School
WHO	World Health Organisation

CHAPTER ONE

INTRODUCTION

Background

The aim of the study was to investigate the relationship between an individuals' level of religiosity and their attitudes towards Assisted Reproductive Techniques (ART) in the resolution of infertility in Ghana. The study also examined the relationship between cultural estrangement and the acceptance of Assisted Reproductive Techniques. The relationship between some socio-demographic variables and the acceptance of Assisted Reproductive Techniques was also assessed.

Infertility is the inability of a sexually active, non-contracepting couple to achieve pregnancy in one year (WHO, 2013). If conception has not occurred after 12 months of sexual activity without the use of contraception, a couple is considered to be experiencing infertility (Evens, 2004).

Universally the prevalence of infertility rises significantly with a woman's age (Fidler & Bernstein, 1999). Worldwide rates of infertility vary dramatically corresponding to the incidence of preventable conditions leading to infertility; from a core prevalence of about 5% to rates as high as the mid-30's in sub-Saharan Africa (Daar & Merali, 2001). Infertility affects between 60 million to 168 million people worldwide; generally one in ten couples experience infertility (Vayena, Rowe & Peterson, 2002).

The World Health Organisation (2013), report that one in every four couples in the developing world has been found to be affected by infertility. Donkor & Sandall (2009), report that infertility is a health issue faced by an estimated 15% of women of childbearing

age in Ghana. This implies that about 15% of couples in Ghana experience infertility. Infertility is thus becoming a public health concern.

There are many causes of infertility and these can be related to factors in the male, female, or both. Evens (2004) describe three general causes of infertility; physiological causes, preventable cause, and unexplained issues. Female physiological causes include abnormal ovulation, tubal blockage, endometriosis and congenital malformations. Male physiological factors include the quality, motility and counts of the sperm. Ejaculatory dysfunction is also an important physiological male factor in infertility. Preventable causes of infertility described include infections like sexually transmitted infections, advancing maternal age and occupational hazards. Again, about 20% of all infertility cases are due to unexplained issues (Evens, 2004).

It has also been estimated that approximately one-third of cases of infertility are due to male factors, one-third to female factors, and the remaining one-third to a combination of male and female factors (Evens, 2004).

Religion and Infertility

Religion can be defined as an organised system of beliefs, practices, rituals, and symbols designed to facilitate closeness to the sacred or transcendent (God, higher power, or ultimate truth/reality) (Koenig, McCullough & Larson, 2001). It can also be defined as the particular doctrinal framework that guides sacred beliefs and practices about a higher power or God (Roudsari, Allan & Smith, 2007).

Religiosity has been defined as phenomena that include some relevance to traditional searches to acknowledge and maintain some relationship with the transcendent (Hill & Hood, 1999).

According to Gyekye (2003), religion is the awareness of the existence of some ultimate and Supreme Being, who is the origin and sustainer of this universe, and the establishment of constant ties with this being. He further suggests that religion influences, in a comprehensive way, the thoughts and actions of the African people.

In a study in South Africa, Sewpaul (1999) found that the individual's level of involvement with religion, their concept of God and their sense of self in relation to God, appeared to be important factors in influencing the impact of religion on the experience of infertility. Within the African society, religion is woven into the culture of the people and affects every aspect of their lives. Peoples' decision making process in every aspect of life is often impacted upon by the values they hold which are often derived from their religious beliefs. Peoples' beliefs about the causes of infertility and their attempts at resolving the infertility experience is therefore affected by their religiosity.

Culture and Infertility

Culture has been defined by Mbiti (1975) as the way people live, behave and act, and their physical as well as their intellectual achievements. Culture has also been defined as the enduring behaviours, ideas, attitudes, values, and traditions shared by a group of people and transmitted from one generation to the next (Brislin, 1988, cited in Myers, 2008).

The term culture also refers to the system of shared meanings, perceptions, and beliefs held by a people belonging to some group (Smith & Bond, 1993, cited in Baron, Branscombe & Bryne, 2008).

The ability to have children is socially assumed and considered necessary for the continuation of family, culture, and humankind (Burnett, 2009). Fertility, reproduction, and perpetuation

are important parts of peoples' life. In all societies and cultures these are important issues because they are seen to ensure the continuation and survival of that society. Peoples' experience with reproduction and infertility is often influenced by their culture. The causes and reasons that different societies and cultures give for the occurrence of infertility are many and varied. Although couples go through complex feelings and difficult decisions when faced with infertility, most cultures are silent on infertility issues.

In some African societies, marriage is not fully recognised or consummated until the wife has given birth. A woman who fails to bear children suffers for this, her own relatives also suffer, and there is an irreparable humiliation for which there is no source of comfort in traditional life (Mbiti, 1970). In view of the sovereign value that is placed on children in Africa, infertility is not only experienced as a crisis by the couple. It is also considered as a tragedy or a disaster by the community (Sewpaul, 1999).

In the African view the whole or ultimate purpose of marriage is procreation – to produce children who will continue with the heritage and the name of the family, so that the family does not diminish or disappear (Gyekye, 2003). Traditionally the ability to bear children is so important that the woman who fails to bear children suffers great humiliation and abuse. In Ghana, a high premium is placed on biological parenting and there are specific cultural norms that dictate the attitudes towards childless women (Donkor, 2008). In fact infertility affects the woman, the couple, and the families concerned since children are seen as the only means of continuing the ancestral lineage. Findings from a study conducted among infertile women in Ghana suggest that they have psychosocial health problems that are related to their beliefs about infertility (Naab, 2011).

Biological relationship is also very important to the African. In traditional African life, kinship is reckoned through blood and betrothal (Mbiti, 1970). According to Mbiti (1970), within African societies a person, who dies without close relatives to remember him, has simply vanished out of human existence. Procreation therefore is the absolute way of ensuring that a person is not cut off from personal immortality. Among the Akans in Ghana for example, a Chief (or Ruler) can only be succeeded by his sister's children. This is so because, regardless of who the father of the child is, he will have the important bloodline from his mother. According to Gyekye (2003), the concept of artificial insemination, an assisted reproductive technique, which could be used to bring children into a family, is far removed from the ideas and practices of child birth in the traditional African society.

In one study it was found that people living with infertility are motivated by factors such as culture and religion, to bring forth at all cost (Laryea, 2011). When people are faced with the resolution of the infertility experience, several issues become important. Several psychological factors such as the motivation to recover and the patient's response styles to illness become important. Other social factors such as income levels, educational levels, culture and support from other people in the society, including our interaction with Health Providers are also important in the health choices that are made to resolve infertility.

Assisted Reproductive Techniques

Medical science has greatly improved and developed over time and orthodox medicine has various options available to help infertile or sub-fertile couples to realize their dreams of raising a family.

In 1978, Louise Joy Brown was born in Oldham, England. She was the first baby to be borne by assisted reproduction in the world, specifically through invitro fertilisation procedures. The invitro fertilisation procedure that led to her conception was hotly debated at the time within both medical and religious circles. Since then several babies have been born using assisted reproductive techniques. However assisted reproductive techniques are still considered unethical by many religious groups. Religion and science have been interrelated since the beginning of human history. Religious groups still exert considerable influence in the field of reproduction, and present itself forcefully as a stakeholder in Assisted Reproductive Technology (Schenker, 1992; Dutney, 2007).

Today, several Assisted Reproductive Techniques have become available. These include invitro fertilization (IVF) procedures, Artificial insemination and Surrogacy (gestational and non gestational carriers). The use of Donor gametes (donor sperm and/or eggs) has also become increasingly available.

Problem Statement

The goal of this study is to assess the relationship between the level of religiosity of individuals and their attitudes towards assisted reproductive techniques in Ghana. It is also aimed at finding the relationships between some socio-demographic variables of individuals' and their acceptance of assisted reproductive techniques. It is generally expected that more religious individuals may be more interested in the resolution of the infertility experience because of their religious beliefs. Many religious books encourage procreation. The Bible for instance enjoins Christians to multiply and fill the earth. (Genesis 1:28).

However many religions are also concerned with the sanctity of the marital relationship and the sanctity of the embryo (Schenker, 2005; Dutney, 2007). The increasing availability of various assisted reproductive techniques has raised various concerns that vary widely by religion. The Catholics oppose the use of invitro fertilisation procedures and artificial insemination. The Protestants and Moslems disapprove of the use of donor gametes. There are also concerns about what to do with excess embryos resulting from invitro procedures (Schenker, 1992). Although many religious faiths and church groups have laid down rules about which assisted reproductive techniques are acceptable and which are not, Greil (1989) has found in his interviews with infertile couples that indifference to religious objections is widely shared. In other words, he has found that couples may make decisions about assisted reproduction that may not necessarily agree with the proscriptions of their religious groups. The relationship between religiosity and acceptance of Assisted Reproductive Techniques in infertility resolution may therefore be a complex one.

Therefore the question remains as to how people will determine which assisted reproductive techniques are acceptable and those that are not. This study seeks to find out if a person's level of religiosity is an indicator of the acceptability of the various types of assisted reproductive techniques. It also seeks to find out how the individual's religious affiliations and other socio-demographic variables such as age, sex, educational level, and marital status may influence his acceptance of various assisted reproductive techniques.

Aim of the Study

The objective of this study is to determine the relationship between individuals' level of religiosity and their acceptability of assisted reproduction. The relationship between individuals' socio-demographic factors and their acceptability of Assisted Reproductive

Techniques (ART) will also be assessed. How an individual's level of cultural estrangement may influence his attitudes towards assisted reproduction will also be looked into.

Objectives of the Study

- To assess how an individual's religiosity affect their acceptance of Assisted Reproductive Techniques to resolve infertility.
- To determine the relationship between some socio-demographic variables (age, sex, educational background, marital status, religious affiliation, parenthood, infertility experience) and the acceptance of assisted reproductive techniques.
- To find the relationship between an individual's cultural estrangement and their acceptance of assisted reproductive techniques.

Relevance of the Study

An insight into the sensitive nature of an individual's religiosity will guide health experts to adopt different procedures in introducing and offering assisted reproductive techniques to couples who are experiencing infertility. A good understanding of religiosity and how it affects the populace's acceptance of and attitudes towards Assisted Reproductive Techniques will be important for health providers and policy makers.

This current study also seeks to provide information to academia about how religiosity may affect infertility treatment choices amongst the Ghanaian people. Therefore, the study builds on previous researches and serves as a basis or more detailed research into religiosity and infertility resolution.

The study also seeks to provide information to academia and health personnel about the relationships that may exist between some socio-demographic factors of individuals and their acceptance of assisted reproductive techniques.

CHAPTER TWO

LITERATURE REVIEW

Introduction

This chapter reviews the theoretical concepts considered for this study, and also reviews relevant literature. Three theories relevant to this study have been reviewed. The review of relevant literature explores religiosity and socio-demographic variables which may influence individuals' acceptance of, and attitudes towards Assisted Reproductive Techniques. Relevant empirical studies have been reviewed. The chapter will also include the rationale for the study, statement of the hypotheses, operational definition of terms and proposed model.

Theoretical Framework

Three theories on how behaviour may be influenced by attitudes and other factors are reviewed. They are the theory of reasoned action and planned behaviour, the cognitive dissonance theory, and the cultural lag theory.

Theory of Reasoned Action and of Planned Behaviour

One of the mechanisms or ways that attitudes are thought to guide behaviour is through reasoned thought.

The Theory of Planned Behaviour by Ajzen (1985) was an improvement of his earlier theory of Reasoned Action. It is a theory about the link between attitudes and behaviours. The theory suggests that the decision to engage in a particular behaviour is the result of a rational process. The theory also states that attitude towards behaviour, subjective norms, and perceived behavioural control together shape an individual's behavioural intentions and actual behaviours (Baron et al., 2008).

The theory of planned behaviour suggests that people will consider the various behavioural options in a rational process. One's personal evaluation or attitude toward the behaviour is determined by beliefs that the behaviour will lead to positively or negatively valued outcomes. The theory again suggests that people will consider the outcome of their actions before they decide to engage or not to engage in a given behaviour. Behaviour is directed at a goal and people will engage in actions they believe will move them towards that goal.

The theory also states that subjective norms do control and shape an individual's behavioural intentions and actual behaviours. Subjective norms are the individual's perception of social normative pressures. It also involves the individual's perception of relevant others' beliefs that he or she should or should not perform such behaviour. In other words, what social normative pressures there are, and what relevant others think about one's behaviour, are important considerations in behavioural intentions and actual behaviours.

Perceived behavioural control has to do with an individual's perceived ease or difficulty of performing that particular behaviour. This involves the appraisals of our own abilities to perform the behaviour.

This rational process will then result in behavioural intentions. Behavioural intentions are thought to strongly influence or predict actual behaviour. Per this theory, the immediate determinant of behaviour is the intention to act or not to act.

The Theory of Planned Behaviour has been applied widely in many disciplines to explain behaviour. These areas include health-related areas.

Gaston and Gerjo (1996) reviewed applications of Ajzen's Theory of Planned Behaviour in the domain of health and to verify the efficiency of the theory to explain and predict health-related behaviours. They found that the theory performs very well for the explanation of behavioural intention. Attitude toward the action and perceived behavioural control were most often the significant variables responsible for this explained variation in intention. They however also found that efficiency of the theory varies between health-related behaviour categories.

A review of Theory of planned behaviour by Armitage and Cooner (2001), from a database of 185 independent studies published up to the end of 1997, found that the theory accounted for 27% and 39% of the variance in behaviour and intention, respectively. The perceived behavioural control construct accounted for significant amounts of variance in intention and behaviour. When behaviour measures were self-reports, the Theory of Planned Behaviour accounted for 11% more of the variance in behaviour than when behaviour measures were objective or observed. Attitude, subjective norm and perceived behavioural control were found to account for significantly more of the variance in individuals' desires than intentions or self-predictions, but intentions and self-predictions were better predictors of behaviour. The subjective norm construct was found to be a weak predictor of intentions.

The theory has been applied in smoking cessation studies. In one study, Godin, Valois, Lepage, and Desharnais, (1992) aimed to verify the basic assumptions underlying the theory of planned behaviour for the prediction of cigarette smoking intentions and behaviour among adults of the general population (study 1) and a group of pregnant women (study 2). In both studies, baseline data was collected at home with trained interviewers and with the use of paper and pencil questionnaires. In study 1, for smokers, perceived behavioural control,

attitudes and subjective norm were explaining intention, whereas perceived behavioural control and habit were the most important predictors of behaviour. In study 2, smoker's intentions were mainly under the influence of perceived behavioural control and attitude, whereas behaviour was predicted by perceived behavioural control only. In another study, Norman, Conner, and Bell (1999) also found that the intention to quit smoking was primarily predicted by perceived behavioural control and perceived susceptibility.

Marcoux and Shope (1997) examined the application of the Theory of Planned Behaviour in adolescent use and misuse of alcohol. They found that up to 76% of the variance in intention to use alcohol was explained by attitudes, subjective norms and perceived behavioural control.

Fila and Smith (2006) also investigated the efficacy of the Theory of Planned Behaviour to predict healthy eating behaviour in a group of urban Native American youth. They however found no association between intention and healthy eating behaviour. Pawlak, Malinauskas, and Rivera (2009), in a study to assess factors important to college baseball players regarding intention to eat a healthy diet within the Theory of Planned Behaviour found that attitude, subjective norms, and perceived behaviour control variables accounted for 72% of the variance in behavioural intention to eat a healthful diet. They found that attitude had the greatest influence on intention to behave.

In the area of sports, the Theory of Planned Behaviour has also been used to explain exercise intention and behaviour. Downs and Hausenblas (2005) reported that the effect size for behavioural beliefs (attitude), normative beliefs (subjective norms), and control beliefs (perceived behavioural control) were large; the beliefs explained between 34% and 56% of the variance in attitude, subjective norm, and perceived behavioural control.

These studies, reviewed above therefore suggest that the Theory of Planned Behaviour is a useful one in predicting behaviours in many health-related areas. The resolution of the infertility experience by employing assisted reproductive techniques is also in the health domain. It is envisioned therefore that the theory will be useful in this present study to link peoples' attitudes towards behaviour, their subjective norms, and their perceived behavioural control, to their acceptance of assisted reproductive techniques in resolving infertility.

An individual's acceptance or non-acceptance of assisted reproductive techniques may be a result of a rational thinking process. He may actually look at the various techniques or methods available before deciding which method is acceptable. It is also expected, per this theory that the outcomes of using the assisted reproductive technique will be evaluated. The fact that these procedures may actually result in an infertile couple being able to raise a family will present a positive outcome. Other outcomes that may be evaluated by individuals may be the fact that some procedures may result in children who are not biologically related to the couple, and that might be an undesirable outcome (Shreffler, Johnson, & Scheuble, 2010). Other outcomes may include the low success rate often associated with assisted reproductive procedures, the possibility of untoward side effects of the procedure and its high cost. These consequences and outcomes are likely to be evaluated before decisions are reached on whether to use assisted reproduction and which methods are acceptable.

A person's subjective norms may also be important in the process of rational thinking through the assisted reproductive techniques available. How a person's reference groups, including his family, friends, and members of his religious denomination, co-workers and relevant others think about the use of the assisted reproductive techniques in infertility resolution will be important. We often think about ourselves as members of a group and will therefore want to act in tandem with our important reference groups. Again our culture often

socializes us on important and acceptable attitudes and behaviours and these will be important in an individual's attitudes towards, and his acceptability of assisted reproductive techniques.

Perceived behavioural control is also an important part of the theory. The intention to act is affected by our evaluations of whether or not we have the needed ability to perform the behaviours. For example, the successes of some assisted reproductive techniques are affected by the age of the mother. The age of the mother may therefore affect her willingness to undergo the procedure or not.

The limitations with the use of the Theory of Planned Behaviour have been reported by the Boston University to include the following: that it assumes the person has acquired the opportunities and resources to be successful in performing the desired behaviour, regardless of the intention, that it does not account for other variables that factor into behavioural intention and motivation, such as fear, threat, mood, or past experience. Another limitation is that it does not take into account environmental or economic factors that may influence a person's intention to perform behaviour, and that behaviour may change over time. Again the time frame between "intent" and "behavioural action" is not addressed by the theory.

Cognitive Dissonance Theory

Cognitive dissonance is another theory that may help explain the attitudes of individuals towards assisted reproductive techniques and their actual choices or behaviours when they are confronted with an infertility experience. Even though it is generally accepted that attitudes and behaviour are linked, in many instances it is observed that there is a sizable gap between people's attitudes and their actual behaviours, or even other attitudes. Such gaps make people feel uncomfortable. The internal state that result when individuals notice inconsistency

among two or more attitudes or between their attitudes and their behaviour is what is known as Cognitive Dissonance (Baron et al., 2008).

The theory of cognitive dissonance proposes that people will act to reduce dissonance in a number of ways. They may change their attitudes so they are more consistent with their behaviour. On the other hand change behaviour to be consistent with their attitudes.

People may also reduce dissonance by acquiring new information that supports the behaviour. In other words they will find or provide justifications for their behaviour. Again dissonance may be reduced by trivialising the behaviours so that the inconsistencies become less important. Here, people may decide that the attitudes and behaviours in question are not so important anyway, and therefore any inconsistencies appearing between them are really not important (Baron et al., 2008).

Studies that have utilised the cognitive dissonance theory to explain the differences between attitudes and behaviours, and how dissonance has been resolved are reviewed below. These are in infertility studies, and in smoking cessation which is a health related area,

Akker (2001) investigated 42 infertile women's perceptions of their need to create a family within current postmodern societal family practices. She found that preparedness to disclose the mode of starting a family through adoption, IVF and surrogacy was prevalent, although fewer individuals would be willing to disclose egg and particularly sperm donation to the child, family or friends. The results suggest that unwillingness to disclose non-genetic means of creating a family demonstrates a lack of resolution, or cognitive dissonance to some types of third-party involvement, particularly in donation of genetic material. The ideal family portrayed by society through biological means may be responsible for the irreconcilability

between the technological creation of a genetic nuclear family, and one created by using a technological third-party, for example through donor material.

In a study of cognitive dissonance among tobacco smokers, McMaster and Lee (1991) found that smokers estimated their risk of contracting lung cancer as greater than the risk non-smokers or ex-smokers saw for themselves, but less than the risk for the average smoker. However, smokers endorsed significantly more rationalisations and distortions of logic regarding smoking than did non-smokers or ex-smokers. Smokers may experience cognitive dissonance as a result of using tobacco despite its well-publicised ill-effects. Gibbons, Eggleston and Benthin (1997) also studied the perceptions of health risk associated with smoking, commitment to quitting, and self-concept in 174 smokers. They found that consistent with expectations derived from cognitive dissonance theory, relapsers' perception of risk declined after they resumed smoking, although the decline was significant only for relapsers with high self-esteem; high self-esteem relapsers experienced a significantly greater decline in commitment to quitting than did low self-esteem relapsers; and decline in risk perception among relapsers was associated with maintenance of self-esteem.

Clark, McCann, Rowe and Lazenbatt (2004) in another study examining undergraduate nursing students' knowledge about the impact of smoking on health, and their attitudes towards smokers and smoking, found that those of the nurses who still smoked had less favourable attitudes towards smoking-related health promotion than those who had never smoked or stopped smoking. They also found that non-smokers were more supportive of non-smokers' rights than those who continued to smoke, while those who had stopped smoking were undecided. These results were in spite of the fact that nurses are well placed to see the harmful effects of tobacco smoking. It can be seen that because their smoking behaviour was not consistent with their knowledge of the harmful effects of smoking, those

nurses attempted to reduce their dissonance by having less favourable attitudes towards smoking-related health promotions and being less supportive of non-smokers' rights.

It is expected that people's views and attitudes towards the use of assisted reproductive techniques may differ from those of their religious or dominant social themes. In other words it is expected that there will be a difference between what they hold to be true because of their religious affiliations, culture and other social contexts, and their actual attitudes and behaviour tendencies towards resolving infertility by using assisted reproductive techniques. In as much as this may result in cognitive dissonance, it is expected that people will act to reduce their dissonance through various strategies. They may for example acquire new information about assisted reproductive techniques that help them to justify actions and behaviour that is not consistent with the attitude they may have held.

The Cultural Lag Theory

The Cultural Lag Theory (Ogburn, 1922) suggests that technology often advances more quickly than social guidelines or comfort for their use. This theory is often used to explain the factors that influence cultural changes. Ogburn (1957) defined Cultural Lag as occurring when one of two parts of culture which are correlated changes before or in greater degree than the other part does; thereby causing less adjustment between the two parts that existed previously. It has long been observed that changes do not occur in a coordinated way even in closely related parts of our culture. Technological advances have been observed to commonly outstrip the ability of society to adapt to and utilize these advances (Stolley, 1971).

Traditionally, medical science and religion have both been important in offering remedies for the resolution of health problems. In fact, religion and science have been interrelated since the beginning of human history. Recent developments in medical science and technology in

the field of reproduction raise new religious questions that do not always have clear answers (Schenker, 1992).

Religion and medicine are both institutions that encourage normative family formation. However, in many cases, these institutions promote different visions of the “appropriate” path to parenthood for infertile couples (Jennings, 2010). Medical science has improved so rapidly due in part to advances in technology. Various assisted reproductive techniques are available today because of advances in medical technology (Shreffler, Johnson & Scheuble, 2010). However it is not so certain that all of these techniques available are accepted by the populace due to several factors. Techniques such as donation of gametes, surrogacy, artificial insemination and invitro fertilisation offer opportunities for infertile couples to raise a family in non-traditional ways. In fact, even gay couples and single persons may use these techniques to have children and raise families. However there are several issues like religious affiliation, sensationalist media reports, and personal experience that are likely to affect individual attitudes and perceptions towards the use of assisted reproductive techniques (Shreffler et al., 2010).

Review of Related Studies

Introduction

While there appears to be a dearth of studies and empirical information in the area of people’s attitudes and perceptions towards the use of Assisted Reproductive Techniques in the resolution of infertility in Ghana, some related studies from other jurisdictions exist and some are reviewed here.

Religious Proscriptions on Assisted Reproductive Techniques

Several studies have been done to investigate religious views and proscriptions on the use of assisted reproductive techniques to resolve infertility (Schenker, 1992; Schenker & Eisenberg 1997; Schenker, 2005; Dutney, 2007; Shreffler, Johnson & Scheuble, 2010; Connor, Sauer & Doll, 2012).

Religious groups and denominations are active in influencing the public on bioethical positions and this is particularly so with issues concerning procreation, and infertility treatments. It has been found that attitudes towards reproductive techniques vary among Christian groups, and many of the methods are forbidden (Schenker 2005; Connor, Sauer & Doll, 2012). Many couples struggle with the infertility experience. Couples debating whether or not to utilize assisted reproductive technologies (ART) face many difficult and important decisions including whether to use these techniques at all, and which methods are acceptable. These decisions can be influenced by religious values and ideologies (Connor et al, 2012).

The Vatican does not accept assisted reproduction. The Roman Catholic view is that non-coital technologies are morally illicit (Schenker, 1992). This implies that assisted reproductive techniques like invitro fertilisation, artificial insemination, and surrogacy are frowned upon by the Catholic Church. According to Schenker and Eisenberg (1997), children are the fruit of the marriage from the Vatican's perspective and the utilization of Assisted Reproductive Techniques places uncertainty within the context of this established social institution. This is particularly so because reproductive technology provides a means by which nonconventional parents like homosexual couples and unmarried people may conceive and raise a family by using donor gametes.

The practice of artificial insemination is further rejected because the procedure may involve masturbation which is unacceptable to the Catholic Church. The use of Donor material is also unacceptable to the Church because in its view, it may damage personal family relations. Of all of the religions, the Catholic Church has had the strongest prohibitions towards the use of Assisted Reproductive Techniques (Connor et al, 2012). According to the church's doctrine, the utilization of Assisted Reproductive Techniques does not demonstrate respect for the dignity of human nature or the life of the human it helps create (Connor et al., 2012).

However, many Catholic faithful have argued against the church's stance on reproductive medicine (Connor et al., 2012). They contend that God's will still influences whether assisted reproductive techniques will be successful or not. Therefore, the point is not taking away God's will for procreation, but rather acting through assisted reproduction to establish His will.

The Protestants include Christian groups such as the Presbyterians, the Methodists, and the Anglicans. Protestants and other denominations unlike the Catholics, accept some of the practices and methods used in assisted reproduction.

Assisted reproductive techniques are acceptable to the Protestants only if the gametes, sperm and eggs, are from the married couple themselves (Schenker, 1992). The use of Donor material is therefore not accepted by Protestants as well. Surrogacy is also viewed as running counter to the unity of the marriage relationship and is therefore not acceptable to the Protestants.

In Islam, invitro procedures are acceptable only if they are performed for married couples during the span of their marriage (Schenker, 1992). Familial ties within Islamic families are

paramount; with important implications for rights within a family. The use of Donor sperm and Donor eggs is therefore strictly prohibited by Islam because it leads to the confusion of genealogy lines which is of a very high importance to Islam (Schenker, 1992). According to Connor et al. (2012) even though Islam commonly supports scientific and technological advances, Assisted Reproductive Technologies create challenges to the principles and beliefs of Moslems.

While generally seeing assisted reproductive techniques as a potential ally in the project of family formation and the relief of infertility, the religions have expressed particular concerns about the perceived threats to marriage and the sanctity of the human embryo in some of its processes (Dutney, 2007).

Many religious groups are worried about the multiple productions of embryos during many of the assisted reproductive procedures. The issue of when a new human life is to be recognised and honoured is very ancient and has gained fresh relevance with the development of Assisted Reproductive Techniques (Dutney, 2007). What to do with the excess or unused embryos become a major and an important concern. Cryopreservation of pre-embryos is an important part of many Assisted Reproduction programs. The Christian view is that from the stage of conception, the embryo is a human and has rights. Freezing of the embryo is therefore an act against the respect due to humans, by exposing the embryos to a greater risk of harm or death and denying them of maternal shelter and gestation, at least temporarily, and leaving them vulnerable to any number of external hazards (Schenker, 1992; Dutney, 2007).

Many religions do not endorse intrusions into the traditional marital relationship. It is of a major concern to many religions, including Christianity and Islam, that potentially unmarried

or single people can use assisted reproductive technologies to raise a family. Infact, in some jurisdictions, homosexuals may use assisted reproductive techniques to have children and raise a family. This raises serious concerns for most religions and even some cultures. The substantial innovations to the marital relationship that are made possible by Assisted Reproduction Techniques are of a very serious concern to many religions (Dutney, 2007). It has been found that people with high levels of religiousness have more ethical concerns with assisted reproductive techniques (Shreffler et al., 2010).

Culture and Infertility

Studies have been conducted to investigate culture, infertility and the acceptance and use of assisted reproductive techniques (Becker, 1994; Sewpaul, 1999; Koster-Oyekan, 1999).

Marriage and child bearing are important phases of life in all cultures. In all cultures, the life cycle is structured by expectations about each phase of life, and meaning is assigned to specific life events and the roles that accompany them. When expectations about the course of life are not met, however, people experience inner chaos and disruption to the fabric of their very lives (Becker, 1994). In a research of 236 women and men in the United States who expected to have children but were unable to do so and sought medical treatment, Becker, (1994) studied the cultural meanings associated with the disrupted life plans and efforts to create a sense of continuity. The researcher came to the conclusion that responses to the disruption of infertility were culturally produced and, efforts to create continuity after the disruption emerged as a complex cultural process.

African couples appear to be successfully bi-culturally socialised. In other words while they may be affiliated to Western and other religions, they are at the same time, quite profoundly

connected with African Traditional Religion and to their cultural beliefs (Sewpaul, 1999). Infact in her study with infertile couples in South Africa, Sewpaul (1999) found that though the African couples in her sample all reported to be of the Christian religion, it was to the African Traditional Religion they turned in dealing with significant aspects of their lives, including the use of traditional healing in resolving infertility. Findings from Sewpaul (1999) show that the reasons attributed by the infertile couples to their infertility experience included that it was a form of retribution for wrong-doing, and that it provided an opportunity to re-evaluate one's life and values, and ones relationship with God. Other reasons were that it was a destiny that prepared one for a higher purpose in life and that it was often beyond human understanding. Infertility in their view could not really be attributable to God since infertility was a reflection of a biological error.

Koster-Oyekan (1999) has also found that the Yoruba of southwest Nigeria believe that infertility can be due to spiritual problems, for which orthodox medical treatment is not considered appropriate. Therefore, women frequently seek prevention and treatment for infertility from local herbal and spiritual specialists, and from churches.

Our thoughts and behaviour do not occur in a cultural vacuum (Baron et al., 2008). Most of what we think, feel and do is influenced in one way or another by the social and cultural worlds in which we live (Lehman, Chie, & Schaller, 2004, cited in Coon & Mitterer, 2008). Culture is therefore an important determinant of our attitudes and behaviours. The term culture refers to the system of shared meanings, perceptions, and beliefs held by people belonging to some group (Smith & Bond, 1993, cited in Baron et al., 2008). Culture has also been defined as the behaviours, ideas, attitudes, values and traditions shared by a group of people and transmitted from one generation to the next (Brislin, 1988, cited in Myers, 2008).

Many of our attitudes and views about important matters are acquired through social learning, where we interact with and observe other people. Social learning is the process through which we acquire new information, forms of behaviour, or attitudes from other people (Baron et al., 2008). This is an important means through which attitudes are formed, and often happens through observational learning. Observational learning is when individuals acquire new forms of behaviour by observing others (Baron et al., 2008). This attitude formation and adjustment often happens so that our views and actions are close to those whom we value and identify with – our reference groups. These processes often happen within our cultural and social contexts.

People categorize themselves at a personal level, where they can be thought of as a unique individual. People may also categorize themselves at a social identity level, where they are thought of as a member of a group (Baron et al., 2008). Our cultural identity therefore is derived from our sense of belonging to a particular cultural or ethnic group.

How strongly an individual identifies with his culture is also expected to influence his attitudes towards and acceptance of assisted reproductive techniques. Cultural estrangement is an individual's rejection of, or sense of removal from dominant social values. If an individual is highly estranged from his primary and secondary reference groups within his society, it is expected that his views on assisted reproductive techniques will not be influenced to a large degree by his culture, or social context. Cultural relativity refers to the idea that behaviour must be judged relative to the values of the culture, in which it occurs (Coon & Mitterer, 2008).

Social norms also guide behaviour and are the rules that define acceptable and expected behaviours for members of various groups. Factors such as age, sex, marital status,

educational level, religious affiliation, parenthood and infertility experience are all expected to affect social norms that guide peoples' behaviour. It is therefore believed that not only the culture of the society to which an individual belong will be important, but his or her socio-demographic factors will also be important in determining his or her attitudes toward infertility treatments.

Concerns with the use of Assisted Reproductive Techniques

Studies have been done to investigate the concerns that arise with the use of assisted reproductive techniques (van den Akker, 2001; Shreffler et al., 2010; Connor et al., 2012).

There are several concerns and issues that face infertile couples when making the choice to use assisted reproductive techniques. These concerns include the issue of male masturbation, conceiving outside of the body, making a choice about the leftover embryos not used for an IVF transfer, choosing to conceive by utilizing donor gametes, deciding between anonymous donors or known donors, and choosing between secrecy and sharing with others the means of conception including sharing with the prospective child (van den Akker, 2001; Connor et al., 2012).

In a study using 930 adults in a Midwestern state, and 530 adult women aged 25 -50 years in the North central region of the United States it was found that there were serious ethical concerns for assisted reproductive techniques that results in a child who may not be biologically related to the woman, or her partner than for those resulting in a child who was biologically related to both parents (Shreffler et al., 2010). Assisted reproductive technique that made use of gametes from the married couple therefore had greater acceptance.

Shreffler et al., (2010) also found that socio-demographic factors such as age and education were strong predictors of attitudes towards the ethics of infertility treatments. Ethical concerns increased with increasing age, and reduced with higher levels of education. They also found that neither parenthood nor having an infertility experience was related to the ethical concerns of the individuals.

Infertility and Adoption

Studies have also been done to investigate people's views about adoption of children as a method to resolve infertility (Maill, 1987; Jennings, 2010).

Adoption, where one takes into relationship a child who is not biologically related to one, and assumes rights and duties of a parent towards it, has been one of the ways through which infertility has been resolved. However, because the adopted child is often not biologically related to the adoptive parents, adoption is often viewed as a second rate solution in many societies.

Maill (1987) studied seventy-one involuntarily childless women and detailed their perceptions of societal beliefs about adoption. In that study it was found that, the respondents' perceptions of societal beliefs about adoption contained strong elements of stigmatization based on the absence of blood ties. Respondents felt that the emotions experienced, the value of the children, and the validity of the parenting experience within the adoptive family were all perceived by the larger society to be less authentic. The society believed that the biological tie is important for bonding and love and therefore bonding and love in adoption are second best; adopted children are second rate because of their unknown genetic past; and adoptive parents are not "real" parents.

In a study of infertile women, Jennings (2010) found that although adoption is a religiously sanctioned alternative to assisted reproduction, most women in the study turned to adoption only after treatment had failed. Clearly adoption was not their first choice.

Gender and the Infertility Experience

Several studies have investigated gender and the infertility experience. (Pepe & Bryne, 1991; Lorber & Banlamudi, 1993; Griel, 1997; Greil, Leitko, & Porter, 1998; Sewpaul, 1999; Barden-O'Fallon, 2005; Donkor & Sandal, 2007; Shreffler et al., 2010; Sahinoghu & Buken, 2010) Infertility is being increasingly considered a biopsychosocial crisis (Sewpaul, 1999; Van de Broek, Emery, Wishmann, & Thorn 2010).

Women, whose infertility treatments fail, have been found to experience various psychological issues. Pepe and Bryne (1991) using retrospective responses to Hudson's (1982) Index of Marital and Sexual Satisfaction, examined the immediate and long-term effects of infertility treatment on the marital and sexual relationship, as perceived by women who failed to become pregnant during fertility treatment. Evaluation of their relationships before, during, and after treatment indicated that, for these women, infertility treatments significantly affected both marital and sexual satisfaction after treatment was terminated, as well as during treatment.

Lorber and Banlamudi (1993) studied couples with male infertility problems in New York City and in Boston. They found that the balance of power and the stability and closeness of the marriage in couples in which the man was infertile varied with the woman's sense of agency in the situation. However, as long as the relationship remained important to the woman, the husband retained more power in the relationship and in decision making even in the face of his infertility.

Griel (1997) has found that women respond to the infertility experience differently than men. In a qualitative study based on interviews with 22 married infertile couples living in western New York State, Greil, Leitko, and Porter (1998) described the ways in which husbands and wives interact in the process of constructing their infertility. They found that wives experienced infertility as a cataclysmic role failure. Husbands tended to see infertility as a disconcerting event but not as a tragedy. The couples tended to see infertility as a problem largely for wives.

It has also been found by Shreffler et al., (2010) that women experiencing infertility had fewer ethical concerns with assisted reproductive techniques. That is women were more likely to find assisted reproductive techniques more acceptable than men. Sahinoglu and Buken, (2010) in a study in Turkey have found that infertility is generally regarded as a negative phenomenon in a woman's life and is associated with a lot of stigma by society.

Sewpaul (1999) reports from a study conducted in South Africa that women are often prejudiced through cultural stereotypes and beliefs into blaming themselves and carrying enormous burdens of guilt and grief in the infertility experience. Barden-O'Fallon (2005) studied 15 women and 11 men living in a rural Malawian village to find out how fertility problems are identified and interpreted. He found that fertility problems are usually attributed to women, and this was especially so if the male partner has 'proven' his fertility with another spouse or sexual partner.

Donkor and Sandal (2007) surveyed 615 women receiving infertility treatment on three health sites in Southern Ghana and found that the majority (64%) of women in this sample felt stigmatised. They also found that the majority of the women surveyed, preferred to keep issues of their fertility problems to themselves. The reason was believed to be due to the stigma associated with infertility.

In many societies around the world, in Africa, and indeed in Ghana, women often carry most of the burden of blame when a couple faces infertility. Most of these cultures do not have the concept of an “infertile” man; it is the woman’s duty to provide children in the marriage, and she is deemed to have failed in her duties when she is unable to. Therefore even when the cause of infertility in the couple is a physiological issue with the male partner, the woman still carries the burden of blame and is often the one who seeks resolution to the infertility situation (Adjei-Nketiah, 2013). Women often take on the burden of undergoing difficult treatment procedures and also the onus of infertility, which was as much their husbands' physiological problem as their own. Their choice therefore protects their husbands' identity as men within the society, who are rarely if ever considered as infertile.

Rationale of the study

There have been major improvements in medicine in the area of fertility treatments and assisted reproductive techniques. Even though these technologies are available, their acceptability among the general populace in Ghana seems to be on the low side. Affordability remains a problem; however it does seem that some of the techniques available are not acceptable to some people because of their own religiosity, religious affiliations, and cultural norms and beliefs. Again, acceptance of Assisted Reproductive Techniques may be affected by socio-demographic variables such as age, sex, marital status and educational levels.

Today the question of religion and cultural beliefs are important in the management of many health concerns. Health providers therefore cannot ignore the important role these issues may play in the management of the infertility experience of couples. It is important for health providers, Centres and Clinics that offer assisted reproduction to learn about the religious attitudes related to the infertility experience and its therapeutic resolution (Schenker, 1992).

It is only with a good knowledge of the multiple and complex factors that affect infertile couples, that health practitioners can provide and offer the sensitive and effective assistance that infertile couples need to adjust successfully to their situations and to seek suitable and effective resolutions for their infertility experience (Higgins, 1990).

Proposed Model

It is hypothesized that the level of an individual's religiosity will be related to their acceptance or non acceptance, of various methods of assisted reproductive techniques in resolving infertility issues. 'Religiosity' is therefore an independent variable in this study. It is also expected that other demographic variables such as religious affiliation, age, sex, marital status, educational background, parenthood and an infertility experience will also affect people's acceptance of assisted reproductive techniques. Cultural estrangement is also expected to influence the attitudes of individuals on the use of assisted reproductive techniques to resolve infertility.

The dependent variable is the 'Acceptance of assisted reproductive techniques' to resolve the infertility experience.

Independent Variables

Dependent Variables

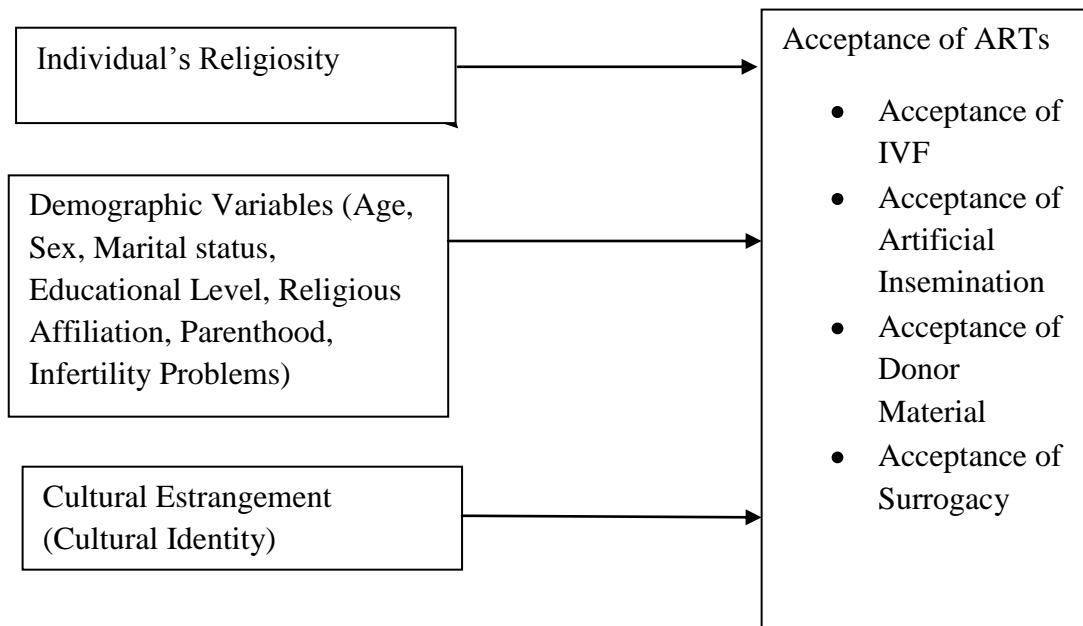


Figure 1: A research model of the hypothesized relationship between religiousness, cultural estrangement, and Socio-Demographic factors of individuals and Acceptance of Assisted Reproductive Techniques.

Figure 1 depicts the independent variables, religiousness, cultural estrangement, and socio-demographic factors or variables which are predicted to influence the dependent variables, acceptance of assisted reproductive techniques.

Statement of Hypotheses

H₁: There will be a significant negative relationship between an individual's religiosity and his or her acceptance of Assisted Reproductive Techniques

H₂: An individual's demographic factors (age, sex, marital status, parenthood, infertility experience) do influence his or her acceptance of Assisted Reproductive Techniques.

H₃: There will be a significant positive relationship between an individual's cultural estrangement and his or her acceptance of Assisted Reproductive Techniques.

H₄: There will be a significant difference between men and women in their acceptance of Assisted Reproductive Techniques

H₅: There will be a significant difference between young people between the ages of 18-39 years and old people of 40 years and above in their acceptance of Assisted Reproductive Techniques

H₆: There will be a significant positive relationship between the number of years completed in school and acceptance of Assisted Reproductive Techniques.

H₇: There will be a significant difference between people who have been or are still married and those who have never been married in their acceptance of Assisted Reproductive Techniques.

H₈: There will be a significant difference between individuals affiliated to various religious denominations in their acceptance of Assisted Reproductive Techniques.

Operational definition of terms

Assisted Reproductive Techniques – Methods that attempt to bypass any or all of the problems associated with infertility so as to aid in the process of fertilisation. It can also be referred as the medical techniques which increase the likelihood that a woman will have a child (Shreffler et al., 2010).

Religion – Particular doctrinal framework that guides sacred beliefs and practices about a higher power or God (Roudsari, Allan & Smith, 2007).

Religiosity - Religiosity has been defined as phenomena that include some relevance to traditional searches to acknowledge and maintain some relationship with the transcendent (Hill & Hood, 1999).

In vitro fertilisation (IVF) – A process of fertilisation, which involves manually combining an egg and sperm in a laboratory dish (also referred to as test tube babies). When the IVF

process is successful, the process is combined with a procedure known as Embryo Transfer, which is used to physically place the embryo into the uterus and hopefully achieve a pregnancy.

Artificial Insemination – A procedure in which a sperm sample is introduced directly into the uterus through a fine tube. The purpose is to achieve fertilisation and pregnancy.

Donor – Person from whose body biological material (e.g. eggs, sperm) is removed for transplantation or transfer to another person.

Surrogacy – It is an arrangement in which a woman carries and delivers a child for another person or couple.

Adoption – To take into relationship a child who is not biologically related to one, and assume rights and duties of a parent towards it (Jennings, 2010).

CHAPTER THREE

METHODOLOGY

Introduction

This chapter explains how the study was conducted. It describes the study's population, the participants and the sampling techniques employed. The research design employed in the study is also described. The research instruments/measures used are also described. The chapter also includes a pilot study conducted to establish the reliability of the instruments employed in the study. The procedure followed in collecting data for the study is also described. The ethical considerations used for this study are explained.

Population

The population studied was the adult population in Ghana who are affiliated to various denominations of the Christian faith, and the Islamic faith. For the purposes of this study an adult person is one who is eighteen (18) years and above. The population of Ghana is 24.66 million people, made up of 12.63 million females and 12.03 million males. The population contains 13.63 million who are 18 years and above (Ghana Statistical Service, 2012).

The denominations targeted were the Catholics, Protestants (Presbyterian), Pentecostals and Charismatics (Pentecost Church and Covenant Family Community Church) and Moslems.

In the qualitative study, Leaders of major denominations in Ghana were also contacted to learn about their proscriptions for their members where assisted reproductive techniques and fertility treatments were concerned.

Participants

Samples are chosen often because it is impracticable to study total populations. According to Opoku (2005) the size of a sample should be as large as possible. Alreck and Settle (1985) suggest that it is seldom necessary to sample more than 10 percent of the population provided

the resulting sample is less than one thousand (1,000). They further suggest that for populations of 10,000 or more, a sample size between about 200 and 1,000 respondents should be considered.

Two hundred and sixteen (216) respondents participated in this study. These participants were literate adult members of the Catholic, Protestant, Pentecostal/Charismatic and the Moslem denominations. Literate adults were considered as those who had received formal education. The general demographic characteristics of the sample are presented in Table 3.1 below.

The participants included 42% (91) males and 58% (125) females. Most of the participants, 79% (170) were classified as Young people between the ages of 18 – 39 years, whilst 21% (46) were classified as Old people of 40 years and above. Majority of the participants, 62% (134) were single people who had never been married. Many of them, 71% (154) had completed 16 years or more in school.

Catholics formed 28% (61) of the participants, Protestants were 21% (44), Pentecostals/Charismatics were 34%, and Moslems were 17% (37). Majority of the participants, 69% (150) had children. Only 10% (21) of the participants had ever sought fertility treatments.

Table 3. 1: *Characteristics of Participants*

Characteristic	Frequency (N)	Percentage (%)
Gender		
Male	91	42%
Female	125	58%
Age		
Young (18-39 years)	170	79%
Old (40 years and above)	46	21%
Marital Status		
Single (never married)	134	62%
Married, Divorced, Separated, Widowed	82	38%
Educational Level		
Up to 12 years in school	62	29%
16 years in school	104	48%
18 years in school	50	23%
Religious Affiliation		
Catholic	61	28%
Protestant	44	21%
Pentecostal/Charismatic	74	34%
Moslem	37	17%
Parenthood		
Have children	150	69%
Do not have children	66	31%
Infertility Treatment		
Have sought fertility treatment	21	10%
Have not sought fertility treatment	195	90%

Three Leaders participated in the qualitative study. These Leaders were from the Covenant Family Community Church (a charismatic church), the Agboba Catholic church, and the Assemblies of God Church (a Pentecostal church).

Sampling Techniques

The participants in this study were conveniently selected from the local assemblies of the denominations in the Ga East district, from the suburbs of Madina, Dzorwulu, Dome, and Agboba. The study sites were the Catholic Church in Madina, the Dzorwulu Pentecost Church, and the Domi branch of the Covenant Family Community Church. Other sites were the Agboba Presbyterian Church, and the Washington Mosque in Madina.

The Denominational Leaders were selected using the purposive sampling technique.

Research Design

This study employed a survey research design. A survey design provides a quantitative or numeric description of trends, attitudes, or opinions of a population by studying a sample of that population (Creswell, 2003). From the results obtained from the sample, the researcher then generalizes or makes claims about the population. Surveys are useful because they are relatively inexpensive and have a rapid turnaround in data collection. The anonymity of surveys also allows participants to be more candid with their responses. This survey was cross-sectional, where the data was collected at one point in time.

The study also employed a qualitative approach. The interview method was used to gain in-depth knowledge of the subject area by interviewing Leaders of some of the religious denominations.

Key Variables

The independent variables in this study included seven demographic variables, which are described below.

Age of respondent was measured in years of age. Two levels of age were identified in this study. The first level comprised of participants between the ages of 18 years to 39 years, and was identified as Young people. The second level was made of participants who were 40 years and above, and these were identified as Old people. The sex of the respondent was identified as a dichotomous variable and was either male or female. Marital status was categorised into two major groups; single (never married), and a second group comprising the married, divorced, separated and widowed, described as those who had been or were still married. The Educational Level was measured in terms of the number of years the participants had spent in school. The Religious Affiliation of respondents was identified in four categories which were Catholic, Protestant, Pentecostal/Charismatic and Moslem. Parenthood was categorised into whether respondents had children or had no children. Experience with infertility was measured in two categories, as to whether respondent had ever sought treatment for infertility problems or had not.

Religiosity was also an independent variable. It was measured using the Santa Clara Strength of Religious Faith Questionnaire. A respondent's religiosity was indicated by his total score on the scale, with higher scores indicating a higher level of religious faith. The minimum score obtainable on the scale was ten (10) and the maximum was forty (40).

Cultural Estrangement was also measured by the Kohn & Schooler 1983 scale, with total scores indicating the respondent's level of cultural estrangement. Higher scores indicate

higher estrangement. The minimum score that could be obtained on this scale was four (4), and the maximum was sixteen (16).

The Dependent Variable of the study was the participant's attitude towards assisted reproduction. The participant's score on the Assisted Reproductive Techniques Scale (ART Scale) developed by the researcher, served as a measure of his attitude towards assisted reproduction in this study. This served as a measure of the acceptability of ART to the participants. The minimum score that could be obtained from the scale was eight (8), and the maximum score was forty (40). Higher scores on this scale indicated a more positive attitude towards the use of assisted reproduction in the resolution of the infertility experience.

Instruments / Measures

The study used self-administered questionnaires to elicit the required information from participants, who were attendees of the various denominations. The instrument had four sections. It included a section for capturing the demographic data of the respondents. A second section captured the attitudes of participants toward the various assisted reproductive techniques used to resolve the infertility experience, using an ART Scale developed by the researcher. The researcher also employed the Santa Clara Strength of Religious Faith Questionnaire, in the third section to measure the level of religiosity of the participants. The Cultural Estrangement Scale was used to measure the level of cultural estrangement of the participants. This formed the fourth section of the research instrument.

Santa Clara Strength of Religious Faith Questionnaire (SCSRFQ)

The Santa Clara Strength of Religious Faith Questionnaire (SCSRFQ) was designed as a measure of commitment in broad terms that are not specific to any one faith or tradition. It is

a reliable, and valid self report measure assessing strength of religious faith suitable for use with multiple religious traditions. Studies that have investigated the internal consistency of the scale have found coefficients ranging from 0.94 to 0.97 using Cronbach Alpha's, and split-half reliability scores ranging from 0.90 to 0.96, suggesting that the scale is a highly reliable instrument.

Examining convergent validity, correlations have been found between the SCSRFQ and other quality religious faith instruments. The scale has been found to closely correlate with measures assessing intrinsic religiousness such as the Age Universal Religious Orientation Scale with coefficients ranging from 0.76 to 0.90. Investigating divergent validity, it has been found that SCSRFQ does not correlate with the Marlow Crown Social Desirability scale with coefficients ranging from 0.09 to -0.02 (Plante, 2010).

The Santa Clara Strength of Religious Faith Questionnaire contains ten (10) items, whose responses are scored on a scale of 1 – 4, where a score of 1 indicated Strongly Disagreeing with the statement, and a score of 4 representing Strongly Agreeing. Total scores were obtained by summing individual scores for each item in the scale. A minimum obtainable total score of ten (10) indicated a weak religious faith, and the maximum score of forty (40) indicated a strong religious faith.

Cultural Estrangement Scale (Kohn & Schooler, 1983)

This four-item scale assesses whether an individual believes that his ideas, opinions and views about important issues are different from those of his primary and secondary reference groups. The scale attempts to avoid the problem of prejudicing the dominant cultural themes or what the respondent believes them to be. The scale-items are scored from 1-4, with high scores indicating greater cultural estrangement and non-conformity with an individual's

reference groups. Cultural estrangement means that the individual is sufficiently secure and firm in his judgement of self to be independent in his values, ideas, views and opinions.

The Cultural Estrangement Scale contains four (4) items scored on a scale of 1 – 4, with a score of 1 indicating rarely, and 4 indicating frequently, how often a respondent believed his ideas and opinions differed from his reference groups. A maximum total score of 16 indicates a strong cultural estrangement. Internal reliability for the Cultural Estrangement Scale has been reported at .64 (Bernard, Gebauer, & Maio, 2006).

Scale measuring Attitudes to Assisted Reproduction Techniques

The Assisted Reproductive Techniques Scale (ART Scale) was developed by the researcher and contained eight (8) items. This scale was used to measure the participants' attitudes towards assisted reproduction. The responses to these items on the ART scale employed a 1 – 5 Likert scale in scoring the items. The responses were scored as follows – Strongly Disagree – 1, Disagree – 2, Undecided – 3, Agree – 4, and Strongly Agree – 5.

Three items on this scale, 'I do not think test tube babies are children sent from God', 'I think artificial insemination interferes with God's way of having children', and 'children born using someone else's (a Donor's) sperm and/or eggs to achieve a pregnancy are not really true children of a couple', were reversed scored.

A participant's total score on this scale was obtained by adding up his score for each of the eight items in the scale. The minimum score that could be obtained on this scale was eight (8) and the maximum score, forty (40). Lower scores generally indicated an unfavourable attitude towards the use of Assisted Reproductive Techniques, whilst higher scores suggested more favourable attitudes.

Pilot Study

A pilot study was first conducted with a smaller sample of 20 participants conveniently selected from the staff of the Wisconsin International University College, located in the suburb of Haatso, in the Ga East District, in the Greater Accra region of Ghana. This was to ascertain the reliability of the self-administered questionnaire. The sample contained equal numbers of males and females. The sample also contained 65% of respondents who were between the ages of 18 years and 39 years of age, with the rest being 40 years and above.

The instrument was administered to these respondents in the first instance. Two weeks later, the scales in the research instrument were reapplied in a retest of all the participants in the pilot study. The results from the pilot study were employed to measure the psychometric properties of the ART scale that was developed by the researcher.

Item-Total Analysis

Item-total analysis is a test of reliability and is a way to assess the internal consistency of a data set (Cronk, 2008). Item-total analysis determines the degree to which all items in a scale measure the same construct. According to Cronk (2008), generally item-total correlations of greater than 0.7 are considered desirable. Items with correlations of less than 0.3 are considered weak, and should be deleted from the scale.

Item-total analysis was conducted for the ART scale developed by the researcher, and the following correlations were obtained as shown in Table 3.2 below.

The item-total analysis showed that all the item correlations were between 0.70 and 0.87. This implies that all the eight items in the ART scale measure the same construct and does so to a high degree.

Table 3. 2: *Item-total analysis for ART Scale*

Item	Item-Total Correlation
‘a’- I think that the in-vitro procedure (i.e. test tube babies, where fertilisation is achieved outside the body, in a laboratory and the embryo is put back into the womb) is an acceptable method for infertile couples to have children	.74
‘b’- I approve of the use of artificial insemination (where a sperm sample is introduced into the womb with a tube to achieve pregnancy) with the husband’s sperm as a method to resolve infertility issues	.79
‘c’- I approve of the use of artificial insemination (where a sperm sample is introduced into the womb with a tube to achieve pregnancy) with a Donor’s sperm as a method to resolve infertility issues	.79
‘d’- It is okay to use a Donor’s eggs to achieve a pregnancy for infertile couples to have children	.79
‘e’- Surrogacy (where a woman carries a baby that is not biologically related to her for another person or couple) is acceptable	.73
‘f’- I do not think ‘test tube babies’ are children sent from God	.87
‘g’- I think artificial insemination interferes with God’s approved way of having children	.75
‘h’- Children born using someone else’s (a Donor’s) sperm and/or eggs to achieve a pregnancy are not really ‘true’ children of a couple	.70

Cronbach’s Alpha for the ART Scale

Cronbach's alpha is also a measure of internal consistency, and therefore a measure of reliability. It also determines the degree to which all items in a scale are measuring the same construct. Using the result obtained from the pilot study, the Cronbach's alpha obtained for the ART scale was .90. This represents a good internal consistency of the scale.

Procedure

Permission was sought from the authorities of the religious denominations before the questionnaires were administered to the participants in the study. Key persons were identified at each collection site, and this helped with the distribution and collection of the research instruments to voluntary participants of the study. These key persons were taken through the questionnaire to gain a good understanding of the items, and were therefore able to also explain the items in the questionnaire when called upon to do so by the participants.

The research instrument took about 10 minutes to fill. Most were filled and returned immediately. Other participants requested to take the questionnaire home, and these returned them later when they had finished completing the instrument.

Seventy questionnaires were given out at each collection site. At the Madina Catholic Church, sixty-one (61) were retrieved. Thirty-seven (37) filled questionnaires were also retrieved from the Washington Mosque in Agboba. From the Dzorwulu Pentecost Church, twenty-seven (27) filled questionnaires were retrieved. From Covenant Family Community Church, forty-seven (47) questionnaires were returned, and from the Agboba Presbyterian Church, forty-four (44) filled questionnaires were retrieved. This study therefore had a sample size of two hundred and sixteen (216) participants.

The Qualitative Study

To find out the various denominations' view on assisted reproductive techniques, a leader each from the following denominations Catholic, Pentecostal, and Charismatic were contacted for interviews. These leaders were purposively selected to ensure that the required information would be obtained.

Face to face interviews were conducted with these three denominational leaders. These interviews were to establish their denominational views and proscriptions for their members where the use of assisted reproduction was concerned. The Leaders interviewed were:

- The Priest in charge of the Agboba Catholic Church
- The Senior Associate Pastor of the Covenant Family Community Church
(Charismatic)
- A Senior Minister of the Assemblies of God Church (Pentecostal)

Ethical Considerations

Ethical clearance for this study was applied for from the Institutional Review Board, of the Noguchi Memorial Institute for Medical Research, University of Ghana, Legon. The ethical clearance was given on the 8th of May 2013 (Appendix III).

Participants from the attendees of the various denominations in this study were conveniently selected. The Leaders of the denominations were purposively selected. Participation was entirely voluntary. No one was compelled to participate, if they did not wish to do so. Participants were not required to provide their names or any identification material. This was to ensure that they remained anonymous. All information collected was treated confidentially and used for academic purposes only.

Inclusion Criteria

Only literate adults, that is, those who had received formal education, were considered as participants for this study. Only literate respondents were included because of the use of the self-administered questionnaires.

For the purposes of this study an adult person was considered to be one who was eighteen (18) years and above.

Exclusion Criteria

Persons below eighteen (18) years are not considered as adults and were therefore excluded from this study. Persons, who were not literate or had not received any formal education, were also excluded from this study because of the use of the self-administered questionnaire.

CHAPTER FOUR

RESULTS

Introduction

This chapter presents the results obtained from the research conducted. The study was to investigate the relationship between an individual's level of religiosity and his or her attitudes towards the use of assisted reproductive techniques. The study was guided by three main objectives. The first was to assess how an individual's level of religiosity affected their acceptance of assisted reproductive techniques to resolve infertility. The second objective sought to determine the relationship between some socio-demographic variables of an individual and his or her acceptance of assisted reproductive techniques. The third objective was to find the relationship between an individual's cultural estrangement and their attitudes towards assisted reproductive techniques. The research hypotheses stated for the study were analysed using methods of inferential statistics. A quantitative analysis was conducted using the SPSS version 16. Alpha level of .05 was adopted to indicate levels of significance.

Analysis of Data

Based on the objectives of the study, eight hypotheses were formulated. The hypotheses of study were confirmed or rejected after the data obtained was statistically analysed using techniques of inferential statistics.

The Researcher employed Pearson's Correlation to analyse hypotheses 1 and 3. The multiple linear regression method of analysis was employed for hypothesis 2. Linear regressions assume that all variables are at least measured on an interval scale. It assumes that the dependent variable is normally distributed. It also assumes that the variables are related to each other linearly (Cronk, 2008).

Hypotheses 4, 5 and 7 were analysed using Independent-Samples t-tests. The test compares the means of two samples or groups. The two samples being compared are independent of each other.

Pearson's correlation was used to analyse Hypothesis 6. The Pearson's correlation coefficient determines the strength of the linear relationship between two variables.

Hypothesis 8 was analysed using one-way ANOVA. The one-way ANOVA compares means of two or more groups of respondents that vary on a single independent variable. These groups are independent of each other.

Hypotheses One

Religiosity and Acceptance of ARTs

Hypothesis one states that there will be a significant negative relationship between an individual's religiosity and his or her acceptance of Assisted Reproductive Techniques.

The hypothesis one was analysed using Pearson Product Moment Coefficient. The results obtained are presented in table 4.1 below.

Table 4. 1: *Summary Table of Correlation between Religiosity and Acceptance of ART*

Variable	N	<i>r</i>	<i>p</i>
Religiosity	216	-.03	.72
ART	216		

From the results of the of the Pearson's Correlation analysis of the relationship between religiosity and acceptance of ART, a weak negative correlation that was not significant was found ($r = -.03, p = .72$).

The hypothesis one was not supported and hence rejected.

Hypothesis Two

Demographic factors and Acceptance of ARTs

Hypothesis two states that an individual's demographic factors (age, sex, marital status, parenthood, infertility experience) do influence his or her acceptance of Assisted Reproductive Techniques.

Hypothesis two was analysed using multiple linear regressions. Multiple linear regression analysis allow the prediction of one variable, in this case an individual's acceptability of ART (ART score) from several other variables. Multiple linear regressions assume that all variables are measured on the interval or ratio scales. It also assumes that the dependent variable is normally distributed, and that the variables are related to each other linearly. Dichotomous variables are also accepted as independent variables (Cronk, 2008).

Multiple linear regressions were computed, to assess if ART scores could be predicted from age, sex, marital status, parenthood, and if treatment had been sought for infertility by respondent. The dependent variable, the ART score, was measured on the interval scale and all the independent variables were dichotomous variables.

The summaries from the SPSS output for this analyses are presented in table 4.2 below.

Table 4. 2: *Summary Table of Multiple Regressions of Demographic Variables and ART Scores*

Variable	β	t	P
Constant		9.95	.00
Age	-.04	-.48	.63
Sex	.05	.77	.44
Marital status	.12	1.03	.31
Had children	-.14	-1.42	.16
Sought infertility Treatment	-.04	-.55	.58

Notes: All β are standardised. $R^2 = .014$; Adjusted $R^2 = -.01$; $p = .69$

The Regression Model is not significant ($R^2 = .014$, $p = .69$). This implies that the neither the age nor sex of the respondent, neither marital status nor the fact that the individual was a parent or had sought infertility treatments, were significant predictors of an individual's acceptability of Assisted Reproductive Techniques to resolve infertility. Only 1.4% of the variance in the ART score was accounted for by these five demographic variables.

Hypothesis Three

Cultural Estrangement and Acceptance of ARTs

Hypothesis three states that there will be a significant positive relationship between an individual's cultural estrangement and his or her acceptance of Assisted Reproductive Techniques.

Pearson Product Moment Coefficient was used to analyse hypothesis 3 and the results are shown in table 4.3 below.

Table 4. 3: *Summary table of Correlation between Cultural Estrangement and Acceptance of ART*

Variable	N	<i>r</i>	<i>P</i>
Cultural Estrangement	216	.11	.10
ART	216		

The results indicated a weak positive relationship that was not significant ($r = .11, p = .10$).

The hypothesis three was therefore not supported and hence rejected.

Hypothesis Four

Gender and Acceptance of ARTs

Hypothesis four states that there will be a significant difference between men and women in their acceptance of Assisted Reproductive Techniques.

The independent-samples t test compares the means of two samples, and was used to analyse hypothesis 4. The two groups being compared, women and men are independent of each other. In this test the dependent variable, ART score, is measured on the interval scale. The independent variable has only two discrete levels, male and female. The summary table extracted from the SPSS output are presented in table 4.4 below.

Table 4. 4: *Summary table of means Independent-t test of ART Scores of Males and Females*

Gender	N	Mean	Std. Deviation	df	T	p
Male	91	24.10	6.57	214	-.57	.58
Female	125	24.49	5.61			

The independent-samples t test was computed by comparing the mean ART scores of females and males. No significant difference was found ($t_{(214)} = -.57, p = .58$). The mean ART score of the females ($M = 24.488, SD = 5.609$) was not significantly different from the mean ART score of the males ($M = 24.011, SD = 6.573$).

This implies that women in the sample do not find ART any more acceptable than men do. The hypothesis 4 is therefore not supported and is rejected.

Hypothesis Five

Age and Acceptance of ARTs

Hypothesis five states that there will be a significant difference between younger people between the ages of 18-39 years and older people of 40 years and above in their acceptance of Assisted Reproductive Techniques

The independent-samples t test was used to compare the means of the two groups. The two groups being compared are the young and the older people. The independent variable, the age of the respondent was measured at two levels, young people between the ages of 18 years and 39 years at one level, and old people as respondents who were 40 years and above at the other level. The summary table extracted from the SPSS output are presented below in table 4.5.

Table 4. 5: *Summary table of Independent-t test of ART Scores of the Young and Old respondents*

Age	N	Mean	Std. Deviation	df	t	p
Young	170	24.46	5.61	214	.81	.42
Old	46	23.65	7.40			

The independent-samples t test was computed comparing the mean ART scores of the young (18 years – 39 years) and the older respondents (40 years and above). No significant difference was found between the two groups ($t_{(214)} = .81, p = .42$). The mean ART score of

the young people ($M = 24.46$, $SD = 5.61$) was not significantly different from the mean ART score of the older people ($M = 23.65$, $SD = 7.40$).

This implies that there is no significant difference in the attitudes of young people and older people towards the use of ART to resolve infertility issues. The hypothesis 5 is therefore not supported and is rejected.

Hypothesis Six

Education and Acceptance of ARTs

Hypothesis six states that there will be a significant positive relationship between the number of years completed in school and acceptance of Assisted Reproductive Techniques.

The Pearson's correlation was used to analyse the relationship between the two variables. The results obtained are presented in table 4.6 below.

Table 4. 6: *Summary table of Correlation between Number of Years Spent in School and Acceptance of ART*

Variable	N	<i>r</i>	<i>p</i>
Number of years spent in school	216	.14	.04
ART score	216		

The relationship between number of years spent in school and the acceptance of ART was a positive and significant one ($r = .14$, $p = .04$). This implies that individuals, who spend more years in school, have a more favourable attitude towards the use of ART.

The hypothesis 6 is therefore accepted and retained.

Hypothesis Seven

Marital Status and Acceptability of ARTs

Hypothesis seven stated that there will be a significant difference between people who have been or are still married and those who have never been married in their acceptance of Assisted Reproductive Techniques.

This hypothesis was also analysed using the independent-samples t Test.

The dependent variable was the participant's ART score which was measured on an interval scale. The independent variable was the marital status of the respondents, which was measured at two levels; 'single (never married)' at one level, and 'have been or are still married' at the other level.

The independent-samples t Test comparing the mean ART scores of participants with different marital statuses was computed with the SPSS software. The means and standard deviations extracted from the SPSS output is shown in Table 4.7 below.

Table 4. 7: *Summary table of Independent-t test of ART Scores of the Single (never married) and 'have been or still married' respondents*

Marital Status	N	Mean	SD	df	t	p
Singles (never married)	134	24.41	6.57	214	.38	.70
Been or Still Married	82	24.09	5.61			

The independent-samples t test was computed comparing the mean ART scores of the Singles (never married) and the 'have been or still Married' participants. No significant difference was found ($t_{(214)} = .38, p = .70$). The mean ART score of the Single participants ($M = 24.41, SD = 6.57$) was not significantly different from the mean ART score of the have been or still married participants ($M = 24.09, SD = 5.61$).

This implies that there is no significant difference between people who have never been married and those who have been or are still married in their acceptance of assisted reproductive techniques. The hypothesis 7 is not supported and is therefore rejected.

Hypothesis Eight

Religious Affiliation and Acceptance of Assisted Reproductive Techniques

The hypothesis 8 states that there will be a significant difference between individuals affiliated to various religious denominations in their acceptance of Assisted Reproductive Techniques.

This hypothesis was analysed using the One-way ANOVA. This test compares the means of two or more groups of participants that vary on a single independent variable. The groups are independent of each other. It is also assumed that the populations from which the participants were selected are normally distributed. ANOVA requires that the dependent variable is measured on the interval or ratio scales, and is also normally distributed.

The independent variable was the religious affiliation of the participants and this varied at four levels; Catholics, Protestants, Pentecostals/Charismatics, and the Moslems. The dependent variable was the ART score and was measured on the interval scale. A one-way ANOVA was computed and the results are shown in table 4.8 below.

Table 4. 8: Summary table of one-way ANOVA on interactions between Religious Affiliation and Acceptance of ART

Source	Sum of Squares	df	Mean Square	F	p
Between Groups	149.02	3	49.67	1.38	.25
Within Groups	7653.18	212	36.10		
Total	7802.20	215			

No significant difference was found in the attitudes of participants affiliated with different denominations, towards the use of ART to resolve infertility issues ($F_{(3, 212)} = 1.38, p = .25$).

Additional Findings

Relationship between Religiosity, Cultural Estrangement, and Acceptance of ART

The relationship between an individual's religiosity, cultural estrangement and acceptance of ART was analysed using the Pearson Correlation. The results obtained are presented in table 4.9 below.

Table 4. 9: *Summary table of Correlations between Religiosity, Cultural estrangement, and Acceptance of ART*

	1	2	3
1. ART	-	-	-
2. Religiosity	-.03	-	-
3. Cultural Estrangement	.11	.18**	-

** Correlation is significant at the .01 level

As can be seen in the table above, a significant positive relationship was found between Cultural Estrangement and Religiosity ($r = .18$, $p = .01$). It does appear that participants, who had high levels of religiosity, were also highly culturally estranged.

Summary of Findings

The aim of the research was to investigate the relationship between an individual's religiosity and their attitudes towards Assisted Reproductive Techniques (ART) to resolve infertility in Ghana. The study was also aimed at finding the relationship between socio-demographic variables of individuals and their acceptance of assisted reproductive techniques. The relationship between cultural estrangement and attitudes towards assisted reproduction was also examined.

The study employed a survey research design. This survey was cross-sectional, where the data was collected at one point in time. The sample size for the study was 216 participants who were affiliated to four religious denominations, and were conveniently selected. The denominations were the Catholics, Protestants, Pentecostals/Charismatic, and the Moslems. The study was also situated in the Ga East District, in the Greater Accra Region of Ghana.

Data was collected using a self-administered questionnaire as the research instrument. The research instrument included scales to measure religiosity, cultural estrangement and attitudes towards ART. The study also employed the interview method to gain in-depth knowledge by interviewing leaders of three of the religious denominations, who were purposively selected. The data collected was organised using descriptive statistics, while the hypothesis formulated were analysed using techniques in inferential statistics. This was done with the aid of the SPSS Software, Version 16.

The key findings of the study included the following:

- The study did not find a significant relationship between an individual's religiosity and his attitudes towards, and acceptance of Assisted Reproductive Techniques.
- The study also found that neither the age nor sex of the respondent, neither marital status nor the fact that the individual was a parent or had sought infertility treatments, were significant predictors of his or her attitudes towards Assisted Reproductive Techniques to resolve infertility.
- There was also no significant relationship between Cultural Estrangement and an individual's attitudes towards ARTs in resolving infertility.
- The study found that women in the sample did not find ART any more acceptable than men did, that there was no significant difference between them.
- No significant difference was found between the attitudes of young people and older people towards the use of ART to resolve infertility issues
- The study found that individuals' acceptability of ART was influenced by the number of years that had been spent in school. The study revealed that individuals who had completed more years in school had more favourable attitudes towards the use of assisted reproduction in the resolution of infertility.

- No significant difference was found between people who have never been married and those who have been or are still married.
- The study found no significant difference in the attitudes of participants affiliated to different denominations towards the use of ART to resolve infertility issues.
- Additionally, the study found a significant positive relationship between Religiosity and Cultural Estrangement.

Qualitative Findings

A qualitative study was also employed in this research which sought to answer the following research questions;

1. Which Assisted Reproductive techniques do the religious organisations in Ghana accept?
2. Is adoption of children encouraged by the denominations as a resolution of the infertility experience?
3. How are the denominations' policies on assisted reproduction communicated to their members?

Face-to-face interviews were conducted with Leaders from some of the denominations using the interview guide in Appendix III. The Leaders interviewed were:

- The Priest in charge of the Agboba Catholic Church
- An Associate Pastor of the Covenant Family Community Church (Charismatic)
- A Senior Minister of the Assemblies of God Church (Pentecostal)

The information obtained from the denominational Leaders was categorised under three themes and these were:

1. Acceptability of ARTs by the Denomination or Religious Organisations
2. Acceptability of Adoption of Children by the Denominations
3. Communication of the Denominations Policy on ART to Church Members

Acceptability of ARTs by the Denomination or Religious Organisation:

The Catholic Priest intimated that the Catholic Church does not approve of the use of Assisted Reproductive Techniques. None of the methods used in assisted reproduction was acceptable to the Catholic Church.

The Pastor from the Charismatic denomination said that while assisted reproduction was generally accepted by the denomination, not all the techniques or methods were acceptable. Procedures employing the use of Donor gametes were not acceptable by the denomination. Surrogacy was also unacceptable to the Charismatic denomination.

The Minister from the Assemblies of God Church which is a Pentecostal denomination said there was no policy in place to address assisted reproduction within the Church. He said, *'the issue is viewed to be a personal one, and couples are expected to prayerfully make their own decisions where assisted reproduction is concerned.'* He however shared his personal view, which was that any of the assisted reproductive techniques that did not contravene the teachings of the bible could be used. He also had reservations about the use of Donor gametes. He said *'the purpose of marriage is to raise a Godly offspring.'* To him therefore, the use of Donor gametes does not assure that this commandment from the bible would be fulfilled. In fact the use of Donor gametes was akin to fornication or adultery, in his view.

Acceptability of Adoption of Children by the Denominations

All the denominational Leaders confirmed that adoption was acceptable, and was encouraged as a possible resolution of the infertility experience by their religious organisation.

Communication of the Denomination's Policy on ART to Church Members

The Catholic Priest said that the church's policy on ART was not always clearly communicated to the members. He believed that a lot more had to be done to make sure the policy was well communicated to members, especially at the grassroots. He also believed that a lot of their members may not even be aware of the availability of various Assisted Reproductive Techniques; in fact he was sure that members in his local church may not be very aware of the availability of these methods. He therefore felt that there was little need for communication about Assisted Reproductive Techniques, at least in his parish.

The Priest also said that even though premarital counselling was available in the Catholic Church, there was no standard format for it. What is treated or covered by premarital counselling was really dependent on the parish, the Counsellor, and the perceived needs of the Counselees. He also said that generally, congregants do not request for counselling when they face infertility issues.

The Catholic Priest was also of the view that both theological principles and people were dynamic. However he was slow to say whether or not the Church's policy on Assisted Reproduction will remain the same, or change in the future.

The Pastor from the Charismatic church said that the policy on Assisted Reproduction was not clearly communicated to their congregants. He said that the policy was communicated to couples who made enquiries about infertility treatments. Premarital counselling was provided by the church, and contained some aspects of infertility resolution. He said, '*Counselling and*

support are available to couples going through the infertility experience if they request for it.'

The Minister from the Pentecostal denomination (Assemblies of God Church) indicated that because there was no clear policy on Assisted Reproduction, no such communication was made to members. Again discussions of the infertility experience were not a part of their premarital counselling. He believed that if any discussions of infertility would occur during premarital counselling it would be at the choice of the particular Counsellor, and it would be more of the exception rather than the rule.

CHAPTER FIVE

DISCUSSION

Introduction

This is the final chapter of this research work. It includes the discussion of the findings. Conclusions of the research study are drawn and recommendations are made. Suggestions are also made for future research in this area.

Discussion

The study was done to examine the relationship between an individual's level of religiosity and his/her attitudes towards the use of assisted reproductive techniques. Eight hypotheses were formulated and tested. Pearson's Correlation was employed to analyse hypotheses one, three and six. The multiple linear regression method of analysis was employed for hypothesis two. Hypotheses four, five and seven were analysed using Independent-Samples t tests. Hypothesis eight was analysed using one-way ANOVA.

This discussion of the findings has been done with reference to literature was reviewed earlier.

Relationship between Religiosity and Attitudes towards ART

The study sought to assess how an individual's religiosity affected his/her acceptance of Assisted Reproductive Techniques to resolve infertility.

The hypothesis one stated there will be a significant negative relationship between an individual's religiosity and his or her acceptance of Assisted Reproductive Techniques. Analysing this hypothesis, it was found out that an individual's religiosity was not significantly related to his or her acceptability of Assisted Reproductive Techniques to resolve infertility. This suggests that other factors come into play and may be more important

in determining an individual's attitudes toward and acceptability of assisted reproductive techniques other than an individual's religiosity. The hypothesis was therefore not supported and was rejected.

Dutney (2007) has reported that the substantial innovations to the marital relationship that are made possible by Assisted Reproduction Techniques are of a very serious concern to many religions. It has been found that more religious people have more ethical concerns with assisted reproductive techniques (Shreffler et al 2010). Sewpaul (1999) has also found that the individual's level of involvement with religion, their concept of God, their sense of self in relation to God, appeared to be important factors in influencing the impact of religion on the experience of infertility.

The findings in this current study do not appear to support these earlier findings. It had been expected that the more religious an individual was, the more concerns he would have with assisted reproduction. The findings however seem to confirm Greil's (1989) finding that although many religious faiths and church groups have laid down rules about which assisted reproductive techniques are acceptable and which are not, indifference to these religious objections is widely shared. Again the interviews with Denominational Leaders in this study revealed that, the denominations' views about assisted reproduction were not very well communicated to their congregants. Infact in the case of the Pentecostals, there was no Denominational policy or view on assisted reproduction to be communicated. It may be deduced therefore that congregants may not be aware of their Denomination's views or proscriptions on assisted reproduction. Again the congregants may not be aware of which methods are acceptable and which are not acceptable within the denomination. A person's religiosity therefore may not affect his choices in infertility resolution as much as had been expected by the Researcher.

The theory of Cognitive dissonance may also be used to explain these findings. The internal state that result when individuals notice inconsistency among two or more attitudes or between their attitudes and their behaviour is what is known as Cognitive Dissonance (Baron et al, 2008). That implies that when people notice that their attitudes towards assisted reproduction is different from what their Denominations recommend, a state of cognitive dissonance may result. The theory also suggests that people often act to reduce this dissonance in various ways. One of the ways is by acquiring information that supports the attitude or behaviour. One finding in this study was the fact that people who had completed more years in school had more favourable attitudes towards assisted reproductive techniques. It can be deduced therefore that the more highly educated people are, the more information they may have about assisted reproduction and the more accepting they may be of these methods.

Relationship between Demographic factors and Acceptance of ART

This study also sought to determine the relationship between some socio-demographic variables (age, sex, educational background, marital status, parenthood, infertility experience) and the acceptance of assisted reproductive techniques.

The Hypothesis two stated that an individual's demographic factors (age, sex, marital status, parenthood, infertility experience) do influence his or her acceptance of Assisted Reproductive Techniques (Shreffler et al, 2010). The results of the multiple regression computed indicated that neither the age nor sex of the respondent, nor the fact that the individual was a parent or had sought infertility treatments, were significant predictors of his or her acceptability of Assisted Reproductive Techniques to resolve infertility. Only 1.4% of

the variance in the ART score was accounted for by these five demographic variables and this was not statistically significant. The hypothesis was therefore not supported and was rejected. Shreffler et al (2010) had found that age, was a strong predictor of the attitudes towards the ethics of infertility treatments, with concerns increasing with increasing age. They also found that neither parenthood nor having an infertility experience was related to the ethical concerns of the individuals. This study did not find such a relationship between age and acceptability of assisted reproductive techniques. However this study confirmed Shreffler et al (2010) finding that parenthood and an infertility experience were not related to the individual's attitude towards and acceptability of assisted reproductive techniques.

Relationship between Cultural Estrangement and Acceptance of ART

The study was also to examine the relationship between an individual's cultural estrangement and their acceptance of assisted reproductive techniques. Hypothesis three was formulated to help the researcher examine this relationship. The hypothesis stated that there will be a significant positive relationship between an individual's cultural estrangement and his or her acceptance of Assisted Reproductive Techniques.

At the .05 level of significance, cultural estrangement was found not to be significantly related to an individual's acceptability of assisted reproductive techniques to resolve infertility.

In her study with infertile couples in South Africa, Sewpaul (1999) found that though the African couples in her sample all reported to be of the Christian religion, it was to the African Traditional Religion they turned to when dealing with significant aspects of their lives. This included resolving their infertility issues. She also observed that African couples appear to be successfully bi-culturally socialised. In other words while they may be affiliated to Western and other religions, they are at the same time, quite profoundly connected with African

Traditional Religion and to their cultural beliefs. Even though Gyekye (2003) reports that the concept of artificial insemination for example, is far removed from the ideas and practices of child birth in the traditional African society, it was expected that culturally estranged individuals may not conform to these cultural ideas. However the study did not find a significant relationship between cultural estrangement and the acceptability of assisted reproductive techniques in resolving infertility.

Gender and Acceptance of ART

Women experience infertility quite differently from men (Greil et al., 1988). Hypothesis four stated that there will be a significant difference between men and women in their acceptance of Assisted Reproductive Techniques

This hypothesis was informed by the notion that women often carry the burden of guilt and grief when a couple faces infertility (Sewpaul, 1999). Donkor and Sandal (2007) have also found in a survey conducted with 615 women receiving infertility treatment in Southern Ghana that the majority (64%) of women in this sample felt stigmatised. Shreffler et al., (2010) also report that women experiencing infertility had fewer ethical concerns with assisted reproductive techniques. In other words women were more likely to find assisted reproductive techniques more acceptable than men. It was therefore expected that women in the study will find ARTs more acceptable than men would.

However the current study did not confirm these expectations. No significant difference was found between women and men in their acceptability of ARTs. The mean ART score of the women in the study was not significantly different from the mean ART score of the men. The hypothesis is therefore not supported and is hence rejected.

Gyekye (2003) reported that in the African view the whole or ultimate purpose of marriage is procreation – to produce children who will continue with the heritage and the name of the family, so that the family does not diminish or disappear. He further reports that in the Ghanaian society, a man is considered responsible when he was a husband and a father. Therefore it can be suggested that the Ghanaian man may be appreciating the opportunities that Assisted Reproduction Techniques offer in resolving infertility. Men may therefore be as accepting of these methods as the women may be.

Age and Acceptance of ART

Shreffler et al. (2010) found that age, was a strong predictor of attitudes towards the ethics of infertility treatments and that the concerns increased with increasing age. The Hypothesis five stated that there will be a significant difference between young people between the ages of 18-39 years and old people of 40 years and above in their acceptance of Assisted Reproductive Techniques

This study however did not find such a relationship. No significant difference was found between the attitudes of young people (18 years to 39 years) and those of older people (40 years and above) towards the use of ARTs to resolve infertility. The mean ART score of the young people was not significantly different from the mean ART score of the older people.

The Theory of Planned Behaviour suggests that people will consider various behavioural options in a rational process. It again suggests that people will consider the outcome of their actions before they decide to engage or not to engage in a given behaviour. The theory again suggests that one's attitude toward the behaviour is determined by beliefs that the behaviour will lead to positively or negatively valued outcomes. This theory therefore can be used to explain the insignificant difference in the attitudes towards ARTs between the young and the

old. It had been expected that younger people may be more accepting of technological changes and therefore would have had more favourable attitudes towards ARTs. However older people were also found to have similar attitudes probably because of the positive outcomes that can be associated with the use of ART; that an otherwise infertile couple would be able to raise a family through the use of ART.

Education and Acceptance of ART

Shreffler et al. (2010) have found that people's level of education, was a strong predictor of the attitudes towards the ethics of infertility treatments. They found that concerns with assisted reproduction reduced with higher levels of education. Hypothesis six therefore stated that there will be a significant positive relationship between the number of years completed in school and acceptance of Assisted Reproductive Techniques.

This study found a similar relationship between the levels of education of individuals and their acceptability of ARTs. The study found that individuals, who had spent more years in school, had more favourable attitudes towards the use of ART. The hypothesis was therefore supported and was hence accepted.

This goes to confirm the view that people with higher levels of education are more accepting of the technological advances in assisted reproduction. The finding also shows that increased education and better information will reduce the cultural lag that often exists between the advancement of technology and the social guidelines and comforts for its use within societies. Technological advances have been observed to commonly outstrip the ability of society to adapt to and utilize these advances (Stolley, 1971). It can be suggested based on this finding that, increased education and the dissemination of relevant information will help to close the gap that often exist between technological advancement and its utilization.

Marital Status and Acceptance of ART

Hypothesis seven stated that there will be a significant difference between people who have been or are still married and those who have never been married in their acceptance of Assisted Reproductive Techniques.

It had been expected that people who had been or were still married would have more favourable attitudes towards the use of ARTs to resolve infertility issues. This was because it was thought that people with the marriage experience will better understand the difficulties that could arise in a marriage where there are no children. However, in this study no significant difference was found among two groups. This implies therefore that the attitude of people who have been married, or are still married towards ART was not significantly different from those who have never been married. This suggests that within the Ghanaian society, ART is seen as important by all groups in the resolution of infertility.

Religious Affiliation and Acceptance of ART

Hypothesis eight stated that there will be a significant difference between individuals affiliated to various religious denominations in their acceptance of Assisted Reproductive Techniques.

Literature initially reviewed suggested that many religious organisations had several concerns with various methods employed in the use of assisted reproductive techniques in the resolution of the infertility experience. It had been found in earlier studies that attitudes towards reproductive techniques vary among Christian groups, and many of the methods were forbidden (Schenker 2005; Connor, Sauer & Doll, 2012). Dutney (2007) also reported that while generally seeing assisted reproductive techniques as a potential ally in the project of family formation and the relief of infertility, some religious organisations had expressed

particular concerns about the perceived threats to marriage and the sanctity of the human embryo in some of its processes.

Again Connor et al., (2012) has reported that the decisions of infertile couples concerning the use of ARTs can be influenced by religious values and ideologies. In assessing the acceptability of ARTs to individuals therefore, their level of religiosity and religious affiliations cannot be ignored or overlooked. What they believe their denominations' proscriptions to be, whether just a perception or the reality, becomes an important consideration. This study however did not find any significant difference between participants affiliated to different denominations in their attitudes towards assisted reproductive techniques.

Interviews with the Catholic Priest confirmed that the Catholic Church forbids the use of all methods of assisted reproduction. Earlier findings reveal that many Catholic attendees have argued against the church's stance on reproductive medicine (Connor et al., 2012), contending that God's will still influences whether assisted reproductive techniques will be successful or not. The Priest also communicated the fact that the Church's views about assisted reproduction were not well communicated among members and attendees, and therefore it may be possible also that the some of the study's participants do not actually know their denominations view on assisted reproduction. Clearly as Greil (1989) reports, the religious do not always agree with their denominations proscriptions in assisted reproduction.

The Associate Pastor from Covenant Family Community Church, which is a Charismatic Church, indicated that the denomination approved of the use of assisted reproduction generally. However certain methods or techniques of assisted reproduction were not approved by the Church. Methods that employed Donor material were prohibited by the Church. Again surrogacy was not accepted by the church. Adoption was an option approved by the

denomination. He however indicated that these denominational rules were not very well communicated to members. Schenker (1992) has reported that assisted reproductive techniques were acceptable to the Protestants only if the gametes (sperm and eggs), are from the married couple themselves. According to Connor et al. (2012), even though Islam commonly supports scientific and technologic advances, Assisted Reproductive Technologies creates challenges to the principles and beliefs of Moslems. In Islam, invitro procedures are acceptable only if they are performed for married couples during the duration of their marriage (Schenker, 1992). Even though these differences in attitudes towards ART among denominations is reported in literature, no significant difference was found in this study to exist between participants affiliated to different denominations.

Summary of Major Findings of the Study

One major finding in this study was that people with higher levels of education had more favourable attitudes towards the use of Assisted Reproductive Techniques. This finding confirmed those of Shreffler et al., (2010).

Interviews with the religious Leaders also revealed variability among churches in their acceptability of various techniques employed in assisted reproduction.

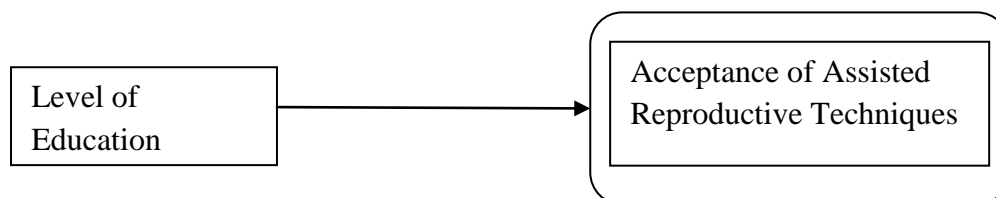


Figure 2: Observed Conceptual Framework

From the results and the observations made in this study, the only independent variable that was related to the dependent variable was the level of education. It was found that

participants who had completed more years in school had more favourable attitudes towards the use of assisted reproductive techniques in the resolution of the infertility experience.

Critique of Results

This current study examined the attitudes of the Ghanaian population towards the use of assisted reproduction in the resolution of infertility.

One challenge faced in this study was that all the participants were drawn from churches and a mosque. This might have resulted in the fact that the participants were generally found to have high levels of religiosity. This may have affected the results obtained.

Again age was measured at only two levels (young and old) in this study. There was only a year's difference between those categorized as young and those categorised as young. Age was therefore not measured in actual number of years. This may have affected the finding that age was not a predictor of attitudes towards assisted reproduction.

The study also employed a self-administered questionnaire. The validity of self report data could therefore be an issue here.

The Researcher developed and used a new scale to measure the attitudes of participants towards assisted reproduction. This new scale, ('Attitudes towards ART') had never been employed before. Its validity and reliability therefore had not been established.

Even though the study included only participants who had had some formal education, it was observed that some of them had very little knowledge about assisted reproduction. This could have affected their responses. Again only a small percentage of the participants in this study reported that they had sought treatment for an infertility experience. People's attitudes towards ART may be influenced by their total infertility experience including knowing others

who are experiencing infertility. The study did not find out this information. This may also have affected the results.

Limitations

One major limitation of this study was the difficulty in retrieving questionnaires. Of the three hundred and fifty (350) questionnaires administered, only two hundred and sixteen (216) were retrieved in time for analysis. This represented 62% retrieval.

Another limitation of this study was that the sample included 70% of respondents who had completed sixteen or more years in school. The sample was therefore generally highly educated.

The study employed a new scale, 'Attitudes towards ART', developed by the Researcher. The validity and reliability of this new scale had not therefore been previously established. A self-administered questionnaire was employed in the research, raising the issue of the validity of self report data.

Again it was difficult to secure appointments with some of the denominational leaders for face to face interviews. Of the five (5) denominational leaders targeted therefore, only three were available to be interviewed.

Directions for Future Research

It is suggested that future researches in this area consider a larger sample size than was used in this study. This may help in making better generalisations from the findings of such a study.

Again the age of respondents in this study was varied only at two levels, the young (18 – 39 years), and the old (above 40 years). This may have affected the finding that the age of

individuals had no effect on their attitudes towards ARTs. It is therefore suggested that in future researches, the actual age in years of respondents be used in the analysis.

The level of education of participants in this study was also varied at only three levels. This may have masked some of the effects that levels of education may have on individuals' acceptance of ARTs in the resolution of infertility. It is therefore suggested that in subsequent studies the actual number of years of schooling completed by participants be used in the analysis.

It is recommended that future researches in this area would consider the following

- How medical personnel deal with patients religious views of infertility and its resolution
- How religious Leaders also deal with the infertile couple within the confines of the religions' views
- Other factors, like income levels, that may influence people's attitudes towards the use of assisted reproductive techniques in resolving infertility in Ghana.

Recommendations

Some recommendations are made on the basis of the findings in this study.

1. Health Providers and Counsellors must understand the delicate issues involved when people make decisions about the resolution of infertility through assisted reproduction. Especially when infertile couples are religious or are affiliated to religious organisations, their decisions and choices may be affected by religious proscriptions and ideologies. It is therefore recommended that Health Providers and Counsellors who work with such clients gain an understanding of the religious

underpinnings when treatment is sought. This will help them provide a more holistic service to clients who need it.

2. It is also important for the medical fraternity to understand that people's socialisation and cultural beliefs also affect their experience of infertility and the resolution methods and procedures that may be acceptable to them. It is recommended that Health Providers acquaint themselves with the dominant cultural themes in the society and how these affect peoples' attitudes towards ARTs.
3. It is also recommended that Leaders of Religious Denominations be engaged in this dialogue so that they may have the requisite knowledge about ARTs. In some of the denominations, no policy on assisted reproduction exists, and where there is a policy it often does not show a good understanding of the methods of assisted reproduction. This leaves the attendees in a limbo when they need the guidance of religious Leaders in their attempt to resolve the infertility experience.
4. This study also found that a lot of people had very little knowledge, and a lot of misconceptions about the Assisted Reproductive Techniques. This meant that they would not even access these procedures to help resolve infertility issues if the need arose. It is recommended therefore that more education of the general public is done by stakeholders including Health Providers and by nongovernmental organisations.
5. It is recommended that the Government should consider investing in assisted reproductive technology to make it more accessible to the general public.

Conclusions

In conclusion this study has come out with some important findings and some issues.

It had been reported in literature that religion and religiosity influenced how individuals dealt with the issue of resolving infertility (Sewpaul, 1999; Dutney, 2007; Shreffler et al 2010).

Hypothesis one had been informed by such literature and sought to find the relationship between individuals' religiosity and their acceptability of ARTs in Ghana. Findings from the study however did not find any significant relationship between individuals' religiosity and their acceptability of the use of ARTs in infertility resolution.

Hypothesis two had also been informed by earlier studies by Shreffler et al (2010) where it had been found that age and sex were strong predictors of ethical concerns with the use of ARTs. Findings from the current study did not confirm these findings. However it confirmed Shreffler's finding that neither parenthood nor having an infertility experience was related to the individual's acceptance of ARTs in infertility resolution.

Hypothesis three sought to find out if cultural estrangement was related to ones acceptability of ARTs in resolving infertility. Gyekye (2003) had reported that the concept of artificial insemination was far removed from the ideas and practices of child birth in the traditional African society. The researcher therefore expected that individuals who were highly culturally estranged would not conform to these cultural norms and would be more accepting of ARTs. The study did not confirm this view, and found that cultural estrangement was not related to the individual's attitude towards the use of ARTs to resolve infertility.

Women have been found to experience infertility differently from men (Greil et al., 1988; Sewpaul, 1999). Shreffler et al., (2010) also found that women had fewer ethical concerns with ARTs than men do. The researcher had expected that women would be more accepting of ARTs than men would be, and this informed the hypothesis four. However this study found that there was no significant difference between women and men in their attitudes towards ART.

Hypothesis five stated that younger people will find ART more acceptable than older people. Shreffler et al., (2010) had found such a relationship in their research about ethical concerns in assisted reproduction. This study however did not confirm this finding. No significant difference was found in the attitudes of the young and the old towards the use ART to resolve infertility.

Hypothesis six had stated that more highly educated people will find ART more acceptable than less educated people. Again Shreffler et al., (2010) had found such a relationship, that peoples' educational level was a strong predictor of their attitudes towards the ethics of infertility treatments. This current study confirmed this finding. People who had spent more years in school had more favourable attitudes towards assisted reproduction.

People who were married or had been married were believed by the researcher to have more favourable attitudes towards ART. It was believed that having been married, they would understand more clearly the difficulties the absence of children raises in a marriage. This informed hypothesis seven, which stated that people who have been married will find ART more acceptable than those who had never been married. The findings from this study did not confirm this assertion.

This study also found that several religious Denominations had concerns with the use of some Assisted Reproductive Techniques. Hypothesis eight sought to find if there were any differences in attitudes towards ART between participants affiliated to different denominations. No such differences were found.

In conclusion the researcher believes that this study has brought to the fore some important issues. The study has provided some empirical information about the attitudes of Ghanaians to the question of infertility resolution and the use and acceptability of assisted reproduction within the populace. Even though some of the findings in this study did not confirm earlier findings in this area of study, those earlier studies in the main were conducted outside Ghana, and many, outside Africa. This study therefore provides information that was based on the local situation and therefore begins to suggest that our situation and understanding of infertility and its resolution may be different from those in other jurisdictions. This study therefore provides some baseline information upon which further studies may be based.

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APPENDICES

Appendix I: Research Instrument/Measure

APPENDIX I

University of Ghana Department of Psychology

The Relationship between Religiousness and Socio-demographic factors, and the Acceptance of Assisted Reproductive Techniques in Resolving Infertility.

I would appreciate it if you will take a few minutes of your time to answer the following questions. All information provided will be treated with utmost confidentiality and will be used strictly for academic purposes only.

A) Demographic data (Please tick or circle as appropriate)

1. Age
 - 18 - 39years
 - 40 years and above
2. Sex
 - Male
 - Female
3. Marital Status
 - Single (never married)
 - Married
 - Divorced/ Separated
 - Widowed
4. Please indicate your highest Educational Level achieved
 - JHS
 - SHS
 - Graduate
 - Post Graduate
 - Other (Please Specify).....
5. Indicate your Religious affiliation
 - Catholic
 - Protestant (e.g. Methodist, Presbyterian, etc)
 - Pentecostal (e.g. Apostolic church, Church of Pentecost, etc)
 - Charismatic (e.g. Action Faith, Lighthouse Chapel, CEM, etc)
 - Moslem
 - Other (Please Specify).....
6. Do you have any children?
 - Yes
 - No
7. Have you ever sought treatment for infertility problems?
 - Yes
 - No

1



B) Attitudes towards various methods used in Infertility Resolution

Please indicate (tick) on the scale how much you agree with the following statements.

The ratings of the scale are as follows:

1: Strongly Disagree (SD) 2: Disagree (D) 3: Undecided (U) 4: Agree (A)

5: Strongly Agree (SA)

Statements	1(SD)	2(D)	3(U)	4(A)	5(SA)
a. I think that the in-vitro procedure (i.e. test tube babies, where fertilisation is achieved outside the body, in a laboratory and the embryo is put back into the womb) is an acceptable method for infertile couples to have children					
b. I approve of the use of artificial insemination (where a sperm sample is introduced into the womb with a tube to achieve pregnancy) with the husband's sperm as a method to resolve infertility issues					
c. I approve of the use of artificial insemination (where a sperm sample is introduced into the womb with a tube to achieve pregnancy) with a Donor's sperm as a method to resolve infertility issues					
d. It is okay to use a Donor's eggs to achieve a pregnancy for infertile couples to have children					
e. Surrogacy (where a woman carries a baby that is not biologically related to her for another person or couple) is acceptable					
f. I do not think 'test tube babies' are children sent from God					
g. I think artificial insemination interferes with God's approved way of having children					
h. Children born using someone else's (a Donor's) sperm and/or eggs to achieve a pregnancy are not really 'true' children of a couple					

- i. Adoption of children is better than using assisted reproductive techniques
- Yes
 - No



C) Santa Clara Strength of Religious Faith Questionnaire

Please answer the following questions about religious faith using the scale below.

Indicate (by ticking) the level of agreement (or disagreement) for each statement.

1 = Strongly Disagree 2 = Disagree 3 = Agree 4 = Strongly agree

	Statement	1(SD)	2(D)	3(A)	4(SA)
1.	My religious faith is extremely important to me.				
2.	I pray daily.				
3.	I look to my faith as a source of inspiration.				
4.	I look to my faith as providing meaning and purpose in my life.				
5.	I consider myself active in my faith.				
6.	My faith is an important part of who I am as a person.				
7.	My relationship with God is extremely important to me.				
8.	I enjoy being around others who share my faith.				
9.	I look to my faith as a source of comfort.				
10.	My faith impacts many of my decisions.				

D) Cultural Estrangement Scale (Kohn & Schooler, 1983) (Cultural Identity Scale)

Please indicate on a scale of 1 – 4 (where 1= RARELY and 4 = FREQUENTLY) your answers to the following questions.

	Questions	1	2	3	4
1.	According to your general impression, how often do your ideas and opinions about important matters differ from those of your relatives?				
2.	How often do your ideas and opinions differ from those of your friends?				
3.	How about from those of other people with your religious background?				
4.	How about from those of most people in the country?				



Appendix II: Consent form

CONSENT FORM

Title: The relationship between Religiousness and Socio-Demographic factors, and the Acceptance of Assisted Reproductive Techniques in Resolving Infertility in Ghana

Principal Investigator: Ivy Adjei-Nketiah (Mrs.)

Address: Psychology Department, University of Ghana, P. O. Box LG25, Legon, Accra

General Information about Research

The aim of the research is to investigate the relationship between an individuals' level of religiousness and their acceptability of Assisted Reproductive Techniques to resolve infertility in Ghana. This research is also aimed at finding the relationship between some socio-demographic variables of individuals and their acceptance of assisted reproductive techniques. You have been selected to participate in this study because you are a literate, adult member of one of the major denominations; Catholic, Protestant, Pentecostal, or Moslem. You are requested to complete a self administered-questionnaire that takes approximately 15 minutes to complete.

Possible Risks and Discomforts

Because infertility and its resolution are not often discussed in public generally, it is expected that you may be uncomfortable with some items in the questionnaire. You are however assured of your privacy because the questionnaire will be self administered.

Possible Benefits

The study will provide no direct benefit to you as a participant. However, it is expected that the findings will provide useful insights in this area to particularly, Health Providers, Academia, and other stakeholders.

Confidentiality

This study does not require you to provide names or any other information that will identify you. This will ensure that you remain anonymous. Any information collected will be treated confidentially.

Compensation

You will not receive any monetary or other compensation for participating in this study.

Voluntary Participation and Right to Leave the Research

Participation in this study is entirely voluntary, and you are not compelled to participate if you do not want to. You are entirely free to decline to participate or leave the research at any point.

Contacts for Additional Information

Ivy Adjei-Nketiah (Tel No. 0244262000)

Your rights as a Participant

This research has been reviewed and approved by the Institutional Review Board of Noguchi Memorial Institute for Medical Research (NMIMR-IRB). If you have any questions about your rights as a research participant you can contact the IRB Office between the hours of 8am-5pm through the landline 0302916438 or email addresses: nirb@noguchi.mimcom.org or HBaidoo@noguchi.mimcom.org.



1

VOLUNTEER AGREEMENT

The above document describing the benefits, risks and procedures for the research title (The relationship between Religiousness and Socio-Demographic factors, and the Acceptance of Assisted Reproductive Techniques in Resolving Infertility in Ghana) has been read and explained to me. I have been given an opportunity to have any questions about the research answered to my satisfaction. I agree to participate as a volunteer.

Date Name and signature or mark of volunteer

I certify that the nature and purpose, the potential benefits, and possible risks associated with participating in this research have been explained to the above individual.

Date Name Signature of Person Who Obtained Consent



Appendix III: Denominational Leaders Interview Guide

University of Ghana Department of Psychology

The Relationship between Religiousness and Socio-demographic factors, and the Acceptance of Assisted Reproductive Techniques in Resolving Infertility in Ghana

I would appreciate it if you will take a few minutes of your time to answer the following questions. All information provided will be treated with utmost confidentiality and will be used strictly for academic purposes only.

Questions for Denominational Leaders

1. Does your church or religious organisation accept or encourage the use of Assisted Reproduction Techniques (ART) for infertile or sub-fertile couples?
2. Which of the following methods are acceptable within your organisation?
 - Invitro fertilisation (test-tube baby)
 - Artificial Insemination (i.e. Intrauterine insemination)
 - Procedures employing the use of Donor gametes (i.e. donor eggs or sperm)
 - Surrogacy (gestational carriers)
3. Does your organisation accept or encourage the adoption of children by couples experiencing infertility?
4. Are the denominations views and rules about ART clearly communicated to members and attendees?
5. Is premarital counselling provided in your organisation?
6. Does premarital counselling include discussions about infertility and its resolution?
7. Is counselling available for couples going through the infertility experience?
8. Are there any support systems within your organisation for couples going through the infertility experience?

Appendix IV: Ethical Clearance from Institutional Review Board

NOGUCHI MEMORIAL INSTITUTE FOR MEDICAL RESEARCH
Established 1979 *A Constituent of the College of Health Sciences*
University of Ghana

Phone: +233-302-916438 (Direct)
 +233-289-522574
 Fax: +233-302-502182/513202
 E-mail: nirb@noguchi.mimcom.org
 Telex No: 2556 UGL GH

INSTITUTIONAL REVIEW BOARD

Post Office Box LG 581
 Legon, Accra
 Ghana

My Ref. No: DF.22
 Your Ref. No: _____

8th May, 2013

ETHICAL CLEARANCE

FEDERALWIDE ASSURANCE FWA 00001824

IRB 00001276

NMIMR-IRB CPN 086/12-13

IORG 0000908

On 8th May, 2013, the Noguchi Memorial Institute for Medical Research (NMIMR) Institutional Review Board (IRB) at a full board meeting reviewed and approved your protocol titled:

TITLE OF PROTOCOL : **The relationship between Religiosity and Socio-Demographic factors and the Acceptance of Assisted Reproductive Techniques in Resolving Infertility in Ghana**

PRINCIPAL INVESTIGATOR : **Ivy Adjei-Nketiah (Mrs.), MPhil Candidate**

Please note that a final review report must be submitted to the Board at the completion of the study. Your research records may be audited at any time during or after the implementation.

Any modification of this research project must be submitted to the IRB for review and approval prior to implementation.

Please report all serious adverse events related to this study to NMIMR-IRB within seven days verbally and fourteen days in writing.

This certificate is valid till 7th May, 2014. You are to submit annual reports for continuing review.

Signature of Chairman:
 for Rev. Dr. Samuel Ayete-Nyampong
 (NMIMR – IRB, Chairman)

cc: Professor Kwadwo Koram
 Director, Noguchi Memorial Institute
 for Medical Research, University of Ghana, Legon

Appendix V: Introductory Letters from department to research sites.**UNIVERSITY OF GHANA
DEPARTMENT OF PSYCHOLOGY**

Tel: (233-0302) 500381 Ext. 3754/3310 P. O. Box LG 84, Legon Ghana E-mail: psychology@ug.edu.gh
028 955 04 63

Our Ref. No.....

PSYC 2/33/01

4th April, 2013

The Pastor -In -Change
The Presbyterian Church
Agboba,
Accra

Dear Sir/Madam,

**LETTER OF INTRODUCTION
MS. IVY ADJEI-NKETIAH**

The above-named is an M.Phil Social Psychology student at the University of Ghana, Legon.

In partial fulfillment of the requirement for the awards of the M.Phil degree

Ms. Ivy Adjei-Nketiah has to write and submit an original thesis.

She has selected the topic: **"The Relationship Between Religiousness and Socio-Demographic Factors, and the Acceptance of Assisted Reproductive Technique in Resolving Infertility."**

To enable her collect data for her work she would need to administer questionnaires and/ or conduct interviews. She has selected your institution as suitable for her data collection.

Any assistance you may give her would be greatly appreciated.

Yours faithfully,


(Dr. Charity S. Akotia)
HEAD OF DEPARTMENT



UNIVERSITY OF GHANA
DEPARTMENT OF PSYCHOLOGY

Tel: (233-0302) 500381 Ext. 3754/3310 P. O. Box LG 84, Legon Ghana E-mail: psychology@ug.edu.gh
028 955 04 63

Our Ref. No.....

PSYC 2/33/01

4th April, 2013

The Iman
Washington Central Mosque
Madina

Dear Sir/Madam,

LETTER OF INTRODUCTION
MS. IVY ADJEI-NKETIAH

The above-named is an M.Phil Social Psychology student at the University of Ghana, Legon.

In partial fulfillment of the requirement for the awards of the M.Phil degree

Ms. Ivy Adjei-Nketiah has to write and submit an original thesis.

She has selected the topic: **"The Relationship Between Religiousness and Socio-Demographic Factors, and the Acceptance of Assisted Reproductive Technique in Resolving Infertility."**

To enable her collect data for her work she would need to administer questionnaires and/ or conduct interviews. She has selected your institution as suitable for her data collection.

Any assistance you may give her would be greatly appreciated.

Yours faithfully,


(Dr. Charity S. Akotia)
HEAD OF DEPARTMENT

Appendix VI: SPSS Outputs

Correlations

Correlations

		ARTScore	ReligiousnessScore
ARTScore	Pearson Correlation	1	-.025
	Sig. (2-tailed)		.716
	N	216	216
ReligiousnessScore	Pearson Correlation	-.025	1
	Sig. (2-tailed)	.716	
	N	216	216

Regression

Variables Entered/Removed^b

Model	Variables Entered	Variables Removed	Method
1	ReligiousnessScore ^a	.	Enter

a. All requested variables entered.

b. Dependent Variable: ARTScore

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.025 ^a	.001	-.004	6.03625

a. Predictors: (Constant), ReligiousnessScore

ANOVA^b

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	4.824	1	4.824	.132	.716 ^a
	Residual	7797.380	214	36.436		
	Total	7802.204	215			

a. Predictors: (Constant), ReligiousnessScore

b. Dependent Variable: ARTScore

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	25.181	2.491		10.109	.000
	ReligiousnessScore	-.026	.071	-.025	-.364	.716

a. Dependent Variable: ARTScore

Regression

Variables Entered/Removed^b

Model	Variables Entered	Variables Removed	Method
1	Sought infertility treatment, sex of respondent, Have Children, age of respondent, marital status ^a		Enter

a. All requested variables entered.

b. Dependent Variable: ARTScore

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.120 ^a	.014	-.009	6.05105

a. Predictors: (Constant), Sought infertility treatment, sex of respondent, Have Children, age of respondent, marital status

ANOVA^b

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	113.015	5	22.603	.617	.687 ^a
	Residual	7689.188	210	36.615		
	Total	7802.204	215			

b. Dependent Variable: ARTScore

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	22.692	2.281		9.949	.000
	age of respondent	-.614	1.270	-.042	-.484	.629
	sex of respondent	.649	.843	.053	.770	.442
	marital status	1.425	1.387	.115	1.027	.306
	Have Children	-1.860	1.309	-.143	-1.420	.157
	Sought infertility treatment	-.837	1.523	-.041	-.550	.583

a. Dependent Variable: ARTScore

Correlations

		ARTScore	CulturalEstScore
ARTScore	Pearson Correlation	1	.113
	Sig. (2-tailed)		.096
	N	216	216
CulturalEstScore	Pearson Correlation	.113	1
	Sig. (2-tailed)	.096	
	N	216	216

Regression

Variables Entered/Removed^b

Model	Variables Entered	Variables Removed	Method
1	CulturalEstScore ^a	.	Enter

a. All requested variables entered.

b. Dependent Variable: ARTScore

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.113 ^a	.013	.008	5.99912

a. Predictors: (Constant), CulturalEstScore

ANOVA^b

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	100.456	1	100.456	2.791	.096 ^a
	Residual	7701.748	214	35.989		
	Total	7802.204	215			

a. Predictors: (Constant), CulturalEstScore

b. Dependent Variable: ARTScore

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	21.943	1.461		15.018	.000
	CulturalEstScore	.234	.140	.113	1.671	.096

a. Dependent Variable: ARTScore

T-Test

Group Statistics

	sex of respondent	N	Mean	Std. Deviation	Std. Error Mean
ARTScore	male	91	24.0110	6.57351	.68909
	female	125	24.4880	5.60906	.50169

Independent Samples Test

	Levene's Test for Equality of Variances		t-test for Equality of Means						
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower	Upper
ARTScore Equal variances assumed	1.704	.193	-.574	214	.567	-.47701	.83142	-2.11583	1.16181
Equal variances not assumed			-.560	175.008	.576	-.47701	.85237	-2.15926	1.20524

T-Test

Group Statistics

age of respondent		N	Mean	Std. Deviation	Std. Error Mean
ARTScore	18-39years	170	24.4588	5.60759	.43008
	40yrs and above	46	23.6522	7.40035	1.09112

Independent Samples Test

	Levene's Test for Equality of Variances		t-test for Equality of Means						
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower	Upper
ARTScore Equal variances assumed	7.802	.006	.805	214	.422	.80665	1.00200	-1.16841	2.78171
Equal variances not assumed			.688	59.686	.494	.80665	1.17283	-1.53960	3.15290

Oneway

Descriptives

ARTScore								
					95% Confidence Interval for Mean			
	N	Mean	Std. Deviation	Std. Error	Lower Bound	Upper Bound	Minimum	Maximum
Catholic	61	23.2459	6.44892	.82570	21.5943	24.8975	10.00	40.00
Protestant	44	25.3636	6.28801	.94795	23.4519	27.2754	8.00	36.00
Pentecostal/charismatic	74	24.7973	6.08159	.70697	23.3883	26.2063	8.00	40.00
Moslem	37	23.7027	4.58782	.75423	22.1730	25.2324	15.00	35.00
Total	216	24.2870	6.02406	.40989	23.4791	25.0949	8.00	40.00

ANOVA

ARTScore					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	149.021	3	49.674	1.376	.251
Within Groups	7653.182	212	36.100		
Total	7802.204	215			