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DEVELOPMENT OF GUIDELINES FOR HOLISTIC HEALTHCARE INTERVENTIONS FOR WOMEN WITH INFERTILITY IN GHANA.

A THESIS SUBMITTED IN FULFILMENT OF THE REQUIREMENTS FOR DOCTOR OF PHILOSOPHY IN NURSING SCIENCE.

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DECLARATION

I, the undersigned, Deborah Armah (18370293) hereby declare that **"DEVELOPMENT OF GUIDELINES FOR HOLISTIC HEALTHCARE INTERVENTIONS FOR WOMEN WITH INFERTILITY IN GHANA"** is my own original work and has never been submitted before for any degree or examination at any other institution. All the sources that I used or quoted have been indicated and acknowledged by means of complete references.

Signature:  Date: 25 October 2019

DEDICATION

So, he said to me, this is the word of the LORD to Zerubbabel: Not by might nor by power, but by my spirit, says the LORD Almighty.

Zechariah 4:6.

This study is fully dedicated to the Holy Spirit. He did not only sponsor my whole programme, but He also added unto me divine speed, academic grace, academic favour, and many more blessings just to make my study a success.

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ABSTRACT

Background: Research has shown that many couples worldwide are suffering from infertility. Although issues pertaining to infertility are found in both males and females, it is usually the women who become victims of disgrace and humiliation, making them vulnerable to maltreatment. In Ghana, women diagnosed with infertility are mostly managed biomedically, and the psychological, social and spiritual aspects of the management are neglected. The unavailability of holistic management from the healthcare system contributes to women's suffering. Hence, the need for the development of guidelines for holistic healthcare interventions for women with infertility in Ghana.

Aim: This study aimed at developing and refining guidelines for holistic healthcare interventions for women with infertility in Ghana. The findings of this study may enable holistic healthcare interventions to be incorporated into the already existing biomedical management used in Ghana.

Design: The study was conducted in three phases. Phase I of the study was a systematic review of literature that elicited information on the existing holistic healthcare interventions used by other countries. Phase II of the study was guided by a mixed method (pragmatic) approach that provided tentative answers to the research questions. Phase III was guided by the e-Delphi technique, a method for consensus building using a series of questionnaires to collect data from a panel of independent experts.

Methods: Phase I of the study focused on a systematic review of literature. Phase II of the study focused on drafting guidelines for holistic healthcare interventions for women diagnosed with infertility. The development and refinement of guidelines for holistic healthcare interventions for women diagnosed with infertility was based on the systematic review of literature in Phase I and the empirical data collected in Phase II. The methods employed in Phase II were focus group discussions and a nominal group technique, with the aim of creating interaction between stakeholders to generate new ideas and identify issues relevant to the research objectives. Phase III was concerned with the refinement of guidelines. The e-Delphi technique was used to establish consensus among experts on the topic to ensure reliable guidelines. The necessary ethical requirements like beneficence, respect for human dignity and justice were adhered to by the researcher.

Conclusion: The findings of this study indicated that women diagnosed with infertility had many healthcare needs namely; medical health assessment needs, psychological needs, educational needs, spiritual needs, social needs, financial needs and finally, expectations from the healthcare system. This implies that women diagnosed with infertility are not managed in a holistic way, even though they expressed a need for their care go beyond the traditional management approach (biomedical). The findings of the study were integrated and applied to develop guidelines for holistic healthcare interventions for women diagnosed with infertility. The refined guidelines for holistic healthcare interventions for women diagnosed with infertility could benefit other women in similar situations elsewhere.

TABLE OF CONTENTS

LIST OF ANNEXURES

LIST OF TABLES

LIST OF FIGURES

LIST OF ABBREVIATIONS

BPSS: Bio-psycho-social-spiritual

CINAHL: Cumulative Index to Nursing and Allied Health Literature

FGD: Focus group discussion

NGT: Nominal group technique

WHO: World Health Organization

BPS model: Biopsychosocial model

Np: No page number

CHAPTER 1

BACKGROUND TO THE STUDY AND PROBLEM STATEMENT

1.1 INTRODUCTION

This chapter introduces the concept of infertility, the background and rationale to the problem, the problem statement, and the significance of the study. Research questions, the purpose of the study, the research objectives, and a brief paradigmatic perspective of the study are presented. Definition of concepts, a brief overview of the research methodology, ethical considerations guiding the study, rigour of the study and the outline of the study are also introduced.

Infertility is considered a biopsychosocial crisis experienced by individuals and couples all over the world (Akhondi, Binaafar, Ardakani, Kamali, Kosari & Ghorbani, 2013: 92). Women may experience infertility as a traumatic event that affects both their psychological wellbeing and social status. It is one of the major causes of worry, anxiety and unhappiness in the lives of many couples in Africa (Donkor, Naab & Kussiwaah, 2017: 1; 5; Eniola, Adetola & Abayomi, 2017: 382; Akhondi *et al.*, 2013: 92). The definition of infertility, as adopted by most researchers, is a struggle, failure or inability to achieve a successful pregnancy after one or more years of unprotected, regular sexual intercourse without the use of contraceptives (Chandra, Copen & Stephen, 2013: 10).

Infertility is portrayed as one of the most upsetting life crises that couples may encounter. Despite the great success in improving maternal and child health in the past few decades, studies still show that some issues pertaining to infertility are often neglected and paid less attention when assisting individuals and couples with infertility (Akhondi *et al.*, 2013: 92). The care of these people are often directed by a biomedical approach rather than a holistic approach, especially in African countries, including Ghana (Kussiwaah, Donkor & Naab, 2016: 57).

In view of the importance attached to parenthood in Africa, infertility is considered a major cause of depression, frustration, anxiety, social isolation, physical violence, suicidal ideations, threats from husbands and husbands' families, stigmatization, rejection, abandonment, divorce and marital instability. The stigmatization and rejection from the community may go as far as gossiping, pressure from society, and mockery to the extent of calling women without children in their old age witches (Anokye, Acheampong, Mprah, Ope & Barivure, 2017: 690; Donkor *et al.*,

2017: 1; 5; Kussiwaah, Donkor & Naab, 2017: 4225; Minucci, 2013: S37; Naab, Brown & Heidrich, 2013: 132; Tabong & Adongo, 2013a: 72). These women may also be excluded or forbidden from social activities because women are mostly blamed when couples remain childless (Anokye *et al.*, 2017: 690; Kussiwaah *et al.*, 2017: 4221; Minucci, 2013: S37; Naab *et al.*, 2013: 136; Tabong & Adongo, 2013a: 72).

The humiliations experienced by women with infertility may also extend to the churches they attend. In the researcher's previous research, women shared how they stopped attending their formal church and searched for another because of how some church members questioned their delay in conceiving. Others expressed how they were often delivered by their pastors in addition to constant revelations concerning their ability to conceive soon. These women claimed none of those revelations or prophesies came to pass; hence, exposing them to more public ridicule (Kussiwaah, 2016: 67-70).

In spite of all the negative influences that infertility has on the total wellbeing of women with infertility in Ghana, a country known to be a strong pro-natal society, women with infertility are mostly managed biomedically, making their treatment incomplete (Kussiwaah *et al.*, 2016: 57). The researcher is of the view that there is a need to develop guidelines for holistic healthcare interventions for women with infertility in Ghana.

1.2 BACKGROUND AND RATIONALE TO THE PROBLEM

Infertility is not only a physical condition, but also a psychosocial stressor and a critical point in one's life where values and assumptions, including perceptions of self, family and life in general are brought into question (Chan, Chan, Ng, Ho, Chan, Lee & Hui, 2012: 358). Infertility is also known to be one of the most difficult life experiences that couples may encounter, and in some cases it is considered a biopsychosocial crisis that could influence all aspects of life (Yazdani, Elyasi, Peyvandi, Moosazadeh, Galekolaee, Kalantari, Rahmani & Hamzehgardeshi, 2017: 4698; Engel, 1977: 129-132). The incidences, types, risk factors and causes associated with infertility and the psychosocial issues associated with the experiences of infertility are discussed in Section 1.2.1, Section 1.2.2, Section 1.2.3 and Section 1.2.4, respectively. This is followed by Section 1.2.5 on the management of infertility, Section 1.2.6 on the problems associated with infertility management, and finally, Section 1.2.7 discussing infertility in the Ghana context.

1.2.1 Incidence of infertility

As many as 186 million people globally are affected by infertility, and despite the fact that male infertility contributes to the problem, infertility still remains a psychosocial burden mostly affecting women (Inhorn & Patrizio, 2015: 411; 423). Globally infertility is estimated to affect up to 48.5 million couples. Out of these 48.5 million couples, 19.2 million are known to be primarily infertile, and 29.3 million are suffering from secondary infertility (Direkvand-Moghadam, Sayehmiri, Delpisheh & Direkvand-Moghadam, 2014: 40-41; Mascarenhas, Flaxman, Boerma, Vanderpoel & Stevens, 2012: 1001356). See Section 1.2.2 for an explanation of the types of infertility.

In Sub-Saharan Africa, the occurrence of infertility varies from 14.3% in Gambia (Anyanwu & Idoko, 2017: 2) and 23.9% in Bauchi, Northern Nigeria (Dattijo, Andreadis, Aminu, Umar & Black, 2016: 77). A recent study conducted in Gambia with the aim of obtaining the prevalence and the predominant type of infertility among couples presenting for infertility management, revealed that secondary infertility was the commonest type of infertility, representing 59.3% of cases, followed by primary infertility, representing 33.9% of cases (Anyanwu & Idoko, 2017: 1; 2).

According to the Ghana Maternal Health Survey report (Ghana Statistical Service, Ghana Health Service & ICF, 2018:37), the total fertility rates in Ghana declined from 4.2 children per woman in 2014 to 3.9 children per woman in 2017. Women are always seen as having the problem when issues pertaining to infertility arose, The findings of a study by (Kirca, Gençdoğan & Çelik, 2014: 834) revealed that women should not always be labelled or blamed since only 40% of all infertility cases are due to the female partner. These authors indicated that 40% are related to the male partner, and 20% are related to unexplained factors.

1.2.2 Types of infertility

Infertility is classified into ‘primary infertility’ and ‘secondary infertility’ (Mascarenhas et al., 2012: 1001356). Primary infertility is considered as having never conceived after a year or more of unprotected regular sex without the use of contraceptives. Secondary infertility is referred to as having conceived before, regardless of the final outcome, but now having difficulty conceiving again (Mascarenhas *et al.*, 2012: 1001356). Other classifications of infertility identified are ‘combined’, ‘unexplained’ and ‘unclassified’ infertility. Combined infertility is described as instances when both partners are either infertile or sub fertile with the cause of their problem resulting from a genetic or immunological condition. According to the Advanced Fertility Centre

(2015: np), both partners would be without a problem, but they cannot conceive without assistance. Unexplained infertility is defined as a type of infertility whose cause is unknown (Advanced Fertility Centre, 2015: np). Unclassified infertility is not assigned to a particular class or category (Anyanwu & Idoko, 2017: 2).

1.2.3 Risk factors and causes associated with infertility

There are multiple risk factors associated with infertility across biological, psychological, social and environmental domains. Infertility may be caused by underlying diseases of the reproductive system that may impair the fallopian tubes, interfere with ovulation, or cause hormonal complications. These diseases of the reproductive system may include pelvic inflammatory disease, endometriosis, polycystic ovarian syndrome, premature ovarian failure and uterine fibroids (Eniola *et al.*, 2017: 382). Factors contributing to infertility may also include environmental and behavioural factors like exposure to toxins such as glues, volatile organic solvents or silicones, physical agents, chemical dusts, pesticides, smoking, alcohol and caffeine consumption, substance abuse and many others that could influence one's chances of conceiving (Anderson, Nisenblat & Norman, 2010: 8).

A person's chance of getting pregnant and having a healthy live birth may be affected by factors such as weight. Studies have proved that weight loss and excessive weight gain with a body mass index greater than 27 kg/m^2 could have an influence on one's chances of conceiving (Dağ & Dilbaz, 2015: 111; Talmor & Dunphy, 2015: 498; Anderson *et al.*, 2010: 8). Obesity is known to be associated with various reproductive consequences including anovulation, subfertility and infertility, increased risk of miscarriage, and poor neonatal and maternal pregnancy outcomes (Dağ & Dilbaz, 2015: 111; Talmor & Dunphy, 2015: 498; Anderson *et al.*, 2010: 8).

Fertility also declines with age and advanced age is a risk factor for female infertility, pregnancy loss, foetal anomalies, stillbirth, and other obstetric complications (Sauer, 2015: 1136; Stoop, Cobo & Silber, 2014: 1311). Female fertility reaches its peak between the ages of 18 and 24 years, begins to decline after age 27 and drops at somewhat greater rate after age 35 (Sauer, 2015: 1136; Stoop *et al.*, 2014: 1311).

Hormonal imbalance is also identified as having a negative effect on childbearing (Unuane, Tournaye, Velkeniers & Poppe, 2011: 861;862). For example, the hypothalamus, through the release of gonadotrophin releasing hormones, controls the pituitary gland, which directly or indirectly controls most other hormonal glands in the human body. Thus, alterations in the

chemical signals from the hypothalamus can affect the pituitary gland, ovaries, thyroid and mammary gland and can cause hormonal abnormalities. Hence, hypothalamic causes of female infertility should be considered when tests point to hypogonadotropic hypogonadism. Hormonal anomalies that affect ovulation include hyperthyroidism, hypothyroidism and polycystic ovary syndrome (Unuane, Tournaye, Velkeniers & Poppe, 2011: 861;862). Endocrine disorders may also have negative effects on a woman's chances of conceiving by interacting with and impairing the normal reproductive ovarian function. Endocrine disorders should be excluded in women with ovarian causes of infertility without neglecting the other causes of female infertility such as tubal disorders, obstructions of the genital tract and endometriosis (Unuane *et al.*, 2011: 871).

Individuals who engage in unprotected sexual intercourse are likely to get infected with sexually transmitted infections. Sexually transmitted infections are caused by either a bacteria or a parasitic microorganism, and these organisms are known to be a leading cause of infertility and are often asymptomatic or present with a few symptoms. Examples of sexually transmitted infections that may impact fertility include syphilis, trichomoniasis, chancroid, chlamydia, gonorrhoea and herpes simplex (Eniola *et al.*, 2017: 382).

Late marriage of couples; unwillingness to have a child during the optimum reproductive years, poorly treated systemic diseases, like diabetes, excessive intake of alcohol, smoking, exposure to hazardous occupational substances, some behavioural factors, treatment of certain conditions, with the commonest being; ovulation dysfunction, tubal disorders, and some abnormalities in the reproductive system of both men and women (Codner, Merino & Tena-Sempere, 2012: 573;580).

Finally, a study conducted in Bawku by Tabong & Adongo (2013b: e54429), a district in Northern Ghana, with the aim of exploring the community's perceptions and opinions with regards to childbearing and childlessness, identified that infertility is caused by both social and biological factors. The findings of the study outlined some perceived social causes of infertility as bewitchment and disobedience of social norms. The study revealed that the biological causes of infertility were associated with factors like tubal damage, abortion, male factors, anovulation, use of contraceptives and uterine factors (Tabong & Adongo, 2013b: e54429).

1.2.4 Psychosocial issues associated with infertility

The challenges involved in infertility cause mental and social hardships. These hardships surface mostly when treatment does not result in a clinical pregnancy or a live birth (Musa, Ramli, Yazmie, Khadijah, Hayati, Midin, Jaafar, Das, Sidi & Ravindran, 2014: S65-S69; Gameiro, Boivin,

Peronace & Verhaak, 2012: 652-658; Bouwmans, Lintsen, Al, Verhaak, Eijkemans, Habbema, Braat & Hakkaart-Van Roijen, 2008: 1169;1175). Besides the negative experiences women go through as a result of either treatment failures or the cost of treatments, they also experience diverse forms of psychosocial stigma in the neighbourhood, workplace and even at church as a result of their inability to have children (Minucci, 2013: S37; Naab *et al.*, 2013: 136; Tabong & Adongo, 2013a: 72). Infertility treatment is also associated with considerable distress and characterized by dissatisfaction (Van Den Broeck, Emery, Wischmann & Thorn, 2010: 422).

Sexual dysfunction is one of the psychological consequences experienced by individuals diagnosed with infertility. To support this assertion, findings from a study conducted in India by Aggarwal, Mishra, and Jasani (2013: 188) revealed that 63,67% of patients in the infertile group reported suffering from sexual dysfunction as compared to 46.35% in the fertile group. The researchers also added that female sexual dysfunctions were noted to be significantly higher in infertile females between the ages of 31 and 37 years (Aggarwal, Mishra & Jasani, 2013: 188; Seen Heng, Sidi, Nik Jaafar, Razali & Ram, 2013: 50).

In the Turkish society, loneliness was common among women diagnosed with infertility. These women were left alone to face the challenge they find themselves in (Gokler, Unsal & Arslantas, 2014: 155;161). In Pakistan depression also ranked higher among females diagnosed with infertility. The findings of the study revealed that out of the total sample size of 342 women, 58% experienced depression. This was attributed to factors like age, repeated failed treatment cycles and longer duration of infertility. (Ali, Shams, Kessani & Ali, 2015: 1480;1481).

Again, in the Turkish society, it is believed that having a child or childbearing is one of the basic building blocks of marriage and children are seen as a necessity to continue the bloodline. A man who is unable to have a child by his wife may divorce her or marry a second woman (Tabong & Adongo, 2013a: 72). In the Turkish as well as the African culture, the proper meaning of marriage is only fulfilled when couples conceive and have children, since it gives the family the hope and assurance of continuity in lineage. In the African culture, a high premium is placed on womanhood by both the extended families and society at large. Hence, women who are unable to meet these societal demands may have marital problems (Tabong & Adongo 2013a: 72).

In Africa, motherhood is used as a measure for a woman's reputation in the society, and it is also considered a source of power and pride (Minucci, 2013: S37). Women known to be suffering from infertility are prone to public ridicule, for example, adding nicknames to their original names,

ostracism and economic deprivation affecting their psychological and social wellbeing (Minucci, 2013: S37). These women experience a heavy psychological, social and spiritual burden, especially when treatment does not result in a clinical pregnancy or a live birth (Musa *et al.*, 2014: S65-S69; Gameiro *et al.*, 2012: 652-658; Bouwmans *et al.*, 2008: 1169;1175).

These difficulties experienced by women diagnosed with infertility in some parts of Africa is the same as those experience by women in Ghana with the same diagnosis. The findings of two studies revealed that infertile Ghanaian women experience many psychosocial consequences, and 53% of women seeking treatment for fertility problems in Ghana were depressed (Naab *et al.*, 2013: 136; Fledderjohann, 2012: 1383). Two more recent studies conducted in Ghana also revealed that these women experienced many psychological difficulties, such as anxiety, depression, worry; physical difficulties, like reduced sexual satisfaction; and social difficulties, such as stigmatization, intentional isolation and inability to attend social functions (Kussiwaah *et al.*, 2017: 4221; Donkor *et al.*, 2017: 5).

Another study by Tabong and Adongo (2013b: e54429) in Northern Ghana described how women without children are maltreated in society, especially in their old age when they are often branded as witches and are abandoned by relatives and friends. They are not allowed to interact or take care of other people's children as they are often accused of having 'eaten up' all the children in their womb and could bewitch or cause the death of other people's children. Apart from being stigmatized, they are also excluded from leadership roles in their communities and denied membership in the ancestral world, thereby losing the opportunity to live again (Tabong & Adongo, 2013b: e54429).

Also, in Ghana, Osei (2016:125) found that infertility and childlessness were probably the most important reasons for divorce, polygamy, domestic violence, and poverty. People may sell their properties and belongings to pay for treatment, and others go as far as committing suicide to end it all. The researcher emphasized that there is a need to have accessible infertility care (Osei, 2016: 125).

All the psychosocial trauma encountered place a heavy burden on women diagnosed with infertility. The emotional impact is significant, especially when treatment does not result in a clinical pregnancy or a live birth (Musa *et al.*, 2014: S65-S69; Gameiro *et al.*, 2012: 652-658; Bouwmans *et al.*, 2008: 1169;1175).

1.2.5 Management of infertility

There are a variety of interventions to be considered in the management of infertility.

1.2.5.1 Medical history, physical examination and diagnosis

History taking and physical examination is the initial process required in any healthcare setting before the commencement of treatment. A complete medical history and thorough physical examination are done, after which diagnostic as well as imaging tests are required to ascertain the cause of the disease. Examples of these tests include ultrasound, hysteronsalpingography, hysteroscopy, fertiloscopy, and laparoscopy. An endometrial biopsy can also be requested to verify ovulation, whereas a Pap smear test is done to view the pelvic organs and check for signs of infection (Eniola *et al.*, 2017: 382;383).

Identifying the underlying causes of infertility are often complicated, stressful and time consuming. Individuals battling with infertility spend large amounts of money at fertility clinics because of the large number of investigations they are required to undergo. This is most evident when the woman is above 35 years of age, or if either partner has known risk factors for infertility (Eniola *et al.*, 2017: 382).

1.2.5.2 Medical treatment

The treatment options available for infertility range from oral medications, surgical procedures, assisted reproductive therapies like intrauterine insemination, in vitro fertilization and intracytoplasmic sperm injection (Cabry, Merviel, Hazout, Belloc, Dalleac, Copin & Benkhalifa, 2014: 17; Menuba, Ugwu, Obi, Lawani & Onwuka, 2014: 763; Murto, Svanberg, Yngve, Nilsson, Altmäe, Wånggren, Salumets & Stavreus-Evers, 2014: 766-767). With regard to the administration of oral medication, the report from the 2011 Contemporary Obstetrics and Gynaecology e-News indicated that Clomiphene citrate is considered as the first-line treatment of infertility. This is because it is relatively low cost and easy to use and has minimal side effects. Clomiphene citrate has been proven effective for the past 50 years, since the first clinical trial inducing ovulation in more than 75% of women with amenorrhea (Ekpo, Moy, Pavone & Milad, 2011: 42).

Marinakis and Nikolaou (2012: 375) revealed that as first-line management, 71.1% of medical practitioners would offer conventional in vitro fertilization and 17.9% intrauterine insemination,

while 33.3% would consider blastocyst transfer, 5.9% pre-implantation genetic screening and 3.9% assisted zona hatching (Marinakis & Nikolaou, 2012: 375).

The Harvard Mental Health Newsletter (2013: np) stated that medical interventions for infertility may aggravate some forms of psychological problems, especially with poor treatment outcomes, some medication side effects and cause financial stress. Despite the much-needed help and hope that medical management offer, it may add to the stress, anxiety and grief that patients are already experiencing from infertility. About 85-90% of patients were treated with conventional methods, such as advice on timing of intercourse, drug therapy to promote ovulation or prevent miscarriages, and surgery to repair reproductive organs, whereas only 3% of patients made use of more advanced assisted reproductive technology such as in vitro fertilization (Harvard Mental Health Newsletter, 2013: np).

In some developed countries, psychosocial healthcare interventions are incorporated into the biological care received by these women. This helps to make their treatment holistic while they attain optimal health. Some of these interventions include health education, counselling, group psychosocial interventions, cognitive behavioural therapies and peer mentoring. There are also easy to understand written materials about the causes and consequences of infertility and available treatments options for infertility (Verkuijlen, Verhaak, Nelen, Wilkinson & Farquhar, 2014: 2; Van den Broeck *et al.*, 2010: 422).

1.2.6 Problems associated with infertility management

In his seminal study, Engel (Engel, 1977: 129-132) proposed that in order effectively treat infertility, couples must undergo holistic healthcare interventions, taking into consideration the whole being of the patient. This includes physical, psychological and social care. The theorist based his theory on the assumption that infertility is a biopsychosocial health problem with interrelated and interdependent biological, psychological and social factors. Dossey (1997: 7) critiqued the biopsychosocial (BPS) model that was propounded by Engel and argued that all the components (biologic, psychologic and social) were always involved in a patient's symptoms, disease, or illness. However, the aspect of spirituality is secondary in Engel's model. Dossey (1997: 7) added that to ensure the provision of more complete and holistic care, and the aspect of biological, psychological, social and spiritual components should be integrated. Hence, in the management of infertility, all factors should be addressed for a better outcome. According to Chan *et al.* (2012: 357), health can be influenced by psychological, social, philosophical and spiritual

factors. The body functions as a system, and change in any one of the components within the system will affect the others; hence, in the management of one system, all the other factors must be considered to make healing complete and holistic (Chan *et al.*, 2012: 358).

Despite the above theories and recommendations that health should be managed from a biological, psychological, social and spiritual perspective, this is not always the case when it comes to issues pertaining to infertility (Kussiwaah *et al.*, 2016: 57; Read, Carrier, Boucher, Whitley, Bond & Zelkowitz, 2014: 393). Even though various studies have been conducted on infertility, the psycho-social-spiritual management is not adequately addressed in the clinical practice and not much research has been done in relation to the psychological, social and spiritual management.

In view of the fact that women diagnosed with infertility are not managed holistically (Kussiwaah *et al.*, 2016: 57; Read *et al.*, 2014: 393), the bio-psycho-social-spiritual (BPSS) model by (Dossey, 1997: 4) was adapted as a guiding theoretical framework to ensure the guidelines developed in this study reflect components of holistic healthcare. In as much as Engel (1977: 129-132) also propounded a theory in relation to holistic care, the concept of the BPSS model was the most preferred by the researcher since it is flexible and has all the components of holistic care approaches that considers the whole person and emphasizes the connection of the mind, body and soul. Chapter 2 gives a detailed explanation of the theoretical framework.

Although women diagnosed with infertility desire holistic healthcare interventions incorporated into their existing biological management, this is not readily available in Ghana, the context of this study. Here women are mostly managed biomedically and not holistically (Kussiwaah *et al.*, 2016: 57; Read *et al.*, 2014: 393).

There is an international agreement that all fertility centres need to have psychosocial programmes, including counselling for psychosocial problems for the infertile so that they can attain optimum health (Soltani, Shairi, Roshan & Rahimi, 2014: 343). Irrespective of the international agreement to provide holistic care, it is still lacking in Ghana and infertility are mostly ascribed to physical factors, neglecting the other components of health that are interrelated and interdependent. In a previous study conducted by the researcher, some women revealed that at some point they stopped taking the prescribed medication since it was doing them no good. Others also expressed that they believed their problems were more psychological than physical (Kussiwaah, 2016: 112).

Since infertility affects the total wellbeing of women and can include their physical, psychological, social, spiritual and economical status, the researcher believes that healthcare providers should cultivate the habit of treating these women individually and uniquely in order to help them attain optimal healing. When providers see beyond the diagnosis of these women and attend to their psychological, spiritual and social needs, complete healing may be facilitated.

1.2.7 Infertility in the Ghanaian context

Childbearing is fundamental to adult life in Ghana. Infertility in Ghana has important consequences for social interactions, marital stability and mental health. These consequences are not perceived to be shared equally by Ghanaian women and men (Oti-Boadi & Asante, 2017: 5; Fledderjohann, 2012: 1383).

Issues of infertility have several negative influences on the social wellbeing of women in Ghana. Women who are known to be infertile are socially burdened with stigmatization, intentional isolation, forbidden to attend social functions and marital instability (Kussiwaah *et al.*, 2017: 4225). Although it is mostly acceptable for parents to discipline another person's child when necessary, individuals diagnosed with infertility are discouraged from disciplining or even interacting with other people's children. Additionally, women without children in Ghana are left out of adult conversations pertaining to child rearing, a painful form of exclusion and ostracism (Fledderjohann, 2012: 1383). The findings of the studies by Fledderjohann (2012, 1386; 1387) and Kussiwaah *et al.* (2017: 4225) indicated that gossiping about infertile individuals is most common among their own friends, community members and family members. Considering all these problems, the researcher is of the view that there is a need for the development of holistic healthcare interventions for managing women with infertility in Ghana.

1.3 PROBLEM STATEMENT

Infertility is known to be one of the most difficult life experiences that couples may encounter, and in some cases it is considered a biopsychosocial crisis that influences all aspects of life (Yazdani *et al.*, 2017: 4694; Engel, 1977: 129-132). In view of the importance attached to parenthood in Africa, infertility can be considered a major cause of depression, frustration, anxiety, social isolation, physical violence, suicidal ideations, threats from husbands and husbands' families, rejection, abandonment, divorce and marital instability. The stigmatization and rejection from the community may go as far as gossiping, pressure from society, and mockery to the extent of calling women without children in their old age witches. These women are also not invited, and thereby

excluded, from social activities (Anokye *et al.*, 2017: 690; Minucci, 2013: S37; Naab *et al.*, 2013: 132; Tabong & Adongo, 2013a: 72).

In their seminal work, Covington and Burns (2006: 2) mentioned that there have been many new scientific and medical developments in infertility technology around the world. These developments have led to a better understanding of and attention to the mental concerns and emotional needs of people suffering from infertility, as well as to technology for overcoming infertility. Patients are referred to mental health experts to help them make decisions about treatment protocols and alternative parenting options (Covington & Burns, 2006: 2).

Although studies have shown that maternal and child health have greatly improved in the last few decades, the healthcare management of women with infertility is still mostly provided from a biomedical approach, while the psychological, spiritual and social aspects are neglected and paid less attention, especially in Africa (Kussiwaah *et al.*, 2016: 57; Cui, 2010: 881-882).

During the researcher's 11 years of service as a nurse in Ghana, she observed that patients who reported at the outpatient department with infertility complained bitterly about the trauma they undergo in their homes, workplaces, society and even at their churches. From their reports it seemed that healthcare providers focus mostly on the biomedical management of their problem, not asking about or attending to their psychological, social or spiritual wellbeing. The treatment in Ghana is not focused on holistic healthcare and there are no referral systems or protocols for referring these women so that they can seek support elsewhere. The researcher's observations align with a recent study conducted in Ghana. The authors found that women diagnosed with infertility encountered diverse psychological and social difficulties and expressed the desire for healthcare providers to attend to them in totality (Kussiwaah *et al.*, 2016: 57). Regardless of these women's needs for holistic care, their care are still centred and reduced to only their biological needs (Joy & Mccrystal, 2015: 88).

The needs of these women to be managed holistically are neglected in Ghana and there is no referral system in place to refer them to the appropriate specialist for help. This neglect of not attending to the psychological, spiritual and social problems of these women has led to loneliness, anxiety, depression, lack of concentration, worrying, and reduced sexual satisfaction *(Donkor et al.,* 2017: 6). The researcher therefore seeks to develop guidelines for holistic healthcare interventions that can be applied to women diagnosed with infertility in Ghana.

1.4 SIGNIFICANCE OF THE STUDY

The significance of this study was revealed in the healthcare needs of women diagnosed with infertility and how holistically they desire to be treated by their healthcare providers. The care rendered to women diagnosed with infertility could be strengthened by incorporating their healthcare needs to the already biomedical approach of management, as well as their suggestions with regard to how they preferred to be cared for where their health is concerned. When healthcare providers implement the above and manage women diagnosed with infertility holistically, it will promote optimal health and increase the women's chances of conceiving. The significance of this study is further discussed in terms of research, nursing practice and policy development.

- **Research**

The study could assist in developing guidelines for infertility care in Ghana, and it can also contribute towards the knowledge and better understanding of the healthcare needs of women diagnosed with infertility. The findings could also generate options for further research on how to implement holistic healthcare interventions and examine the impact of these interventions.

- **Nursing Practice**

The findings can promote holistic healthcare and nursing care. Healthcare providers and nurses who implement the guidelines in practice will treat women diagnosed with infertility holistically, and not only attending to their biomedical needs.

- **Policy Development**

The findings of this study could assist government and nongovernmental organizations in developing policies, strategies and guidelines on holistic healthcare interventions for managing women diagnosed with infertility, based on a scientific process.

1.5 RESEARCH QUESTIONS

From the above problem statement, the general research question was:

- What should guidelines for holistic healthcare interventions for women diagnosed with infertility in Ghana entail?
- What should be included in the draft guidelines for holistic healthcare interventions for women diagnosed with infertility in Ghana?

- How can guidelines for holistic healthcare interventions for women diagnosed with infertility be refined?

1.6 RESEARCH AIM

The study aimed to:

- Develop and refine guidelines for holistic healthcare interventions for women diagnosed with infertility in Ghana.

1.7 RESEARCH OBJECTIVES

The research objective of each phase was:

Phase I

- Review existing evidence of holistic healthcare interventions for women diagnosed with infertility.

Phase II

- Explore and describe healthcare needs of women diagnosed with infertility in Ghana using a focus group discussion (FGD) with women.
- Develop draft guidelines for holistic healthcare interventions for women diagnosed with infertility in Ghana using a nominal group technique (NGT) with stakeholders.

Phase III

- Refine guidelines for holistic healthcare interventions for women with infertility in Ghana (e-Delphi technique).

1.8 PARADIGMATIC PERSPECTIVE

A paradigm is a worldview that encompasses a set of philosophical assumptions that guide one's approach to inquiry (Polit & Beck, 2017: 738). This study was guided by the philosophy of pragmatism to answer the research question. The word pragmatism comes from the Greek word *pragma* which means 'action' and implies that knowledge comes from taking action and learning from outcomes. Another definition for the word pragmatism means dealing with research in a sensible and realistic way, based on practical rather than theoretical considerations (Morgan, 2013: 7-8). Pragmatism is oriented toward solving practical problems in the 'real world' in which

the world is seen as having several realities that are open to inquiry rather than an assumption about the nature of knowledge. Inquiry means providing new knowledge by taking action and experiencing results, and this occurs when confronting situations that fall outside the existing knowledge base (Morgan, 2013: 7-8; Yvonne Feilzer, 2010: 7-9).

In the pragmatic world, the focus is on practical problem solving in the real world with benefits, risks, and costs of interventions as they would unfold in routine clinical practice. According to pragmatism, the world is seen as having several realities that are open to inquiry rather than an assumption about the nature of knowledge (Polit & Beck, 2017: 160; Morgan, 2013: 7-8). Additionally, the approach offers an opportunity to use diverse methods and ideas that can help the researcher to best frame, address and provide cautious answers to the research questions. Researchers as pragmatists are free to choose the methods, techniques and procedures of research that best meet their needs (Polit & Beck, 2017: 160; Morgan, 2013: 7-8).

Pragmatism also allows for a combination of numerous dimensions and may include: (a) A mix of views from diverse evaluation teams using their own experiences and methodological skills; (b) a mix of methods or questions wanting to know the how of something (quantitative) and the nature of interactions (qualitative); (c) a mix of participants' perceptions within and between groups; and (d) a mix or integration of assertions (Hall, 2013: 15-26). The main purpose of using two methods is to use the strengths of one method to enhance the performance of another method, where each method serves a different purpose and the one method builds on the other (Morgan, 2007: 48-50).

In this study, the researcher was not restricted to a single methodology but resolved the research problem using multiple approaches to answer the research question. Phase I was guided by a systematic review of the literature to evaluate current healthcare interventions in the management of women diagnosed with infertility in order to inform the relevant stakeholders. The results of Phase I and the findings from the FGDs with women diagnosed with infertility informed the stakeholders in Phase II (NGT) to help develop draft guidelines for holistic healthcare interventions for women diagnosed with infertility. Phase III of the study was guided by a consensus method using an e-Delphi technique with experts in the field of infertility, policy and guideline development such as academic researchers, gynaecologist, midwives, and psychologists to refine the guidelines for holistic healthcare interventions for women diagnosed with infertility. A detailed description of the researcher's paradigmatic perspective is given in Chapter 3.

1.9 CLARIFICATION OF CONCEPTS

The specific key concepts that formed the basis of this study were the following: development, guidelines, holistic healthcare interventions, infertility and women.

1.9.1 Development

Development is defined as the act, process, or result of developing new ideas (Webster, 2018a). In this study development is defined in the context of achieving holistic healthcare interventions based on human needs so as to improve the quality of life of women diagnosed with infertility and also to meet their preferred healthcare needs. Development included a structured research process where stakeholders contributed different ideas, opinions and suggestions towards the holistic healthcare needs of women diagnosed with infertility.

1.9.2 Guidelines

Guidelines are systematically developed standards, statements or recommendations by a panel or team of experts with the aim of making evidence-based decisions about appropriate healthcare for specific circumstances in order to result in significant health outcomes (Polit & Beck, 2017: 28). In this study, guidelines were regarded as research-based principles or recommendations for supporting the healthcare needs of women diagnosed with infertility in a holistic way to ensure positive health outcomes.

1.9.3 Holistic healthcare interventions

Holistic healthcare interventions in nursing is based on a philosophy that guides the care that patients receive. The philosophy emerged from the concepts of humanism and holism. Holistic healthcare interventions are a comprehensive style of care in which patients' entire needs are addressed as a means of enabling full recovery. It refers to the provision of care to patients that is based on a mutual understanding of their physical, psychological, social, and spiritual dimensions. Not only are patients' whole needs attended to, their cultural and spiritual wellbeing are also considered. In addition, holistic healthcare emphasizes the partnership between nurse and patient and the negotiation of healthcare needs that lead to recovery (Jasemi, Valizadeh, Zamanzadeh, & Keogh, 2017: 75-76). In this study, holistic healthcare interventions involved managing women diagnosed with infertility in totality (physical, psychological, social and spiritual) and not considering only their physical needs in order to improve, maintain, promote or modify the health of women diagnosed with infertility in Ghana.

1.9.4 Infertility

Infertility is an inability or failure to achieve a successful pregnancy after one or more years of unprotected, regular sexual intercourse without the use of contraceptives (Zegers-Hochschild, Adamson, De Mouzon, Ishihara, Mansour, Nygren, Sullivan & Van Der Poel, 2009: 2686). In this study, infertility referred to a condition causing women who want to get pregnant failing to do so for one or more years.

1.9.5 Women

A woman is defined as any adult female person belonging to a particular category as by birth, residence, membership, or occupation (Webster, 2018b). In this study, women were defined as any female desiring to get pregnant and diagnosed with infertility.

1.10 OVERVIEW OF THE RESEARCH METHODOLOGY

The methodology of this study is detailed and dealt with in Chapter 3. The following is a brief overview of the methodology.

This study was conducted in three phases, as depicted in Table 1.1.

Table 1.1 Summary of the research design and methods

PHASE	PHASE I LITERATURE REVIEW	PHASE II DEVELOP DRAFT GUIDELINES	PHASE III REFINE GUIDELINES
RESEARCH QUESTIONS	What should guidelines for holistic healthcare interventions for women diagnosed with infertility entail?	What should be included in the draft guidelines for holistic healthcare interventions for women diagnosed with infertility in Ghana?	How can guidelines for holistic healthcare interventions for women diagnosed with infertility be refined?
OBJECTIVE	To review existing evidence of holistic healthcare interventions for women diagnosed with infertility.	Stage I: To describe healthcare needs of women diagnosed with infertility in Ghana (FGD with women). Stage II: To develop draft guidelines for holistic healthcare interventions for women diagnosed with infertility in Ghana (NGT with stakeholders).	To refine guidelines for holistic healthcare interventions for women diagnosed with infertility in Ghana (e-Delphi-technique).

PHASE	PHASE I LITERATURE REVIEW	PHASE II DEVELOP DRAFT GUIDELINES	PHASE III REFINE GUIDELINES
DESIGN	Systematic Review	Mixed method (exploratory sequential design) Qualitative-quantitative	Mixed method (Qualitative-quantitative)
METHOD	Systematic Review	FGD NGT	e-Delphi Technique
POPULATION	All scientific literature sources pertaining to healthcare interventions of women diagnosed with infertility.	FGD with women diagnosed with infertility. NGT with stakeholders comprising of both healthcare and non-healthcare providers.	Local and international experts in the fields of infertility and policy and guideline development, such as academic researchers, gynaecologists, midwives, and psychologists.
SAMPLING	Select literature according to key terms pertaining to healthcare interventions of women diagnosed with infertility.	Purposive sampling	Purposive sampling
DATA COLLECTION	Search databases: PUBMED, Medline, Scopus, CINAHL, EBSCOhost	FGD NGT	e-Delphi (questionnaire with Likert scale to rate guideline components)
DATA ANALYSIS	Content analysis	FGD: Open coding of data NGT: Open coding of data Statistical analysis of consensus rates.	Statistical analysis of consensus rates. Content analysis of recommendations.

1.10.1 Phase I: Systematic review of literature

Phase I of the study reviewed various literature sources pertaining to holistic healthcare interventions that were available in the management of women diagnosed with infertility. This helped the researcher to evaluate and come forward with existing evidence on holistic healthcare interventions for women diagnosed with infertility.

A comprehensive search using the period and keywords in the topic were conducted using various search engines like PUBMED, Medical Literature Analysis and Retrieval System Online (Medline),

Scopus, Cumulative Index to Nursing and Allied Health Literature (CINAHL), EBSCOhost and Google Scholar.

In the process of data collection, the following were adhered to (Ryan, 2010: 4):

- Multiple searches of bibliographic databases;
- Scanning of reference lists of existing reviews and eligible studies;
- Searching of key journals;
- Forward citation searching of seminal articles; and
- Researching out of scholars.

In the process of data analysis, the selected readings were subjected to a more advanced quality assessment using a general critical appraisal guide and a design-based quality checklist (Ryan, 2010: 4).

Appropriate findings from the systematic review informed the development of guidelines for holistic healthcare interventions.

1.10.2 Phase II: Stage I (focus group discussions)

Focus group interviews were conducted to:

- Explore and describe the healthcare needs of women diagnosed with infertility to inform the development of draft guidelines for holistic healthcare interventions in that regard.

1.10.2.1 Population

The target population in Phase II: Stage I (FGD) included women diagnosed with infertility within a period of one or more years who regularly accessed healthcare at the Ga South Municipal District Hospital in Ghana. The population included infertile women suffering from either primary or secondary infertility aged 25-45 years. Lastly, the participants needed to be able to speak either English, Twi or Ga well enough to participate in the FGD.

1.10.2.2 Sampling and sample size

The process of selecting a portion of the population to participate and represent the entire population is referred to as sampling (Polit & Beck, 2017: 743). In this study a purposive sampling approach was used. Participants for the FGDs were purposively selected using inclusion criteria,

refer (Section 3.5.2.3.). A total of 20 women diagnosed with infertility were engaged in the discussions.

1.10.2.3 Data collection

The FGDs were conducted by the researcher with the help of an interview guide (Annexure D). The interviews were conducted in the clinic setting to make it flexible for the participants. Allocation of time for the FGD was also made flexible to further accommodate participants. All FGDs were audio-recorded and field notes were taken to keep track of the discussion. A total of 5 focus group discussions were held.

1.10.2.4 Data analysis

The focus group data were analysed using a qualitative approach, followed by the suggested steps for analysing FGD by (Nowell, Norris, White & Moules, 2017: 4-8; Brooks, Mccluskey, Turley & King, 2015: 203-204; Braun, 2006 92-98). Refer Section 3.5.2.9 for a detailed discussion on data analysis steps.

1.10.2.5 Rigour

The trustworthiness of the FGDs is discussed in detail in Table 3.6.

1.10.3 Phase II: Stage II (nominal group technique)

The discussion with stakeholders in relation to developing draft guidelines via an NGT followed after enough data was retrieved through the FGDs with women diagnosed with infertility. Prior to the discussion with the stakeholders, the findings of the systematic review of literature in Phase I and the empirical data collected during FGDs in Phase II were presented to participants so that they could express their views, comments and suggestions.

1.10.3.1 Population

The target population for Phase II: Stage II (NGT) comprised of stakeholders. The stakeholders included healthcare providers (registered nurses, registered midwives, a healthcare manager and a gynaecologist) and non-healthcare providers (opinion leaders, a reverend minister and a member of the legislative council, popularly known as an assembly man).

1.10.3.2 Sampling and sample size

In this study a purposive sampling approach was used to recruit the 12 stakeholders. Prospective healthcare providers were selected based on experience and the number of years in services starting from four years. The researcher chose healthcare providers with more than four years of working experience because they might have gained more insight and understanding in the issue of infertility. The non-healthcare stakeholders were also selected based on their positive influence on the society as far as issues of health is concerned.

1.10.3.3 Data collection

Data collection for Phase II was done through engagement with healthcare providers and other stakeholders using a NGT. This technique of interaction is a form of consensus method in research that is directed at problem-solving, idea-generation and determining priorities (Mcmillan, King & Tully, 2016: 655; Harvey & Holmes, 2012: 193). The researcher presented the empirical findings from the FGDs and relevant information from the systematic review of literature. Group proceedings were audio-recorded, and field notes taken. The stages of an NGT were adhered to in the process of data collection with the help of an interview guide (Annexure E). Refer Section 5.2.4 for a detailed description of the phases employed in conducting the NGT.

1.10.3.4 Data analysis

Qualitative data retrieved from the NGT that resulted from the data from the focus groups discussion, was first coded using the process as discussed in Section 3.5.2.9. This progression was followed by analysing quantitative data through statistical analyses, which included simple procedures like computing an average (Polit & Beck, 2017: 57). During the NGT, each theme from the data from the focus groups was assigned a rating by participants. The totals and averages were calculated to determine the priority assigned to each theme by participants (refer Table 5.3). This helped the researcher to finalize the draft guidelines for holistic healthcare interventions for women diagnosed with infertility.

1.10.3.5 Rigour

The rigour of the qualitative data of the NGT was ensured through trustworthiness**.** Refer to Table 3.6 on strategies used to ensure trustworthiness. The rigour of the quantitative data of NGT

was ensured through validity and reliability (Polit & Beck, 2017: 161; Keen & Otter, 2014: 39). Refer to Section 3.6.2 and Table 3.7 for an explanation of reliability and validity.

1.10.4 Phase III: e-Delphi Technique

Phase III of this study utilized the e-Delphi technique to refine the guidelines for holistic healthcare interventions to ensure the validity and reliability of the guidelines. The e-Delphi technique was conducted after the NGT with stakeholders had yielded collective ideas on the development of the draft guidelines.

1.10.4.1 Population

The e-Delphi technique involved both local and international experts in the field of infertility; academia's well versed in research, policy and guideline development, gynaecologists, midwives and psychologist were also included. Information was retrieved per email without any physical meetings. Purposive sampling was used to select the panel of experts from different disciplines. The panel consisted of experts from local and international levels to ensure that the contents of the guideline was clear, applicable and valid. The experts were sent a set of the developed draft guidelines with a rating scale to evaluate the guidelines. There was also a space for comments so that the expert participants could add their input. Data were collected over two rounds to generate expert opinions anonymously without any direct confrontation and to ensure consensus on the content of the guidelines was reached (Polit & Beck, 2017: 725-726; Mcmillan *et al.*, 2016: 655).

1.10.4.2 Sampling and sample size

The researcher selected participants who are experts and really understand the area of study or could challenge the understanding of the phenomenon. A total of 20 expert participants were purposively selected for this phase of the study. They included academia's well versed in research, infertility experts, gynaecologists, midwives and a psychologist.

1.10.4.3 Data collection

The researcher facilitated the process of data collection with a summary of the panel's views being circulated between rounds to achieve consensus (Polit & Beck, 2017: 725-726). Refer to Section 3.5.5.6 for detailed information on the data collection.

1.10.4.4 Data analysis

Data was analysed in accordance with the participants' rating of the guidelines. All entries were kept anonymous. The number of responses were recorded in a table format according to the levels of agreement using the Likert scale. A quality score was calculated for each of the six criteria according to AGREE II domains. Scores were calculated by summing up all the scores of the participant items in a domain and by scaling the total as a percentage of the maximum possible score for that domain AGREE II by (Brouwers, Kho, Browman, Burgers, Cluzeau, Feder, Fervers, Graham, Grimshaw, Hanna, Littlejohns, Makarski & Zitzelsberger, 2017: 9).

1.11 ETHICAL CONSIDERATIONS

Research involving human beings must deal with ethical issues to ensure that there is an adherence to professional, legal and social obligations to protect the study participants (Polit & Beck, 2017: 726). Ethical issues should be considered in both quantitative and qualitative research and these issues include ethical clearance, privacy, confidentiality, informed consent, voluntary participation, right to withdraw, and respect for dignity. According to Polit and Beck (2017: 139), there are three ultimate ethical principles on which standards of ethical conduct in research should be based. These are: Beneficence, human dignity and justice. The fundamental ethical principles that the researcher was guided by in this study are discussed in the following sections.

1.11.1 Permission to conduct the study

Polit and Beck (2017: 151) indicated that in every study involving human 'subjects', the researcher needs to submit the research plans to the Institutional Review Board (committee of peers or associates of a specific institution) to be reviewed in order to confirm that the rights and welfare of the participants in the study will be protected, the appropriate methods will be used to secure informed consent, and the potential benefits of the study are greater than the risks. In this study, the researcher conducted the study after obtaining ethical approval from the Research Ethics Committee of the Faculty of Health Sciences, University of Pretoria (Annexure F) and the Ghana Health Service Ethics Committee (Annexure G). Permission was also obtained from the management of Ga South Municipal Hospital to conduct the study there (Annexure H).

1.11.2 Beneficence

The principle of beneficence imposes a duty on researchers to minimise anticipated risks and maximize potential benefits (Polit & Beck, 2017: 139). This principle covers the right to freedom from harm and discomfort and the right to protection from exploitation. These are discussed in more detail below.

- The right to freedom from harm and discomfort

In studies involving human beings, researchers have an obligation to avoid, prevent or minimise harm. Participants must not be subjected to unnecessary risks of harm or discomfort. Research should be conducted by qualified people and ethical researchers must be prepared to terminate the study if they suspect that continuation could in any way harm the participants (Polit & Beck, 2017: 139). In this study, there was no anticipated physical or physiological harm. However, the researcher anticipated emotional discomfort because it is not easy for some women to talk to others about their childlessness. The participants' right to withdraw from the study at any given time was respected by the researcher. A counsellor was available free of charge for women who might get emotional during the interviews. None of the participants needed the services of the counsellor since those that felt emotional during the FGDs were supported by the researcher and indicated that they did not require counselling after the FGDs.

- The right to protection from exploitation

Participants' involvement in the study did not place them at a disadvantage or exposed them to damage. Participants were reassured that their participation and any information they might provide would not be used against them (Polit & Beck, 2017: 139). In this study, participants were assured that they would remain anonymous in reports and the publication of the study, and that data collected would not be used against them and would solely be used for the purpose of this study. All the data collected were kept in a safe locked place.

1.11.3 Human dignity

This principle of human dignity includes the right to self-determination and the right to full disclosure (Polit & Beck, 2017: 140).

- The right to self-determination

Self-determination means that prospective participants can voluntarily decide whether to partake in the study or not, without risks of being maltreated. The participants have a right to ask questions, to refuse to give information and to withdraw from the study (Polit & Beck, 2017: 140). In this study, participants were not coerced to participate and were informed that their participation was entirely voluntarily. Participants were informed that they have the option to withdraw at any time or even to withhold any specific piece of information. It was also made clear that failure to participate or withdrawal from the study would not result in any penalty or loss of benefits such as receiving counselling when necessary. None of the participants withdrew from the study.

- The right to full disclosure

Full disclosure means that the researcher has fully described the nature of the study, the person's right to refuse participation, the researcher's responsibility and likely risks and benefits. In this study, prospective participants were given the correct information regarding the study. The researcher did not deceive the participants by deliberately withholding information. The researcher made the participants aware that participating in the study might cause emotional discomfort and that should that happen, the services of a counsellor will be offered to them at no cost. None of the participants required the services of a counsellor. Prospective participants were given enough time to comprehend the information and ask questions before deciding whether to participate or not (Polit & Beck, 2017: 140).

1.11.4 Justice

In ensuring justice, the principles discussed below were adhered to.

- The right to fair treatment

This principle includes the participants' right to fair treatment (Polit & Beck, 2017: 141). The right to fair treatment demands that researchers select participants based on the study requirements and not on the individuals' vulnerability. Researchers should treat people who decline to participate or who withdraw from the study in a non-injurious manner without taking away any benefit from the study (Polit & Beck, 2017: 141). In this study, the prospective participants were chosen based on the inclusion criteria and nothing else.

- The right to privacy

This principle demands that researchers should ensure that their research is not more intrusive than it needs to be, and that participants' privacy is maintained continuously (Polit & Beck, 2017:

141). In this study, each participant was made aware of her right to choose to what extent she would like to share information. FGDs were conducted in a designated place where only the participants and the researcher were present to ensure privacy, confidentiality and also to avoid unnecessary interruptions.

1.11.5 Confidentiality and anonymity

The voice recordings as well as interview materials will be kept safe for 5 years and only the researcher and her supervisors had and will have access to it. Personal information, including demographic data, were separated from the interview data and a code was assigned to each participant's data. The research report of this study was written in such a way that the participants' identities cannot be linked to their individual responses. Finally, participants were assured that the data collected would be kept confidential. Participants in the FGDs and NGT were requested to keep the discussions confidential.

1.11.6 Informed consent

Participants were given adequate information about the research in such a way that they were able to understand the information and had the ability to consent to or decline participation voluntarily (Polit & Beck, 2017: 143; 723). This principle was adhered to throughout the research process as participation was voluntary, and participant information and consent forms indicating participants' rights were provided to obtain their consent. Participants were further assured that they have the right to discontinue participation without any explanation if they so wish during the research process. The researcher asked each participant if all the information given were clear and documented the informed consent process by having participants sign a consent form. Each participant was given a copy of the consent form (Annexure A, B and C).

1.12 OUTLINE OF THE THESIS

The thesis is outlined as follows:

- **Chapter 1**: Background to the study and problem statement.
- **Chapter 2**: Theoretical framework for the study and systematic review of literature.
- **Chapter 3**: The paradigmatic perspective and methodology of the study.
- **Chapter 4**: Discussion and analysis of healthcare needs of women diagnosed with infertility.

- **Chapter 5**: Development of draft guidelines for holistic healthcare interventions for women diagnosed with infertility.
- **Chapter 6**: Development and refinement of guidelines for holistic healthcare interventions for women diagnosed with infertility.
- **Chapter 7**: Conclusion of the findings, refinement and description of the guidelines with recommendations, limitations, strengths, implications and conclusions.

1.13 SUMMARY

This chapter introduced the concept of infertility, the background and rationale to the problem, the problem statement, and the significance of the study. Research questions, the purpose of the study, the research objectives, and a brief paradigmatic perspective of the study were presented. The introduction also defined concepts, gave a brief overview of the research methodology, the ethical considerations guiding the study and the outline of the thesis. The theoretical framework for the study and a systematic review of literature will be discussed in Chapter 2.

CHAPTER 2

THEORETICAL FRAMEWORK FOR THE STUDY AND SYSTEMATIC LITERATURE REVIEW

2.1 INTRODUCTION

The previous chapter introduced the concept of infertility, the background and rationale to the problem, the problem statement, and the significance of the study. The research questions, purpose of the study, research objectives as well as a brief paradigmatic perspective relevant to the study were also presented. This was followed by definition of concepts, a brief overview of the research methodology, the ethical considerations guiding the study and the outline of the thesis.

Following the background of the study advanced in Chapter 1, this chapter will give an overview of infertility and of holism and holistic healthcare interventions, the theoretical framework for the study, and finally, present a systematic literature review to evaluate existing evidence of holistic healthcare interventions for women with infertility.

2.2 OVERVIEW OF INFERTILITY

The World Health Organization (WHO) has ranked infertility in both men and women as a public health issue (WHO, 2019: np). Despite this assertion and the fact that there had been great success in improving maternal and child health in the past few decades, studies have proven that issues of infertility and its related problems are often neglected (Akhondi *et al.*, 2013: 90). This neglect has contributed to emotional heartbreak for women and couples all over the world who suffer from this devastating condition (Cui, 2010: 881-882).

Infertility is a condition of the reproductive system that affects both males and females. Most researchers define infertility as the inability to achieve a successful pregnancy after a year or more of regular sexual intercourse without the use of contraceptives (Chandra *et al.*, 2013: 10). Bell (2013: 285) critiqued that a year baseline is too short and that a two to three year period is more accurate for diagnosing infertility since many individuals conceive naturally within this longer timeframe (Bell, 2013: 285).

2.3 OVERVIEW OF HOLISM AND HOLISTIC HEALTHCARE INTERVENTIONS

In an attempt to manage women diagnosed with infertility holistically, the concept holistic must be well understood. The word holistic or holism is derived from a Greek word *Ὅλος-holos*, which means 'entire' or 'all*'* (Papathanasiou, Sklavou & Kourkouta, 2013: 1;2). This implies that the term holistic means seeing a human being as an entire or whole entity instead of focusing on only one aspect of the person. In general, the term holistic also describes approaches and interventions that are meant to satisfy a patient's physical, mental, emotional and spiritual needs. The idea of holism or caring for the entire person and not just their physical body dates back to the era of Florence Nightingale. Florence Nightingale's devotion was to care for those who could not care for themselves, but she also encouraged holistic care by recognising the importance of the environment, touch, light, scents, music and silent reflection in the therapy process (Papathanasiou *et al.*, 2013: 2). A holistic approach to healing means that the correction of the physiological disturbances and the restoration of the body interior are only the beginning of the task. This implies that holistic healing requires integrating all four main components of health, the physical, psychological, social and spiritual (Jasemi *et al.*, 2017: 75-76; Hatala, 2012: 51; Engel, 1977: 129-132).

A holistic healthcare intervention is not different from a medical or treatment method, but rather guided by a different philosophy that deals with the provision of care to patients that are based on an understanding of their physical, psychological, social, and spiritual dimensions (Jasemi *et al.*, 2017: 75-76; Papathanasiou *et al.*, 2013: 1;2). Holistic healthcare in nursing is a philosophy that guides patient care that emerged from the concepts of humanism and holism.

Gameiro, Boivin, Dancet, De Klerk, Emery, Lewis-Jones, Thorn, Van den Broeck, Venetis and Verhaak (2015: 2482) made it clear that when psychological or social support are provided to individuals who experience psychosocial distress from infertility, they will be able to cope and function more effectively in their daily lives (Gameiro, Boivin, Dancet, De Klerk, Emery, Lewis-Jones, Thorn, Van Den Broeck, Venetis & Verhaak, 2015: 2482). In addition, Chow, Cheung and Cheung (2016: 2101) stated that psychosocial interventions help improve psychological outcomes, marital relationships and pregnancy rates among women diagnosed with infertility. Batool and De Visser (2014: 637;677) highlighted that the wellbeing of women diagnosed with infertility is influenced by individual, interpersonal and cultural factors; therefore, social support and emotional intelligence training in therapeutic interventions must be improved for these women.

According to the BPS model by Engel (1977: 129-132) and the BPSS model by Dossey (1997: 4), each individual consists of a body, mind and soul as a unified total and are not just the sum of their body parts. This implies that change in any aspect of an individual's life will automatically bring about a change to every aspect of that individual's existence, since all aspects are interrelated and interconnected. Likewise, if one aspect is not working effectively, all the other aspects will be affected, causing an imbalance that may in turn negatively affect overall health. (Dossey, 1997: 4; Engel, 1977: 129-132).

The researcher is of the view that it is important to address the holistic healthcare needs of women diagnosed with infertility. The researcher posed the question: "What holistic healthcare interventions are in place for women diagnosed with infertility in Ghana?" and found that such interventions are not readily available (Kussiwaah *et al.*, 2016: 57; Read *et al.*, 2014: 393).

The researcher adapted the BPSS model by Dossey (1997: 4) to develop guidelines for holistic healthcare interventions for women diagnosed with infertility so as to ensure all aspects of the women's healthcare needs and wellbeing are addressed. When all the components of health are taken into consideration in the managing of infertility and its related stressors, the likelihood of these women becoming pregnant will increase, as is evident in the findings of a study by Akhondi *et al.* (2013: 92). Holistic care may improve birth rates and relief in women diagnosed with infertility from the mental trauma they experience (Akhondi *et al.*, 2013: 92).

2.4 THEORETICAL FRAMEWORK OF THE STUDY

2.4.1 Biopsychosocial model

The BPS model of health as conceptualized by Engel (1977: 129-132) provides a useful framework for examining and managing diseases or illness because of its focus on biological, psychological, and social factors (see Figure 2.1). Engel's emphasis on the patients' experiences is key to the BPS model. The theory was born out of the idea that every human being is made of biological, psychological and social components and that illnesses and ill-health are also influenced by these components. Health is best understood as an integrated combination of all these components.

The BPS model assumes that health and wellness are caused by a complex interaction of biological, psychological, and social factors, and these factors also provide the basis for understanding the determinants and experiences of disease. The theorist proposed that in the

management or treatment of any condition, there is a need to address all three components of health. The BPS model is seen as both a philosophy of clinical care and a practical clinical guide. Philosophically it is a way of understanding how suffering, disease and illness are affected by multiple levels of the organization, from the societal to the molecular. Hence, the model attempts to incorporate the psychosocial, for example, appropriate listening as well as clinical communication skills to fully understand and relate to patients' experiences of their condition. A clinical model should also consider the social and psychological contexts in which the patient lives and the complementary system devised by society to deal with the disruptive effects of illness. Following is a brief description of the components of the BPS model.

2.4.1.1 Biological component

The biological component is made up of an individual's physiological processes including the biological causes of disease and its treatment. It also considers what a disease does to a person's body and the various medical diagnoses as well as medical interventions that are used to combat the disease (Engel, 1977: 129-132).

2.4.1.2 Psychological component

Engel (1977: 129-132) addressed the psychological component of the theory as human behaviours and mental processes. The model also views individuals in relation to their cognition, feelings or emotions, as these are usually observable in how sick individuals deal with grief and loss issues or how they adjust and adapt to their problems.

2.4.1.3 Social component

The social component of the BPS model explains how different social factors influence and affect health. Every individual interacts and relates to friends and loved ones within the society. Engel (1977: 129-132) demonstrated that a diagnosis in one person has a social consequence on the part of the person and the family, potentially manifesting disruption and extra burdens and /or deprivations, depending on the disease progression and how the family responds to the initial diagnosis. Engel discussed specifically some of the social consequences of experiencing disease, which necessitates people to make social adjustments.

Engel presumes that it is important to handle all three components together when managing health problems to ensure that the sick individual attains holistic care. See Figure 2.1 below for a diagram illustrating the integration of the three components of the BPS model.

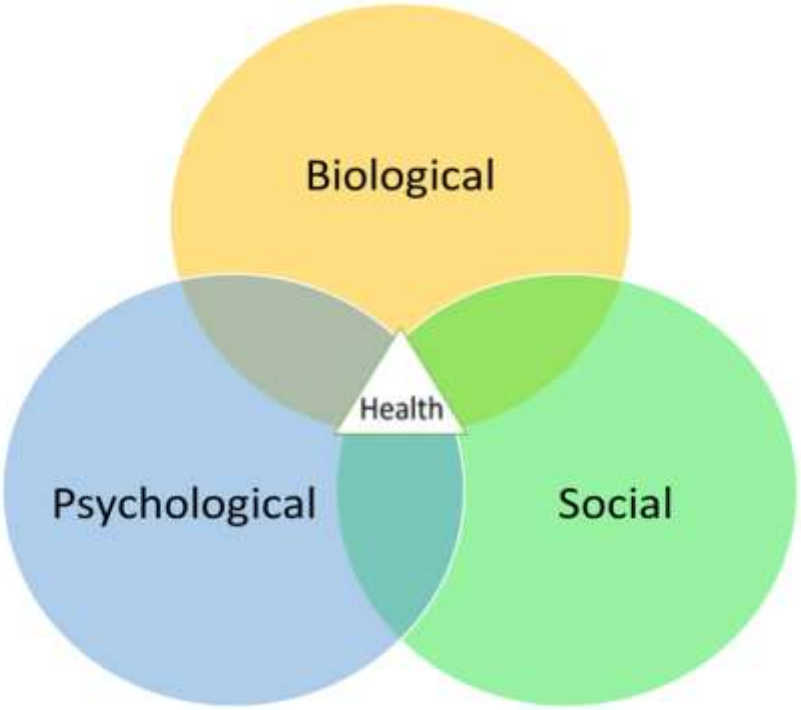


Figure 2.1 The BPS model (Engel, 1977: 129-132)

Despite the numerous strengths of the BPS model, it has received a number of criticisms from researchers. Dossey (1997: 7) argued that although the BPS model encourages a holistic way of managing sick individuals and is the first comprehensive model available in mainstream healthcare, it still does not holistically manage issues relating to ill-health. Dossey (1997:7) maintains that although all illnesses involve biological, psychological and social components in a patient's symptoms, diseases or illnesses, the aspect of spirituality should also be acknowledged in a holistic healthcare model.

In agreement with Dossey (1997:7), the researcher believes that women suffering from infertility should be managed holistically and that holistic healthcare interventions should include spiritual components as well. Hence, the BPS model could not be adopted as a guiding framework for the current study. Despite its clarity, it lacks the aspect of spirituality.

2.4.2 Bio-psycho-social-spiritual model

The BPSS model is flexible and emphasizes the connection of the mind, body and soul. The model provides a theoretical framework for managing patients in a holistic manner. The biological, psychological, social and spiritual components are attended to and considered when treating a patient (Dossey, 1997: 4).

According to Dossey (1997:4), the biological component consists of an individual's physiological processes, including biological causes of disease, its consequences on the individual as well as its treatments options. The psychological component relates to human behaviour and mental processes during a disease process, and the social component explains how different social factors within society influences and affect one's health. Spirituality, the last component of the model, has to do with the aspect of re-evaluating one's life and what life offers, for example, meaning or purpose, a sense of importance or a person's values (Dossey, 1997: 4). Refer to the discussions in Section 2.4.3.1, 2.4.3.2, 2.4.3.3, 2.4.3.4 for a detailed explanation of the components.

The BPSS model provides a more complete and holistic understanding of human functions and is considered the most comprehensive model for holistic clinical practice, education and research (Dossey, 1997: 4). It is vital to address all the components that make a whole being, since the components are interdependent and interrelated. Holistic treatment will help achieve optimal health (Dossey, 1997: 4). Disease and illness have an impact on all four components of health that also contribute to patients' symptoms, methods of treatment and healing. The theory acknowledges that patients are more than just the disease or illness; hence, caring for patients requires the consideration of all four components (Dossey, 1997: 4).

The BPSS model provides a more complete and holistic understanding of human function compared to the BPS model. The BPSS model illustrates that all four parameters of health are interdependent and interrelated and all the components must be addressed for optimal therapeutic results. Additionally, the theorist made it clear that regardless of the available technology, therapy or treatment used, the human spirit must be considered as a major healing force in reversing, stabilizing and producing remission in disease and illness (Dossey, 1997: 4).

The BPSS model by Dossey (1997: 4) was adapted as a guiding theoretical framework for this research to ensure that the developed guidelines include all the components of holistic healthcare

interventions. Figure 2.2 provides a diagram of the BPSS model of health indicating how the components are interlinked and interdependent.

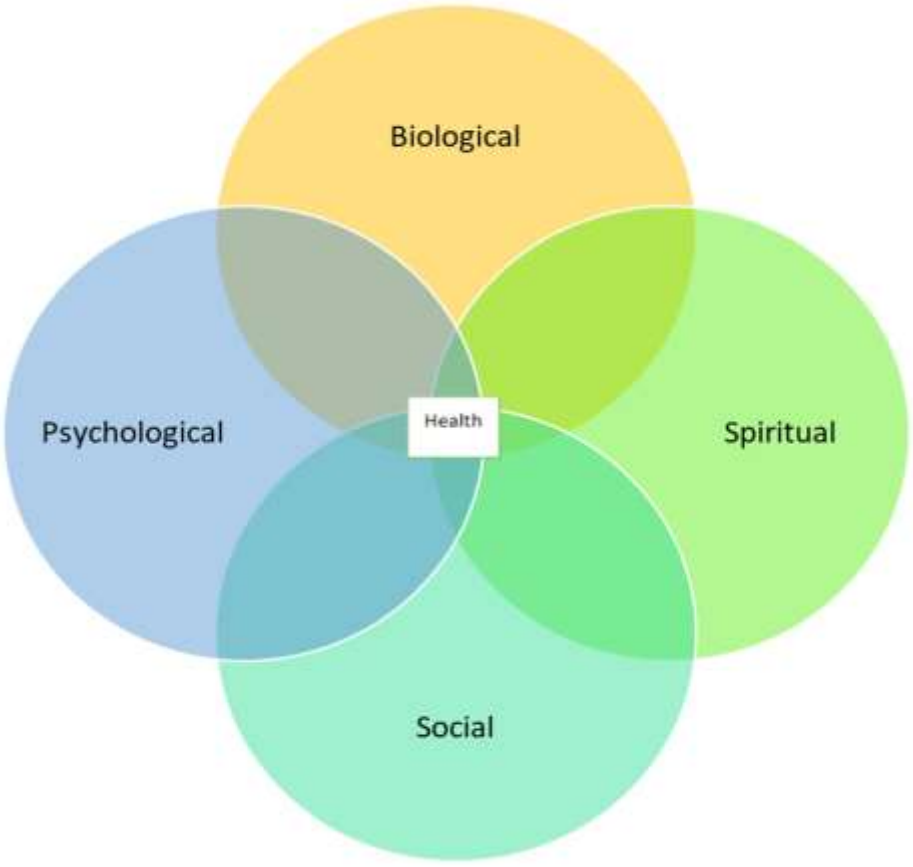


Figure 2.2 An adaptation of the bio-psycho-social-spiritual model (Dossey, 1997: 4)

2.4.3 Description of components

This sections briefly describes the various components of the BPSS model.

2.4.3.1 Biological component

The 'bio' component of the BPSS model examines biological aspects that influence health (Dossey, 1997: 4). This includes the individual's physiological processes like the anatomical, structural and molecular substance of disease, causes, the effects on the patient's biological functioning, various medical diagnoses, as well as medical interventions that are used to combat the disease (Dossey, 1997: 4).

2.4.3.2 Psychological component

The 'psycho' component of the model examines psychological components, which include mental processes, emotions and human behaviours (Dossey, 1997: 4). It views individuals in relation to their cognition, feelings or emotions, aspects observable when dealing with grief and loss, and adaptation to problems. Changes in thoughts might lead to changes in behaviour. The theorist emphasized that although diseases are mainly viewed from a biomedical perspective, its consequences or outcomes go beyond the physiological components as it has a broad impact on all aspects of a person's personality and life, making the affected person experience psychological symptoms like anxiety, feeling of loss, depression, hopelessness and emptiness (Dossey, 1997: 4).

2.4.3.3 Social component

The 'social' component of the BPSS model examines social factors that might influence the health of an individual (Dossey, 1997: 4). This component also examines the cultural, environmental and family influence, economic status, and interactions with others as far as the experience of illness is concerned. The social component further explains how different social factors influence and affect health. It also addresses the fact that every individual interacts with and relates to friends and loved ones within society. The theorist demonstrated that a diagnosis in one person has a social consequence on that person and their family by possibly manifesting as distractions and extra burdens, depending on the disease progression and how the family responds to the initial diagnosis. This leads to the worsening of biological or psychological problems (Dossey, 1997: 4).

2.4.3.4 Spiritual component

The final component of the BPSS model is the spiritual component and includes one's sense of self, sense of meaning and purpose, what one's values are and what one's religious life is (Dossey, 1997: 4). The aspect of spirituality in the BPSS model was not officially included in the BPS model before the 2000s. Spirituality is experienced differently by each individual, for example, for some people spirituality is expressed as a religion and involves particular rituals and behaviour unique to their practice. Spiritual beliefs provide meaning and direction to some people's lives (Igunnuoda & Ngugi, 2015: 13). The spiritual dimension is related to all factors in health-wellness-disease-illness.

In summary, the BPSS model provides a more complete and holistic understanding of human functions and for dealing with patients on the basis that there may be important issues beyond biological that must be addressed in the process of managing any health condition. The BPSS model looks at health and disease in a variety of contexts and examines how the interactions of different components lead to specific issues for an individual (Dossey, 1997: 4).

In the process of developing guidelines for holistic healthcare interventions for women diagnosed with infertility, the BPSS model was used as a guiding framework.

2.5 SYSTEMATIC LITERATURE REVIEW

The purpose of the systematic literature review was to review existing evidence of various holistic healthcare interventions for women diagnosed with infertility. In the process of reviewing literature systematically, there was a multiple searches of bibliographic databases, scanning of reference lists of existing reviews and eligible studies, searching of key journals, forward citation searching of seminal articles and researching out of scholars. Refer to page 18; section 1.10.1.

2.5.1 Methodology of the literature review

Relevant studies published in English from 2013 to 2018 were searched using the electronic databases EBSCOhost, Medline, Pro Quest, CINAHL, PubMed and Scopus to identify studies that focused on holistic healthcare interventions in the management of women diagnosed with infertility. Since not many studies have delved into the study area, the researcher found it hard to retrieve sufficient literature to support the study within a five-year time frame. In an attempt to retrieve more literature, the researcher extended the search period to 2010-2018. The following keywords were used in the search: Holistic interventions, psychosocial interventions, healthcare interventions, infertility, women, guidelines, and programmes.

Out of the 1000 articles the searches yielded, only 46 articles seemed to be somehow related to the study and were selected. Results were downloaded and stored in the reference database programme EndNote X7. Articles included in the study were those published in peer-reviewed journals, those that presented original findings, and finally, studies that focused on individuals diagnosed with infertility and the interventions adapted to ensure holistic care. Of the 46 articles selected, 12 were duplicates, and 10 were irrelevant to the study area. A total of 24 full text studies were selected for detailed evaluation. See Figure 2.3 for an illustration of the selection of

publications. The studies included in the review focused on various interventions with regard to infertility. These articles were written in the English and were published from 2010 to 2018.

The researcher expected to find articles using the search phrase 'holistic healthcare intervention for managing women diagnosed with infertility', but none was found. However, articles on psychosocial interventions were found. The term 'psychosocial interventions' implies care that does not only focus on physical factors or solely on a biomedical approach, but also includes; psychological and social factors (Engel, 1977: 129-132). In their seminal work, Page and Adler (2008: 5) described psychosocial intervention as an "umbrella of care". The researchers described this "umbrella of care" as services that included psychological, social and educational interventions that help with the management of the psychological, behavioural and social aspects of any condition with the aim of promoting better health (Page & Adler, 2008: 51). Similarly, Verkuijlen, Verhaak, Nelen, Wilkinson and Farquha (2014: 2) defined the term psychosocial intervention as provision of psychological and social support with the intention of making the person cope with problems encountered. These interventions also aim to provide support for the impact of infertility and fertility treatment on the person's mental health, which could include ways to manage negative emotions (Verkuijlen *et al.*, 2014: 2). In some research findings, spiritual factors were also included in the psychosocial intervention in addition to the biomedical management. It can thus be concluded that psychosocial interventions form part of holistic healthcare interventions.

The findings of the systematic review are discussed in the next section. The results and quality review of the systematic review is summarised and included in Annexure O. In discussing the results of the systematic review, the researcher used the term 'women', 'individual' and 'couples' interchangeably as some articles used the term women, while some preferred to use individual or couples. Figure 2.3 below illustrates the selection of the publications.

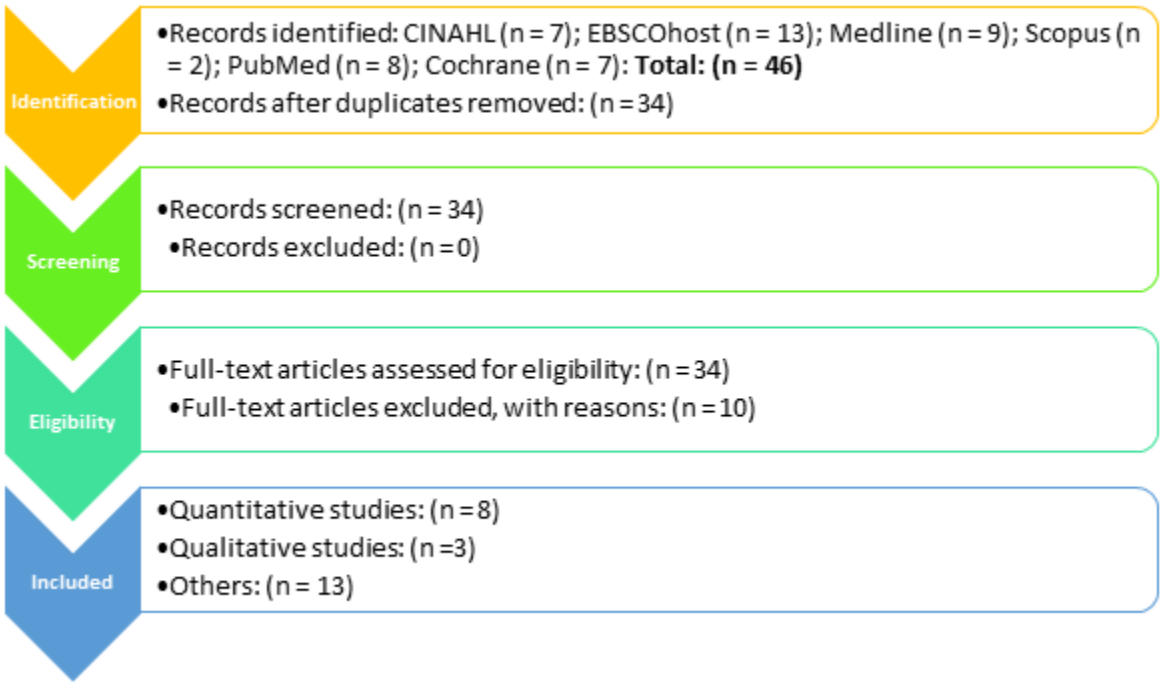


Figure 2.3 Flow diagram of the systematic literature review process (PRISMA, 2009)

2.5.2 Findings of the systematic review

The articles were selected using the PRISMA (2009) as adapted by (Kangasniemi, Pakkanen & Korhonen, 2015: 1746; Whittemore & Knafl, 2005: 550) method. Figure 2.3 portrays the flow diagram adapted for the study. Annexure O gives an assessment and summary results of the systematic review.

Findings from the systematic review revealed that the most commonly interventions adopted in the management of individuals diagnosed with infertility alongside the biomedical management approach are cognitive behavioural therapy, acceptance and commitment therapy, counselling, educational interventions, spiritual interventions, emotionally focused therapy or intervention, and integrated body-mind-spirit interventions (Luk & Loke, 2016: 529; Peterson & Eifert, 2011: 577; Kavak & Kavak, 2018: 562; 559; Verkuijlen et al., 2014: 2; Chirico, 2016: 15; Chow et al. (2016: 2111). The interventions are delivered either in an individual or group format**.** Although these interventions are discussed as different treatment options in the management of women diagnosed with infertility, they should form part of a holistic treatment approach to be provided either in combination or separately, based on the needs of a particular woman. For instance, in some countries like the Netherlands and Germany, interventions like health education,

counselling, group psychosocial interventions, cognitive behavioural therapies and peer mentoring are included alongside the biomedical approach in order to provide holistic care to individuals diagnosed with infertility. These are integrated with educational material like easy to understand written materials about the physical and emotional consequences of infertility and the available treatments (Verkuijlen *et al.*, 2014: 2; Van Den Broeck *et al.,* 2010: 427).

2.5.2.1 Psychosocial counselling interventions

Jafarzadeh-Kenarsari, Ghahiri, Zargham-Boroujeni and Habibi (2015: 552;554;558) conducted a qualitative study in Iran with the aim of exploring the counselling needs of couples diagnosed with infertility. Seven medical personnel and 26 Iranian couples were purposively selected for the study. The findings revealed that issues of infertility and its related stressors expose individuals to mental, social and psychological conditions; and therefore, these individuals expressed the need for psychological counselling. It was further revealed that these individuals' greatest counselling needs were psychological together with a need for guidance and information during the treatment process. In conclusion, the researchers added that individuals with infertility require various psychosocial supportive and counselling interventions.

A related study by Kamel (2010: 4) dealt with the management of couples with infertility in Saudi Arabia with the aim of providing healthcare professionals with an evidence-based management protocol. The findings revealed that counselling offers individuals an opportunity to discover, learn and make living more pleasing, especially when fertility problems have been detected. The researcher further expatiated that counselling that addresses causes, investigations and available treatments options as well as provide realistic information about the chances of having children offers the couples various benefits. They learn to support and understand each other, experience better communication and gain insight into gender differences in the experience of infertility. The researchers concluded that it is necessary for fertility staff to have comprehensive knowledge about the causes, investigations and treatment options available to give realistic information about the chances of conceiving (Jafarzadeh-Kenarsari *et al.,* 2015: 557; Kamel, 2010: 4).

In addition to the above mentioned, positive impact counselling has on individuals diagnosed with infertility, Van den Broeck *et al.* (2010: 427) also outlined some helpful effects of psychosocial counselling. The researchers were of the view that counselling encourages people with infertility to start their treatment on time since they have been pre-informed about the need for treatment and its positive outcomes. Hence, people in these situations are prepared both psychologically

and financially. The researchers added that psychosocial counselling reduces money spent on unnecessary investigations. When individuals are taken through counselling and are well informed about the causes of their conditions, its treatment and preventive measures, their need to spend money to look for the causes of the condition through a series of investigations is reduced, and therefore, money is saved. The researchers finally added that the main goal of psychosocial counselling is to educate people on how to face the physical, emotional and social challenges they might encounter during their struggle with infertility and its associated treatment failures (Van Den Broeck *et al.*, 2010: 427).

The above findings on counselling is consistent with three other studies conducted in Iran by Yazdani *et al.* (2017: 4698), in Canada by Read *et al.* (2014: 393), and lastly, in Hong Kong by Luk and Loke (2016: 529). The study conducted in Iran aimed to describe supportive counselling interventions to decrease perceived stress in women diagnosed with infertility. The study from Germany described psychosocial support that couples desire to cope with infertility-related distress. The study conducted in Hong Kong explored the types, content, and outcomes of different psychosocial approaches used in existing interventions for individuals or couples, respectively. Even though each study had different aims and objectives, the researchers expounded on the fact that giving psychosocial counselling in addition to the treatment given to individuals diagnosed with infertility will help alleviate the undesirable stressors they encounter. Lastly, the researchers also made it clear that psychosocial counselling and support help individuals cope better and greatly influence their physical, mental and social wellbeing (Yazdani *et al.*, 2017: 4698; Luk & Loke, 2016: 529; Read *et al.*, 2014: 393).

Psychosocial counselling is grouped into two main categories, individual or group counselling.

2.5.2.2 Individual psychosocial counselling

Individual psychosocial counselling is when a person requests help, and a professional person gives that help with the purpose of solving that individual's problem in a way that brings about a change in that person's behaviour. According to Yazdani *et al.* (2017: 4698) and Joy and McCrystal (2015: 88), individual psychosocial counselling comes in different formats and includes psychotherapy, cognitive behavioural treatment, strategic psychotherapy, crisis intervention and grief counselling. The number of sessions, duration of each session and the method applied depend on the counsellor's tendency and skills. Whichever option the counsellor adopts, its aim must be to reduce the perceived stress of women diagnosed with infertility. The researchers

added that since it is internationally agreed that fertility clinics should offer counselling-supportive programmes, it is important to incorporate counselling-supportive interventions to decrease women's perceived stress in order to improve treatment outcomes. The researchers were of the view that counselling aims to explore, cope, resolve, and most importantly, effectively deal with issues arising from infertility (Yazdani *et al.*, 2017: 4698; Joy & Mccrystal, 2015: 88).

The above findings are similar to those of a study conducted in Turkey (Kavak & Kavak, 2018: 559;562). The researchers found that when healthcare providers familiarize themselves with the stress levels and psychosocial problems of women diagnosed with infertility and intervene appropriately, the chances of getting positive treatment outcomes increase.

2.5.2.3 Group psychosocial counselling

In group counselling, intragroup treatment factors (constructive interactions among members) are used. Educational and interventional services are given by knowledgeable professionals to change non-adaptive feelings, thoughts and behaviour. This form of counselling helps individuals share their experiences, receive information, learn how to overcome some stressors and improve their quality of life (Van Den Broeck *et al.*, 2010: 427). Similarly, another study (Kamel, 2010: 4) investigating psychological interventions on infertility revealed that group psychological counselling focusing on teaching and learning skills has significant positive effects. This is seen in instances where the educational group leads to sharing experiences, receiving information, improving communication skills, learning relaxation techniques and providing other forms of psychological support (Kamel, 2010: 4).

2.5.2.4 Peer mentoring

Peer mentoring is a form of mentorship where a person who has lived through a specific experience shares a novel idea with others who are new to that experience (Read *et al.*, 2014: 393). Peer mentoring is one of the interventions couples and individuals wish to have during their treatment process (Read *et al.*, 2014: 393; Kussiwaah, 2016: 67-70).

Read *et al.* (2014: 393) conducted a qualitative study in Canada with the aim of describing the psychosocial support that couples diagnosed with infertility desired to help them cope with infertility-related distress. The study disclosed that even though individuals diagnosed with infertility opted for varied psychosocial interventions to be integrated into their care, the option of peer mentoring was paramount for them. The researchers asserted that most individuals

mentioned the novel idea of a peer mentor who would fuse peer support and practical information into a single whole. According to the researchers, the intervention enabled them to talk openly and felt belonged. It also reduced isolation and encouraged them to move on in life after receiving counselling from a peer mentor on issues related to their current situation, treatment protocols and dealing with the emotional challenges of treatment (Read *et al.*, 2014: 393).

The above findings are consistent with the findings of the current researcher's thesis conducted in Ghana on the experiences of women diagnosed with infertility and their biopsychosocial management (Kussiwaah, 2016: 67-70). The study revealed that apart from the biomedical management of women diagnosed with infertility, there was no other form of management in place for them. Hence, these women adopted an informal way of coping with their stress. The term for this informal way of coping is 'peer mentoring'. These women testified that during this process they were able to learn from the experiences and advice of those who have been through similar problems and either had their own children or were still in expectation. Reports from the women revealed that peer mentoring went a long way in helping them deal with some challenges they were encountering (Kussiwaah, 2016: 67-70).

2.5.2.5 Cognitive behavioural therapy

Cognitive behavioural therapy is a form of psychosocial intervention that aims to improve mental health by challenging and changing unhelpful mental falsifications that has to do with thoughts, beliefs, attitudes and behaviour by improving emotional regulation (Beck, 2011: 19-20).

Three different studies conducted in Iraq by Hussein (2014: 34), in China by Ying, Wu and Loke (2016: 698), and finally, in Hong Kong by Luk and Loke (2016: 529), with similarities in findings, revealed that cognitive behavioural therapy was the most commonly employed and adopted psychological intervention for women and men diagnosed with infertility. This was followed by acceptance and commitment therapy, and psychological counselling. These interventions are effective psychosocial approaches that help reduce infertility-induced psychological stress and improve self-perception of individuals with infertility. Additionally, cognitive behavioural therapy improves the quality of life, sexual activities and satisfaction as well as marital relationship skills. The intervention showed significant effects on anxiety, pregnancy rates and marital functioning. In the researchers' concluding remarks, they recommended that psychosocial interventions should offer support to individuals or couples undergoing treatment and that it helps to reduce

infertility-induced stress, anxiety and depression and enhances marital, sexual and life satisfaction (Luk & Loke, 2016: 529; Ying, Wu & Loke, 2016: 698; Hussein, 2014: 34).

In support of the above findings, three different studies conducted in Denmark, Netherlands and Iran by Frederiksen, Farver-Vestergaard, Skovgård, Ingerslev and Zachariae (2014: 15), Verkuijlen *et al.* (2014: 2) and Faramarzi, Pasha, Esmailzadeh, Kheirkhah, Heidary and Afshar (2013: 199;204), respectively, with similar aims, reviewed the impact of cognitive behavioural therapy on individuals diagnosed with infertility. The researchers identified that among several interventions used to alleviate infertility stressors, cognitive behavioural therapy was the most common. The intervention has a positive effect by changing negative cognitions, behaviour and beliefs relating to infertility and its treatment. The intervention targets dysfunctional cognitions that are related to negative stressful situations and results in emotions such as depression and anxiety. Individuals who were managed with cognitive behavioural therapy showed a greater reduction in anxiety after treatment compared to those on only biomedical treatment. Women managed with cognitive behavioural therapy showed improvement across areas like psychological and social wellbeing, while they were better able to manage negative emotions. However, these improvements did not occur in individuals who were only on antidepressants. The interventions were created and designed to help individuals acquire knowledge and change negative cognitions to reduce emotional stress and improve mental health or facilitate adjustment to an important life event such as infertility (Frederiksen *et al.,* 2014: 15; Verkuijlen *et al.*, 2014: 2; Faramarzi *et al.*, 2013: 199;204).

2.5.2.6 Acceptance and commitment therapy

Acceptance and commitment therapy is another form of psychotherapy that aims to help patients accept what is out of their control and commit to actions that can improve and enrich their lives. The intervention may be beneficial for couples and individuals experiencing infertility. This form of intervention addresses avoidance coping through the application of techniques meant to build a non-judgemental self-awareness, acceptance, and living out one's values (Peterson & Eifert, 2011: 577). The study by Peterson and Eifert (2011: 577) examined the effectiveness of treating infertility stress with acceptance and commitment therapy, a promising new behaviour therapy that targets experiential avoidance through mindfulness, acceptance strategies and value-directed action. The findings of the study suggested that acceptance-based therapy shows promise in treating infertility stress in patients experiencing infertility who undergo medical

treatment, while it also has the potential to produce lasting change (Peterson & Eifert, 2011: 577). This findings are consistent with a study conducted in China that revealed that even though there were several psychosocial interventions that were adopted in addition to the medical treatment given to individuals diagnosed with infertility, acceptance and commitment therapy was among the most common psychosocial interventions used (Luk & Loke, 2016: 529).

2.5.2.7 Mind-body intervention

Mind-body intervention is a form of psychotherapy that focuses on the communication between the mind and body, and the powerful ways in which emotional, mental, social and spiritual factors directly affect health. Frederiksen *et al.* (2014: 15) conducted a systematic review and meta-analysis on the efficacy of psychosocial interventions for psychological and pregnancy outcomes in women and men diagnosed with infertility. The study aimed to evaluate the evidence of the efficacy of psychosocial interventions for improving pregnancy rates and reducing distress for couples on treatment. The study revealed that mind-body interventions are effective at reducing distress and improving pregnancy outcomes (Frederiksen *et al.*, 2014: 15).

The above findings on mind-body intervention are consistent with a study conducted by (Psaros, Kagan, Shifren, Willett, Jacquart, Alert, Macklin, Styer, Denninger & Laroche, 2015: 75). The researchers assessed the effectiveness of mind-body intervention in group treatment for women coping with infertility in the United States of America (USA). The intervention resulted in a significant increase in perceived social support and a decrease in depressive symptoms and perceived stress. Mind-body intervention integrates relaxation techniques, cognitive coping mechanisms and health-enhancing performances and improves depressive symptoms, perceived stress and social support. The participants reported a high degree of adherence to and maintenance of the skills taught during the intervention (Psaros *et al.,* 2015: 75)

Another finding worth noting is that mind-body intervention is one of the most frequently adopted psychological interventions incorporated in the management of individuals diagnosed with infertility in China. A study examining the effects of psychosocial interventions on mental health, pregnancy rates, and marital function of infertile couples found that the mind-body intervention approach showed significant effects on anxiety, pregnancy rates and marital functioning (Ying *et al.*, 2016: 698).

2.5.2.8 Emotionally focused therapy

Emotionally focused therapy is a type of psychotherapy that focuses on relationship and attachment. This intervention creates a more secure relationship and trust. Soltani *et al.* (2014: 343) conducted a semi-experimental study to investigate the application of psychological methods as complementary treatments for couples with infertility in Iran in order to decrease depression, anxiety and stress. The use of emotionally focused therapy helped to reduce depression, anxiety and stress in these couples. The researchers recommended that emotionally focused therapy could be used as a remedy for reducing infertility problems (Soltani *et al.*, 2014: 343).

Chow *et al.* (2016: 2111) also acknowledged the importance and the promising effects of psychosocial interventions in the lives of individuals diagnosed with infertility to ensure holistic care. However, the researchers emphasized that although these interventions improved psychological outcomes, marital relationships and pregnancy rates among individuals diagnosed with infertility; various types of these interventions have been adopted in different studies, making it difficult to evaluate the overall effects on participants. Hence, the need to develop standardized psychosocial interventions for clinical use and cultural specific psychosocial interventions (Chow *et al*., 2016: 2111).

2.5.2.9 Integrated body-mind-spirit intervention

Integrated body-mind-spirit intervention is another form of psychotherapy that focuses on the mind, body and spirit to help individuals who are psychologically stressed. This intervention also recognises spirituality as a fundamental domain of human existence. According to Chan *et al.* (2012: 359;370;372), integrated body-mind-spirit intervention is based on holistic healthcare concepts. The study was conducted in China with the aim of examining the efficacy of a group intervention using the integrative body-mind-spirit intervention. The researchers emphasized that women who received integrative body-mind-spirit intervention experienced a higher level of psychosocial and spiritual wellbeing. The intervention presented an opportunity for participants to prioritize their life goals, know about the importance of meaningful interpersonal relationships, re-evaluate their life goals, focus on personal fulfilment and think about a healthy daily routine. All these aspects are vital to women's wellbeing. Women were also encouraged to re-evaluate their life goals, broaden their perspectives, and focus on personal fulfilment rather than the treatment outcome or their state of childlessness. The researchers added that cultivating spirituality into psychosocial healthcare interventions may equip individuals with the skills to accept their

condition, work towards redefining life goals, and in turn foster general wellbeing. Participants in the study reported significantly lowered anxiety, less disorientation, greater marital satisfaction, and lowered perceived importance of child bearing (Chan *et al.*, 2012: 358).

2.5.2.10 Educational and informational interventions

Psycho-educational training is an intervention where people are provided with all the vital information about a specific problem. An interventional study was conducted in the Netherlands by Verkuijlen *et al.* (2014: 2) to assess the efficacy and safety of psychological and educational interventions for individuals suffering from infertility in psychological and fertility treatment outcomes. The researchers used randomized controlled trials and cluster randomized trials to conduct the study. Educational interventions include all the necessary information on infertility; its causes; treatment protocols, such as medical or procedural information; and information to improve self-management and self-efficacy such as skills training and psychoeducation. All these interventions aim to improve psychosocial distress. Additionally, the intervention helps women acquire more knowledge and skills so that they experience a reduced psychological burden during fertility treatment (Verkuijlen *et al.*, 2014: 2).

Denton, Monach and Pacey (2013: 1) and Kamel (2010: 4) revealed that that there is a need for readily available understandable information. The researchers highlighted the need for individuals diagnosed with infertility to be given realistic information about their chances of giving birth, the risks and costs of the management plan and its alternatives (Denton *et al.*, 2013: 1; Kamel, 2010: 4). The above findings corroborate with previous studies that also revealed that patients desired to access educational materials like brochures, booklets or informative websites to help them understand what they were going through and the treatment options. The findings also articulated the need to have information about both the medical and the psychological impacts of treatment so that individuals diagnosed with infertility feel satisfied with their medical and emotional care (Jafarzadeh-Kenarsari *et al.*, 2015: 557; Batool & De Visser, 2014: 637;677; Read *et al.*, 2014: 393).

The study by Gameiro *et al.* (2015: 2482) also identified that the most effective way to start implementing psychosocial care is by providing preliminary information about infertility and everything related to it. According to the researchers, this is a simple and feasible intervention compared to the other reviewed interventions and is efficacious in addressing many patients' needs.

2.5.2.11 Spiritual interventions

Chirico (2016: 15) proposed that it is time that healthcare systems begin to consider health in a holistic way, as a state of wellbeing in body, mind or psyche, and spirit, where spirit is viewed differently from psyche and can influence both the physical and mental health of the individual. Chirico (2016: 15) recommended that the aspect of spirituality should have been included in the definition of health. The spiritual wellbeing of every individual is seen as a source of happiness. Chirico (2016: 15) again added that incorporating spirituality into the definition of health will facilitate the healing process since the spirit influences both mental and physical wellbeing (Chirico, 2016: 15). Ramezani, Ahmadi, Mohammadi and Kazemnejad (2014: 211) also conducted a study on spiritual care in nursing and described spirituality as one of the vital aspects of providing holistic and patient-centred care within the profession.

The study by Romeiro, Caldeira, Brady, Hall and Timmins (2017: 1) also disclosed that a holistic approach requires a thorough assessment of the physical, emotional, psychological, cultural, social and spiritual needs of the person with infertility. According to the researchers, individuals diagnosed with infertility expressed suffering when faced with issues of infertility and its related stressors. This suffering dominates their thoughts, feelings and purpose in every aspect of their lives; hence, the need to address their spiritual needs from the beginning to the end of treatment. Infertility was described by the researchers as not merely the absence of a desired state of parenthood, but as a more complex experience with numerous internal and external dimensions being affected. In their concluding remarks, the researchers added that there was a need to develop and implement specific policies regarding the spiritual approach (Romeiro *et al.,* 2017: 1). The mentioned findings were in accordance with the results of a study conducted in Iran by Ramezani *et al.* (2014: 211). This study focused on the meaning of spirituality and delivery of spiritual care, including nurses viewing spirituality as a religion. The findings of the study revealed that spiritual care was a subjective and dynamic concept that demonstrate unique aspects of care that integrate all other aspects. Hence the provision of spiritual care leads to positive consequences such as healing and promoting spiritual awareness. Spiritual care also provides a dimension in nursing care in which patients and their family members continue to explore meaning in real-life situations (Ramezani *et al.*, 2014: 211).

Dhar, Chaturvedi and Nandan (2013: 4) also indicated why spirituality has to be incorporated in healthcare interventions. Spirituality can dilute the grieving process and helps in recovering from

tragedies, regardless of whether one follows a religious practice or not. The researchers argued that spiritual health does not cure a disease, but that spiritual interventions help individuals to take control of their behaviour and lifestyle choices. Spiritual interventions help people feel better about themselves and assume the role of a preventive intervention. In conclusion, the researchers stated that it is time that healthcare professionals globally delve into the matter and introduce spiritual healthcare interventions as part of healthcare interventions (Dhar *et al.*, 2013: 4). Their finding is consistent with two studies conducted in the USA and Ghana (Collins, Kim & Chan, 2018: 2237; Oti-Boadi & Asante, 2017: 7). It is noteworthy that 70% of women diagnosed with infertility in the USA solely relies on God through prayer when faced with infertility and its related issues. Engaging the services of clergies in counselling was more paramount to these women than engaging in other formal support.

2.5.2.12 Online interventions

Interventions that use the internet to access information have become a forum for psychosocial interventions to be delivered to many individuals in an accessible way. Slauson-Blevins, Mcquillan and Greil (2013: 115) conducted a study in the USA and found that women diagnosed with infertility sought help on the internet alongside help from medical professionals. The researchers found that online information for individuals seeking healthcare added a clearer picture of complete behavioural responses to whatever situation they found themselves in. About half of those who seek medical help for infertility information online also talked to their doctors. Hence, the internet is an important area to explore for those interested in responses to infertility (Slauson-Blevins *et al.,* 2013: 115).

2.5.2.13 Healthcare interventions

Even though many studies have been done on issues relating to infertility in general, little attention has been paid to the healthcare expectations of women diagnosed with infertility. This could either be their expectations of the healthcare system or of the healthcare professionals themselves.

A study conducted in the Netherlands on how patient-centred care relates to patients' quality of life and distress indicated that a holistic and patient-centred approach to providing care for individuals experiencing infertility might improve their quality of life and wellbeing (Aarts, Huppelschoten, Van Empel, Boivin, Verhaak, Kremer & Nelen, 2011: 491;493). The researchers

concluded that when special care is being paid to patients' needs, the outcome of their care is positive.

Dancet, Nelen, Sermeus, De Leeuw, Kremer and D'hooghe (2010: 467) also conducted a study in Belgium on patients' perspectives on fertility care. The findings of the study were synthesized and systematized according to patients' preferences, needs, and assessment of service quality and dimensions of patient centredness. The results of the study showed that patients who suffer from infertility wished to be treated uniquely and needed medical skills, respect, coordination, accessibility, information, comfort, support, less waiting times, partner involvement, good attitude as well as a better cordial relationship from fertility clinic staff. Dancet *et al.* (2010: 467) concluded their study by adding that patients with fertility issues also have "human needs" in addition to their need for medical care.

2.6 CONCLUSION TO THE SYSTEMATIC REVIEW

With regard to the systematic review of literature, psychosocial counselling, cognitive behavioural therapy, educational interventions and spiritual interventions were the most commonly adapted interventions practised in most countries as a way of providing holistic healthcare for women diagnosed with infertility. There were other interventions like acceptance and commitment therapy and integrated body-mind-spirit, but these were used less often. The systematic review revealed that the interventions reduce psychosocial stressors like anxiety, depression, intentional isolation and stigmatization experienced by individuals diagnosed with infertility.

2.7 SUMMARY

This chapter provided a brief overview of infertility, holistic healthcare interventions, and the theoretical framework for this study. The chapter also presented the results of the systematic review of literature that evaluated existing evidence of holistic healthcare interventions. Chapter 3 will focus on the paradigmatic perspective and methodology of the study.

CHAPTER 3

THE PARADIGMATIC PERSPECTIVE AND METHODOLOGY OF THE STUDY

3.1 INTRODUCTION

The previous chapter gave an overview of infertility, holism and holistic healthcare interventions, the theoretical framework for the study, and finally, presented a systematic literature review to evaluate existing evidence of holistic healthcare interventions. This chapter will discuss the researcher's paradigmatic perspective together with the methodology of the study. This study was conducted with the aim of developing and refining guidelines for holistic healthcare interventions for women diagnosed with infertility.

3.2 PARADIGMATIC PERSPECTIVE

A paradigm is a world view that encompasses sets of philosophical assumptions that guide the researcher's approach to inquiry (Polit & Beck, 2017: 738). This study was guided by the philosophy of pragmatism to answer the research question. The Greek word for pragmatism is *pragma* which means *'*action*'*, 'practice' and 'practical'. It implies that knowledge comes from taking action and learning from outcomes (James, 2000: 193). Pragmatism deals with research in a sensible and realistic way that is based on practical rather than theoretical considerations (Morgan, 2013: 7-8). Similarly, Fishman (1991: 356) explained in his seminal work that 'pragmatism' has to do with searching for the most feasible and workable solutions to complex human problems while addressing a significant social or psychological problem within a naturalistic and real world setting in a manner that is possible, effective and efficient.

The paradigmatic perspective will be discussed in terms of the historical overview of pragmatism, pragmatism as guiding the research methodology, and finally, the specific philosophical assumptions of pragmatism.

3.2.1 Historical overview of pragmatism

According to Glogowska (2010: 251), over the past few decades, there had been a series of debates over the place and value of quantitative and qualitative research methodologies in social

science research, the so-called paradigm wars. Researchers begun taking a more pragmatic stance in relation to methodological choice to answer a research question rather than a philosophical alignment (Glogowska, 2010: 251).

Historically, pragmatism was grouped into two different categories, namely the early period from 1860-1930 and a neo pragmatic period from 1960 to the current time (Mertens, 2015: 38). The early pragmatists were Charles Sanders Peirce, William James, John Dewey, George Herbert Mead and Arthur F. Bentley. These philosophers rejected the scientific notion that a social science inquiry was able to access the 'truth' about the real world using a single scientific method (Mertens, 2015: 38). The philosophers involved in the neo pragmatic period were Abraham Kaplan, Richard Rorty and Cornel West. These philosophers built on the work of the early pragmatists. However, they moved even further from the metaphysical and emphasized the importance of common sense and practical thinking.

According to Morgan (2014: 1045), one of the best places to get a broad understanding and outline of pragmatism as a philosophy and its orientation to problem solving is in the work of John Dewey. Throughout his career, Dewey sought to promote pragmatism by reorienting philosophy away from the abstract and turning it toward an emphasis on human experience. Dewey's pragmatism as a philosophy addressed the fundamental question: What is the nature of human experience? Refocusing inquiry as a central form of human experience requires reconsidering the philosophy of knowledge by replacing the older emphasis on ontology and epistemology with a concentration on the nature of human experience (Morgan, 2014: 1048).

Dewey's philosophical agenda is relevant for social research today, because he wanted to break down the dualism between realism and idealism. This resembles the separation between post-positivism and constructivism. Post-positivists claimed the world exists apart from our understanding of it, whereas the constructivist philosophy asserted that the world is constructed of our conceptions of it (Morgan, 2014: 1048). As far as Dewey (1925: 277) was concerned, the above two assertions are equally important claims about the nature of human experience. However, Dewey was of the view that our experiences in the world are necessarily constrained by the nature of the world, and therefore, our understanding of the world is inherently limited to our interpretations of our experiences (Dewey, 1925: 277).

Pragmatism not only substitutes arguments about the nature of reality, but also identifies the value of different approaches to guide choices about how to conduct an inquiry. Thus, pragmatism acts

as a new paradigm to replace an older way of thinking about the alterations between approaches to research by treating those alterations as social contexts for inquiry rather than abstract philosophical systems (Morgan, 2014: 1048). The shift toward pragmatism as a paradigm begins with the recent history of social research methodology from which interest in pragmatism emerged through its association with mixed method research (Morgan, 2014: 1048).

Wahyuni (2012: 71) also highlighted that one should view research philosophies as a continuum, rather than options that stands in opposite positions. Pragmatism believes that objectivist and subjectivist perspectives were not commonly exclusive. In the pragmatist approach, the emphasis is on what works best to address the research problem. Pragmatist researchers use both quantitative and qualitative data because it enables them to better understand social reality (Wahyuni, 2012: 71).

3.2.2 Pragmatism in research methodology

In the pragmatic world, the focus is oriented towards addressing and solving practical problems in the real world with regard to the benefits, risks and costs of an intervention as they would unfold in routine clinical practice. The world is seen as having several realities that are open to inquiry rather than an assumption about the nature of knowledge (Polit & Beck, 2017: 160; Morgan, 2013: 7-8). Inquiry implies providing new knowledge by taking actions and experiencing results. This occurs when the researcher confronts situations that fall outside the existing knowledge base (Morgan, 2013: 7-8; Yvonne Feilzer, 2010: 7-9). Pragmatism offers opportunities to use diverse methods and ideas that can help the researcher to best frame, address and provide answers to the research questions. Researchers as pragmatists have freedom of choice to choose the methods, techniques and procedures of research that best meet their needs (Polit & Beck, 2017: 160; Morgan, 2013: 7-8).

Pragmatism pave the way for a combination of dimensions, including a mixture of methods or questions wanting to know the how of something (quantitative) and the nature of interactions (qualitative), a mixture of participant perceptions within and between groups, and a mixture or integration of assertions (Hall, 2013: 15-26). The main goal of using two methods is to use the strengths of one method to enhance the performance of the other method, where each method serves a different purpose and one method builds on the other (Morgan, 2007: 48-50).

Mixed methods are flexible, and both qualitative and quantitative data go through the stages of data collection, analysis and integration of the findings into a single study with the purpose of

providing better understanding of a research problem or issue than either research approach alone (Creswell, Klassen, Plano Clark & Smith, 2011: 544-545; Azorin & Cameron, 2010: 95).

In this study, the researcher was not restricted to a single methodology but rather resolved the research problem by using multiple approaches to answer the research question. Phase I was guided by a systematic review of literature that evaluated current healthcare interventions in the management of women diagnosed with infertility. The findings informed relevant stakeholders about holistic healthcare interventions other than the biomedical approach to manage the healthcare needs of women diagnosed with infertility. Phase II used FGDs and an NGT. The FGDs solicited information from women regarding their healthcare needs, whereas the NGT sought the views of stakeholders with regard to developing draft guidelines for holistic healthcare interventions for women diagnosed with infertility. The final phase was guided by a consensus method known as an e-Delphi technique. This involved experts in the field of infertility, policy and guideline development such as academic researchers, gynaecologists, midwives and psychologist.

In order to develop holistic healthcare interventions for women diagnosed with infertility, the researcher acquired new knowledge by engaging in face-to-face FGDs with women to know their exact healthcare needs. Based on the acquisition of this new knowledge, action was taken to meet the needs of these women. In the process of taking action, the researcher engaged in a face-to-face NGT with stakeholders to gather new information in relation to meeting the healthcare needs of women diagnosed with infertility by developing draft guidelines for holistic healthcare interventions. The FGDs and NGT gave the researcher an opportunity to be in contact with both participants and stakeholders in a naturally occurring situation in order to gain new knowledge about healthcare needs and develop the draft guidelines.

3.2.3 Philosophical assumptions of pragmatism

The ontological, epistemological and methodological assumptions guiding the pragmatist approach are discussed in the next sections.

3.2.3.1 Ontological assumptions

Ontology involves the nature of reality and its characteristics or how one sees reality (Lewis, 2015: 473-475). It is believed that each person has their own way of perceiving reality and therefore, each person experiences a different reality. This means that there is no single unitary reality, but

diverse ways of believing, perceiving and experiencing things. Pragmatist researchers take the idea of multiple realities and report on these multiple realities by exploring different forms of evidence from different individuals' perspectives and ways of seeing reality (Lewis, 2015: 473-475; De Vos, Delport, Fouché & Strydom, 2011: 40). In the pragmatic world, all individuals have their own unique interpretations of the world, and issues of intersubjectivity are key elements of social life (Mertens, 2015: 38).

Guided by the ontological assumption of having multiple realities from different individual perspectives in this study, first, the women were given the opportunity to discuss the reality of the type of healthcare needs they wished to have addressed as part of holistic healthcare intervention. Second, stakeholders, which included a gynaecologist, nurses, midwives, nurse managers, opinion leaders, an assembly man and a reverend minister, had the opportunity to understand and contribute to the reality experienced by women diagnosed with infertility by developing draft guidelines for holistic healthcare interventions for managing women diagnosed with infertility. Different data collection and analysis methods were employed to explore multiple realities and develop holistic healthcare interventions for women diagnosed with infertility.

3.2.3.2 Epistemological assumptions

The word epistemology is derived from the Greek word *episteme*, meaning knowledge. Thus, epistemology is the philosophy of knowledge or how we come to know (Trochim, 2000: 292). It poses the following questions: What is the relationship between the knower and what is known? How do we know what we know? What counts as knowledge? (Kivunja & Kuyini, 2017: 26).

In this study, the researcher's main objective was to develop guidelines for holistic healthcare interventions for women diagnosed with infertility. To achieve the objective, the researcher communicated with different participants with the intention of studying their knowledge or perceptions about the area of study and also determined the course of action to take and the appropriateness of those actions. The researcher acquired knowledge in different forms from the participants, and the results were utilized in ways that could bring about holistic health care. The researcher focused on knowledge-gathering from the qualitative perspective, (engaging with women diagnosed with infertility to get their views) and quantitatively perspective (NGT and e-Delphi) to develop and refine the guidelines for holistic healthcare interventions for women diagnosed with infertility.

3.2.3.3 Methodological assumptions

For the researcher to gain insight into and understanding of the study phenomenon over a period of time, a mixed method approach was used since it enabled the researcher to gain a better understanding of the area of study (Wahyuni, 2012: 71). In the pragmatic paradigm, qualitative or quantitative methods are well-matched, allowing the researcher to make a choice about what is important and what is appropriate. This approach inspires researchers to feel free to choose what to study, how to do it, and finally what method works best to answer the research questions (Mertens, 2015: 38). In this study, the researcher was not restricted to a single methodology but was able to resolve the research problem using multiple approaches to answer the research questions making it more flexible and feasible to find appropriate solutions to the research problem.

3.3 SETTTING OF THE STUDY

The setting is the specific physical location in which data collection takes place within a study. The physical location can be more than one location (Polit & Beck, 2017: 744). Ga South Municipal Hospital in Ghana was selected as the research setting for the study. The hospital is the biggest public health facility in the Ga South Municipality. It is situated in the Weija sub-district with a catchment population of 499,313. It serves as a referral point for the numerous communities of the municipality and surrounding areas. The municipality is predominantly a Ga settlement inhabited by mixed tribes. The hospital has 25 departments or units.

The study was conducted at the obstetrics and gynaecology outpatient department. The department has a clinic day thrice a week on Mondays, Wednesdays and Fridays. During clinic day, 10 women diagnosed with infertility are seen in addition to all those with diverse gynaecological problems and those seeking obstetric attention. These women first report at the general outpatient department, then, based on their presenting complaints, are referred to see the specialist at the gynaecology department within the same facility. This same procedure is followed for those with appointments, except that they report to the outpatient department and then proceed to the gynaecology department. The department is headed by an obstetrician, three doctors and a group of midwives and nurses.

Ga South Municipal Hospital was chosen because it the biggest public district health facility within the Ga South Municipal area and serves as a referral point. The facility was also chosen because the researcher had the opportunity to serve as a professional nurse in the facility for 11 years. It

was during these years of service that the researcher became interested in the holistic healthcare interventions of women diagnosed with infertility and realized the need to develop guidelines for these women. Table 3.1 outlines a three year statistical trend of women diagnosed with primary and secondary infertility at the Ga South Municipal District Hospital.

Table 3.1 Statistics of the women diagnosed with infertility at the Ga South Municipal District Hospital (2016-2018)

YEAR	PRIMARY INFERTILITY	SECONDARY INFERTILITY	TOTAL
2016	**21 (84%)**	**4 (16%)**	**25**
2017	**49 (47%)**	**55 (53%)**	**104**
2018	**71 (60%)**	**48 (40%)**	**119**

(Records Department: Ga South Municipal District Hospital, 2018).

3.4 RESEARCH DESIGN

The researcher employed a pragmatic approach that advocates the use of mixed methods in research. A mixed method design is using more than one method within a research study by applying both qualitative and quantitative approaches to different stages of the study (Tembo, 2014: 117). Thus it utilizes both qualitative and quantitative methods to collect, analyse and integrate data into a single study (Polit & Beck, 2017: 160; Creswell *et al.*, 2011: 544-545; Azorin & Cameron, 2010: 95). Mixed method designs have the following characteristics (Creswell *et al.*, 2011: 544-545):

- It uses both quantitative and qualitative research designs. The quantitative design evaluates the extent and frequency of constructs, whereas the qualitative design explores the meaning and understanding of constructs or concept.
- It involves the application of multiple approaches.
- It integrates multiple methods in order to draw on the strengths of each method to answer the research question.
- It combines quantitative and qualitative research approaches, rather than keeping them separate.
- It views problems from multiple standpoints by researchers to enhance and enrich the meaning of a particular view.

- The intention to use both methods by researchers may be to either develop an instrument, intervention, guidelines or a programme informed by a qualitative finding.

Fetters, Curry and Creswell (2013: 1) described three basic mixed method designs, namely exploratory sequential, explanatory sequential, and convergent. An exploratory sequential design guided this study. As explained by Fetters *et al.* (2013: 3), in an exploratory sequential design, the researcher first analyses the qualitative data and these findings inform subsequent data collection. The researcher adapted this design because the qualitative findings generated from the FGDs provided a meaningful understanding of the research problem that informed the subsequent guideline development and refinement process. Prior to the development of the draft guidelines in Phase II: Stage I, the researcher used FGDs (qualitative approach) with women diagnosed with infertility to explore and describe their healthcare needs. In Phase II: Stage II, an NGT (qualitative and quantitative approach) was employed to generate ideas from stakeholders on what should be included in draft guidelines for holistic healthcare interventions for women diagnosed with infertility. In Phase III an e-Delphi technique (quantitative and qualitative) was used to refine the guidelines and reach consensus on the final guidelines. Table 3.2 gives a summary of the sequential mixed methods approach. The sequential design helped elicit views and opinions from different participants with regards to developing guidelines for holistic healthcare interventions. The design also helped to get different answers to the research questions (Tembo, 2014: 117).

Table 3.2 Exploratory sequential mixed methods integration

	PHASE I: REVIEW	PHASE II: STAGE I: EXPLORE	PHASE II: STAGE II: DEVELOP	PHASE III: REFINE
Design Exploratory sequential: Qualitative first		**Qualitative approach**	**Qualitative approach** **Quantitative component**	**Quantitative approach** **Qualitative component**
Methods Building: One database informs the data collection approach of the other	**Systematic review of literature**	**FGDs (n=20) Thematic analysis**	**NGT (n=12)** **Introduction** **Silent phase** **Round-robin** **Discussion** **Voting**	**e-Delphi (n=20)** **Rating of draft guidelines** **Recommendations of expert panel**
Findings Integration: Databases displayed and compared	**Holistic healthcare inteventions**	**Healthcare needs**	**Draft guidelines (interventions)**	**Final guidelines** **Holistic healthcare interventions**

(Fetters *et al.*, 2013: 1;2)

3.5 RESEARCH METHODOLOGY

Research methods are techniques, steps, procedures and strategies used by researchers to structure a study, and to gather and analyse data in a systematic fashion that are relevant to the research objectives and questions (Polit & Beck, 2017: 160; Walliman, 2017: 7). The research methods are described under the subheadings, setting, population, sampling, data collection and data analysis, as applicable for each of the following phases and stages:

- Phase I: Systematic review of literature on existing evidence of holistic healthcare interventions for women diagnosed with infertility.
- Phase II: Stage I: Exploration and description of the healthcare needs of women diagnosed with infertility using FGDs with women.
- Phase II: Stage II: Development of draft guidelines for holistic healthcare interventions for women diagnosed with infertility using an NGT with stakeholders.

- Integration of Stage I and II findings.
- Phase III: Refinement of guidelines for holistic healthcare interventions for women with infertility using an e-Delphi technique.

The linking of the mixed methods of data collection and analysis can be done through connecting, building, merging, and embedding. The phases in this study were linked through building, where results from one data collection phase informed the data collection approach of the next procedure, the latter building on the former (Fetters *et al.*, 2013: 1).

3.5.1 Phase I: Systematic review of literature

In Phase I the researcher reviewed various literature sources pertaining to holistic healthcare interventions in the management of women diagnosed with infertility. This helped the researcher to evaluate and propose existing evidence on holistic healthcare interventions for women diagnosed with infertility.

3.5.1.1 Sampling

A comprehensive search using the period and the keywords for the topic was conducted using the following search engines: PUBMED, Medline, Scopus, CINAHL and EBSCOhost. The studies retrieved were critically examined to ascertain if they met the inclusion criteria.

3.5.1.2 Inclusion and exclusion criteria

Articles written in English, published between 2010 and 2018, that focused on various interventions related to infertility were included. Dissertations and book chapters were excluded. Research published in languages other than English were also excluded.

A total of 46 publications were retrieved through the search, 12 were excluded as duplicates, 10 were found to be irrelevant after reading the abstracts to decide on the applicability of the publication and were excluded. Finally, 24 full text studies were selected for detailed evaluation. Refer to the PRISMA flow diagram (Figure 2.3).

3.5.1.3 Data collection

The following principles were adhered to during the process of data collection (Ryan, 2010: 4):

- Multiple searches of bibliographic databases;

- Scanning reference lists of existing reviews and eligible studies;
- Searching key journals;
- Forward citation searching of seminal articles; and
- Researching out of scholars.

The selected publications were subjected to a more advanced quality assessment using general critical appraisal guidelines based on a quality checklist (Kangasniemi *et al.*, 2015: 1746; Whittemore & Knafl, 2005: 550). The quality assessment ensured that a rigorous process was followed during the systematic review.

3.5.1.4 Quality assessment and appraisal

The final 24 selected publications consisted of theoretical and empirical reports. All publications were studied and tabulated according to author(s), year of publication, country where the research was conducted, purpose, design and method, and quality appraisal. Because of the diverse representation of sources, six criteria (quality domains) evaluating methodological quality were modified and used to evaluate the selected publications (Kangasniemi *et al.*, 2015: 1746; Whittemore & Knafl, 2005: 550). The quality assessment involved reading through the full text of the included studies and evaluating each study according to the six quality domains using a three-point scale ('high', 'low' or 'not reported'). The quality assessment and appraisal process are illustrated in table format in Annexure O.

3.5.1.5 Data analysis

The findings of each selected article were studied to identify the different types of healthcare interventions for women diagnosed with infertility using thematic analysis. The results of the systematic review yielded different interventions that have been adapted and practised in different settings. The different types of interventions formed the themes of the findings, while some of the themes also had categories and subcategories, for example psychosocial counselling had two subcategories, namely individual and group psychosocial counselling. Based on the analysis, the researcher came across different interventions that could be employed and integrated into the guidelines for the management of women diagnosed with infertility in order to ensure a holistic approach. The interventions were discussed in Chapter 2 by defining the type of intervention, the way in which the intervention was applied in different studies, and finally the outcomes of the

intervention. Annexure O gives a summary of the data analysis of the articles as well as the themes extracted.

3.5.2 Phase II: Stage I: Exploration and description of the healthcare needs of women diagnosed with infertility

Phase II: Stage I used FGDs to obtain information from women diagnosed with infertility in relation to their healthcare needs.

3.5.2.1 Setting

Ga South Municipal District Hospital in Ghana was selected as the research setting for the study. Refer to Section 3.3 for a vivid description of the research setting.

3.5.2.2 Population

Population is described as the total number of individuals or objects having common characteristics that are considered accessible for the study and as well meet the proposed inclusion criteria (Polit & Beck, 2017: 160; Parahoo, 2014: 262). The study population in this particular phase included women diagnosed with infertility within a year or more years who accessed healthcare regularly at the Ga South Municipal District Hospital.

Chandra *et al.* (2013: 10) indicated that a year or more of regular intercourse without the use of contraceptives and no indication of pregnancy was a good indication for a person to be diagnosed as infertile. The researcher used the above definition of infertility as failure to show a sign of pregnancy after a period of one or more years of regular sexual intercourse without using any contraceptives to select the target population.

3.5.2.3 Sampling and sample size

The process of selecting a portion of the population to participate and represent the entire population is referred to as sampling (Polit & Beck, 2017: 743). In this study a purposive sampling approach was used. Purposive sampling is a type of non-probability sampling technique whereby the researcher identify or select study participants based on personal judgement of a particular characteristic with the aim of acquiring rich information cases related to the phenomenon of interest (Palinkas, Horwitz, Green, Wisdom, Duan & Hoagwood, 2015: 533). With regard to the objective of the study, the researcher selected participants who can give rich evidence based on

their experiences, hence participants for the FGDs were purposively selected. The inclusion criteria in Section 3.5.2.4 guided the researcher during the selection of participants.

Usually in qualitative research, a small number of participants are selected because of the extensive documentation. Generally, the total number is also determined by data saturation. Data saturation in qualitative research is seen as instances where no new information emerge or when further coding does not produce new evidence (Saunders, Sim, Kingstone, Baker, Waterfield, Bartlam, Burroughs & Jinks, 2018: 1893; Fusch & Ness, 2015: 1408). Data saturation therefore determined the sample size of this stage and no new or rich information was gathered after the fifth set of FGDs. The FGDs included 12 women diagnosed with primary infertility, and eight women diagnosed with secondary infertility. Refer to Table 4.1 for a descriptive profile of the participants.

3.5.2.4 Inclusion criteria

- Women diagnosed with either primary or secondary infertility after a year or more of not getting pregnant.
- Regular attendants at the gynaecology clinic of the Ga South Municipal District Hospital in Ghana.
- Women willing to participate in the study.
- Women who were well able to express themselves in English, Twi or Ga.
- Women aged between 25 and 45 years.

3.5.2.5 Exclusion criteria

- Women not yet diagnosed with infertility.
- Non-regular attendants at the clinic (Ga South Municipal District Hospital in Ghana).
- Women who were not willing to partake in the study.
- Women who could not express themselves in either English, Twi or Ga.

3.5.2.6 Piloting of interview guide

Piloting of an interview guide is a small version of a proposed study conducted to develop or refine the interview guide to examine its feasibility (Stockley, O'connor, Smith, Moss, Allsop & Edge, 2017: 1). Before the definite research study, the developed interview guide was pilot tested with

four women diagnosed with infertility who would not be included in the main study to ensure the quality of the interview guide and also to determine its feasibility. The participants understood the questions well. Based on the outcome of the pilot interview a few modifications were made to the interview guide, for example, questions repeating the same content were removed.

3.5.2.7 Data collection

Data collection is the precise and systematic gathering of pieces of vital information that are relevant to the research question or hypotheses, objectives and the aim of a study (Polit & Beck, 2017: 160; Peersman, 2014: 1). Data collection for this phase was done through interacting with woman diagnosed of infertility using FGDs. This qualitative research technique was originally developed to generate non-numerical data from a small sample of participants to provide feedback on a given topic for which statistical analysis is not normally appropriate (Gray & Payne, 2014: 84). The process of data collection is usually guided by a moderator using a semi-structured interview guide (Polit & Beck, 2017: 729). This technique was used to collect in-depth and rich data and gain more insight into participants' healthcare needs.

A total of 20 participants took part in the study. Five FGDs were conducted. The first and second FGDs had three participants each, whereas the third, fourth and fifth FGDs had a total of four, five and five, respectively. An interview guide (Annexure D) that listed the main questions to be covered in the FGDs was used. This served as a road map that guided the researcher to cover the list of questions.

The researcher only proceeded with data collection after obtaining the necessary permission from the various participants and after receiving approval from the Research Ethics Committee, Faculty of Health Sciences, University of Pretoria, South Africa (Annexure F) and the Ghana Health Service Ethics Review Committee, Accra-Ghana (Annexure G). Permission was also obtained from the Ga South Municipal District Hospital (Annexure H).

The FGDs were conducted in the clinic setting to make it flexible for the participants. Time allocation was also flexible to further accommodate participants. The researcher ensured that the setting was private during the process of the data collection. The different sessions of the FGDs continued until data saturation was attained.

In order to ensure that data collection was free from the researcher's own biases and perspectives, reflexivity and bracketing was applied by the researcher.

- **Reflexivity**

Reflexivity as a process deals with self-examination and self-awareness of what the researcher as an individual brings to the inquiry. This includes the researcher's background, set of values and other unique characteristics and a role of subjectivity that can affect the research process (Palaganas, Sanchez, Molintas, Visitacion & Caricativo, 2017: 427; Polit & Beck, 2017: 160). Through the process of reflection or self-interrogation, researchers seek to be well positioned to probe deeply and grasp whatever information they obtain (Polit & Beck, 2017: 160; Mortari, 2015: 4).

The researcher used reflexivity and engaged herself in a thoughtful, conscious self-awareness role during the research process. The researcher also applied reflexive scrutiny from the time the study was considered. Throughout the research process, the researcher continually evaluated her personal experiences, intersubjective dynamics and the research process itself. Reflexivity was applied through self-examination, self-awareness and reflective notes. Reflexivity involved a shift in the researcher's understanding while it also allowed her to be critical about what she hears and how best to give meaning to what was heard.

In order to be reflexive, the researcher had an ongoing discussion about the healthcare needs of the participants, offered an opportunity for questioning and opened herself up to new kinds of idea exchanges. Throughout this process, the researcher bracketed her perceptions and interpretations from the phenomenon being studied.

- **Bracketing**

Bracketing is the process of recognising and holding in abeyance preconceived beliefs and opinions about the phenomenon being studied (Polit & Beck, 2017: 471). Before starting the data collection, the researcher ensured that she bracketed her own ideas, perspectives, values, philosophies and other personal biases that might have influenced the questions or results of the study. The researcher suspended prejudices and prejudgments in order not to allow her expectations to shape the data collection or impose her understanding on the findings. The researcher did not attempt to influence participants' understanding of the phenomenon as described by them (Hamill & Sinclair, 2010: 18).

The following process was followed during the FGDs (Escalada & Heong, 2014: 3-4):

- **Collection of demographic data**

Before the commencement of the FGDs, the researcher obtained background information from the participants. This included their age, years of diagnoses and the type of infertility.

- **Beginning the focus group discussion**

A brief introduction about the topic of the discussion and the ground rules for the session were given. Participants were informed that everyone's ideas would be considered as valuable, hence everyone should feel free to talk. Participants were also informed that the FGD, depending on the extent of the discussion, was going to last 30-45 minutes. Because of the sensitive issue to be addressed, participants were requested not to answer questions that would cause emotional discomfort. Meanwhile participants who were a bit emotional were giving counselling session for free. The researcher requested permission to record the FGD and write down her observations. An information sheet giving all the information about the study was given to participants as well as consent forms to sign and complete (Annexure A).

- **Discussion of questions**

A semi-structured interview guide (Annexure D) was used at this point to gather information from the participants. The discussion centred around structured key themes using the probing questions that were prepared in advance. The researcher followed the questions on the interview guide to find out about participants' healthcare needs. The FGDs were held in five different sessions. Each FGD lasted for not more than an hour. In the process of conducting the FGD, the researcher took a neutral stance by asking open-ended and probing questions as structured in the interview guide. All participants were given the opportunity to participate. The researcher ensured that she encouraged everyone in the group to talk, especially the quiet participants. This was achieved by calling on all participants to contribute and the use of in-depth probing without leading the participants. The interviews were conducted in Twi and Ga as group members were more conversant in these two languages. The overall transcripts were translated by the researcher herself.

- **Concluding the focus group interview**

After data saturation was obtained, the FGDs came to an end, the main themes were summarised, and participants were thanked.

3.5.2.8 Field notes

Field notes are defined as records of activities or a means of documenting applicable information observed where words are inadequate to describe experiences during the process of interviews. Field notes provide written information about interviews and FGDs that may be useful in understanding participants' expressions (Phillippi & Lauderdale, 2018: 381; Blomberg, Giacomi, Mosher & Swenton-Wall, 2017: 123).

- **Discussion of field notes**

In this study, field notes were taken with the help of a research assistant. The researcher also noted down some personal field notes. Field notes in the form of observational and personal notes jotted down during the FGDs.

- **Observational notes**

Observational notes involve the recording of objective descriptions of observed events, conversations, information about actions, and dialogues within the context that it happened (Polit & Beck, 2017; 521). In this study, the researcher took observational notes based on what was seen, heard and detected during the FGDs. Important information like date of reporting, time of reporting, and finally, participants' style and behaviour of communicating were all taken into consideration during the recording of observational notes. Table 3.3 provides examples of observational notes recorded by the researcher.

Table 3.3 Example of observational field notes

Date of reporting
Although I informed participants of the date and time for the interview and reminded them every other day before the appointed date, some participants did not honour the invitation.
Time of reporting
Most of the participants did not report on time as scheduled. Some reported 15-35 minutes late. I had to patiently wait while engaging those who were already there in conversation in order for them not to feel bored. Before the commencement of the FGD, I ensured that all participants were relaxed and ready for the interview. Despite the delays, no participants withdrew from the study.

Participants' style and behaviour of communicating
Virtually all the participants interviewed voiced their ideas and expressed their feelings, especially when talking about their healthcare needs. About four of the participants in different FGDs sessions became a bit emotional at a certain point, but they calmed down after being consoled by me and a counsellor who was part of the group. Most of the participants thanked me for engaging them in the FGDs. They added that for once someone is paying attention to what they have being experiencing all these years. Others said that the FGDs made them realized that they were not the only people suffering as a result of their diagnosis and that there were others in worse situations.

- **Reflective notes**

Reflective notes are the researcher's notes on her thoughts, own feelings, personal experiences, insights or ideas and concerns in the field during the research process. (Phillippi & Lauderdale, 2018: 381; Polit & Beck, 2017: 160). Reflective notes helped the researcher to maintain reflexivity and bracketing. Table 3.4 provides examples of reflective notes that were recorded by the researcher.

Table 3.4 Example of reflective field notes

In the process of the data collection via face-to face FGDs, I observed that most of the women were already stressed about their present situation and seem not to be coping too well. The feelings of being stressed was exhibited in the way they actually expressed themselves. Some spoke on top of their voices, whereas others could just not stop tearing in the process of sharing their pains and frustrations. The acts of these women made me experience some sentiments. At a point I felt and wished there could be an instant holistic intervention for these women so as to have their healthcare needs met at every point in time to ensure they are holistically managed. As these women continually described how they were mishandled as a result of a condition they never incurred upon themselves and to express how poorly and partially they were being managed by their nurses and midwives really overwhelmed me.

3.5.2.9 Data analysis

Data analysis refers to converting the raw data into a useful form for data analysis. It involves the systematic organization and synthesis of research data (Polit & Beck, 2017: 725). Data were analysed using a qualitative approach, following the steps of thematic analysis (Nowell *et al.,* 2017: 4-8; Brooks *et al.*, 2015: 203-204; Braun & Clarke, 2006: 92-98).

- **Becoming familiar with the data to be analysed**

This step involves reading through the data in full at least once in order to get a clear idea of the data and to possibly have some initial analytical interests or thoughts. During this step, the researcher immersed herself in the data to get familiar with the depth and breadth of the data retrieved. The researcher repeatedly read the data and made sure she understood what was expressed by the participants. During this process, the researcher remained honest and vigilant about her own perspectives, pre-existing thoughts and beliefs.

- **Generating initial codes**

In this step, the researcher organized the retrieved data in a meaningful and systematic order and identified initial codes. Relevant and interesting data connected to the research question was coded. During the coding process, the researcher gave full and equal attention to all retrieved data and the vital information that may form the basis of themes were labelled accordingly.

- **Searching themes**

After verbatim transcriptions were compared to the field notes to identify nonconformity as well as the context within which each statement was made, the researcher reviewed all variables that run through the discussion under one theme and coded it. All the codes identified were sorted into possible themes. Different codes were also combined to form themes. Some initial codes that were related to the research question were organized into main themes and others were used as categories and subcategories.

- **Reviewing themes**

Reviewing themes involves the refinements of identified themes. The researcher ensured that data within themes were categorized meaningfully so that there was clear, identifiable distinctions between themes. During the process of reviewing themes, the researcher read all the organized data for each theme to ascertain whether they appear in a coherent pattern. After reviewing the

themes, selected themes were refined into themes that are specific enough to capture sets of ideas.

- **Defining themes**

This step enabled the researcher to determine what aspect of the data each theme captured and also to identify what is of interest and why. During this process, the researcher defined and refined the themes to ascertain whether a theme contained a category or subcategory. This process was followed by a detailed writeup of each theme to identify the story that each theme portrays. The researcher critically examined how each of the themes fitted into the overall story in relation to the research questions. The identified themes were refined by the researcher's supervisors to ensure clarity.

3.5.3 Phase II: Stage II: Drafting of guidelines

Phase II: Stage II used an NGT to generate ideas from stakeholders to assist in drafting guidelines for holistic healthcare interventions for women diagnosed with infertility. The findings from the FGDs informed the data collection approach in the NGT. The participants in the NGT were informed about the findings from the literature review and the FGDs, and it guided their decisions in drafting and rating the guidelines.

3.5.3.1 Setting

Ga South Municipal Hospital in Ghana was selected as the research setting for the study. Refer to Section 3.3 for a vivid description of the research setting.

3.5.3.2 Population

Population is described as the total number of individuals or objects having common characteristics that are considered in a study and meets the inclusion criteria of a study (Polit & Beck, 2017: 160; Parahoo, 2014: 262). The target population in this phase comprised of both healthcare stakeholders with experience in infertility and non-healthcare stakeholders. The latter were stakeholders with influence in the community when matters of health arises. The study included 12 stakeholders who were willing to participate in the study and could express themselves in either English, Twi or Ga.

3.5.3.3 Sampling and sample size

The process of selecting a portion of the population to participate and represent the entire population is referred to as sampling (Polit & Beck, 2017: 743). In this study, a purposive sampling approach was used to recruit 12 stakeholders. Purposive sampling is a type of non-probability sampling technique whereby the researcher identifies or select study participants based on personal judgement of a particular characteristic with the aim of acquiring rich information cases related to the phenomenon of interest (Palinkas *et al.*, 2015: 533). With the purpose of drafting guidelines for holistic healthcare interventions for women diagnosed with infertility, the researcher selected participants who could help to achieve this objective. The nurses, midwives, healthcare manager, and gynaecologist were selected based on their years of service (four years and more). The other stakeholders were selected based on their experience and positive influence and impact they have on society.

3.5.3.4 Inclusion criteria

- Healthcare providers (for example, nurses, midwives, gynaecologists and healthcare managers) with four or more years of working experience and often in touch with women diagnosed with infertility and are capable of effecting change.
- Policy makers, such as members of a legislative assembly (popularly known as an assembly man) and opinion leaders, who could ensure that changes and policies are implemented.
- Spiritual leaders who counselled or prayed with women diagnosed with infertility in their journey searching for a child.

3.5.3.5 Exclusion criteria

- Participants not willing to participate.
- Participants who did not fit in the categories above.

3.5.3.6 Piloting of interview guide

A pilot study is a small version of a proposed study conducted to develop or refine an interview guide to examine its feasibility (Stockley *et al.*, 2017: 1). The developed interview guide was pilot tested among a few stakeholders who were not included in the main study to determine its

feasibility. These stakeholders included a nurse, three midwives and one opinion leader. This led to a slight modification of the interview guide, and repeated questions were also removed.

3.5.3.7 Data collection

Data collection is the precise and systematic pieces of vital information gathered that are relevant to the research question or hypotheses, objectives and the aim of a study (Polit & Beck, 2017: 161). Data collection for Phase II were done through face-to-face interaction with healthcare providers and other stakeholders using an NGT. This technique of interaction is a form of consensus method in research that is directed at problem-solving, idea-generation and priority determination. It aims to achieve a general agreement of opinions and prompt results around a particular topic using face-to-face discussions in small groups (Mcmillan *et al.*, 2016: 655; Harvey & Holmes, 2012: 193). Using this technique helped to generate ideas from stakeholders about developing draft guidelines for holistic healthcare interventions for women diagnosed with infertility.

Using an interview guide (Annexure E), the NGT discussion was guided and moderated with the help of a research assistant who is a lecturer and psychologist. Stakeholder participants were asked to freely discuss relevant and reliable information during the NGT. Before the commencement of the NGT, the researcher did an oral presentation that included the problem statement and objectives of the research. Then the empirical findings from the FGDs and the systematic review of literature were as well presented to the stakeholders.

The following key phases of a NGT were used in the process of data collection (Dang, 2015: 5). Refer to Section 5.2.1 for detailed description of the step-by-step process of conducting a NGT.

- Introduction and explanation phase: During this phase, the moderator presented the question to be discussed on a flip chart and read it aloud to the participants for feedback.
- Silent phase: Participants were given the chance to put into writing, without conferring or intergroup discussions, based on their knowledge and experience, appropriate answers to the question: What should guidelines for holistic healthcare interventions for women with infertility entail?
- Round-robin phase: The moderator asked each group member to state their ideas from the silent phase. The ideas were recorded by the moderator on a flip chart (Annexure K).

All ideas were documented by the moderator until there were no new ideas put forward by the participants.

- Discussion or clarification phase: All members of the group clarified and discussed the unclear factors or items until everything were well understood. Ideas were grouped, edited and named into themes, without discarding any item. The moderator listed themes in order of popularity on the flip chart. Similar ideas were grouped together by the participants themselves without any assistance from the moderator. Participants took out identical items, put similar items together and gave each cluster of items with a similar meaning a heading. This could be seen as the data analysis stage.
- Voting phase: Based on the interventions listed, participants were asked to rank each intervention using a Likert scale from 1 to 6. The recordings were collected by the moderator to further develop the draft guidelines.

3.5.3.8 Data analysis

Data analysis refers to converting the raw data into a useful form for data analysis. It also involves the systematic organization and synthesis of research data (Polit & Beck, 2017: 725). Qualitative data retrieved from the NGT were grouped into themes during the discussion phase of the NGT, using the same process as used in the process of analysing the FGDs in Section 3.5.2.9. This was followed by analysing the quantitative data of the rankings through statistical analysis that included simple procedures like computing an average (Polit & Beck, 2017: 57). In the voting phase, each theme was assigned a rating by participants. The totals and averages were calculated to determine the priority assigned to each theme by participants. This helped the researcher to finalize the draft guidelines for holistic healthcare interventions for women diagnosed with infertility.

3.5.4 Integration of findings: Phase II: Stage I and Stage II

The integration of the findings assists in enhancing the value of the research, expands understanding of the findings, and helps to attain a better idea of the phenomenon under study (Fetters *et al.,* 2013: 2; Creswell *et al.*, 2011: 544-545; Braun & Clarke, 2006: 92-98). The researcher used specific approaches during the integration of the qualitative and quantitative data (O'Cathain, Murphy & Nicholl, 2010: 4587). According to the O'Cathain *et al.* (2010: 4587), the approaches can be implemented at the design, method, interpretation and reporting level of the

research. Integration of qualitative and quantitative data at the interpretation and reporting level can occur through narrative, data transformation, and joint displays (Fetters *et al.*, 2013: 9). The findings in this research was integrated through narrative and joint display. The researcher described the qualitative and quantitative findings for each phase/stage contiguously, where after the data was jointly displayed by organizing and summarising the findings of the FGDs and NGT. This further assisted in drawing out new insights beyond the information gained from the separate qualitative and quantitative results (Fetters *et al.*, 2013: 10). The insights informed further development and refinement of the guidelines. Table 3.5 illustrates the integration of the findings.

Table 3.5 Integration of findings: Phase I: Stage I and II

Design: Exploratory sequential; qualitative first	Phase II: Stage I (Qualitative findings) Focus group discussion (FGD) N = 20	Phase II: Stage II (Qualitative and quantitative findings) Nominal group technique (NGT) N = 12
	Qualitative	Qualitative – quantitative
Methods: Sequential mixed methods (integration through building)	Qualitative (FGD)	Qualitative – quantitative (NGT)
Interpretation and reporting	**Healthcare needs of women diagnosed with infertility**	**N: indicates the ratings of the interventions** **Interventions to meet the holistic healthcare needs of women diagnosed with infertility**
	Medical health assessment need	**Medical interventions** Comprehensive health assessment and management (n = 5)
	Psychological need	**Psychological interventions** Incorporating both individual and group counselling into management protocol Initiation of peer mentoring (n = 12)
	Educational need	**Educational interventions** Creating awareness of infertility treatment options Education on causes and prevention of infertility (n = 12)
	Spiritual need	**Spiritual interventions** Instillation of hope and faith in a Supreme Being (n = 10)
	Social need	**Social interventions** Incorporation of spiritual practices Incorporation of family support/partner involvement Support from healthcare providers through creation of a therapeutic environment (n = 9)
	Financial need	**Financial interventions** Efficient medical/health insurance and lobby for support from both government and nongovernmental organizations (n = 5)

Figure 3.1 is a diagram used by the researcher to portray the integration of research findings using an exploratory sequential research design (mixed methods).

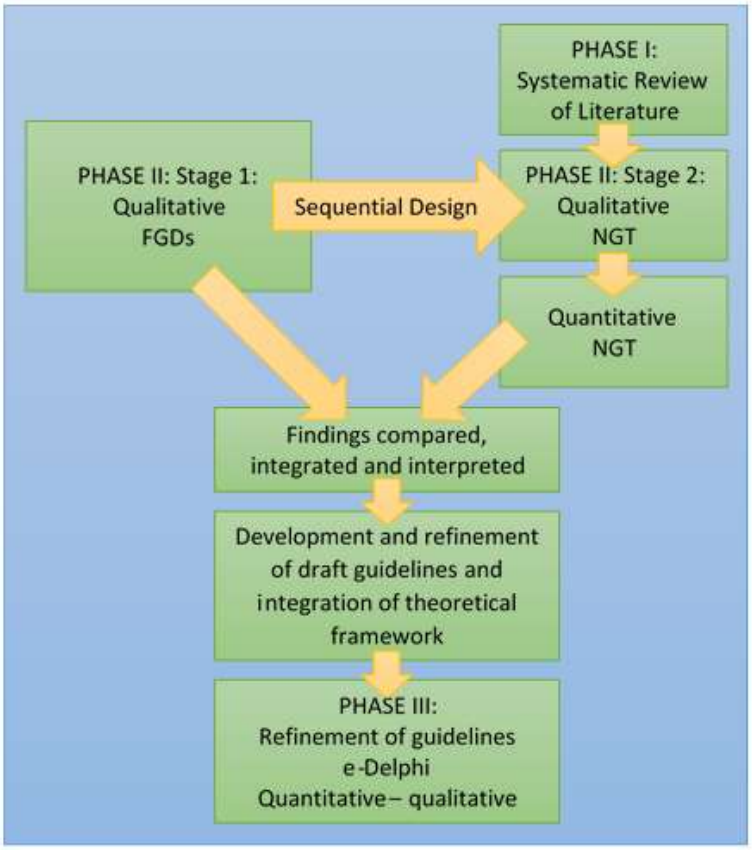


Figure 3.1 Exploratory sequential research design integration

3.5.5 Phase III: Refinement of guidelines

Phase III of this study focused on the refinement of the guidelines for holistic healthcare interventions for women diagnosed with infertility. The development of the guidelines was based on the theoretical framework of the study and the findings of the systematic literature review conducted in Phase I, supported by empirical data collected in Phase II.

The participants in the NGT developed draft guidelines based on the findings of the FGDs and the results of the systematic review. The researcher further developed and refined these draft guidelines by studying the findings of the systematic review and Phase II to make sure all findings were reflected in the guidelines. The researcher also integrated the theoretical framework to make sure the guidelines contained all the components of a holistic approach to healthcare.

3.5.5.1 Research method

In this phase, the refinement of the guidelines for holistic healthcare intervention was done using an expert panel (e-Delphi technique) to ensure high quality guidelines. The e-Delphi technique is a method for obtaining judgements and views from an expert panel about a topic of interest with the agenda of seeking an agreement or consensus on the issue without direct confrontation. The e-Delphi technique is an online method that uses a multistage self-completed questionnaire with individual feedback to determine consensus from a larger group of experts (Polit & Beck, 2017: 160; Mcmillan *et al.*, 2016: 655). In this study, the process of data collection was conducted in two rounds, and each participating expert was emailed the questionnaire and given two weeks to respond to the refinement of the preliminary guidelines formulated in each round.

3.5.5.2 Population

This aspect of the e-Delphi technique is crucial since the judgement from a panel of experts are about an issue of concern (Polit & Beck, 2017: 725). Out of the 45 expert participants who met the inclusion criteria and were contacted via email to obtain their consent to participate in the refinement of the guidelines, 20 expert participants responded to the email. These were both South African's and international experts from government and nongovernmental organizations in the area of infertility, policy and guideline development such as academic researchers, gynaecologists, midwives, and psychologists. The study was explained to all potential participants through a cover letter (Annexure L) that oriented them about their responsibilities considering the e-Delphi rounds.

3.5.5.3 Sampling

The researcher used purposive sampling to invite South African and international experts based on their research expertise and the specified inclusion criteria. The researcher recruited potential participants by sending them invitations through email. The invitees that responded to the invitation represented a team of 20 experts with diverse expertise (Table 6.3). The number of e-Delphi rounds depended on the e-Delphi panel arriving at a consensus. Hasson and Keeney (2011: 1695) revealed that 10-18 experts were recommended for an e-Delphi panel. Therefore, the researcher deemed 20 participants a sufficient sample. Below are the inclusion and exclusion criteria used in the selection of participants.

3.5.5.4 Inclusion criteria

- Specialized healthcare providers in infertility care, for example, gynaecologists, midwives and psychologists.
- Academia knowledgeable about infertility care and well versed in the field of research and guideline development and refinement.

3.5.5.5 Exclusion criteria

- Participants not willing to partake in the study.
- Participants with no knowledge on infertility.
- Non-specialized healthcare providers.

3.5.5.6 Data collection

The researcher facilitated the process of data collection in each round with a summary of the panel's views circulated between rounds to achieve consensus as recommended by Polit and Beck (2017: 725-726). A cover letter and a participants' informed consent form with applicable information (Annexure L) were sent to participants together with the draft guidelines for holistic healthcare interventions and an instrument to evaluate the guidelines according to a 4-point Likert scale and open-ended comments. A 4-point Likert scale was adapted and used as a scale suitable to rate the guidelines according to certain criteria. The scale looked as follows: Strongly disagree = 1, disagree = 2, agree = 3, strongly agree = 4 (Polit & Beck, 2017: 274). The descriptions of the criteria were developed from guiding attributes for guideline development, reporting and evaluation as set out in the AGREE II document developed by Brouwers *et al.* (2017: 11-32). Refer to Section 6.3 for detailed discussion of the criteria. The attributes that guided the development of the guidelines were constructed into a checklist for rating the guidelines. The expert participants were asked to indicate the degree to which they agree or disagree that the guidelines met the criteria. After the researcher analysed the data obtained during the first round, the guidelines were refined, and the same expert participants were given the refined guidelines with feedback about the findings. The feedback process allowed and encouraged the e-Delphi participants to reassess their initial judgements.

3.5.5.7 Round 1

During this round, the draft guidelines based on the BPSS model, findings from the systematic literature review in Phase I, and the findings from the FGDs and NGT in Phase II were sent to the e-Delphi participants to give their opinions freely and independently without being influenced by anyone. The participants were given a checklist where they rated the guidelines according to certain criteria, including a section to record their comments to refine the guidelines. Responses from the expert participants were screened, analysed and collated by the researcher. The score for each guideline as rated according to the 4-point Likert scale were collated and presented in Table 7.2. The consensus rates of the e-Delphi round 1 is presented in Table 7.3. An overall consensus rate of 85% was obtained in round 1. According to AGREE II (Brouwers *et al.*, 2017: 10), high quality guidelines are those with consensus scores >70%. As an acceptable consensus rate was obtained in round 1, the researcher adapted the guidelines as recommended by the comments (Table 7.4) from the panel and sent out the adapted guidelines to the expert participants again so that they could see the changes made and add final comments if they wished to do so.

3.5.5.8 Round 2

The adjusted guidelines were re-sent to the expert participants after the necessary modifications were made for their final comments, if they deemed it necessary. This also gave the expert participants the opportunity to observe how their opinions differed from others. The feedback also gave each expert participants an opportunity to generate additional insight and comments where necessary. This gave the researcher an opportunity to appraise whether the final guidelines differed from the opinions of the expert participants. Because of the acceptable degree of consensus rate obtained in the first round, the necessary changes were made according to the comments of the expert participants in both round 1 and 2. The final guidelines are presented in Section 7.5.7.

3.5.5.9 Data analysis

Data analysis was done in accordance with the expert participants' rating of the guidelines. All entries were kept anonymous. The number of responses were recorded in a table format according to the levels of agreement using the 4-point Likert scale (Table 7.2). A quality score was calculated for each of the seven criteria according to AGREE II (Brouwers *et al.*, 2017: 10),

and a good and acceptable consensus rate was obtained. Scores were calculated by summing up all the scores of the expert participant items and by scaling the total as a percentage of the maximum possible score (Brouwers *et al.*, 2017: 9-10). Below is the formula adapted and used to calculate the consensus rate (Brouwers *et al.*, 2017: 9).

Maximum possible score = 4 (strongly agree) x 7 (items) x 20 (appraisers) = 560

Minimum possible score = 1 (strongly disagree) x 7 (items) x 20 (appraisers) = 140

$$\frac{\text{Obtained score} - \text{Minimum possible score}}{\text{Maximum possible score} - \text{Minimum possible score}} * 100$$

Quality guidelines are deemed as those with a score >70% (Brouwers *et al.*, 2017: 9).

3.6 RIGOUR

The word rigour denotes the quality of evidence offered in the study by striving to make good decisions to produce evidence of the highest possible quality. Rigour also aims at accuracy as well as consistency, which is the strength of the research design (Polit & Beck, 2017: 160). Rigour will be discussed under trustworthiness and validity and reliability.

3.6.1 Trustworthiness

Qualitative researchers use different criteria to evaluate the quality of a study. The principles of trustworthiness, which includes credibility, transferability, confirmability and dependability, were adhered to (Polit & Beck, 2017: 161). The same principles of trustworthiness were also applied to address the qualitative aspect of the NGT. The strategies to ensure trustworthiness of Phase II are described in Table 3.6 below.

Table 3.6 Strategies to ensure trustworthiness

DESCRIPTION	CRITERIA	APPLICATION
Credibility has to do with the degree to which research findings inspire confidence, makes sense and gives true interpretations (Polit & Beck, 2017: 160; Keen & Otter, 2014: 39).	Prolonged engagement	• The FGDs and the NGT were reviewed by the supervisors in order to assess its quality and the competence of the researcher's questioning skills. • FGDs and NGT were held until data saturation reached.
	Member checking	• After the FGDs were conducted, and the data had been transcribed, the findings of the FGDs were summarised. Participants were called by the researcher to verify their views and to ensure the authenticity of the research findings.
	Triangulation	• The use of more than one research method promotes a comprehensive understanding of the phenomenon under study and enhanced the rigour. The mixed methods approach during qualitative and quantitative data collection, facilitated the framing and answering of the research questions.
	Bracketing	• The researcher bracketed her experiences and beliefs and focused on the study phenomenon. Personal perceptions of the researcher did not influence the information obtained. Refer to page 64 for detailed explanation as to how bracketing was ensured by the researcher.
	Reflexivity	• Reflexivity was used to overcome biases and preconceived assumptions that could have influenced the data collection. Refer to page 64 for detailed explanation as to how reflexivity was ensured by the researcher.
Transferability entails the provision of a thorough description of the setting in which the research will be conducted so as to give other readers enough information for them to judge the applicability of the findings to other settings (Polit & Beck, 2017: 572; Keen & Otter, 2014: 39).	Setting	• A detailed description of the study context was provided to allow any reader to determine whether the findings would be applicable and could be transferred to another environment. The description of the setting could also help to implement the findings in other clinical settings.
	Description	• The researcher provided in-depth information to allow any reader to determine whether the findings would be applicable. • Verbatim transcriptions were compared to field notes to ensure all vital information were captured.
Conformability is the degree to which the data represent the information participants provided and whether	Reflexivity	• The researcher conducted the FGDs, but bracketed her own perceptions, beliefs and preconceived assumptions that might have influenced the process of data collection. The NGT was moderated by the research assistant to overcome biases.

the interpretations of the data were not invented by the inquirer (Polit & Beck, 2017:560).		• The researcher ensured conformability by making sure that the findings reflected participants' voices only and not the researcher's biases or perspectives.
	Confirmability audit	• The researcher ensured that all audio recordings and field notes were kept.
DESCRIPTION	CRITERIA	APPLICATION
Dependability refers to the permanency and reliability of the research findings over time and conditions (Polit & Beck, 2017:599).	Consistency	• All the participants were interviewed with the same interview guide to ensure consistency in the findings.
	Authenticity	• All participants had equal access to share their views, concerns and perspectives throughout the FGDs and NGT. • Participants' viewpoints and apprehensions were represented in the findings of the study as applicable.
	Dense description of the research methods	• The researcher described the FGD and NGT methodology in detail. This included the exact method of data gathering, data analysis, and the interpretation of raw data. • The FGDs and NGT continued until no new information was established. • Recording of the FGDs and keeping of field notes during the process enhanced dependability.

3.6.2 Validity and reliability

Quantitative researchers in evaluating the quality of their study adheres to two important criteria, namely validity and reliability (Polit & Beck, 2017: 161; Keen & Otter, 2014: 39). Table 3.7 below gives a vivid description of how validity and reliability was ensured in this study. Validity and reliability were adhered to in order to ensure rigour of the quantitative aspect of the NGT.

Table 3.7 Strategies to ensure validity and reliability

DESCRIPTION	APPLICATION
Validity refers to the degree of soundness of the study's evidence in finding out whether the results are clear, convincing and well-grounded, while it also seeks to establish if the instrument measures what it is supposed to measure (Polit & Beck, 2017: 160).	i. The researcher ensured the use of the appropriate research instruments in measuring what it purports to measure.
	ii. The research instrument was pilot tested with a small sample of stakeholders who were not part of the main study session so as to determine the feasibility of the research instrument.
	iii. Prior to the collection of relevant data, the research instrument was reviewed, discussed and finally modified by the researcher and her supervisors in order to ensure the research instrument measures what it purports to measure.

	iv. To ensure that the data collected were valid, the researcher compared appropriate research instruments such as interviews, observation, field notes and the nominal group discussions before finally transcribing the raw data.
	v. Internal validity was ensured by making sure results obtained were accurate and quantified what it was designed to measure.
	vi. External validity was ensured by using precise descriptions to allow for study replication across different populations and settings.
	vii. To ensure the validity of accurate rating of the voting phase, the researcher involved one of her supervisors who is well versed in analysing quantitative data. This ensured that the results and conclusions are valid for the sample and context.
Reliability refers to the degree of accuracy, consistency or dependability of an instrument and the information obtained in the study (Polit & Beck, 2017: 160; Heale & Twycross, 2015: 66)	i. Reliability of the research instrument was assessed in various ways, and the researcher presented the research instrument for supervisors' review and comments.
	ii. The research instrument was pilot tested with different stakeholders to determine its feasibility.
	iii. The research instrument was reviewed after the pilot study, and the necessary adjustments were made by the researcher and her supervisors before starting the real data collection.
	iv. To ensure the exact replicability, consistency and dependability of information obtained in the study, a moderator was used in the NGT to ensure participants were not influenced during the voting phase and the voting was done anonymously.
	v. Consistency and dependability of information were obtained in the study by comparing appropriate research instruments, such as interviews, observation, field notes and nominal group discussion before finally transcribing the raw data.

3.7 SUMMARY

This chapter elaborated on the research paradigm, design and methods used in the study. Explanations were given for the choice of research paradigm, design, research setting, population, sample size and sampling technique, method of data collection and data analysis techniques.

The findings representing the healthcare needs of women diagnosed with infertility will be addressed in Chapter 4.

CHAPTER 4

DISCUSSION AND ANALYSIS OF HEALTHCARE NEEDS OF WOMEN DIAGNOSED WITH INFERTILITY (FGD)

4.1 INTRODUCTION

The previous chapter discussed the researcher's paradigmatic perspective together with the methodology of this study. This chapter will discuss the findings of Phase II: Stage I of this study that was deduced from the participants' focus group transcripts as well as the field notes recorded by the researcher. Twenty participants participated in the FGDs. The researcher conducted the FGDs in either Twi or Ga at a place designated for the collection of data. All interviews were audio-recorded, translated, transcribed and analysed by the researcher. During this processes, the researcher bracketed her mind and also stayed away from her own perspectives, values, philosophies and other personal biases that might have influenced the results of the study. This was done to enhance reliability of the translation. The researcher also engaged the services of researcher assistant who also understands the two languages well to listen to the audio and proofread the transcribed data in order to ensure the data interpretations were consistent, transparent and free from bias. The findings outlined the experiences of women diagnosed with infertility, their healthcare needs, and their healthcare expectations. Under each category direct quotations will be provided as evidence for the particular finding.

4.2 SOCIO-DEMOGRAPHIC CHARACTERISTICS OF PARTICIPANTS

A total of five FGDs were conducted. Group 1 and 2 were made up of three participants, Group 3 had four participants, and Group 4 and 5 had five participants each. A copy of a transcript is included in Annexure I. Participants resided in different neighbourhoods within the city of Ga South Municipality. The participants' ages ranged between 26 and 44 years; three of the participants were younger than 30, 15 were between 30 and 39 years old, and two were older than 40. All participants were diagnosed with primary or secondary infertility and were being managed at the Ga South Municipal District Hospital, Gynaecology Department. The duration of participants' inability to conceive ranged between 2 and 18 years. Out of the 20 participants, 19 spoke Twi, and one spoke Ga. The educational level of the participants ranged from primary

through to tertiary levels. Only two of the participants never had any form of formal education. Their occupational categories were grouped into two categories, government and private; two of the participants were government workers, while the rest were self-employed. Seventeen of the participants were married, one was co-habiting, and two were separated. Eight out of the 20 participants were diagnosed with secondary infertility, had a child each, and were looking forward to having another. The remaining 12 were diagnosed with primary infertility and also looking forward to having a child. Seventeen participants were Christians from diverse denominations, and three were Muslims. Table 4.1 below shows the demographic profile of the participants.

Table 4.1 Demographic profile of the participants

FGD Group	Participant	Age	Employment	Religion	Type of infertility	Period of diagnosis in years	Number of children
1	PA	44	Trader	Christian	Secondary	18	1
	PB	33	Seamstress	Christian	Primary	3	None
	PC	34	Caterer	Christian	Secondary	7	1
2	PD	33	Beautician	Christian	Primary	2	None
	PE	33	Cosmetologist	Christian	Secondary	4	1
	PF	32	Caterer	Christian	Secondary	7	1
3	PG	34	Business woman	Christian	Secondary	7	1
	PH	35	Nurse	Christian	Secondary	5	1
	PI	32	Teacher	Christian	Primary	4	None
	PJ	36	Trader	Christian	Primary	8	None
4	PK	38	Trader	Christian	Primary	8	None
	PL	33	Trader	Christian	Primary	4	None
	PM	28	Pharmacy assistant	Christian	Primary	2	None
	PN	43	Trader	Muslim	Primary	17	None
	PO	36	Pastor	Christian	Primary	12	None
5	PP	34	Beautician	Christian	Primary	7	None
	PQ	26	Trader	Muslim	Primary	6	None
	PR	37	Trader	Christian	Primary	5	None
	PS	27	Trader	Muslim	Secondary	6	1
	PT	37	Trader	Christian	Secondary	7	1

4.3 DISCUSSION AND ANALYSIS OF FINDINGS

Guided by the constructs of the BPSS model by Dossey (1997: 4), as discussed in Section 2.4.2, the data analysed yielded three main themes, 10 categories and 20 subcategories. The themes, categories and subcategories are presented in Table 4.2 and explain the healthcare needs of women diagnosed with infertility. The findings are discussed and illustrated with direct quotations in italics. Participants' identities were replaced with a symbol to ensure anonymity, as indicated in brackets, for example, (PA). The findings are followed by applicable literature discussions.

Table 4.2 Healthcare needs of women diagnosed with infertility

THEMES	CATEGORIES	SUBCATEGORIES
The psychosocial experiences of women with infertility	Psychological experiences	Depression Anxiety Diminished desire for sex
	Social experiences	Stigmatization Marital instability Intentional social isolation
The healthcare needs of women diagnosed with infertility	Medical health assessment needs	A need for a comprehensive health assessment
	Psychological needs	A need to be counselled A need for peer mentoring
	Educational needs	A need for information on causes, prevention, and treatment options and the side effects of the drugs
	Spiritual needs	A need to incorporate the aspect of spirituality in management protocol A need to communicate with God or Allah
	Social needs	A need for support from significant others
	Financial needs	A need to subsidize cost of treatment and investigations
The healthcare expectations of women with infertility	Expectations of the healthcare system	A need for less waiting time at the clinic A need for follow-up from healthcare providers A need for devoted clinic day for infertility care and ensuring of privacy A need to be managed by a specific doctor to ensure continuity of care A need for male partner involvement in the management
	Expectations of healthcare professionals	A need for establishing a therapeutic relationship

4.4 PSYCHOSOCIAL EXPERIENCES OF WOMEN DIAGNOSED WITH INFERTILIY

In as much as the researcher was interested in knowing the healthcare needs of women diagnosed with infertility, issues relating to their psychosocial experiences also emerged during the FGDs. The researcher added it to the findings as these experiences were related to the

healthcare needs of women diagnosed with infertility and would provide the background to their needs.

To support the above claim, Dossey (1997: 4) who propounded the BPSS model, emphasized that every individual experience some form of psychological and social stressor when diagnosed with a disease. This implies that individuals cannot be holistically managed when aspects of their whole experiences are neglected or overlooked. Dossey (1997: 4) highlighted that it is vital to address all the components that makes a person whole in order to achieve optimal health and therapeutic results. Guided by the BPSS model, the researcher discussed the psychosocial experiences before discussing the healthcare needs of women diagnosed with infertility to illustrate the importance of treating them holistically.

Psychosocial experiences emerged as the main theme with two categories, psychological experiences and social experiences.

4.4.1 Psychological experiences

The findings of the study indicated that women diagnosed with infertility suffered some psychological problems because of being unable to conceive. These psychological experiences included depression, anxiety and diminished desire for sex.

4.4.1.1 Depression

Feelings of depression were paramount in the lives of women diagnosed with infertility. Almost all the participants shared their experiences of depression. Some women ascribed the depressed feelings to factors like having been married for a couple of years, ageing, yet there is no sign of pregnancy. Others attributed theirs to the pressures and threats they received from their in-laws. Humiliation from colleagues, friends, husbands and church members also contributed to depression.

Feelings of depression was associated with remarks from in-laws, as shown in the following quotations:

My in-laws! My in-laws will also never let me be … they always want to give me pressure, they kept asking the very same question that makes me feel unhappy …: "When are we going to see our grandchildren?" In fact, the actions of my in-laws at times makes me feel so sad, I have even regret ever marrying. (sounding very emotional) (Group 1; PA)

Madam, for me, my in-laws went as far as packing my belongings outside … they actually asked me to leave their son since I was not able to give them a grandchild. In fact, I almost tried committing suicide … since I could not just take it any longer …. Eventually I turned into a drunkard. I drink in order to actually forget all that am going through … but the drinking itself does not even work, meanwhile, I am also not able to stop abusing the alcohol …. (Group 1; PC)

Because of the maltreatment I receive from my mother-in-law, I am always worried and depressed. (Group 4; PN)

Other participants associated their depressive state to how friends and colleagues treated them at homes and workplaces. Two participants shared their experience in this regard:

At the workplace, some friends would not let me be, especially when they see me putting on something new. Some are like, "Do what is needed in life first … give your husband children…". (crying) (Group 1; PB)

Madam … If I tell you I am not worried about my situation now, then I will be lying to you. Myself and my husband lives in a compound house. Surprisingly, any tenant that comes to live in that house eventually conceives, usually within the space of a year or a year and half. In the whole vicinity, that house is known as the 'house of fertile ground'. Unfortunately, I am the only woman in that house who is still struggling even to suffer a miscarriage. I am humiliated every now and then by my neighbours and some friends. This experience makes me feel so depressed. (Group 2; PE)

A few participants shared how the negative attitudes of their husbands affected their mood. One woman bitterly shared her experience in a flood of tears:

I am no longer happy … my husband now leaves home and comes back when he likes.... He is no more the loving husband I once got married to … hmmmm … just recently, he almost went in for another woman to bear him children…. It only took the intervention of God to have his mind changed.... (Group 2; PF)

Two other participants shared the following experiences:

My husband has gone out there to impregnate another woman …. He no longer provides for my needs... what even depresses me most is when I expect my husband to stay by me in times

like this, but he has just refused to do so …. Unfortunately, my husband rather makes me feel terrible…. (Group 3; PJ)

My husband always picks on me unnecessarily. This happens when his friends put pressure on him; asking him to try elsewhere…. (Group 5; PP)

One participant (Group 4; PK) expressed a different trigger for her depression, she lamented:

For me, I always get depressed when I see other people's children, more especially on television performing. I always ask myself, when will I also give birth …. (tearing)

Depression is a form of mental disorder characterized by sad feelings, emptiness, irritability that together with specific cognitive and somatic symptoms leads to significant distress or impairment in functioning (Maina, Mauri & Rossi, 2016: 237). According to Maina *et al.* (2016: 237), one of the ways depression can be diagnosed is by an objective psychological inspection as well as subjective signs and symptoms the patient presents or reports. Lastly, the researchers added that depression is diagnosed by assessing if the symptoms may be interrelated with a health condition, the use of psychoactive or pharmacological drugs, or substance abuse.

Feelings of depression is associated with underlying physical or medical conditions and mostly present as the first manifestation of what one is experiencing. In the context of this study, depression was associated with emptiness and sad feelings. The depressive feelings exhibited by women diagnosed with infertility, corroborate with three extant studies that was conducted in Ghana (Donkor *et al.*, 2017: 1; 5; Alhassan, Ziblim & Muntaka, 2014: 3; 5; Naab *et al.*, 2013: 136). The researchers attested that infertility has an undesirable impact on the mental health of women. The researchers also attributed feelings of depression among women diagnosed with infertility to issues like advancement in age and the duration of infertility. The above findings also support similar studies conducted in Pakistan and Iran where depression among women diagnosed with infertility ranked higher and were associated with factors like female age, repeated failed treatment cycles, longer duration of infertility and advancement in age (Ali *et al.*, 2015: 1480; 1481; Qayyum, Ahmed, Kanwal, Ishfaq, Hassan, Ali, Waheed & Shoaib, 2014: 581;582).

4.4.1.2 Anxiety

Women diagnosed with infertility felt they were ageing and were scared of becoming old without having their own children. These fears were also coupled with issues like their marriages being

on the verge of collapse or their husbands already dating other women. Participants who became worried and anxious as a result of advancing age shared their experiences as follows:

Madam nurse! Why should I not be worried … I am 44 years old now … I am getting nearer to my menopause …. I sometimes ask myself whether it was a mistake I did in getting married. (Group 1; PA)

There is no reason for me not to be bothered day by day …. I am very worried because I feel I am advancing in age and very soon, I will retire from my fertility age. (Group 2; PE)

Other participants also shared how the sudden change in their husbands' attitudes made them scared and anxious. Although they did not all use the words 'scared' or 'anxious' specifically, they appeared worried and concerned when they expressed themselves in this regard:

I am always worried and anxious …. In fact, I am scared my husband will remarry because he is so desperate to have his own children …. He could leave me for another woman at any point in time. (Group 2; PF)

My husband is my problem now. He is now a threat to me, coupled to that I see my menses every month …. (Group 3; PJ)

Madam …! If I were to be in my menopause, then I know I have no chance of bearing a child, and in that case, the story would have been different … but that is not the case now, and yet, I still cannot conceive. (Group 5; PP)

The feeling of anxiety in the present study is consistent with the findings of three other studies which revealed that one of the psychological threats associated with infertility is anxiety (Donkor *et al.*, 2017: 1;5; Nachinab, Donkor & Naab, 2017: 4; Begum & Hasan, 2014: 1290). The descriptions of anxiety by the participants revealed itself as not feeling free, worrying about when they would become pregnant, and feeling they are losing their husbands. Donkor *et al.* (2017: 5) established that anxiety could occur as a result of the high socio-cultural expectations of the society just after marriage.

4.4.1.3 Diminished desire for sex

Most participants expressed how they have a diminished desire for sex. Some participants said that if all these years of lovemaking did not make them pregnant, they did not see the need to engage in further sexual intercourse. A few participants also confessed that the mere fact that

they could not get pregnant made their husbands refused making love with them, and this has contributed to a diminished desire for sex. Due to this and many other thoughts that run through their minds, the desire for sex became less important for them. Three participants shared their experiences:

In fact, I used to be very happy, but now, am no longer happy … my current situation has affected our sexual intimacy. Madam … for the past three months, I have not had sex with my husband, and is not because I am unwell, or he is unwell …. The point is, we have been making love for more than 18 years now and no positive outcome …. What is going to change this time madam? What sex styles have I not displayed madam? What positive outcome have come out of all that? (Group 1; PA)

I am always sad and worried … this problem I am fighting have taken away all my joy and happiness in life …. There is no longer quality sexual intimacy between us …. The fact is, all these years of lovemaking, nothing positive have come out of it … what again can I do? (Group 1; PB)

The closeness we needed as couples died off. My husband who initially loved me so much have started addressing me as "hey". My real name eventually died off from my husband's memory. He now does not want to make love with me. He has gone as far as moving me out from our matrimonial bed. My husband lays on the bed alone whereas I sleep on the floor.... (Group 1; PC)

For this participant, she could not even remember the last time she had sexual intercourse with her husband:

I do not even remember the last time my husband touched me. I have stopped calling my husband for sex as well, even when he makes the attempt himself, I do not give in. I feel very unhappy now, I also do not see the need to be engaging in sexual affairs all these years, and yet still nothing had come out yet. (Group 5; PQ)

There is an existing body of literature on issues of sexuality among women diagnosed with infertility that is consistent with the above finding (De Mendonca, Arruda, Noll, Paulo & Do Amaral, 2017: 153;161; Turan, Kopuz, Ozcan, Kocakaya, Sahin & Solmaz, 2014: 128;130; Seen Heng *et al.*, 2013: 54). According to these researchers, women diagnosed with infertility experienced sexual dysfunction and associated it with factors like having been married for three or more years and not being able to conceive, and a history of previous infertility treatment. In addition, the

researchers revealed that issues related to infertility do not only have an impact on the physical wellbeing of the woman, they are also psychologically affected in their sexual life.

The findings on the psychological experiences of women diagnosed with infertility indicated that a diagnosis of infertility in an individual goes beyond biomedical needs as they were also exposed to psychological stressors like depression, anxiety and a diminished desire for sex.

4.4.2 Social experiences

The BPSS model by Dossey addressed the need to consider social experiences when managing any health related condition. The above statement was born out of the idea that different social factors have an influence on health. The theorist demonstrated that a medical diagnosis has social consequences for the person and the family by possibly manifesting as distractions and extra burdens, depending on the disease progression and how the family responds to the initial diagnosis. This leads to the worsening of biological, psychological or social problems (Dossey, 1997: 4).

Most of the participants were embittered when they shared their social experiences. This was due to how colleagues at work, friends in the same neighbourhood, church members and leaders in the church treated them. The social experiences of these women were grouped under the three subcategories stigmatization, marital instability and intentional social isolation.

4.4.2.1 Stigmatization

Stigmatization is very common in some parts of Africa where infertility is concerned. The findings revealed that women diagnosed with infertility were stigmatized at church by friends and others, at social gatherings, and anywhere they went where they were known. Most of the participants shared their experiences as evidenced in the following quotations:

At church, some women I happen to be in the same fellowship group with always give me a constant reminder that my time was passing by. In fact, is not easy at all …. (Group 3; PJ)

One participant shared how she eventually stopped going to church because she could not take the pressure any longer:

Some church members will intentionally come to me as if they are sympathizing with me and ask sensitive questions about my delay in giving birth …. I have finally stopped the church for them … I need peace …. (Group 1; PB)

Participant PA shared how a friend who happened to be her co-tenant (neighbour) maltreated her:

Madam … can you imagine … a tenant picked up a fight with me and after she realized I had totally ignored her, she decided to use my inability to bring forth a child to insult me. She went like … (Crying), *"Life is not all about dressing … at your age now, you should even be thinking about taking care of your grandchildren …".* (Group 1; PA)

Another participant also shared her story and narrated how friends and her siblings subjected her to stigmatization:

Friends humiliated me …. We live in a compound house and I have no right to send my fellow woman's child, let alone rebuking another person's child … realizing that I could no longer bear the pressures, I separated myself from my husband and went to my parents' house. Madam, at a point in my parents' house, my very own siblings started stigmatizing me as well … they went like … "Do what is important in life, and that is giving birth and be calling your own children". (Group 1; PC)

In Group 4, a participant shared a unique experience:

… almost 12 years now, madam, I have never been happy …. I feel so shameful and stigmatized. This is my fourth time of being wedded, is it not shameful for a woman to wear a wedding gown for four consecutive times just because she could not fulfil her womanhood responsibility? (Group 4; PO)

With regards to how participants felt stigmatized even at social gatherings, one participant shared her experience:

I am a Muslim and anytime a relative or friend gave birth, we usually go for a ceremony known in our dialect as 'SUNA', this is what Christians referred as child dedication or out dooring …. Madam, during this ceremony, friends gather courage and ask insensitive questions. Some are like, "You always attend people's programmes, when are you also going to invite us". Madam, after this very humiliation, I vowed not to attend any such social ceremonies again. (Group 5; PS)

The feeling of stigmatization that were experienced by the women in the present study is congruent with a few other studies. For example, a study conducted in Northern Ghana by Tabong and Adongo (2013a: 72) described how women without children were maltreated in society by

friends, especially in their old age. They were often branded as witches and abandoned by relatives and friends. They were also not allowed to interact or take care of other people's children as they were often accused of having "eaten up" all the children in their womb and could bewitch or cause the death of other people's children. They were often excluded from leadership roles in their communities and were denied membership in the ancestral world, thereby losing the opportunity to live again (Tabong & Adongo, 2013a: 72). Also in Ghana, two studies indicated that women diagnosed with infertility encountered social problems and were socially burdened with stigmatization (Kussiwaah *et al.*, 2017: 4225; Nachinab *et al.*, 2017: 4). In Nigeria, a study discovered that women diagnosed with infertility were stigmatized in every area of their lives (Ahamefule & Onwe, 2015: 45).

4.4.2.2 Marital instability

Another finding under social experiences is the issue of marital instability. Almost all the participants revealed how their infertility affected their marriages and caused tension in their homes and relationships. A few participants shared that the presence of a child would have gone a long way to minimise such tensions. This is what some participants shared about marital instability:

My relationship with my husband has never been the same ever since this issue of childlessness popped up. My husband one day threatened me that he was going to try having children outside. He only listens to what his mother says. My mother-in-law is the one who dictates and instructs my husband now … in fact she is my trouble now…. (Group 2; PB)

My husband seems not to care about how I feel any longer, and this could be as a result of the fact that he already has five children …. There was a time my menses delayed, I was so happy, and I told my husband that I feel baby was coming… (tearing) *my husband went like, "When did I sleep with you and for that matter you think it could be pregnancy…?"* (crying) *Madam, it's as if my husband does not even trust me any longer … I am even tired of all this, madam.* (Group 2; PD)

My husband now picks on me unnecessarily … this usually happens when friends put pressure on him; asking him to try elsewhere …. (PP; Group 5)

This participant shared with the group how bad her situation is compared to everybody else's:

My bond with my husband is gradually dying off …. (crying) *My husband has gone to impregnate another woman. He no more cares for me. To talk about communication between us, that is also out ….* (Group 4; PK)

Kussiwaah *et al.* (2017: 4225) and Nachinab *et al.* (2017: 4) revealed that marital instability gradually happened in homes and marriages that have no children. Husbands show love and become very supportive in the early stages, but their support gradually weakens, leading to sour relationships with husbands when periods of waiting draw closer and there is no sign of a pregnancy (Kussiwaah *et al.*, 2017: 4225; Nachinab *et al.*, 2017: 4).

A similar finding was also recorded in Iran and Nigeria (Whitehouse & Hollos, 2014: 128; Behboodi-Moghadam, Salsali, Eftekhar-Ardabily , Vaismoradi & Ramezanzadeh, 2013: 45). The researchers reaffirmed that as time passed on and the woman did not get pregnant, relationships with the husband and his relatives eventually becomes unbearable. Conflict and the coldness between the couples also increases.

4.4.2.3 Intentional isolation

Participants expressed that their inability to conceive have caused them to deliberately isolate themselves to avoid unnecessary humiliation and embarrassment. This was evidenced in the next quotations:

I have no option but to intentionally isolate myself and stop going to social events.... I have now decided to stay back and ponder over issues rather than going for social events for friends to humiliate me at the end of the day and come back home worrying. (Group 1; PA)

I do not really like to mingle with people, especially when it has to do with honouring programmes or invitations. I am always worried about what friends mighty say with regard to my challenge of childlessness (Group 4; PL)

One participant shared how she has vowed to herself never to visit her family house again:

For the past eight years now, I have stopped going to my family house and my home town as well … the humiliations and the sensitive questions they kept asking each and every time I visited have really putting me off … due to that, I have just vowed not to visit my home town again. (shouting) (Group 5; PT)

The findings on intentional isolation is in line with a study conducted in Iran regarding the experiences of women suffering from infertility. The study revealed that women suffering from infertility were unlikely to participate in social gatherings like parties and naming ceremonies, since they were scared of the comments and remarks friends and relatives will make (Behboodi-Moghadam *et al.*, 2013: 45). Similarly, the findings also corroborate a qualitative study conducted in Ghana by Kussiwaah *et al.* (2017: 4225) on stigmatization among women diagnosed with infertility. The researcher's findings revealed that women diagnosed with infertility intentionally isolate themselves from people, especially friends, because of the fear of being humiliated. In Iran it was indicated that women suffering from infertility were faced with diverse social problems that included avoidance of certain people or social gatherings and social exclusion (Hasanpoor-Azghdy, Simbar & Vedadhir, 2015: 409).

The next theme illustrates what the participants wanted as far as their healthcare needs were concerned.

4.5 THE HEALTHCARE NEEDS OF WOMEN DIAGNOSED WITH INFERTILITY

The healthcare needs of women diagnosed with infertility were grouped into the following five categories: Medical health assessment needs, psychological needs, educational needs, spiritual needs, social needs and financial needs.

4.5.1 Medical health assessment needs

According to the women, whenever they visited the clinic, their management was all about receiving a prescription for drugs. They expressed how tired they have become after all these years of being managed the same way with no positive results. They lamented that their doctors and nurses did not examine them or ask about other health problems they might be experiencing aside their major health problem. These women indicated that they have lost hope in the medical approach to their management.

A need for a comprehensive health assessment was the only category under medical assessment needs.

4.5.1.1 A need for a comprehensive health assessment

The women diagnosed with infertility expressed that they were managed with supplements and other fertility drugs for ovulation enhancement. Some of the drugs mentioned by the participants are Eve care capsules, Folic acid, Pregna care conception and Hyponid.

Most participants claimed they refused to take their prescribed drugs since they felt their problems were more psychological than physical. A few also claimed that they took their prescribed drugs and supplements but were not committed to it. Most participants expressed that they have eventually lost hope in the biomedical management since it does not seem to work. They expressed the need for a comprehensive health assessment that includes physical, psychological, social and spiritual care prior to the commencement of any medication. The next quotations were what some women shared:

I expect that before I am being put on any medicines, a nurse or a doctor will properly do a check-up on me. Unluckily for us, they do not care about that and even the drugs I am being asked to buy and buy is not working. In fact, I have lost hope as far as the drugs are concerned. (Group 1; PB)

… the doctor who takes care of me do not even ask if I have other health problems aside from my problem of childbearing. The nurses also do not ask if I have other problems. Just after checking how my heart is beating and my temperature, I am told to join a queue to see a doctor and that is all…. (Group 2; PE)

… I am just tired of everything …. Madam nurse let your colleagues know that sometimes we also come with other health problems so they should not only manage us based on our present condition. They must make time for us and do a proper check-up on us. (Group 2; PF)

They are always prescribing drugs for us anytime we come to see our doctor. They don't really examine us or even get time to really investigate our problems … it is all about drugs and that is all…. (Group 3; PH)

The rest of the participants just refused to take any drugs. A few of them voiced their reasons:

… I need counselling, not drugs …. Drugs … I have taken drugs for like six years now … what has happened? (Group 5; PP)

I have been on medications for a longer period, but no improvement …. My condition is not physical … I need more of reassurances.... (Group 5; PQ)

According to the Practice Committee of the American Society for Reproductive Medicine (2015: 44), the initial discussion with women suffering from infertility when they visit the clinic should be programmed in such a way that it will allow adequate time to obtain a complete medical, reproductive and family history. Healthcare providers need to perform a thorough physical examination. This assessment session is seen as an opportune time to have the patient counselled regarding preconception care and to screen for other relevant conditions. A comprehensive healthcare assessment should include a physical examination and documenting aspects like weight; body mass index; blood pressure and pulse; thyroid enlargement and the presence of any nodules or tenderness; breast characteristics and an evaluation for secretions; signs of androgen excess; vaginal or cervical abnormality, secretions or discharge; pelvic or abdominal tenderness' organ enlargement or masses; uterine size, shape, position and mobility; adnexal masses or tenderness; and finally, cul-de-sac masses, tenderness or nodularity (Practice Committee of the American Society for Reproductive Medicine, 2015: 44;45).

Kuohung and Hornstein (2019: np) and O'Flynn (2014: 50) emphasized that healthcare providers must ensure that the data they retrieve are supportive and informative and that this process should include history taking and physical examination. The findings of a history and physical examination may suggest the cause of infertility and thus help focus on the diagnostic evaluation. Some important components that should be included during history taking are duration of infertility; menstrual history; gynaecological history, including sexually transmitted infections, pelvic inflammatory disease, and treatment of abnormal Pap smears; obstetrical history to assess problems associated with subsequent infertility or adverse outcome in a future pregnancy; family history, including family members with infertility; and finally, personal and lifestyle history including age, occupation, exercise, stress, dieting/changes in weight, smoking and alcohol use, all of which can affect fertility (Kuohung & Hornstein, 2019: np; O'Flynn, 2014: 50). An accurate assessment helps in proper diagnosing, quick identification of possible causes, best treatment modalities and indicates to healthcare providers which areas to address during counselling.

Assessments help to narrow the focus of the diagnostic evaluation. Hence the need to offer primary counselling and include components like comprehensive medical, reproductive and family history as well as performing a thorough physical examination (Choussein & Vlahos, 2012: 175). Assessing information on sexual practices, family planning and contraceptives choices and addressing fertility issues are also vital during a comprehensive health assessment of women diagnosed with infertility (Carcio & Brooks, 2018: 31).

The researcher did not focus much on the medical treatment as the participants claimed they were losing hope in the biomedical management approach. Hence, the researcher focused on the needs that were expressed by these women.

4.5.2 Psychological needs

These are needs related to the psychological implications of infertility and its related stressors. The psychological needs of these women were grouped into two subcategories, namely, a need to be counselled and a need for peer mentoring.

4.5.2.1 A need to be counselled

Participants revealed how they received encouraging words from significant people, not necessarily from a professional counsellor or healthcare provider. The participants revealed how the interventions of the few family members and friends who gave them encouragement in the form of counselling helped them to feel relieved for a period of time. Participants who were privileged to have received such assuring encouraging words from their husbands shared their experiences in this regard:

My husband is the only one who assures and advises me as a form of counselling. He always reminds me that at God's own appropriate time, He God will do it for us. (Group 1; PA)

I always feel good and happy anytime I receive such encouraging words from my husband. (Group 5; PT)

Other participants received encouraging messages from friends, as reflected here:

How fortunate I am to also have friends in Christ who encourage and also sympathize with me at all times. They always encourage me in the Lord. In fact, these acts of my Christian friends really give me relief regardless of what am going through. (Group 1; PB)

I had a male friend who is so supportive ever since I found myself in this situation. He always gives me encouraging messages and gives me the hope to move on in life. Like I said already, the pressure I was encountering eventually turned me into a drunkard. But now, the intervention of my friend and his consistent advice in a form of counselling have made me stopped drinking. (Group 1; PC)

Some participants received soothing words from different significant people in their lives:

My pastor once in a while takes me through counselling. Likewise, my mother too. This act of my mother and my pastor really helps me a lot, and for a moment, it makes me feel as if everything has come to an end. (Group 2; PD)

I feel okay when I receive such soothing words from my love ones. (Group 3; PJ)

A study on infertile couples' needs, revealed how issues related to infertility expose the individual to mental, social and psychological suffering, indicating the need for psychological counselling (Jafarzadeh-Kenarsari *et al.*, 2015: 557). The present finding corroborates a cross-sectional study conducted by Kamel (2010: 4) who also indicated that when individuals are given counselling, it offers them an opportunity to discover, learn and make living more pleasant, especially when fertility problems have been detected. Jafarzadeh-Kenarsari et al. (2015: 557) and Kamel (2010: 4) further added that counselling given to individuals in relation to causes, investigations and available treatments options, as well as giving realistic information about their chances of having children, offers them an opportunity to explore different options when faced with infertility. Meanwhile, they also learn to communicate about their problems and to support and understand each other (Jafarzadeh-Kenarsari *et al.*, 2015: 557; Kamel, 2010: 4). Other findings also indicated that the need to offer counselling to individuals diagnosed with infertility is vital as it enables them to cope better and greatly influences their physical, mental and the social wellbeing (Yazdani *et al.*, 2017: 4698; Luk & Loke, 2016: 529; Read *et al.*, 2014: 393).

4.5.2.2 A need for peer mentoring

Peer mentoring is a form of mentorship where a person who has lived through a specific experience shares a novel idea with others who are entirely new to that experience (Read *et al.*, 2014: 393). Peer mentoring in this context refers to the process through which a more experienced person encourages, advises, gives support and serves as a role model for people in similar situations. Most participants expressed that the support of a peer mentor will help relieve the stressors they encounter. They testified that receiving counselling and testimonies from people who overcame the same condition give them the hope that nothing was impossible. These are the statements of some participants:

In fact, coming to know today that my fellow women here are also in the same shoes with me have made me feel at peace … I have today realized that I have not gone through anything yet …. We need to be interacting like this among ourselves, it will in a way give us some relief. (Group 1; PB)

I know about one church member who was childless for over 12 years, but she finally had her own child. I use her as an example in my life and get encouraged hoping that mine is on the way coming, no matter how long it takes. (Group 5; PR)

Friends with similar problems comfort me. They tell me all about their experiences in the past and how they have now been successful in having their own. In fact, I take a lot of solace from my friends. (Group 5; PS)

Peer mentoring is indeed significant and valued by women diagnosed with infertility, as evident in a study conducted by Read *et al.* (2014: 393). The researchers revealed that in as much as individuals diagnosed with infertility opted for psychosocial interventions to be integrated in their care, peer mentoring was valuable to them. In another study women diagnosed with infertility acknowledged how peer mentoring supported them to deal with some challenges they were encountering (Kussiwaah, 2016: 67-70).

4.5.3 Educational needs

Another finding in relation to the healthcare needs of women diagnosed with infertility is the need to have insight and a proper understanding of what they are going through. Even though the BPSS model by Dossey (1997: 4) did not directly mention educational needs, the need for education is part of the psychological component of the model. The researcher believes that psychological also has to do with one's reasoning abilities, and one's reasoning is based on what is known through education. The need for obtaining comprehensive information from healthcare providers was another concern that participants highlighted.

Educating society about the causes and prevention of infertility, the available treatment options, and its side effects were emphasized by most participants. Inadequate information obtained on the nature of their condition, its treatment options, and inadequate knowledge on the side effects of the treatment were mentioned by participants as one of the major problems they encounter and were unhappy about. One subcategory emerged from educational needs, namely a need for information on causes and prevention of infertility, available treatments options and the side effects of the drugs.

4.5.3.1 A need for information on causes, prevention, treatment options, and the side effects of the drugs

Most participants were unhappy that they were not informed about what could be the cause of their difficulty conceiving. They also wanted to have more information about the treatment options. The issues emphasized by participants during the various group discussions are evidenced in the next quotations:

You people should at least educate us on the causes, prevention and the available treatment options that might be of benefit to us. I believe when we understand what brings about the problem and how we can avoid that problems from coming, it's really going to help. (Group 1; PA)

Making us know what is causing our problems is very important to us and we must be made aware anytime we come here so that we have an idea of what the cause of our problem is, how we can avoid it, and its treatments choices. We feel unhappy when you people don't take us through all this. (Group 5; PQ)

One participant mentioned that she needs to be informed by the nurses and doctors as she is unable to find the information herself:

Even the medicines that are written for me, no doctor or nurse tells me what those medicines does. Unfortunately, I am not the type who could read or write. Madam, I ended up taking the drugs without knowing what it is even going to do …. In fact, our doctors and nurses should be patient with us and teach us. At least, teaching us on the drugs and its side effects will somehow make us feel less worried. (Group 2; PB)

Information on the medication seems to be particularly important:

We are given drugs that we do not even know what really is going to do to us. (PE; Group 2)

We must at least be given education on the drugs that are been prescribed or given to us. (PI; Group 3)

The aforementioned educational needs of the participants are supported by a study conducted in the Netherlands with the aim of assessing the efficacy and safety of educational interventions for subfertile patients. The findings of the study indicated that information on infertility, causes and its treatment protocols, be it medical or procedural information, improved self-management, self-efficacy and psychological distress. The researchers were of the view that when this need are

met, it helps the women acquire more knowledge and skills and reduces their psychological burden during fertility treatment (Verkuijlen *et al.*, 2014: 2). The above findings also agrees with other related studies (Jafarzadeh-Kenarsari *et al.*, 2015: 557; Batool & De Visser, 2014: 637;677; Read *et al.*, 2014: 393). These researchers added that patients wanted to access educational materials like brochures, booklets or informative websites to help them better understand what they are going through and the available treatment options. This made them feel more satisfied in terms of medical and emotional care (Jafarzadeh-Kenarsari *et al.*, 2015: 557; Batool & De Visser, 2014: 637;677; Read *et al.*, 2014: 393). The findings of Gameiro *et al*. (2015: 2482), also indicated that the most effective way to start implementing psychosocial care is by providing preliminary information about infertility and everything related to it. The researchers added that this was a simple and feasible intervention compared to other reviewed interventions and is efficacious in addressing many patient needs.

Finally, Carcio and Brooks (2018: 31) indicated in their study that individuals diagnosed with infertility must be taught about sexuality and all misconceptions must be cleared by providing information about sexual behaviours, sexual activity, and sexual responses. Information about intercourse, good food hygiene practices, and health promoting activities like breast self-examinations and Pap smear tests must all be emphasized during the process of health education (Carcio & Brooks, 2018: 31).

4.5.4 Spiritual needs

The final component of the BPSS model addressed the spiritual component of health. This involves a sense of self, a sense of meaning and purpose, a person's values, and religious life. Additionally, Dossey (Dossey, 1997: 4) made it clear that regardless of the available technology, therapy or treatment, the human spirit must be considered as a major healing force in reversing, stabilizing and producing remission in disease and illness. This study emphasized that spiritual needs were fundamental to women diagnosed with infertility and this need was expressed differently by each individual based on their believe system. For instance, Christian participants expressed how they were committed to their faith in God, whereas Moslem participants expressed how they were very sure Allah would intervene in their situation. This confirms a finding of a study that indicated that spirituality is experienced differently by each individual and is expressed in unique ways (Igunnuoda & Ngugi, 2015: 13).

The issue of spirituality is vital to women diagnosed with infertility. Drawing closer to the Supreme Being was another means by which participants tried to find answers to the question of what was preventing them from getting pregnant. Most participants were committed to whatever faith they belonged to and put their trust in that faith. For instance, both Christians and Muslims took part in this study. The Christians maintained their hope in God and the Muslims maintained their faith in Allah. The spiritual needs of these women were further grouped into two subcategories, namely, incorporating the aspect of spirituality into the management protocol and communication with God or Allah

4.5.4.1 A need to incorporate the aspect of spirituality into the management protocol

Some participants were of the view that they would have really cherished it if the aspect of spirituality was integrated into their management. Most participants had something to say in this regard:

I think that spiritual issues must be part of our management; it will go a long way to also help us. I believe nothing will ever succeed when the aspect of spirituality is totally neglected. (Group 1; PA)

I also think the same way as my fellow woman. When we report early morning at the outpatient department our nurses should engage us in prayers, encourage us with either motivational or inspirational messages …. Madam, this will make us feel less stressed. (Group 1; PC)

I believe very well that nothing will be possible without God. In fact, this aspect of care is very important. If there is a way of getting a pastor here in the hospital it will be very nice and helpful, so that we can as well speak to him anytime we come around. (Group 2; PD)

Early morning prayers and devotions must be part of the activities we must go through before seeing the doctor. It is very important madam nurse. (Group 3; PG)

4.5.4.2 A need to communicate with God or Allah

Virtually every participant had something to say about the issue of drawing closer to God or Allah through communication. The participants shared how they prayed and trusted in a higher being to give them a child. The following quotations were shared by participants:

I do not joke with my prayers at all nowadays, because I know God does all things … but now I am tired and losing hope, because all my efforts in praying and fasting seems to bring no result. Hmmm …. (sounding emotional) (Group 1; PB)

… I am trusting God for a miracle. God did it for Hannah in the Bible, and in the same way He will do it again at His own appointed time. (Group 2; PE)

No one can do this miracle expect God; hence, I have been praying a lot and hoping that God at His own time will honour me. (PG; Group 3)

I have been praying a lot. Personally, I am a prayer warrior. I know that at God's own time, I will be having my own children... this my problem has really made me draw closer to God. (Group 3; PJ)

A Muslim women also shared with the group how fervently she was praying and waiting upon Allah for an intervention:

Allah can do all things, I do not mind how long it takes, I will wait upon Allah. (Group 5; PS)

This finding is not surprising since other studies have revealed that spiritual wellbeing is seen as a source of happiness that can influence both physical and mental health. It is also one of the vital aspects of providing holistic and patient-centred care (Chirico, 2016: 15; Ramezani *et al.*, 2014: 211). A study conducted by Romeiro *et al.* (2017: 1) disclosed that individuals diagnosed with infertility expressed suffering when faced with issues of infertility. This suffering dominated their thoughts, feelings and purpose in every aspect of their lives; hence, the need to address their spiritual needs from the beginning to the end of treatment is vital (Romeiro *et al.*, 2017: 1). The finding also agrees with the study by (Collins *et al.*, 2018: 2237). Collins *et al.* (2018: 2237) found out that 70% of infertile women in the United States solely relied on God by praying when faced with issues of infertility.

4.5.5 Social needs

Given that various social experiences influence health, women diagnosed with infertility also expressed their social needs. Having that aspect of care also integrated into their management protocol will ensure holistic health care as proposed in the BPSS model (Dossey, 1997: 4). Participants related that support given to them by a few significant others were a form of encouragement, assurance and counselling. These social needs are discussed as a need for support from significant others.

4.5.5.1 A need for support from significant others

Some participants expressed how they cherished the support they received in the form of encouraging words from significant others like husbands, family members, friends, and their pastors. Here are a few examples of what participants said in that regard:

I also receive this support from some close relations and my husband as well. In a way, I will say that women in my situation also need such supports since it really helps. (Group 3; PH)

… my mother does so well when it comes to encouragement. This has really helped me a lot, for a moment I feel as if everything have come to an end. (Group 2; PD)

Support from friends was mentioned as helpful by some participants:

Some friends do advise and encourage me. This goes a long way to give me some form of relief. (Group 3; PI)

I also have close friends who always stand by me … I always feel like being around them, their advice and assurance really means a lot to me. (Group 5; PQ)

Another source of support mentioned was support from church members and pastors as evident in the following quotations:

I receive words of encouragement from my church mother. This has really helped a lot … anytime I receive such encouraging words, it gives me the hope to move on in life. (Group 1; PB)

Fortunately for me madam, I have Christian sisters who always sympathized with me. They always encourage me in the Lord. In fact, these acts of my Christian sisters really give me relief regardless of what am going through. (Group 2; PE)

My pastor really helps me a lot; for once I felt as if all my troubles had come to an end. (Group 3; PG)

The researcher could not find particular research findings in relation to the social support for women diagnosed with infertility. However, findings of some related studies were used to support the social needs. Some studies regarding the importance of counselling indicated that psychosocial counselling in addition to medical management will help alleviate the stressors these women encounter. Psychosocial counselling and support help individuals cope better as it greatly influence their physical, mental and social wellbeing (Yazdani *et al.*, 2017: 4698; Luk & Loke,

2016: 529; Read *et al.*, 2014: 393). Some researchers reported that individuals diagnosed with infertility who experience distressing situations need to be encouraged, supported and cared for. The absence of support from either husbands, related individuals or significant other leads to much more emotional instabilities (Begum & Hasan, 2014: 1290).

4.5.6 Financial needs

Despite the fact that this need is not directly related to healthcare needs, it must be addressed because it contributes to the challenges experienced by women diagnosed with infertility. The participants mentioned that the expenses related to infertility diagnosis, investigations (both invasive and non-invasive procedures), various treatments options, and other interventions are above their income bracket. Even the few that are covered by the National Health Insurance Scheme still complained about the inefficiency of the scheme and the fact that it does not cover most of the treatments prescribed. A need to subsidize the cost of the treatment and investigations was the only subcategory that emerged from this category.

4.5.6.1 A need to subsidize the cost of treatment and investigations

A few participants expressed how they have accrued so much debt that their businesses collapsed. Others confessed how they have eventually sold their properties just to ensure they get cured. Here are what some participants shared:

This my situation has really affected my finances … as am seated now, my bank account is zero … I have taken loans upon loans …. Unless I do not hear about a medicine for fertility. I always want to explore all the available treatments options … madam, this has really drained my coffers. Now, I have nothing. (Group 1; PA)

Financially, I am broke … my husband does not give me money any longer for my medical bills. I now take care of myself while I also pay for my own medical bills …. Even now, I have to borrow money before coming to see you …. Madam. this is very sad …. (tearing) (Group 1; PB)

I cannot even boast of a penny in my account. I have used all my investment in sorting out medical bills and purchasing different drugs …. If not for my situation, I could boast of at least a building… the government should give us support. (Group 2; PE)

I have sold all my inherited properties in an exchange for a child … but all my efforts have failed. (Group 4; PN)

… all our investments have gone down the drain …. (Group 5; PS)

In Ghana, most minor illnesses like malaria, respiratory tract infections, gastroenteritis and so forth are covered by the National Health Insurance Scheme, but infertility expenses are exempted from the insurance coverage. Because of this, most people who cannot afford the cost of treatments and investigations end up delaying their treatments or give up. A similar finding indicated that the price of the treatments and the inefficacy of insurance programmes to cover treatments caused patients to either discontinue their treatment regimen or to abort their management (Jafarzadeh-Kenarsari, Ghahiri, Habibi & Zargham-Boroujeni, 2015: 90).

The need to subsidize the cost of treatment and investigations was emphasized by the women in this study. The financial support requested by the women in this study reflected a study conducted in Iran (Fahami, Quchani, Ehsanpour & Boroujeni, 2010: 265).

The healthcare needs identified by women diagnosed with infertility were medical health assessment needs, psychological needs, educational needs, spiritual needs, and social needs. Financial needs also came up in the FGDs, even though it is not directly related to healthcare needs. Participants also outlined their healthcare expectations with regard to the healthcare system, as discussed in the next theme.

4.6 THE HEALTHCARE EXPECTATIONS OF WOMEN WITH INFERTILITY

Women diagnosed with infertility expressed their healthcare expectations and desired to have that integrated into their management protocol. These expectations are not related to the BPSS model. The healthcare expectations of these women fall into the following two categories: Expectations from the healthcare system and expectations from healthcare professionals.

4.6.1 Expectations from the healthcare system

Expectations from the healthcare system included some structures that must be in place to meet their healthcare needs. The healthcare system expectations were grouped into five subcategories, namely, a need for less waiting time at the clinic; a need for a follow-up from healthcare providers; a need to have a devoted clinic day for infertility care to ensure privacy; a need to be managed by a specific doctor to ensure continuity in care; and finally, a need for the

involvement of male partners in their management. The literature pertaining to these subcategories will be discussed after all the subcategories in this theme have been described.

4.6.1.1 A need for less waiting time at the clinic

Virtually all the participants had something to say about the waiting time at the clinic. These are a few examples to illustrate:

The waiting period spent in seeing our doctor is just too much … sometimes we come as early as 6 am and by the time we are done seeing the doctor, it's almost getting to the evening. (Group 1; PC)

… long waiting hours must be avoided please. (Group 3; PI)

Limit "go here, come here, go here, come here" when it comes to rendering of services to us so as to limit waiting period. (Group 3; PG)

We must be seen on time … short waiting periods must be encouraged at the clinic. (Group 4; PM)

4.6.1.2 A need for a follow-up from healthcare providers

A few participants explained that one of the ways in which their management could be improved is when their healthcare providers do a follow-up to check how they are coping. This is what some participants shared:

I expect that at least once in a while, you people will check us up. This could either be a phone call or a visit. Although we want this, I wonder if it could be possible since some of the staff are too harsh on us. (Group 1; PC)

In Group 4, a participant had this to say:

… we are really suffering, unfortunately no attention is being paid on us. This issue we find ourselves in is more serious than one could even imagine …. We ask that our nurses and doctors will once in a while follow up on us … if it even once in a while. (Group 4; PO)

In Group 5, a participant commented in this manner:

Sometimes we need education on petty … petty … issues in relation to our health, but we cannot just come over to the clinic all because of wanting an answer to a small problem.

Madam nurse! I believe if you people open up to us by at least following up on us even through a phone call, we can take advantage of that and ask all the questions bothering us. (PT; Group 5)

4.6.1.3 A need for a devoted clinic day for infertility care to ensure privacy

The need to have a particular clinic day for the management of women diagnosed with infertility came up in the FGDs. Participants revealed that there is a need to ensure privacy and attend to their unique needs, and not seeing them in the same area as mothers with babies. These are the views of some participants in this regard:

There should be a special clinic day for only us. We must not mingle among those with babies or even those who are pregnant. Mixing up with them really make us feel more depressed. (PF; Group 2)

There should be a specific clinic day for those of us in this situation. Being with other pregnant women or nursing mothers makes us feel so depressed and worried rather. Again, our clinic should also have a section for collection of folders and drugs and must not be labelled in order to ensure privacy. (PH; Group 3)

Privacy must always be maintained … we need that/ (Group 4; PO)

4.6.1.4 A need to be managed by a specific doctor to ensure continuity in care

Under the above subcategory, participants raised concerns about the continuity in care. Some also lamented that doctors were changed often, and when they have to come for a review, they seldom meet the same doctor who initially saw them. They added that they sometimes have to repeat their stories all over again. Below are a few quotations:

Avoid change of doctors … there should be continuity in our care. (PG; Group 3)

We will love to be seeing one particular doctor at all times. Change in doctors would not help. (Group 3; PI)

There should be at least one permanent doctor to treat us. (Group 4; PL)

4.6.1.5 A need for male partner involvement in the management

A few participants added that the involvement of their partners in their care will also provide them with some relief. Some of the participants shared:

Our husbands should be involved in our management. Sometimes, the problem is not from us but our husbands. (Group 3; PG)

We must be treated alongside with our husbands … sometimes, the problem is from them …. We feel less pressured when they are finally diagnosed. (Group 5; PT)

Our husbands should also be encouraged to be coming to the clinic with us. At least we will feel loved and less pressured when they are around us. (Group 3; PH)

The women felt that the healthcare professionals also have a role to play in ensuring that their healthcare needs are met, as will be discussed in the next category.

4.6.2 Expectations from healthcare professionals

Nearly all the participants shared something about their expectations from healthcare providers. The expectations were grouped into one subcategory, a need for establishing a therapeutic relationship.

4.6.2.1 A need for establishing a therapeutic relationship

A therapeutic relationship is defined as one consisting of a real relationship and a working alliance; this refers to the relationship between a healthcare professional and a patient (Gelso, 2014: 117). Some participants expressed the need to be treated in a non-judgemental way and as a unique individual by healthcare providers. These were their views:

Some of your colleagues try to judge us and compare us to other patients. I think it is not fine for them to behave like that. (Group 1; PC)

We are different people altogether, and therefore, we must be treated differently despite us facing the same problem. (Group 4; PO)

Some of your colleagues think our problem now is because we have committed abortion before, so they end up judging some of us wrongly. (Group 4; PN)

Participants needed the healthcare providers to relate well with them, accept them, maintain a supportive relationship and also give them the chance to interact. This is what some participants said:

There should be a very good friendly and personal relationship between us and our healthcare providers. Sometimes, you people are too harsh, when it happens like that, we are unable to voice out our worries and fears. This action of some of your colleagues makes us feel so sad. (Group 1; PA)

Our nurses and doctors should show good and friendly relationship. (Group 3; PF)

We must be treated well, there should be a nice relationship at all times. (Group 5; PP)

Your people must relate well with us. We want our nurses and doctors to treat us well and encourage us as well. (Group 1; PC)

They are always in a hurry to finish up with us so that they continue with whatever they are doing … your people do not really have patience for us …. We are treated any how … madam is not easy for us, oooo … even at the hospital, is not easy for us. (Group 2; PE)

Considering that women diagnosed with infertility had many needs and expectations from both the healthcare system and healthcare professionals, only a hand full of researchers studied the healthcare expectations of these women. The present findings, however, correspond to a study conducted in the Netherlands. The study indicated that a holistic and patient-centred approach in providing care for individuals experiencing infertility may improve their quality of life and wellbeing (Aarts *et al.*, 2011: 491;493). Jensen and Kelley (2016; 132) researched the therapeutic relationship in psychological and physical treatments. The therapeutic relationship plays an important role in the success of psychological and physical treatment whereas it also contributes to good health outcomes; however, relatively little attention has been paid to the potential of the patient-clinician relationship to maximize patient outcomes (Jensen & Kelley, 2016: 132).

The healthcare expectations of women diagnosed with infertility were mentioned in a study conducted in Belgium (Dancet *et al.*, 2010: 467). The researchers revealed that patients diagnosed with infertility wished to be treated uniquely and needed medical skills, respect, coordination, accessibility, information, comfort, support, less waiting times, partner involvement, good attitude as well as a cordial relationship from fertility clinic staff (Dancet *et al.*, 2010: 467).

Although the researcher identified difficulties in retrieving articles about the healthcare expectations of women diagnosed with infertility, similar articles were searched for regarding healthcare expectations of patients in general. For instance, the results of studies conducted in Australia, UK, Iran and Ethiopia could be related to the present findings. In Australia, patients valued healthcare providers with whom they formed a therapeutic relationship. They also valued open communication with their healthcare providers who gave them time and were open-minded, willing to listen, non-judgemental and who explained things. The healthcare needs of patients included a need for more flexibility in health care delivery so that they can access services they preferred. The need to have consultations where they can feel calm to discuss all their healthcare problems with adequate time allotted without being judged was also emphasized (Grace, Avila & Bradbury, 2019: 11).

Ehrich, Cowie and Sandall (2015: 925) investigated patients' and families' expectations and experiences of new clinical procedures in the UK. The findings of their study revealed that patients value it when they are involved in decisions regarding their health, and they also felt appreciated when they were given a clear and honest explanation of the condition. The researchers added that in the case of new procedures, patients can accept clinicians' uncertainty when this is honestly expressed in terms of knowledge about the limits of the evidence base (Ehrich *et al.,* 2015: 925).

The findings of an Iranian study by Rezaei, Hajizadeh, Zandian, Fathi and Nouri (2018: 6;7) revealed that one way in which healthcare providers could actually meet the needs of patients is by being more committed and sympathetic to patients' needs. Reducing waiting times to receive hospital care, providing hospital care in a timely and accurate manner, and maintaining medical records appropriately may all address patients' needs. The findings of the study further revealed that healthcare providers must be aware of both the medical and non-medical needs of patients and use that as a yardstick to evaluate the quality of care and improve patients' level of satisfaction on the quality of hospital services. Also, an Ethiopian study by Berhane and Enquselassie (2015: 1299) showed that a hospital with less waiting time, good staff communication, treatment availability, and continuity of care with sufficient diagnostic facilities were preferred by patients. Patients in both studies expected good communication and were not tolerant of moderate communication from their healthcare providers (Rezaei *et al*., 2018: 6;7; Berhane & Enquselassie, 2015: 1299).

Another study about the therapeutic professional relationship was conducted at two training sites in Belgium and France by Petre, Gagnayre, De Andrade, Ziegler and Guillaume (2017: 612) on therapeutic patient education principles according to the perceptions of healthcare professionals. Even though this was also not directed at infertility, the points addressed by the researchers regarding therapeutic patient principles is similar to how participants in the current study wanted to be treated in a therapeutic professional relationship. The researchers revealed that there is a need to take time to inform the patients of their diagnosis, to call them by their names, to identify and be aware of their emotions, admitting that the patient is capable of making choices, not to be judgemental, and finally, recognise patients for who they are (Petre *et al.*, 2017: 612).

In summary, the findings of the study indicated that women diagnosed with infertility experienced psychosocial problems and had healthcare needs as well as healthcare expectations. They expressed that when their healthcare providers include their healthcare needs and healthcare expectations into the traditional way of management, their wellbeing will increase and their chances of getting pregnant will also improve. This reaffirms what Dossey (1997: 4) proposed in the BPSS model, emphasizing that the biological, psychological, social and spiritual dimensions are interdependent and interrelated, implying that holistic treatment will help achieve optimal health and satisfying results.

4.7 SUMMARY

This chapter provided more insight into how infertility could affect the lives of women diagnosed with it. Having followed their experiences and identified their healthcare needs and expectations from both the healthcare system and their healthcare providers it is concluded that healthcare providers need to holistically manage women diagnosed with infertility. The findings enabled the researcher to better understand the healthcare needs of women diagnosed with infertility, while it also aided the researcher to develop guidelines for holistic healthcare interventions for women diagnosed with infertility in Ghana.

The next chapter will focus on the development of draft guidelines for holistic healthcare interventions for women diagnosed with infertility using the nominal group technique.

CHAPTER 5

DEVELOPMENT OF DRAFT GUIDELINES FOR HOLISTIC HEALTHCARE INTERVENTIONS FOR WOMEN DIAGNOSED WITH INFERTILITY

5.1 INTRODUCTION

Chapter 4 presented the qualitative findings that were deduced from participants' FGDs regarding their healthcare needs. There was also a discussion and integration of literature related the qualitative findings.

This chapter will focus on Phase II: Stage II of the study: The development of draft guidelines with stakeholders using the steps in the NGT. The development of the draft guidelines was based on the findings of the systematic review of literature in Phase I and the empirical findings from the FGD in Phase II: Stage I.

5.2 DEVELOPMENT OF DRAFT GUIDELINES FOR HOLISTIC HEALTHCARE INTERVENTIONS

The primary purpose of Phase II was to develop draft guidelines for holistic healthcare interventions for women diagnosed with infertility in Ghana. A day workshop was held with stakeholders using an NGT to generate ideas and reach a consensus on what should entail in a guidelines for holistic healthcare interventions. The process also included the type of healthcare interventions that should be offered to women diagnosed with infertility before, during and after treatment. Reaching a consensus on the fundamental concepts were considered important as it would assist the researcher to finalize the draft guidelines.

5.2.1 Population of the NGT

Parahoo (2014: 262) described a study population as the total number of individuals or objects with common characteristics that are considered in a study and meets the inclusion criteria of a study. As previously mentioned in (Section 3.5.3.2), the population of the NGT had two categories of stakeholders. The first category were healthcare providers (nurses, midwives, a gynaecologist and a healthcare manager) who had direct contact and interactions with women diagnosed with

infertility. The second category were influential community members who could easily effect change in matters of healthcare and included a member of the legislative assembly, also known as assembly man, opinion leaders and a reverend minister. These stakeholders were selected according to the inclusion criteria (see Section 3.5.3.4).

5.2.2 Sampling of the NGT participants

Purposive sampling was employed to recruit participants for the NGT. Participants were purposively selected for their knowledge, area of specialization, years of experience and ability to effect change, either in the hospital setting or society at large. Eighteen potential participants stakeholders were invited telephonically, and 12 participants responded and honoured the invitation. The group consisted of nurses, midwives, a gynaecologist, a healthcare manager, an assembly man, opinion leaders and a reverend minister. The diverse composition allowed participants to share ideas, give laudable input and common interpretations about what should be included in the draft guidelines for holistic healthcare interventions for women diagnosed with infertility. Participants also reached a consensus on the type of healthcare interventions that should be offered to women diagnosed with infertility before, during and after treatment. The participants are depicted in Figure 5.1.

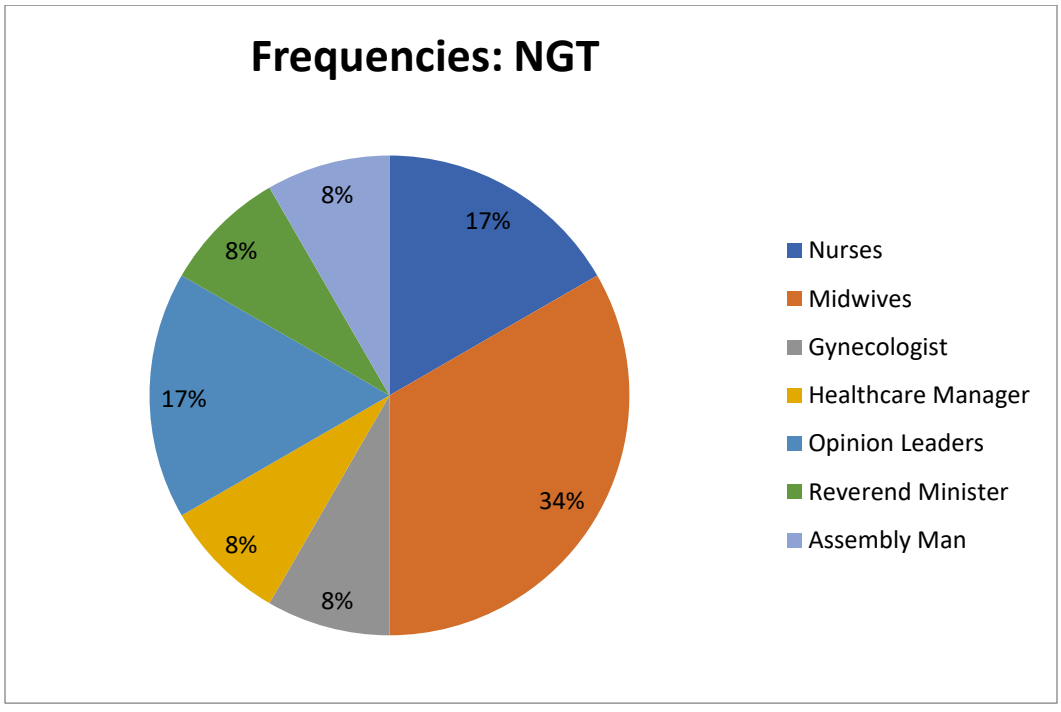


Figure 5.1 Frequency of nominal group participants' categories (n=12 / 100%)

5.2.3 Preparation stage

Stakeholders were invited by the researcher through telephone calls. The researcher reserved a room large enough to accommodate all participants with tables and chairs arranged in a U-shape. Each participant was provided with a pen and an A4 sheet. A3 sheets were also made available. A flip chart was placed at the open end of the U-shape.

5.2.4 Steps of NGT

The core reason for engaging stakeholders in the NGT was to generate data on what should entail in the guidelines for holistic healthcare interventions for women diagnosed with infertility. Secondly, because NGTs are directed towards problem-solving; idea-generation; determining priorities with the aim of achieving a general agreement or consensus of opinions; developing solutions; establishing priorities for action; and finally, getting prompt results around a particular topic using a face-to-face discussion in small groups (Mcmillan *et al.*, 2016: 655; Harvey & Holmes, 2012: 193). The key steps of the NGT as outlined by Dang (2015: 5) were adopted for the process of data collection and analysis. The next sections look at the outcome of each step of the NGT.

5.2.4.1 Step 1: Introduction and the explanation phase

During this phase, participants were asked to complete a registration form and record the following demographic data: Their names, contact details, occupation, years of service and experience. The researcher welcomed all participants and introduced her research assistant, a psychologist, as the moderator for the discussion. This was followed by an explanation of the purpose of the research. Participants were also informed about the purpose of the NGT, the essence of each participant's contribution, expectations from each member, their roles as well as the group objectives. An information leaflet with a consent form (Annexure B) was given to the stakeholders to get their consent prior to participation in the study. Their consent was also asked to make an audio recording of the session, mainly for the purpose of data collection. Participants were also informed that the researcher had obtained ethical approval from both the Ethics Committee of the Faculty of Health Sciences, University of Pretoria, South Africa (Annexure F) and the Ghana Health Service Ethics Review Committee, Accra-Ghana (Annexure G).

The findings of the systematic literature review from Phase I of the study and the qualitative findings from the FGDs with women diagnosed with infertility from the first stage of Phase II were

presented to participants. The presentation was given using PowerPoint to update participants on the various holistic healthcare interventions adapted in different countries in the management of women diagnosed with infertility. Additionally, the healthcare needs of women diagnosed with infertility were also communicated to the stakeholders. The 12 participants were divided into three groups. Each group had four members and were named Group 1, Group 2 and Group 3. The moderator ensured that each group had at least one healthcare provider as member. Table 5.1 below shows the category of stakeholders in each group.

Table 5.1 Representation of nominal group participants in small groups (n = 12)

Category of stakeholders	Group 1	Group 2	Group 3
Registered nurses	-	1	1
Registered midwives	1	2	1
Gynaecologist	-	-	1
Healthcare manager	1	-	-
Opinion leaders	1	-	1
Assembly man (Legislative assembly member)	-	1	-
Reverend minister (pastor)	1	-	-

5.2.4.2 Step 2: Silent generation of ideas phase

During this step, the moderator wrote the question to be addressed on a flip chart and read it aloud to the participants.

What should guidelines for holistic healthcare interventions for women diagnosed with infertility entail?

The moderator asked each group member to independently jot down all ideas about the question on the provided A4 sheets. Each A4 sheet was labelled with the relevant group name. Group members were asked by the moderator not to consult or discuss their responses. Some time was given so that the participants could note down everything that came to mind.

Step 2 took roughly 15-20 minutes. Participants had stopped writing within the stated time frame and were ready to brainstorm.

5.2.4.3 Step 3: Round-robin phase

During this step, all group members were encouraged to share their ideas. Each idea was recorded on the flip chart (Annexure K) by the moderator using the exact words of the group members. Group members engaged in a round-robin feedback session to record each idea, without debating it at this point. This step helped to create an atmosphere where the participants' interests, ideas and perspectives were the main focus and not that of the researcher. The step also ensured that all participants had an opportunity to make an equal contribution and provided a written record of all ideas generated. This step took approximately 20-35 minutes.

5.2.4.4 Step 4: Discussion or clarification phase with findings

During this step of the NGT, participants were permitted to ask for verbal explanations or further details to either confirm or clarify thoughts about any ideas that a colleague might have produced that were not clear. These ideas were then concluded and written down on an A3 sheet by each group. A representative from each group presented their ideas on what should be included in guidelines for holistic healthcare interventions for women diagnosed with infertility in Ghana. Each idea was documented on the flip chart, and after the documentation session was completed, the moderator asked: "Are there any questions or comments group members would like to make about the items?" This ensured that each group member could contribute while the discussion of ideas was clarified, free from judgement and criticism.

In the process of the discussion, participants acknowledged that the management or interventions rendered to women diagnosed with infertility in Ghana as a whole were insufficient and did not represent a holistic management approach. Participants expressed that although they were sometimes willing to render holistic care to these women, the shortage of staff during a shift was a major challenge. The absence of a protocol, policy or guidelines during the process of giving healthcare services to women diagnosed with infertility was also an issue that should be resolved. The session lasted for 40-45 minutes.

The data collected in step 4 of the NGT were analysed during the stakeholders' discussion. A total of six themes and 10 categories emerged and are depicted in Table 5.2. Virtually all the themes showed similarities with the four components of Dossey's (1997) BPSS model for holistic healthcare. Financial intervention was the only theme that emerged from the thematic content analysis that was not related to the BPSS model.

In the next section, the themes and categories are discussed with verbatim quotations in italics. Group members' identities were replaced by their group number, example Group 1, to ensure anonymity.

Table 5.2 Stakeholders' views on what guidelines for holistic healthcare interventions for women diagnosed with infertility should entail

Themes	Category
Medical interventions	• Comprehensive health assessment and management
Psychological interventions	• Incorporating individual and group counselling into management protocol • Initiation of peer mentoring
Educational interventions	• Creating awareness of infertility treatment options • Education on causes and prevention of infertility
Spiritual interventions	• Instillation of hope and faith in a Supreme Being • Incorporation of spiritual practices
Social interventions	• Incorporation of family support and partner involvement • Support from healthcare providers through the creation of a therapeutic environment
Financial interventions	• Efficient health insurance and financial support

a) Medical interventions

The first theme that emerged during data analysis was medical interventions. These are ways of intervening, interfering or interceding with the intent to treat, cure, manage or improve the health of individuals who are unwell (Stegenga, 2015: 34). Comprehensive health assessment and management emerged as a category from this theme.

- **Comprehensive health assessment and management**

According to the participants, comprehensive health assessment and management included activities such as collecting and documenting both subjective and objective data; proper physical head-to-toe examination and recording findings; checking patients vital signs and jotting down any abnormalities; requesting diagnostic tests; prescribing and administering appropriate medication; and finally, ensuring a proper referral system. The three groups expressed the following during the discussions:

Group1
Comprehensive health assessment must include rendering of physical care, such as checking of vital signs to rule out any abnormality, taking and recording both health history presented by patients (subjective data) and the ones we also observe through our interactions with them (objective data). *Need for critical head-to-toe physical examination and recording of both normal and abnormal findings.* *Ensuring proper diagnostic request to identify the underlying cause of problem, rule out all doubts, and finally, to know the mode of treatment.* *Prescribing and ensuring proper administration of the right antibiotics per each patient's problem.*
Group 2
Checking of vital signs (temperature, pulse, respiration and blood pressure) and recording of findings while paying prompt attention to any abnormal readings. *Conducting a physical examination to detect any abnormality from the normal and recording of findings.* *Proper assessment of laboratory and any other investigative report and ensuring that abnormal values or readings are critically taking into consideration.* *Administer of prescribed drugs as per the gynaecologist instructions while ensuring that the adverse effects of drugs are made known to the patients.*
Group 3
Checking and recording of vital signs and reporting abnormal readings to the prescriber. *Proper assessment and physical examinations of patients and noting all abnormalities from normal.* *Ensuring proper diagnostic or laboratory request so as to avoid any medical complications since early detection of cause of condition will facilitate prompt treatment.*

Proper medical assessment to ascertain if condition could be managed within the clinic/unit or needed to be referred.

b) Psychological interventions

The second theme that emerged during data analysis was psychological interventions. Psychological intervention in this context aims to provide support for the impact of infertility and fertility treatment on the person's mental health, which could include ways to manage negative emotions (Verkuijlen *et al.*, 2014: 2). The two categories emerged were incorporating individual and group counselling into the management protocol and initiating peer mentoring.

- **Incorporating individual and group counselling into the management protocol**

Studies have shown that offering counselling in the form of psychotherapy to either groups or individuals help women suffering from infertility cope, and most importantly, effectively deal with issues arising from infertility (Yazdani *et al.*, 2017: 4698; Joy & Mccrystal, 2015: 88). Participants expressed that this intervention is fundamental as far as the psychological needs of women diagnosed with infertility is concerned and that incorporating this intervention in the guidelines will bring psychological relief to women suffering from infertility. Participants noted the following:

Group 1
Counselling must be offered consistently to allay the psychological stress women with infertility had to go through. *Psychological counselling must be offered before they are being put on treatment and during treatment. They must as well be informed about the possible effect of their medication. Psychological counselling must still be offered even when their pregnancy results turn out either positive or negative so that they avoid certain habits, over-excitement and other behaviours that could cause them to lose their pregnancy in case the result comes positive.*
Group 2
This aspect of intervention is very vital since problems with infertility are more of mental problems than physical. This means that our women need our counselling a lot.

One other way by which we could also allay their fears, worries, anxiety and their frustrations through counselling is by continually assuring them that there is still hope. *Provision of information about support groups, counsellors and psychologist*.
Group 3
Counselling should be rendered in a form of education to women diagnosed with infertility, it must be rendered every day until pregnancy test turns out positive since issues related to infertility are sometimes disheartening and frustrating. *Effective rendering of these services would improve upon the fertility status of our patients.*

- **Peer mentoring**

Peer mentoring was the second category that emerged from the theme psychological interventions. Peer mentoring is a form of mentorship where a person who has lived through a specific experience shares a novel idea with others who are entirely new to that experience (Read *et al.*, 2014: 393). Two studies have also identified that peer mentoring is one of the interventions individuals as well as couples diagnosed with infertility wished to experience or be introduced to during their treatment process (Read *et al.*, 2014: 393; Kussiwaah, 2016: 67-70). Participants also believed that when peer mentoring is encouraged, these women will have the opportunity of interacting with each other and sharing each other's problems, and they are likely to experience some form of relief. The three groups recorded the following:

Group 1
Aside rendering counselling to these women, when they are encouraged to interact among themselves at the clinic, it will somehow make them come to the realization that they are not alone in the fight of infertility. By this, they will also get some relief and have their minds free in a way.
Group 2
Creating a friendly and therapeutic atmosphere at the unit as well as encouraging friendly and cordial relationships among patients will encourage them to relate, interact, and share each other's problems together while waiting to either see a doctor or get laboratory results. This in a way will de-stress them.

Group 3
Creating a forum so that those patients who have finally come out positive after years of infertility will act as role models to encourage and inspire those in expectation.

c) Educational interventions

Educational intervention is the third main theme that emerged during analysis of data from stakeholders. Two categories emerged from this theme, namely creating awareness of infertility treatment options, and education on causes and prevention of infertility.

- **Creating awareness of infertility treatment options**

The need to increase awareness of infertility treatment options was the first category identified under the theme educational intervention. Participants were of the view that when patients are given the necessary information about infertility and different available treatment modalities, they will at least know that they have treatment options and can choose the option they can afford. Participants voiced the following:

Group 1
Must be made aware of the various treatment options, whereas they should be counselled to make an informed choice, especially the ones they could afford.
Group 2
We as their healthcare providers do not really educate them on the varieties of treatment options that could actually be of help to them. They must be made known the various options of treatment and must also be allowed to select or choose from the lot.
Group 3
Education must also be provided on various treatment protocols, treatment side effects and the chances or possibilities of having some options failing.

- **Education on causes and prevention of infertility**

Education on causes and prevention of infertility was the second category that emerged under educational intervention. Participants admitted that most patients are ignorant about what could

be the cause of their problem and the ways of avoiding or preventing this. Participants were of the view that when this education is integrated into the management protocols of women diagnosed with infertility, it will give them relief and they will try and adhere to whatever preventive measures are given to them. Participants made the following statements:

Group 1
Women diagnosed with infertility must be given education regarding what could bring about or cause the problem they find themselves in and its preventive measures. For example, the need for lifestyle modification counselling on wellness and healthy living including exercising and diet regimen, avoidance of alcohol, smoking, and intake of well-balanced diet must be emphasized upon.
Group 2
There is a need to give health educational talks to these women regarding the causes and prevention of infertility since some women attribute this to spirituality. *The urgency to report any abnormalities that might be experienced especially diseases of the reproductive system must also be emphasized upon.* *They must also be informed on the essence of exercising and having weight loss to ensure a normal weight since obesity could also be a predisposing factor in having difficulties in childbearing.*
Group 3
Aside the medical intervention we render, we need to add the aspect of health education. This must include causes and preventive measures, treatment options, treatment protocols, outcomes of treatments and every other information that deem necessary for them to know. This aspect of care or intervention is always neglected in their management.

d) Spiritual interventions

The fourth theme that emerged during the data analysis of the stakeholders' discussion is spiritual interventions. The participants saw spiritual wellbeing as a source of happiness. The findings of a study by Chirico (2016: 15) indicated that incorporating spirituality into health will facilitate the healing process since one's spirit has an influence on both mental and physical wellbeing. The

two categories that emerged from this theme are instillation of hope and faith in a Supreme Being and incorporation of spiritual practices.

- **Instillation of hope and faith in a Supreme Being**

Instillation of hope and faith in a Supreme Being is the first category that emerged under the theme spiritual interventions. Participants agreed that when hope and faith are integrated into the management of women diagnosed with infertility, it will help alleviate their suffering. The participants made the following comments:

Group 1
Issues of spirituality becomes very necessary when one finds him/herself in a situation that seems tough, especially when it has to do with a disease condition. Most people believe that the only way to have remedy or have situations changed is when they draw closer to their maker and continually have hope in Him.
Group 2
When aspects of spirituality are added in the management protocols of women diagnosed with infertility, it will in a way offer them relief since some of them do believe the situation they find themselves is more of spiritual than physical. Hence in our day-to-day interactions with these women, we as healthcare providers must often inspire them through our interactions or conversations especially lifting their hope in whatever they believe in and the need to remain in that faith.
Group 3
Issues of spirituality and religion becomes very important, particularly when one finds him- or herself in an unpleasant situation, especially in the diagnosis of a disease condition. We as healthcare workers must always respect the right of patients with regard to their believe system, religion and their personal values.

- **Incorporation of spiritual practices**

The participants recommended incorporating spiritual practices like early morning devotions before starting any activity at the clinic and the involvement of a reverend minister (pastor) to ensure women who needs spiritual counselling are being attended to. It is noteworthy that 70%

of women diagnosed with infertility in the US rely solely on God by praying when faced with infertility and its related issues (Collins *et al.*, 2018: 2237). They also used the services of clergies as a way of receiving counselling. This was more important to these women than engaging in other formal support. The three groups articulated the following during their presentations:

Group 1
Most patients report at the clinic very early; some might have not even prayed before reporting or might have prayed but less. Others might also come depressed and this could probably be due to whatever situation they might have found themselves. In times like this, prayers or devotions offered early in the morning at the outpatient department (OPD) will go a long way to heal such people spiritually, hence this must also be encouraged at the OPDs.
Group 2
To ensure that this aspect of care is integrated in their management, the introduction of morning devotions must be encouraged. Additionally, the services of a pastor or a hospital pastor must be employed to ensure the spiritual aspect of care is tackled. *The services of the pastor must be on daily bases so as to ensure that their spiritual needs are met at all times.*
Group 3
Patients beliefs and values must be treated with respect and at all times by ensuring that the aspect of spirituality is never neglected in the care of women with infertility.

e) Social interventions

The fifth theme deduced from the analysis of stakeholder's data is social interventions. Social interventions help alleviate the social stressors women diagnosed with infertility encounter. When women diagnosed with infertility experience distressing situations in their lives, they need to be encouraged, supported and cared for. A study by (Begum & Hasan, 2014: 1290) revealed that the absence of support from either husbands, related individuals or significant others could lead to more emotional instability. Because of this and many other reasons, participants thought that social intervention is as necessary as any other intervention when managing women diagnosed with infertility. Two categories emerged from this theme, namely incorporation of family support

and partner involvement, and support from healthcare providers through follow-up and the creation of a therapeutic environment.

- **Incorporation of family support and partner involvement**

The need to incorporate family support and partner involvement was identified as the first category under social interventions. Participants believed that when social support is given in addition to other interventions, women diagnosed with infertility will experience encouragement and reassurance. The partners should be encouraged to attend the clinic with the women. Participants made the statements below:

Group 1
The need to encourage family support and partner involvement is also very important. In times like this, the affected person needs encouragements, reassurances and extra love from both family members and partners particularly. This form of support can in a way bring them relief.
Group 2
In a way of encouraging family support and partner involvements, women who comes to the clinic with their partners should be given especial attention. For example, such people should not be allowed to queue. This in a way will encourage others to also come along with their partners.
Group 3
A diagnosis of a disease in an individual automatically affects the entire family. This sometimes goes as far as affecting the sick person more, and therefore, absence of family support exposes these women to more psychosocial stressors.

- **Support from healthcare providers through the creation of a therapeutic environment**

The second category that emerged from social interventions is the need for support from healthcare providers through follow-ups and telephonic support and the creation of a therapeutic environment that will enhance therapeutic relationships between staff and patients. Participants mentioned rapport, respect and effective communication skills, which can help to establish

supportive relationships between healthcare providers and women diagnosed with infertility. The three groups expressed the following:

Group 1
Ensuring a serene and a peaceful environment. This can be achieved when there is always the establishment of good rapport, as well as good and effective communication skills between healthcare providers and patients. This can also be achieved when individuals or women diagnosed with infertility are always addressed with respect and treated as unique individuals.
Group 2
One other way of ensuring total care is when the aspect of social support is also included in the care of women with issues of infertility. This type of support or management can include follow-up visits by liaising with the community or public health nurses so that they can check up on these women on a regular basis to ensure they are doing well.
Group 3
Social interventions must include aspects such as home visits, creating an atmosphere that is stress free, friendly and cordial to ensure a good therapeutic environment. This would encourage women diagnosed with infertility to freely approach their healthcare provider and comfortably ask anything that is bothering them.

f) Financial interventions

Financial intervention is the last theme that was deduced from the analysis of the stakeholder presentations. The stakeholders expressed that financial intervention is crucial and should not be left out when drafting guidelines for holistic healthcare interventions for women diagnosed with infertility. The category that emerged from this theme is efficient health insurance and financial support.

- **Efficient health insurance and financial support**

In Ghana, patients who are medically insured with the National Health Insurance Scheme have the insurance partially taking care of some costs like consultation fees, some laboratory investigations and diagnostic tests as well as some drugs. Participants were of the view that infertility and its treatment are costly, and some patients cannot even afford to purchase their

drugs. Participants felt there is a need to ensure that all women who visit the clinic are encouraged to have their health insured under the National Health Insurance Scheme.

Participants added that although the government and some nongovernmental organizations do well in funding some health conditions by subsidizing their treatment, these funds could also be channelled to the public gynaecological clinics so that the treatment and other diagnostic tests could be subsidized. They also felt that healthcare providers could lobby for funding for the treatment of infertility. The groups shared the following:

Group 1
Services rendered for these women must be free. They must as well be given some form of education on the essence and importance of acquiring a medical or health insurance so that at least the cost of consultation and other trivial investigations is taken care of by the healthcare insurance.
Group 2
Government must support these women by subsidizing the cost of consultations, diagnostic tests and the cost of treatments at the various government gynaecology clinics since the cost of managing infertility is costly. *Appealing or lobbying for financial support from either nongovernmental organizations or individual philanthropists to solicit for funds. This in a way will also bring down the financial burden of these women.*
Group 3
The cost of managing infertility is very expensive. This ranges from hormonal remedies to all sorts of investigations. This implies that the various clinics and facilities these women access healthcare must solicit for financial help through networking and outreach programmes.

5.2.4.5 Step 5: Voting and ranking phase

The final step in the NGT was the voting and ranking phase. At this point, each group was asked to prioritize their recorded ideas about what have been discussed. After the group presentations, the participants were asked to vote in order to prioritize the ideas. They were also informed not to

vote multiple times on a single idea. Each member in a group selected the six most important items from the group list and wrote them on an A3 sheet.

Each member ranked the six selected ideas, with the most important receiving a rank of 6 and the least important a rank of 1. After participants ranked their responses in order of importance, the moderator created a score sheet on the flip chart with numbers on one end of the chart that matched the ideas from the round-robin step.

The moderator collected all the A3 papers from each group and asked one group member to read the idea number and number of points allocated to each one. The moderator recorded and then added the scores on the score sheet. The ideas rated by the groups answered the question: What should guidelines for holistic healthcare interventions for women with infertility entail?

The participants reached a consensus on the six most important interventions that must be included in the guidelines for holistic healthcare interventions for women diagnosed with infertility in Ghana. These interventions are psychological, educational, spiritual, social, medical and financial, as presented in Table 5.3.

Table 5.3 List of prioritized interventions generated by the 12 stakeholders in answer to the question: What should guidelines for holistic healthcare interventions for women diagnosed with infertility in Ghana entail?

Ranked Number	Intervention	Rating
1	Psychological	12
2	Educational	12
3	Spiritual	10
4	Social	9
5	Medical	5
6	Financial	5

After participants adequately addressed the previous question and completed the voting phase, they were asked to answer the following question:

What type of healthcare interventions must be offered to women diagnosed with infertility before, during and after treatment?

The ideas related to this question were then concluded and written down on an A3 sheet by each group in the same manner as for the previous question. A representative from each group presented their ideas on their views regarding the type of healthcare interventions that must be offered to women diagnosed with infertility before, during and after treatment.

Each idea was documented on a flip chart, and after the documentation session was completed, the moderator asked: “Are there any questions or comments group members would like to make about the items?” This ensured that each group member was allowed to contribute and also to make sure that the discussion of all the ideas was complete and free from judgement and criticism.

Participants brainstormed once more and came up with the healthcare interventions that must be offered before, during and after treatment. Participants were asked to prioritize the types of interventions that must be offered before, during and after treatment to women diagnosed with infertility. Tables 5.4, 5.5 and 5.6 show the answers to this question.

Table 5.4 Stakeholders’ views on the type of healthcare interventions to be offered to women diagnosed with infertility before treatment

Interventions	Activities
Psychological	• Offer counselling opportunities to allay fears and anxiety. • Create a forum to allow women with similar experiences to share their experiences with newly diagnosed women.
Educational	• Inform women about risk factors, causes and preventive measures. • Inform women about the various treatment options and their possible side effects.
Spiritual	• Provide opportunities for early morning devotions at the outpatient department to uplift hope and faith in the Supreme Being. • Involve a reverend minister (pastor) in care.

Table 5.5 Stakeholders’ views on the type of healthcare interventions to be offered to women diagnosed with infertility during treatment

Interventions	Activities
Psychological	• Continually offer psychosocial counselling opportunities to allay fears and anxiety. • Offer opportunities to discuss and clarify treatment related concerns. • Create a forum to allow those with similar experiences to share their experiences with newly diagnosed women.
Educational	• Continually inform patients about the various treatment options and their possible adverse effects.

Spiritual	• Provide opportunities for early morning devotions at the outpatient department to uplift hope and faith in the Supreme Being. • Involve a reverend minister (pastor) in care.

Table 5.6 Stakeholders' views on the type of healthcare interventions to be offered to women diagnosed with infertility after treatment

Interventions	Activities
Psychological	• Continually offer psychosocial counselling, should treatment options fail. • Provide information about support groups, counsellors and psychologists when treatment is unsuccessful, and patient needs extra or specialized psychosocial attention. • Offer patients the chance to discuss worries and fears when treatment works, and pregnancy is achieved.
Social	• Continually encourage partner and family support. • Effective communication techniques of 'being there'.

5.3 SUMMARY

This chapter presented the steps followed in conducting the NGT. The use of the NGT as an information generating tool and consensus development method was effective and efficient in this study. Again, the findings helped the researcher to draft the proposed guidelines for holistic healthcare interventions for women diagnosed with infertility in Ghana.

The next chapter will focus on the development of guidelines for holistic healthcare interventions for women diagnosed with infertility and the refinement of the guidelines using the e-Delphi technique.

CHAPTER 6

DEVELOPMENT AND FURTHER REFINEMENT OF GUIDELINES FOR HOLISTIC HEALTHCARE INTERVENTIONS FOR WOMEN DIAGNOSED WITH INFERTILITY

6.1 INTRODUCTION

Chapter 5 focused on the development of draft guidelines with stakeholders using the steps in the NGT.

This chapter will focus on the further development of the guidelines for refinement using the integrated findings of the empirical data retrieved from the FGDs in Phase II: Stage I (Chapter 4) and the NGT in Phase II: Stage II (Chapter 5). The researcher also incorporated the findings of the systematic literature review in Phase I (Chapter 2) and the BPSS model (Dossey, 1997: 4) that was adapted for the study to ensure the guidelines represent holistic healthcare interventions. To ensure a rigorous process, the development and refinement of the guidelines were done in accordance with the guiding attributes in guideline development constructed by the AGREE II instrument (Brouwers *et al.*, 2017: 9).

This chapter will also describe Phase III of this study, namely, the refinement of guidelines for holistic healthcare interventions for women diagnosed with infertility in Ghana. These are the objectives for each phase:

Phase I

- Review existing evidence of holistic healthcare interventions for women diagnosed with infertility.

Phase II

- Explore and describe the healthcare needs of women diagnosed with infertility in Ghana using FGDs with the women.
- Develop draft guidelines for holistic healthcare interventions for women diagnosed with infertility in Ghana using an NGT with stakeholders.

Phase III

- Refine guidelines for holistic healthcare interventions for women diagnosed with infertility in Ghana (e-Delphi technique).

6.2 INTEGRATION OF FINDINGS

The empirical data retrieved from both the FGDs and the NGT were integrated to develop seven guidelines to address the healthcare needs of women diagnosed with infertility. The findings of the FGDs reflected the healthcare needs of women diagnosed with infertility whereas the findings of the NGT reflected the healthcare interventions needed to be incorporated in the care of women diagnosed with infertility to ensure holistic healthcare interventions.

Figure 6.1 presents the integration of empirical findings that guided the development of the guidelines.

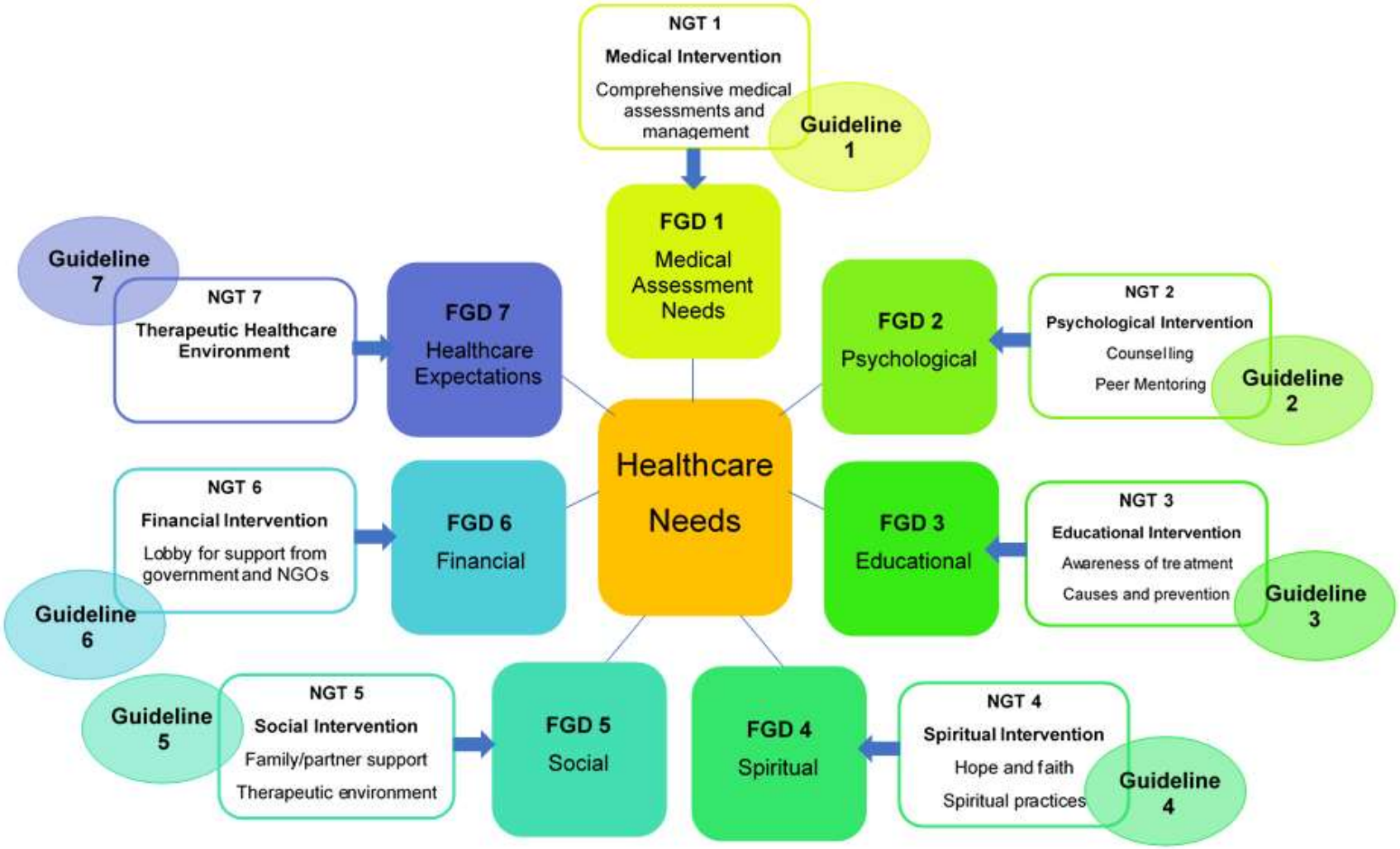


Figure 6.1 Integration of empirical findings that guided the development of the guidelines

6.3 GUIDING ATTRIBUTES TO THE GUIDELINE DEVELOPMENT AND REFINEMENT PROCESS

During the process of developing the guidelines, the researcher observed, and adapted attributes related to guideline development to ensure the trustworthiness of the guidelines. The AGREE II instrument (Brouwers *et al.*, 2017: 9) on behalf of the AGREE Next Consortium outlined attributes such as scope and purpose, stakeholders' involvement, rigor of development, clarity of presentation and finally, applicability. The aforementioned attributes guided the guideline development in this research.

6.3.1 Scope and purpose

The scope and purpose are related to the overall aim of the guidelines, the specific health questions and the target population (Brouwers *et al.*, 2017: 11).

The general objectives of the guidelines are explicitly stated in Section 1.7, and the research questions and objectives are specified in Section 1.5 and 1.7, respectively. The target population for whom the guidelines were developed are mentioned throughout the study and specified in the guidelines.

6.3.2 Stakeholders' involvement

According to the AGREE II instrument (Brouwers *et al.*, 2017: 15), the guideline development process should include individuals from all relevant professional groups, seek the views from the target population, and finally, clearly define the target users of the guidelines.

The development of the guidelines is based on the empirical data retrieved from the FGDs, which obtained the healthcare needs of women diagnosed with infertility. The first group of stakeholders were the healthcare users and the second group of stakeholders were professionals who participated in the NGT and included a gynaecologist, midwives, nurses and a healthcare manager. Non-professional stakeholders that are influential in matters of health in Ghana, like an assembly man, opinion leaders and reverend minister were also included in the NGT. The third group of stakeholders were the Delphi panel. These were international and local experts, such as gynaecologists, midwives, psychologists as well as academia well versed in the field of infertility and research. The target users of the guidelines are clearly stated in the guidelines.

6.3.3 Rigour of development: Validity and reliability

The rigour of the guidelines relates to the process used to gather and synthesize evidence and the methods to formulate recommendations and update the guidelines (Brouwers *et al.*, 2017: 7).

The researcher ensured the following criteria were put in place as recommended by the AGREE II instrument (Brouwers *et al.*, 2017: 11). Systematic methods were used to search for evidence, and the criteria used in selecting the evidence are clearly described in Figure 2.3. Ransohoff, Pignone and Sox (2013: 139) said that the requirements of good guidelines are fulfilled when a systematic review is performed and an evaluation of the quality and strength of the body of evidence (Ransohoff, Pignone & Sox, 2013: 139). The recommendations and limitations of the study are described in Section 7.6 and 7.7. The link between the guidelines and the supporting evidence is indicated in Table 6.2. The guidelines were externally reviewed by panel of Delphi experts prior to its publication. The Delphi panel were asked to rate the guidelines in terms of scope and purpose, stakeholders' involvement, validity, reliability, clarity and applicability.

6.3.4 Clarity of presentation

The AGREE II instrument (Brouwers *et al.*, 2017: 28) recommended that guidelines should be specific, unambiguous and validated. The guidelines were validated by a panel of experts using the Delphi technique to ensure the clarity, specific and unambiguous formulation of the guidelines.

6.3.5 Applicability

Applicability pertains to the barriers and facilitators to implementation, strategies to improve uptake, and resource implications of applying the guidelines (Brouwers *et al.*, 2017: 7). In this study, the target users of the guidelines are healthcare providers managing women diagnosed with infertility. The applicability was judged by a panel of Delphi experts, but will only be put to test when implemented in practice.

6.4 METHODOLOGY FOR GUIDELINE DEVELOPMENT

The methodology for the development of guidelines provided a framework in which the researcher could conduct the process of guideline development. The guideline development was guided by the BPSS model (Dossey, 1997: 4) as described in Section 2.4.2, findings of the systematic literature review in Phase I (Chapter 2), empirical findings from both the FGDs and NGT in Phase II: Stage I and II (Chapter 4 and 5), and using some guiding attributes that were applicable

to the study for guideline development based on the AGREE II instrument (Brouwers *et al.*, 2017: 1). The researcher used the instrument because it explicitly outlined the framework that assesses the quality of guidelines, provided a methodological strategy for the development of guidelines, and informed what information and how that information should be reported in guidelines (Brouwers *et al.*, 2017: 1). The guidelines were refined using an e-Delphi technique.

6.4.1 Overview of the structure and content of AGREE II

The structure of AGREE II (Brouwers *et al.,* 2017: 1) has 23 items organized in six domains. Each domain captured an exceptional dimension of items that will ensure quality guidelines. Table 6.1 outlines the structure and content of AGREE II (Brouwers *et al.,* 2017: 1); the last column describes how AGREE II was implemented in this study.

Table 6.1 Structure and content of AGREE II 2017 (Adapted from AGREE II; Brouwers *et al.*, 2017)

DOMAIN	ITEMS	IMPLEMENTATION
DOMAIN 1: Scope and purpose	1. Description of overall objective(s) of guidelines. 2. Health question(s) covered by guidelines. 3. Description of the population to whom the guideline is meant to apply.	1. Description of overall objectives of guidelines is stated in Section 1.7. 2. Not applicable. 3. Population to whom the guidelines are meant to apply is described in all the chapters.
DOMAIN 2: Stakeholder involvement	4. Relevant professional groups included in guideline development. 5. Target population's views and preferences have been sought. 6. Target users of guideline clearly defined. 7. Potential organizational barriers in applying the recommendations have been discussed.	4. Relevant professional groups were included in the guidelines development in Section 5.2.1. 5. The views of women diagnosed with infertility were sought with regard to their healthcare needs. Refer Chapter 4; Table 4.2. 6. Target users of the guidelines have been clearly stated throughout the chapters. 7. Not applicable.
DOMAIN 3: Rigour of development	8. Systematic methods were used to search for evidence. 9. Strength and limitations of evidence clearly described. 10. Methods for formulating the recommendations are clearly described.	8. Evidence were searched for using systematic methods in Section 2.5 and Figure 2.3. 9. Limitations of evidence are explicitly stated in Section 7.7.

	11. Health benefits, side effects, and risks have been considered in formulating the recommendation. 12. Explicit link between the recommendations and the supporting evidence. 13. Review of guideline by experts. 14. Provision of procedure for updating guidelines.	10. Recommendations are clearly described in Section 7.6. 11. Benefits of formulating the recommendations have been considered. 12. Links are indicated in Chapter 7. 13. Guidelines reviewed by experts in Section 7.4. 14. Not applicable
DOMAIN 4: Clarity of presentation	15. Specific and unambiguous recommendations. 16. Different options for management of condition or health issues. 17. Recommendations are easily identifiable.	15.Recommendations are specific and free from ambiguity. 16. Not applicable. 17. Easily identifiable recommendations in Section 7.6.
DOMAIN 5: Applicability	18. Guideline provides advice/tools on how the recommendations can be put into practice. 19. Guideline describes facilitators and barriers to its application. 20. Potential resource implications of applying the recommendations have been considered. 21. Guideline presents monitoring/auditing criteria.	18. Guidelines provided advice on how recommendation can be put to practice. 19. Not applicable. 20. Implications of applying the recommendations is considered in Section 7.8. 21. Not applicable.
DOMAIN 6: Editorial independence	22. Views of the funding body have not influenced the content. 23. Competing interest of guideline development group members have been recorded and addressed.	22. Not applicable. 23. Not applicable.

Source: AGREE II (Brouwers et al., 2017: 7)

6.4.2 Adapted guideline development and refinement steps

The researcher followed specific steps to develop the guidelines for holistic healthcare interventions for women diagnosed with infertility. Some of the domains and items of the AGREE II (Brouwers *et al.,* 2017: 7) applicable to the current study were chosen by the researcher to develop the guidelines. Steps 1, 2, 3, 4 and 5 were adapted from the AGREE II instrument because it guided developing and refining the guidelines. The rest of the steps were initiated by the researcher based on the study objectives. A Delphi technique was used to refine the guidelines. Figure 6.2 shows the steps that guided the researcher in the development and refinement of the guidelines.

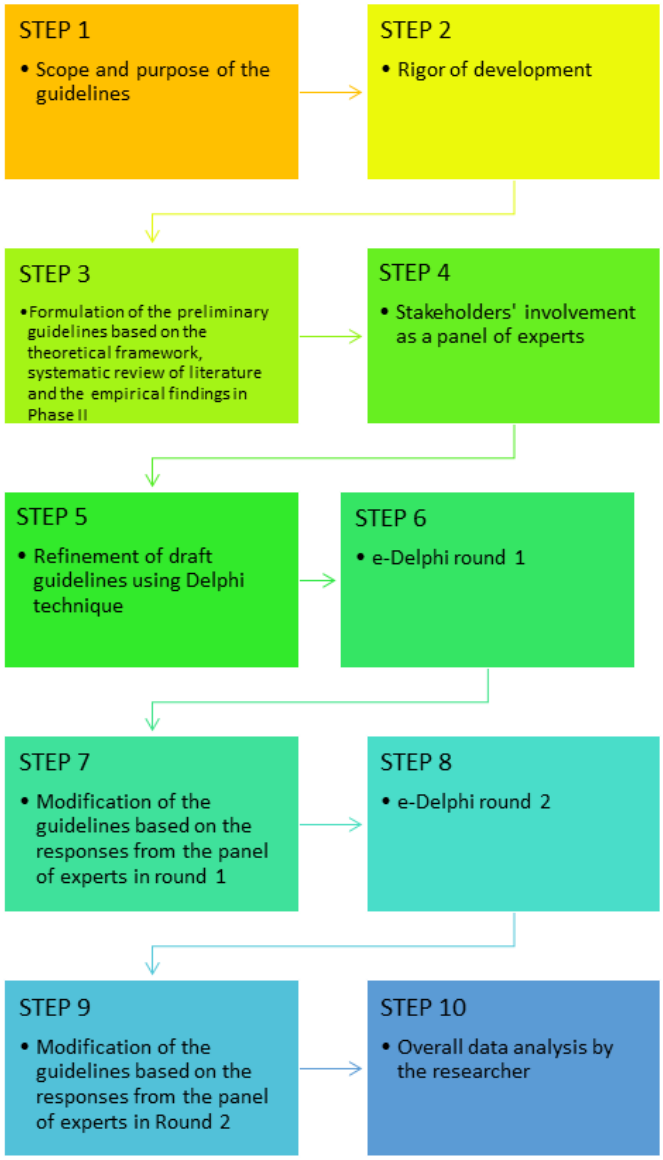


Figure 6.2 Steps that guided the development and refinement of the guidelines

The next sections explain the application of the step-by-step approach that guided the development and refinement of the guidelines.

6.4.2.1 Step 1: Scope and purpose of the guidelines

The scope of the guidelines included women diagnosed with infertility and healthcare providers managing women with diagnosed infertility in Ghana. The purpose of the guidelines is to ensure holistic healthcare interventions for women diagnosed with infertility.

6.4.2.2 Step 2: Rigour of development

Rigour of development relates to the process used to gather and synthesize the evidence, methods to formulate recommendations and the update of the guidelines using the guiding attributes of AGREE II (Brouwers *et al.*, 2017: 7). In this study, a systematic literature review was used to gather information on the various healthcare interventions in managing women diagnosed with infertility in addition to the biomedical approach of management. The Delphi panel of experts involved in the refinement of guidelines included both international and local experts in the area of infertility, policy and guideline development, researchers in academia, psychologists, midwives and gynaecologists.

6.4.2.3 Step 3: Formulation of the preliminary guidelines

The analysis of the empirical data retrieved from the FGDs identified seven healthcare needs of women diagnosed with infertility. Based on the needs of these women, participating stakeholders in the NGT outlined interventions to be incorporated into the management protocols of women diagnosed with infertility in order to ensure holistic healthcare. The preliminary guidelines were formulated based on the healthcare needs of women diagnosed with infertility (Table 4.2) and included interventions that must be incorporated in the management of women diagnosed with infertility to ensure holistic management (Table 5.2). The guidelines derived from the findings are summarised in Table 6.2. Each guideline is discussed in the next section in accordance with a rationale that reflects the BPSS model that guided the study (Dossey, 1997: 4), the findings of the systematic literature review in Phase I, a summary of the appropriate empirical findings, as well as certain actions recommended to implement the guidelines.

Table 6.2 Development of draft guidelines for holistic healthcare interventions for women diagnosed with infertility in Ghana

FINDINGS OF FGD	FINDINGS OF NGT	GUIDELINES
Healthcare needs of women diagnosed with infertility	**Interventions to meet the healthcare needs of women diagnosed with infertility**	**Guidelines for holistic healthcare interventions for women diagnosed with infertility**
Medical health assessment needs A need for comprehensive health assessments	**Medical interventions** **Activities:** Comprehensive health assessment and management	**Guideline 1:** Healthcare providers managing women diagnosed with infertility should conduct a holistic healthcare assessment in order to identify women's health support needs
Psychological needs A need for support in the form of counselling A need for peer mentoring	**Psychological interventions** **Activities:** Incorporating psychological interventions like counselling in the management protocol Initiation of peer mentoring	**Guideline 2:** Healthcare providers managing women diagnosed with infertility should incorporate psychological interventions in the management protocols
Educational needs A need for information on causes, prevention, treatment options, and its side effects	**Educational interventions** **Activities**: Creating awareness of infertility treatment options Education on causes and prevention of infertility	**Guideline 3:** Healthcare providers managing women diagnosed with infertility should provide health education to disseminate information about causes, prevention, various treatment options and side effects
Spiritual needs A need to incorporate the aspect of spirituality in the management protocol A need to communicate with God or Allah	**Spiritual interventions** **Activities:** Instillation of hope and faith in a Supreme Being Incorporation of spiritual practices	**Guideline 4:** Healthcare providers managing women diagnosed with infertility should acknowledge their spiritual needs and ensure the provision of spiritual support
Social needs A need for support from significant others	**Social interventions** **Activities**: Incorporation of family support and partner involvement	**Guideline 5:** Healthcare providers managing women diagnosed with infertility should ensure support from significant others
Financial needs A need to subsidize costs of treatment and investigations	**Financial interventions** **Activities:** Need for efficient medical or health insurance Lobby for support from both government and nongovernmental organizations	**Guideline 6:** Healthcare providers managing women diagnosed with infertility need to encourage them to have their health insured and lobby for financial support from government and nongovernmental organizations
Healthcare expectations Expectations of the healthcare system and healthcare providers	**Therapeutic interventions** **Activities:** Including therapeutic measures in care Support from healthcare providers in the form of home visits and telephonic follow-up	**Guideline 7:** Healthcare providers managing women diagnosed with infertility should ensure a therapeutic relationship and environment in order to meet the healthcare needs of the women

The guidelines, rationales and specific actions of each guideline are described in detail in the next section. The actions for each particular guideline is derived from the rationale.

Guideline 1: Healthcare providers managing women diagnosed with infertility should conduct a holistic healthcare assessment in order to identify women's health support needs

- **Rationale**

The term holistic deals with an individual as an entire or whole entity and not only focusing on the presenting symptoms exhibited by the sick individual. The term holistic also describes approaches and interventions that are meant to satisfy a patient's physical, mental, emotional, social, and spiritual needs. This implies that every individual should be managed beyond the physical in order to ensure a holistic approach (Papathanasiou *et al.*, 2013: 1;2). The BPSS model by Dossey (1997) indicated that every individual is made of biological, psychological, social and spiritual components. These components are interrelated and interdependent and contribute to the wellness of the individual, hence a deviation in one component will lead to a deviation in all the other components. All the components must be assessed and treated in order to ensure holism in care (Dossey, 1997: 4). Caring for the patient therefore requires an assessment of all four components that make a person a whole being in order to achieve optimal health and therapeutic results (Dossey, 1997: 4).

The biological, also known as the physical component, includes physiological processes like anatomical, structural and molecular substance of disease, causes and the effects on the patient's biological functioning and medical diagnoses (Dossey, 1997: 4; 5; 6; 7). Assessments should involve the physical, psychological, social and spiritual components of the individual and applicable investigations to ascertain the cause of disease and interpretation of data to facilitate proper diagnosis.

The empirical findings of this study indicated that whenever women diagnosed with infertility visited the clinic, the healthcare providers (nurses, midwives and the gynaecologist) did not always examine them physically or obtain holistic assessment information from them. Rather, they were mostly managed medically by prescribing hormonal medications for ovulation enhancement. When they returned to the clinic for review purposes, they were given another prescription to either purchase another drug or the same drugs without any proper physical

examination or subjective data collection. Most of the women expressed their frustration with many years of being managed the same way with no positive outcome, hence they have stopped taking the medications.

The stakeholders were also of the view that a holistic healthcare assessment is needed so as to not limit the interventions to the prescription or administration of medication. The stakeholders added that a holistic healthcare assessment should include the collection and documentation of both subjective and objective data; proper physical head-to-toe examination and recording of findings; checking of patient's vital signs and jotting down any abnormalities; proper diagnostic tests; prescribing and administration of the appropriate medication; and appropriate referrals.

A few researchers have revealed that a holistic approach to healing means the correction of physiological disturbances and that the restoration of the body interior is only the beginning of the task. This implies that holistic healing requires the integration of all four main components of health (Jasemi *et al.*, 2017: 75-76; Hatala, 2012: 51; Engel, 1977: 129-132).

A holistic approach to the care of women diagnosed with infertility starts with a thorough assessment of their physical, emotional, psychological, cultural, social and spiritual needs (Romeiro *et al.*, 2017: 1). According to the Practice Committee of the American Society for Reproductive Medicine (2015: 44), the initial discussion with women diagnosed with infertility should allow adequate time to obtain a complete medical, reproductive and family history as well as perform a thorough physical examination. This assessment is seen as good time to counsel the patient about preconception care and screen for other relevant conditions. The physical examination should include the following: Weight; body mass index; blood pressure and pulse; breast characteristics; signs of thyroid enlargement and presence of any nodules or tenderness; secretions; signs of androgen excess; vaginal or cervical abnormality, secretions or discharge; pelvic or abdominal tenderness; organ enlargement or masses; uterine size, shape, position and mobility; adnexal masses or tenderness; and cul-de-sac masses, tenderness or nodularity (Practice Committee of the American Society for Reproductive Medicine, 2015: 44;45). The importance of comprehensive healthcare assessment and physical examination is also evident in other research findings (Kuohung & Hornstein, 2019: np; O'Flynn, 2014: 50) to reveal the actual cause of the problem and narrows the focus of the diagnostic evaluation (Choussein & Vlahos, 2012: 175).

Healthcare providers must retrieve information from the patient's history to confirm the findings from the physical examination and the cause of infertility to focus the diagnostic evaluation. Components that should be obtained during history taking include sexual practices; family planning; contraceptives choices (Carcio & Brooks, 2018: 31); duration of infertility; menstrual history; gynaecological history, including sexually transmitted infections, pelvic inflammatory disease and treatment of abnormal Pap smears; obstetrical history to assess problems associated with subsequent infertility or adverse outcome in a future pregnancy; and family history, including family members with infertility. Personal and lifestyle history to be obtained includes age, occupation, exercise, stress, dieting or changes in weight, smoking, and alcohol use, all of which can affect fertility (Kuohung & Hornstein, 2019:np; O'Flynn, 2014: 50). An accurate collection of the above information guides the identification of possible causes, diagnosis and treatment and highlights problem areas to address when offering counselling.

- **Actions**

Indications for holistic healthcare assessment:

- Women diagnosed with primary infertility
- Women diagnosed with secondary infertility

Healthcare providers managing women diagnosed with infertility should:

1. Ask critical questions and probe into answers received to ensure they obtain and document vital information and all abnormal findings.
2. Conduct a proper head-to-toe physical examination of women diagnosed with infertility to detect and manage their physical health problems or needs.
3. Ensure appropriate investigations are requested, done and results obtained before starting treatment.
4. Monitor vital signs during every visit.
5. Assess the women's mental status, cognitive and emotional experiences, mood, social support systems, cultural and religious beliefs about fertility and infertility as well as their social circumstances.

Guideline 2: Healthcare providers managing women diagnosed with infertility should incorporate psychological interventions in the management protocols

- **Rationale**

Psychological interventions are emotionally supportive therapies that provide patients with a sense of mental wellbeing (Peh, Chang, Cheng, Khim, Huimin, Chong, Hong & Salikin, 2016: 12). Although diseases are mainly viewed from a biomedical perspective, its consequences go beyond the physiological and affect all aspects of a person's personality and life, often leading to psychological symptoms like anxiety, feelings of loss, depression, hopelessness and emptiness (Dossey, 1997: 4;5;6;7). The psychological component of the BPSS model focuses on mental processes, emotions, and human behaviours. It views an individual in relation to their cognition, feelings or emotions, aspects observable in dealing with grief and loss, as well as adaptation to problems.

The findings of the FGDs revealed that women diagnosed with infertility encountered psychological problems like depression, anxiety and a diminished desire for sex, hence they need psychological interventions. Most of the women confirmed how the little encouragement and advise they received from significant others helped them move on and for a moment, they felt relief. They further asserted that the little they knew of others who had been through similar situations and eventually conceived provided them with relief and hope that they will also conceive someday. They also reported that hearing the experiences of others acted as a remedy for them considering that they were usually depressed and frustrated. They were optimistic that the presence of a peer mentor who could talk to them on issues related to their current situation, treatment protocols and about dealing with the emotional challenges of treatment will help relieve the stressors they encounter, reduce isolation and encourage them to move on in life. This implies that structured counselling in addition to the biomedical management will offer women diagnosed with infertility some emotional relief and enhance positive outcomes.

The stakeholders also believed that there is a need to incorporate psychological interventions in the management regimen of women diagnosed with infertility. They were of the view that psychological interventions will provide support and relief or soften the impact of infertility and fertility treatment on the individuals' mental health.

In view of the importance attached to parenthood in Africa, infertility is considered a major cause of psychosocial stress. The management of women diagnosed with infertility can never be complete if the aspect of psychological intervention is neglected in their care. For instance, some studies revealed how women diagnosed with infertility go through depression, frustration, anxiety, social isolation, physical violence, suicidal ideations, threats from husbands and husbands' family, stigmatization, rejection, abandonment, divorce and marital instability. The stigmatization and rejection from the community may go as far as gossiping and mockery (Anokye *et al.*, 2017: 690; Donkor *et al.*, 2017: 1; 5; Kussiwaah *et al.*, 2017: 4225; Minucci, 2013: S37; Naab *et al.*, 2013: 136; Tabong & Adongo, 2013a: 72).

Psychological interventions provide patients with a sense of mental wellbeing (Peh *et al.*, 2016: 12). Psychological interventions like counselling, peer mentoring, cognitive behavioural therapy, acceptance and commitment therapy, mind-body intervention, emotionally focused therapy, and integrated-body-mind-spirit are described in the literature as the most commonly used in the management of individuals diagnosed with infertility in order to ensure their psychological needs are fully met. Refer to Section 2.4.3.2 for detailed descriptions of the above mentioned psychological interventions. These interventions alleviate undesirable stressors, decrease perceived stress, improve treatment outcomes, offer opportunities to openly talk and feel like one belongs, reduce isolation, and encourage one to move on in life. It also help reduce infertility-induced stress, anxiety, depression and enhance marital, sexual, and life satisfaction, while potentially producing lasting change (Yazdani *et al.*, 2017: 4698; Luk & Loke, 2016: 529; Ying *et al.*, 2016: 698; Joy & Mccrystal, 2015: 88; Hussein, 2014: 34; Read *et al.*, 2014: 393; Peterson & Eifert, 2011: 577). Some studies have showed that when healthcare providers acquaint themselves with the stress levels and the psychosocial problems of women diagnosed with infertility and intervene appropriately, the chances of getting positive treatment outcomes will increase, and this will improve the quality of life of these women (Kavak & Kavak, 2018: 559;562; Van Den Broeck *et al.*, 2010: 427).

- **Actions**

Healthcare providers managing women diagnosed with infertility should provide psychological interventions as discussed in this section.

1. Psychological counselling: These are psychotherapies that offer an opportunity to discover, learn and make living more pleasing, especially when fertility problems have been detected.

Psychological counselling is offered to individuals in relation to causes, investigations and available treatment options and as well, provides realistic information about chances of conceiving (Jafarzadeh-Kenarsari *et al*., 2015: 557; Kamel, 2010: 4).

Indications for rendering psychological counselling:

- Women diagnosed with primary infertility
- Women diagnosed with secondary infertility

Importance of psychological counselling:

- Offers an opportunity to allay fears, anxiety and other psychological stressors encountered by women diagnosed with infertility.
- Offers opportunities for women to discuss and clarify treatment related concerns.
- Provides the necessary information so that women can establish their own support groups.
- Encourages and offers women the chance to discuss worries and fears when the treatment works, and pregnancy is achieved.
- Creates forums and allows those with similar experiences to share their experiences with the newly diagnosed.

2. Peer mentoring: Peer mentoring is a form of mentorship where a person who has lived through a specific experience shares a novel idea with others who are entirely new to that experience (Read *et al*., 2014: 393).

Indications for peer mentoring

- Women diagnosed with primary infertility

Importance of peer mentoring

- Enables women diagnosed with infertility to talk openly and feel like they belong.
- Helps reduce isolation and encourages women to move on in life after receiving counselling from a peer mentor on issues related to their current situation, treatment protocols and dealing with the emotional challenges of treatment.
- Helps reduce infertility-induced stress.

3. Cognitive behavioural therapy: These are psychosocial interventions that aim to improve mental health by challenging and changing unhelpful mental distortions that has to do with

thoughts, beliefs, attitudes and behaviours by improving emotional regulation (Beck, 2011: 19-20).

Indication for cognitive behavioural therapy intervention:

- Women diagnosed with primary infertility
- Women diagnosed with secondary infertility

Importance of cognitive behavioural therapy intervention:

- Helps reduce infertility-induced psychological stress.
- Helps improve self-perception of individuals diagnosed with infertility.
- Improves the quality of life of women diagnosed with infertility, sexual activities and satisfaction, as well as marital relationship skills.
- Shows significant effects on anxiety, pregnancy rates and marital functioning.
- Shows positive effects on the individual by changing the negative cognitions, behaviour and beliefs about infertility and its treatment.
- Reduces anxiety after treatment as compared to those on only biomedical treatment.

4. Acceptance commitment therapy intervention: This form of intervention addresses avoidance coping through applying techniques meant to build a non-judgemental self-awareness, acceptance, and living out one's values (Peterson & Eifert, 2011: 577).

Indication for acceptance commitment therapy intervention:

- Women diagnosed with primary infertility
- Women diagnosed with secondary infertility

Importance of acceptance commitment therapy intervention:

- Helps individuals accept what they feel is out of their control and take actions that can improve and better their lives.
- Helps individuals to recognise their standards and translate them into specific behavioural goals.
- Encourages individuals to fully connect with their experiences and move on in life.

5. Mind-body intervention: A form of psychotherapy that focuses on the communication between the mind and body as well as powerful ways in which the emotional, mental, social, and spiritual factors directly affect health (Frederiksen *et al.*, 2014: 15).

Indication for mind-body intervention:

- Women diagnosed with primary infertility
- Women diagnosed with secondary infertility

Importance of mind-body intervention:

- Reduces distress and improves pregnancy outcomes.
- Decreases depressive symptoms and perceived stress.

6. Emotionally focused therapy: Another form of psychotherapy that helps reduce the rate of depression, anxiety and stress in individuals suffering from infertility (Soltani *et al.*, 2014: 343).

Indications for emotionally focused therapy intervention:

- Women diagnosed with primary infertility
- Women diagnosed with secondary infertility

Importance of emotionally focused intervention:

- Used as a remedy to reduce infertility problems.

Guideline 3: Healthcare providers managing women diagnosed with infertility should provide health education to disseminate information about causes, prevention, various treatment options and side effects

- **Rationale**

Health education involves offering the necessary information about circumstances or conditions that cause psychological distress (Peh *et al.*, 2016: 30). Offering educational interventions to ill individuals give them a better understanding of their condition so that they can attain mastery over their problem, combat psychological stress, and finally, reducing whatever psychosocial problem they might be encountering (Peh *et al.*, 2016: 30;31). Even though the constructs of the BPSS model by Dossey (1997: 4) did not directly emphasize education, education forms part of the psychological component of the model. The researcher believes that psychological has to do with one's reasoning abilities, and one's reasoning is based on what is known through education.

Women in the FGDs reported that they received inadequate information about the nature of their condition, its treatment options and the side effects of treatment. They further lamented how they were unhappy about being ignorant as far as their condition is concerned.

Educational interventions were viewed by the NGT participants as important in the management of women diagnosed with infertility. They further asserted that educational interventions should create awareness of infertility treatment options, causes and prevention of infertility. Any other vital and applicable information should be included in holistic healthcare interventions for women diagnosed with infertility.

Educational interventions or health education happens when people are provided with all the vital information related to a specific health problem. In the context of this study, educational interventions may include all the necessary information on infertility, its causes, treatment protocols, medical or procedural information, and information to improve self-management and self-efficacy such as skills training. All this education aims to relieve psychosocial distress. Additionally, educational interventions help women acquire more knowledge and skills so that they experience a reduced psychological burden during fertility treatment (Verkuijlen *et al.*, 2014: 2).

Healthcare providers managing women diagnosed with infertility should realize the importance of easily understandable educational material that are readily available, and give realistic information about chances of giving birth, the risks and costs of the management plan, and lastly, its alternatives (Denton *et al*., 2013: 1; Kamel, 2010: 4). Putting educational measures in place will help women acquire more knowledge and skills so that they experience a reduced psychological burden during fertility treatment (Verkuijlen *et al.*, 2014: 2). Information offered about the causes and the medical and psychological impacts of treatment options make individuals diagnosed with infertility feel satisfied in terms of medical and emotional care (Jafarzadeh-Kenarsari *et al.*, 2015: 557; Batool & De Visser, 2014: 637;677; Read *et al.*, 2014: 393). Providing preliminary information about infertility is the most effective way to start implementing psychosocial care, and it is simple, efficacious and feasible compared to the other reviewed interventions (Gameiro *et al.*, 2015: 2482).

- **Actions**

Indications for health educational interventions:

- Women diagnosed with primary infertility
- Women diagnosed with secondary infertility

Healthcare providers managing women diagnosed with infertility should adhere to the following process when providing educational interventions:

1. Establish rapport to make sure the woman feels calm and relaxed. Start educational session by determining the woman's prior knowledge about her condition before giving any information.
2. Use language that will be easily understood and refrain from using medical terms or jargon.
3. Give information in bits by first assessing the woman's level of understanding and using her responses as a guide and teach appropriately.
4. Educate the woman on the causes, risk factors, various treatment modalities, while guiding her towards making an informed choice and offer information regarding preventive measures.
5. Advise appropriately lifestyle factors that might alter or hinder the chances of getting pregnant, for example avoiding smoking, alcohol consumption and losing weight.
6. Use verbal, written, pictorial or visual aids, models and diagrams that can be easily understood to convey information to the woman based on her health educational needs.
7. Ensure the women are well informed about everything they must know related to their condition and diagnosis. Find out what other information they would like or what information they need emphasized.
8. Make time to explore the health support needs of women diagnosed with infertility, give feedback and respond appropriately.
9. Ensure the education was well understood by giving a summary of all that have been discussed.
10. Encourage women diagnosed with infertility to implement plans by putting into practice what they have learnt in order to take charge of what they are going through, be responsible and independent.
11. Evaluate women by asking for feedback. Elicit responses, reactions, comments as well as emotional state concerning information given to ensure education was well understood.

Guideline 4: Healthcare providers managing women diagnosed with infertility should acknowledge their spiritual needs and ensure the provision of spiritual support

- **Rationale**

Chirico (2016: 15) proposed that it is time that healthcare systems begin to consider health holistically as a state of wellbeing in body, mind, and spirit, where the spirit is viewed differently from the other components of health. The last component of the BPSS model by Dossey (1997: 7) emphasized that regardless of the available technology, therapy or treatment used, the human spirit must be considered as a major healing force in reversing, stabilizing and producing remission in disease.

The issue of spirituality was expressed differently by each individual in the FGDs based on their believe system. Most of the women expressed how their situation made them committed to whatever faith they belonged to. They also expressed how much they have put their trust in that faith, hoping that their deliverance will one day come. A relationship and constant communication with God was one of the commonest activities these women engaged in to satisfy their spiritual needs. They appreciated the support they received from their reverend ministers. Women diagnosed with infertility believed that when this aspect of care is integrated into their management protocol, it will have positive consequences such as healing and the promotion of spiritual awareness.

The NGT participants revealed that the spiritual wellbeing of every individual is seen as a source of happiness. They therefore indicated that incorporating and instilling spirituality into health in addition to the traditional managing approach of women diagnosed with infertility will facilitate the healing process, since one's spirit influences both mental and physical wellbeing. They indicated that it is vital to incorporate spiritual intervention in the management protocols of women diagnosed with infertility.

Romeiro *et al.,* (2017: 1) revealed that infertility is a condition that dominates thoughts, feelings and purpose in every aspect of one's life. Spiritual wellbeing is seen as a source of happiness. An individual's spirit is viewed differently from the psyche and has an influence on both the physical and mental health of the individual (Chirico, 2016: 15). Spirituality is known as one of the vital aspects of providing holistic and patient-centred care and the provision of spiritual care leads to positive consequences such as healing and the promotion of spiritual awareness. It also

provides a dimension in nursing care where patients and their family members continue to explore meaning in real-life situations (Ramezani *et al*., 2014: 211).

Spirituality is able to dilute the grieving process and helps in recovering from tragedies regardless of whether one follows a religious practice or not. In as much as spiritual health does not cure disease, spiritual interventions are known to help one take control of one's behaviour and lifestyle choices and make people feel better about themselves and assume the role of preventive intervention (Dhar *et al.*, 2013: 4). It is noteworthy that 70% of women diagnosed with infertility in the US relied solely on God by praying when faced with infertility and its related issues. Engaging the services of clergies by receiving counselling was more important than engaging in other formal support (Collins *et al.*, 2018: 2237).

- **Actions**

Indications for rendering spiritual interventions:

- Women diagnosed with primary infertility
- Women diagnosed with secondary infertility

Healthcare providers managing women diagnosed with infertility should:

1. Encourage spiritual empowerment through the organization of early morning devotions at the outpatient department.
2. Involve reverend ministers, clergies or pastors in the care of women diagnosed with infertility by ensuring they are also present during clinic days to offer the needed spiritual support to the women.
3. Respond to whatever gives the women hope, meaning and purpose in life to ensure their spiritual needs are addressed.
4. Remember that spirituality is unique to the individual and one must therefore respect the person's belief systems without being judgemental.
5. Address issues relating to spiritual needs and suffering and ensure appropriate coping strategies are put in place to improve women's quality of life.
6. Focus and pay attention to the spiritual issues that are being raised by women diagnosed with infertility.

Guideline 5: Healthcare providers managing women diagnosed with infertility should ensure support from significant others

- **Rationale**

The diagnosis of a condition does not only affect the individual, but also the family and the society at large. The third component of the BPSS model has to do with social wellbeing and examines the cultural, environmental and family influences, economic status, and interactions with others as far as the experience of illness is concerned. The social component further explains how different social factors influence and affect health to the extent that a diagnosis in one person has social consequences for the person and the family. The consequences manifest as distractions and burdens, depending on the disease progression and how the family responds to the initial diagnosis. Negative responses may lead to the worsening biological or psychological problems (Dossey, 1997: 4; 5; 6; 7).

The empirical findings from the FGDs indicated that the women were burdened with social atrocities like stigmatization, marital instability and intentional social isolation, which made them yearn for the support of significant others as well as any other social support. The support given to them by significant others in the form of encouragement, inspiration, advice and reassurance had positive effects.

The stakeholders in the NGT indicated that integrating social interventions in the care of women diagnosed with infertility will help alleviate the social stressors encountered. They further expatiated that social support is equally important because these women need to be encouraged, supported and cared for.

Literature retrieved by the researcher was not directly related to the social support required by women diagnosed with infertility. However, findings of some related studies supported the fact that social support given to women diagnosed with infertility in the form of advice, encouragement and reassurance helped allay their concerns and fears. Yazdani *et al.* (2017: 4698), Luk and Loke (2016: 529) and Read *et al.* (2014: 393) indicated that psychosocial counselling helps alleviate undesirable stressors and also support women in coping as it influences their physical, mental and social wellbeing. The absence of support from their husbands or significant others leads to more emotional instabilities (Begum & Hasan, 2014: 1290). Partner support is seen as one of the core sources of support for women diagnosed with infertility. Even when family and other

significant others fail to play a supportive role, the love, understanding and adequate support shown by a partner provide the necessary emotional support for women diagnosed with infertility. These acts of their partners keep their hope alive and give them more confidence to continue with the treatment regimen. Couples need each other's support to cope effectively (Jafarzadeh-Kenarsari *et al.*, 2015: 90).

- **Actions**

Indication for support from significant others:

- Women diagnosed with primary infertility
- Women diagnosed with secondary infertility

Healthcare providers managing women diagnosed with infertility should:

1. Encourage the involvement of the women's partners throughout the treatment process.
2. Encourage and refer to couple and family therapy when the need arises.
3. Encourage the support of close family relations, for example the involvement of a mother or a sister, based on the consent of the woman.
4. Encourage partners and other significant others in the family to improve the functioning of the family as a unit or subsystem, as well as the functioning of the individual members of the family.
5. Offer additional psychosocial care to overcome relational and social distress.

Guideline 6: Healthcare providers managing women diagnosed with infertility need to encourage them to have their health insured and lobby for financial support from government and nongovernmental organizations

- **Rationale**

The need to subsidize the cost of treatment and investigations was emphasized by the women in the FGDs. Some revealed how their condition has made them incur debts and others expressed how the numerous investigations requested by healthcare providers and purchasing different hormonal drugs for years have forced them to sell their properties to obtain funds. Support in monetary form from government and nongovernmental organizations will give them relief from the financial stress.

In Ghana, most minor diseases are covered by the National Health Insurance Scheme, but unfortunately, infertility expenses are not covered by the insurance. The few participants who were covered by the National Health Insurance Scheme complained about the inefficiency of the scheme and the fact that it does not even cover most treatments. Because of this, most women who cannot afford the cost of treatment and investigations end up delaying their treatment or give up. The expenses of infertility diagnosis, investigations (both invasive and non-invasive procedures), various treatment options and other interventions are above the income bracket of most women diagnosed with infertility in Ghana.

The stakeholders in the NGT also expressed that financial intervention is crucial and should not be left out when developing guidelines for holistic healthcare interventions for women diagnosed with infertility. They expressed the need for support from both government and nongovernmental agencies to help alleviate the financial stress encountered by these women.

The financial support requested by the women in this study were similar to a study conducted by (Fahami *et al.*, 2010: 265). The money spent on treatments and the inefficacy of insurance programmes to cover treatments played a role in patients either discontinuing their treatment regimen or aborting their management (Jafarzadeh-Kenarsari *et al.*, 2015: 90).

- **Actions**

Indication for the enrolment in the National Health Insurance Scheme and other financial support:

- Women diagnosed with primary infertility
- Women diagnosed with secondary infertility

Healthcare providers managing women diagnosed with infertility should:

1. Encourage women to enrol in the National Health Insurance Scheme.
2. Ensure reproductive healthcare is accessible, affordable and timely to meet the needs of women suffering from infertility.
3. Lobby for support from both government and nongovernmental organizations.
4. Collaborate with private agencies and philanthropists to mobilize resources or support systems that will give women relief from the financial stress.
5. Identify the availability of other support groups and services that could offer financial support to women diagnosed with infertility.

Guideline 7: Healthcare providers managing women diagnosed with infertility should ensure a therapeutic relationship and environment in order to meet the healthcare needs of the women

- **Rationale**

Women in the FGDs had healthcare expectations from both the healthcare system and the healthcare professional themselves. With regard to their healthcare needs, they desired a therapeutic healthcare environment. The needs mentioned by the women included less waiting time at the clinic, follow-up from healthcare providers, a devoted clinic day for infertility care to ensure privacy, management by a specific doctor to ensure continuity in care, and partner involvement in the management. The need for a therapeutic relationship was also emphasized by the women. They added that they need to be treated in a non-judgemental way and as unique individuals by healthcare providers. Hence, the rationale for meeting their healthcare needs will be discussed in relation to creating a therapeutic relationship and environment.

The stakeholders in the NGT also added that the creation of a therapeutic environment will enhance therapeutic relationships between the staff and the patients, and this will improve the quality of care. The participants added that therapeutic relationships can be achieved when rapport is established and with effective communication skills between healthcare providers and patients. A therapeutic relationship can be achieved when women diagnosed with infertility are addressed with respect and treated as unique individuals.

One way to create a therapeutic healthcare environment is to follow a holistic and patient-centred approach when providing care for individuals experiencing infertility. This has a positive effect on their quality of life and improve their wellbeing (Aarts *et al.*, 2011: 491;493). Healthcare providers need to be informed that patients with infertility wish to be treated uniquely and need medical skills, respect, coordination, accessibility, information, comfort, support, less waiting times, partner involvement, positive attitudes as well as therapeutic relationships with fertility clinic staff (Dancet *et al.*, 2010: 467). Healthcare providers can also create a therapeutic environment by becoming more committed and empathetic to patients' needs. Healthcare providers need to reduce waiting time, provide care in a timely and accurate manner, maintain medical records appropriately, and pay attention to both the medical and non-medical needs of patients to improve patients' level of satisfaction (Rezaei *et al.*, 2018: 6;7; Berhane & Enquselassie, 2015: 1299).

Patients valued healthcare providers with whom they formed a therapeutic relationship. A therapeutic relationship achieve good outcomes, and yet, relatively little attention is paid to the potential of the patient-clinician relationship to maximize patient outcomes (Jensen & Kelley, 2016: 132). Patients valued involvement in decisions regarding their health, and they also felt appreciated when they were given clear and honest explanations of their condition (Ehrich *et al.*, 2015: 925). They valued open communication with healthcare providers who give them time and are open-minded, willing to listen, non-judgemental and who explain things. The healthcare needs of patients include the creation of a more flexible healthcare delivery system so that they can access services they preferred; and consultations where they can feel calm to discuss all their healthcare problems with adequate time allocated without being judged (Grace *et al.*, 2019: 11). Healthcare providers should take time to inform patients of their diagnosis; be aware of their own emotions to avoid transference and projection; accept and recognise the patient's emotions; admit that patients are capable of making choices (patient's competence); stimulate patient's internal motivation; follow values by not being judgemental; be positive, trustworthy, transparent and humble; and recognise patients for who they are (Petre *et al.*, 2017: 612).

- **Actions**

Indication for creating a therapeutic relationship and environment:

- Women diagnosed with primary infertility
- Women diagnosed with secondary infertility

Healthcare providers managing women diagnosed with infertility should:

1. Understand and express empathy regarding the concerns of women diagnosed with infertility by reflecting on their emotions.
2. Devote time and practice active listening skills when providing care to women while avoiding judgemental statements.
3. Nod or use other encouraging gestures or sounds like, 'I see', 'okay', 'it's well', and so forth, so that the feeling that someone is listening to them stays in their subconscious and reenergizes their hope.
4. Establish an effective therapeutic relationship by actively listening and paying attention to the healthcare needs of women diagnosed with infertility and expressing understanding of whatever they are experiencing.

5. Establish rapport with women suffering from infertility by availing themselves, 'being there' and showing respect.
6. Demonstrate care, attention and interest by maintaining eye contact while encouraging women to express their concerns and feelings without interrupting them.
7. Acknowledge how unique each one of them is and treat them as individuals.
8. Offer psychosocial support, for example, follow-ups through home visits and telephonic contact.
9. Ensure less waiting time at the clinic and provide care in a timely and accurate manner.
10. Encourage involvement of the women's partners throughout the management process by making them aware how important their support is, and that support improves the chances of a positive outcome.
11. Pay attention to all the holistic healthcare needs of the women.

6.4.2.4 Step 4: Stakeholders' involvement as a panel of experts

AGREE II (Brouwers *et al.*, 2017: 5-7) described this step as focusing on the extent to which the guideline was developed by the appropriate stakeholders and represents the views of its intended users. The guideline development group should include individuals from all the relevant professional groups. The refinement of the preliminary guidelines drafted by the researcher was done using the e-Delphi technique. Hasson & Keeney (2011: 1695) recommended 10-18 experts for the Delphi panel.

In this study, the expert panel consisted of participants from various disciplines. The experts were purposively sampled based on their expertise. The researcher invited 45 participants who met the inclusion criteria listed in Section 3.5.5.4. A total of 20 expert participants, both local and international, participated in the e-Delphi process. The experts included gynaecologists, midwives, a psychologist and academia well versed in the field of infertility, research, guideline development and refinement. A maximum of two weeks was allowed for each expert for the refinement of the developed guidelines. Table 6.3 gives a summary of the descriptive information of the e-Delphi expert panel.

Table 6.3 Descriptive information of the e-Delphi expert panel

No.	Professional qualification	Occupation	Employer	Experience in the field of infertility, gynaecology, midwifery, psychology, academia, policy and guideline development
1.	PhD Nursing; Master's in Advanced Psychiatric Nursing Science; Bachelor of Nursing; Diploma in Nursing, Psychiatry, Community and Midwifery	Lecturer	Gauteng Health Department; SG Lourens Nursing College	Head of Department: Midwifery
2.	Master's in Nursing; Bachelor of Nursing; Diploma in Nursing; Postgraduate Diploma in Education	Lecturer	Bingham University, Karu, Nasarawa State, Nigeria	Clinical practice in ante-natal clinics, delivery suite, obstetrics and gynaecology units, and family planning unit
3.	MPhil. in Nursing; Bachelor's in Nursing; Diploma in Nursing; Postgraduate Diploma in Education	Lecturer	Ministry of Health, Ghana	Academic researcher
4.	PhD candidate; Master's in Advanced Midwifery and Neonatology; Bachelor's in Nursing & Midwifery; Postgraduate Diploma in Education	Lecturer	University of the Free State, South Africa	Clinical midwife in low risk care, high risk obstetric unit; lectures undergraduate, post graduate and post basic midwifery programmes
5.	MPhil in Nursing; Master's in Nursing; Bachelor's in Nursing; Diploma in Nursing	Nurse/ Lecturer	Ghana Health Service	Nurse; academic researcher
6.	Trainee in the Obstetrics and Gynaecology Oncology	Obstetrician & Gynaecologist	Obstetrician and Gynaecologist, Indonesia	Obstetrician and Gynaecologist
7.	Master's in Midwifery; Bachelor's in Nursing; Diploma in Midwifery	Midwife	Ministry of Health, Ghana	Midwife
8.	Bachelor's in Nursing; Diploma in Midwifery	Midwife	Ghana Health Service, Ghana	Midwife
9.	PhD Nursing; Master's in Nursing; Diploma in Nursing, Midwifery; Public Health Nurse	Lecturer	University of Health and Allied Sciences, Ghana	Worked in the maternity and gynaecology units; academic researcher in the area of female infertility; supervise students' research work at both undergraduate and graduate levels
10.	Master's in Nursing; Bachelor's in Nursing; Certificate in Nursing & Midwifery	Nurse/Midwife	Ghana Health Service, Ghana	Nurse/Midwife

No.	Professional qualification	Occupation	Employer	Experience in the field of infertility, gynaecology, midwifery, psychology, academia, policy and guideline development
11.	Trainee in the Obstetrics and Gynaecology Oncology	Obstetrician & Gynaecologist	Cilegon Hospital, Banten, Indonesia	Obstetrician and Gynaecologist
12.	Trainee in the Obstetrics and Gynaecology	Gynaecologist	Gatot Soebroto Army Hospital, Jakarta, Indonesia	Gynaecologist
13.	MBChB; BSc	Medical Officer/ Gynaecologist	Ghana Health Service, Ghana	Works at the department of obstetrics and gynaecology
14.	PhD Candidate; MPhil. in Nursing; BSc.in Nursing; Diploma in Nursing	Lecturer	University for Development Studies, Ghana	Academic researcher in infertility
15.	PhD in Psychology; MPhil. in Psychology; BSc. in Psychology	Lecturer	Knustford University, Ghana	Academic researcher
16.	Trainee in the Obstetrics and Gynaecology	Gynaecologist	Cilegon Hospital, Banten, Indonesia	Gynaecologist
17.	MPhil in Nursing; BSc.in Nursing; Diploma in Education; Certificate in Midwifery & Nursing	Lecturer	Ministry of Health, Ghana	Academic researcher in infertility; worked in nursing and midwifery for 14 years; taught midwifery for 13 years; counsels individuals with infertility
18.	MPhil in Nursing	Midwife/ Lecturer	Ministry of Health, Ghana	Academic researcher
19.	M Phil Nursing	Nursing/ Midwife	Ghana Health Service, Ghana	Midwife; researcher in maternal and child health
20.	PhD candidate; MPhil. in Nursing; MPH.; BSc in Nursing; Diploma in Nursing	Lecturer	University of Ghana	Academic researcher

6.4.2.5 Step 5: Refinement of draft guidelines using e-Delphi technique

The Delphi technique is a method for obtaining judgements and views from an expert panel about a topic of interest with the agenda of seeking an agreement or consensus on the issue without direct confrontation. The Delphi technique also uses a multistage self-completed open-ended questionnaire with individual feedback to determine consensus from a large group of experts (Polit & Beck, 2017: 725-726; Mcmillan *et al.*, 2016: 655).

Data collection was done in subsequent rounds until consensus was reached. The e-Delphi experts in each round were expected to read through the developed guidelines, rate it, and write suggestions and comments on what they think should be change or be added to the guidelines.

Participants remained anonymous from each other, and the feedback was facilitated by the researcher as recommended by (Okoli & Pawlowski, 2004: 19;20). After the researcher analysed the data in each round, the guidelines were adapted and re-sent to the same experts for feedback about the findings. The feedback process allowed and encouraged the e-Delphi members to reassess their initial judgements.

In order to ensure an outlined rigorous process, the researcher adapted some components of AGREE II (Brouwers *et al.*, 2017: 1-2) to advance the guideline development, reporting and evaluation. The aspects of the instrument that was adapted by the researcher was in accordance to the study's objectives and methodology. The adapted framework for the guideline development and validation are described in the next section.

6.4.2.6 Step 6: e-Delphi round 1

Out of the 45 potential participants who met the inclusion criteria and were contacted via email to ascertain their willingness to participate in the refinement of the guidelines, 20 expert participants responded to the email. During round 1, the 20 experts who were willing to participate were each emailed a cover letter (Annexure L) outlining the title of the study, objectives of the study, summary of the findings in Phase I and II, deadlines, conditions of participation and an informed consent letter (Annexure C). The data collection instrument consisted of two sections: The first section was the biographic information of the expert participants (Annexure M), and the second section was the seven draft guidelines and their actions, outlining the set criteria for rating the guidelines (Annexure N). The expert participants were given two weeks to refine the draft guidelines. They rated the guidelines in line with the attributes of quality guidelines using a 4-point Likert scale to measure whether they 'strongly disagree', 'disagree', 'agree' or 'strongly agree' and they provided comments to improve the guidelines. The expert participants were also asked to sign and scan the informed consent letter and email it back to the researcher with the completed questionnaire. The 20 expert participants' descriptive information of their professional and academic experience enabled the researcher to describe the sample.

Responses from the expert participants were screened, analysed and collated by the researcher. The score for each guideline rated according to the 4-point Likert scale were collated and presented in Table 7.2. A qualitative analysis of the various inputs and comments by the expert participants was done and themes identified (Table 7.4). Additionally, general comments were

also grouped into themes that logically belonged together and the researcher effected the changes to the guidelines accordingly (Section 7.5.7).

6.4.2.7 Step 7: Modification of the guidelines based on the responses from the panel of experts in round 1.

In this step, the researcher analysed the ratings as well as the comments made by the expert participants in round 1 of the refinement stage. The researcher made the necessary modifications to the seven guidelines as recommended by the participants and calculated the consensus rate. An overall consensus rate of 85% was obtained in round 1. According to AGREE II (Brouwers *et al.*, 2017: 10), high quality guidelines have scores of >70%. Refer to Section 3.5.5.9, for the formula used to calculate the consensus rate. The consensus rates of e-Delphi round 1 is presented in Table 7.3. Although it was an acceptable consensus rate, the researcher decided to send out the adapted guidelines to the experts' participants again so that they could see the changes made and add final comments if they wished to.

6.4.2.8 Step 8: e-Delphi round 2

Despite attaining an acceptable consensus rate in round 1, the guidelines were emailed to the expert participants after the necessary modifications were implemented for their final comments, as they deemed necessary. A cover letter (Annexure P) outlined the summary of the findings of round 1 and the deadline for round 2. The expert participants were given two weeks to review the guidelines and make comments if they wished to. This also gave the expert participants the opportunity to observe how their opinions differed from others'.

6.4.2.9 Step 9: Modification of the guidelines by the researcher based on the responses from the panel of experts in round 2

Out of the 20 expert participants who were emailed the findings of round 1 for their final comments and approval, 18 expert participants approved the refined guidelines. One participant corrected a grammatical error. The other two expert participants did not send their final comments despite constant reminders. The grammatical errors were corrected, and the refined guidelines are presented in Section 7.5.7.

6.4.2.10 Step 10: Overall data analysis by the researcher

The researcher reviewed the guidelines and ensured that all the data were analysed, and the guidelines modified in line with the comments made by the expert participants. The seven refined guidelines and its specific actions to facilitate the actualization of the guidelines are presented in Section 7.5.7.

6.5 SUMMARY

This chapter focused on the development of draft guidelines for holistic healthcare interventions for women diagnosed with infertility in Ghana. The guiding attributes in the development and refinement were explained. The structure and content of AGREE II (Brouwers *et al.,* 2017), the steps in guideline development as well as the e-Delphi technique that guided the refinement of the guidelines were presented.

The final chapter will present the conclusion of the findings, refinement and description of the guidelines with recommendations, limitations, implications and conclusions.

CHAPTER 7

CONCLUSION OF THE FINDINGS, REFINEMENT AND DESCRIPTION OF THE GUIDELINES WITH RECOMMENDATIONS, LIMITATIONS, STRENGTHS, IMPLICATIONS AND CONCLUSIONS

7.1 INTRODUCTION

In Chapter 1, the concept of infertility, the background and rationale to the problem, the problem statement, the significance of the study, the research questions and objectives, and a brief paradigmatic perspective of the study were presented. A definition of concepts, a brief overview of the research methodology, ethical considerations guiding the study, and the outline of the study were also introduced in Chapter 1. Chapter 2 presented an overview of infertility, holistic healthcare interventions, the theoretical framework, and a systematic literature review to evaluate existing evidence of holistic healthcare interventions. The paradigmatic perspective and the methodology of this study were dealt with in Chapter 3. In Chapter 4, the findings of Phase II (FGDs) were addressed. Chapter 4 presented an in-depth literature synthesis of the findings integrated with the applicable theory. Chapter 5 focused on the development of draft guidelines with stakeholders (NGT). Chapter 6 dealt with the development of guidelines and also discussed Phase III, the refinement of guidelines for holistic healthcare interventions for women diagnosed with infertility in Ghana.

This chapter will entail the conclusion of the findings, the refinement and description of the guidelines with recommendations, and the limitations, implications and conclusions.

7.2 REVIEW AND SUMMARY OF MAIN FINDINGS

Phase I of this study systematically reviewed the literature on holistic healthcare interventions for women diagnosed with infertility in addition to the biomedical mode of management to ensure holistic care (Annexure O). Phase II was conducted in two stages: Stage I explored and described the healthcare needs of women diagnosed with infertility, and Stage II focused on developing draft guidelines for holistic healthcare interventions for women diagnosed with infertility, emphasizing healthcare interventions. A summary of the findings of each stage is presented in this section.

7.2.1 Phase II: Stage I: Healthcare needs of women diagnosed with infertility

The healthcare needs of women diagnosed with infertility is summarised as follows:

7.2.1.1 Medical health assessment needs

Women diagnosed with infertility expressed the need for a comprehensive healthcare assessment. They reported that when they visited the clinic, they expected to be physically examined by their healthcare providers (nurses, midwives and doctors) or to be given a thorough check-up before starting the treatment. They lamented that the health assessment aspect was lacking in their care, as they were only provided with a prescription for drugs during follow-up visits. They added that they have lost hope in this traditional management approach since it has not had any positive results after years of being managed in this way. Some women confessed that they have stopped taking the drugs or used the drugs inconsistently. They added that the healthcare providers must at least examine and interview them since they sometimes have other healthcare needs.

7.2.1.2 Psychological needs

The participants indicated that they experienced anxiety, depression and diminished desire for sex. In order to relief the emotional pain they experienced, participants expressed a need for counselling and peer mentoring to be part of their management. They further indicated that the encouraging and the soothing words they received from their partners, family members and significant others go a long way in giving them relief.

7.2.1.3 Educational needs

Educational needs are vital for women diagnosed with infertility. They expressed how unhappy they were about the inadequate information provided on the nature of their conditions, different treatment options and the side effects of treatments. They expressed the need for adequate information on the causes and prevention of infertility, available treatments options, and side effects of the drugs that are prescribed for them.

7.2.1.4 Spiritual needs

The findings of the study emphasized that spiritual needs are fundamental to women diagnosed with infertility and this need was expressed differently by each individual based on their believe system. For instance, Christian participants expressed how they were more committed to their faith in God and the Moslem participants expressed how they were sure Allah would intervene in their situation. Despite their unique ways of expressing their believe in the Supreme Being, they were all hopeful that when this aspect of their need is inculcated in their management protocols, they would attain optimal health and that it would enhance their chances of conceiving since the Supreme Being is capable of doing everything.

7.2.1.5 Social needs

Social needs are vital to women diagnosed with infertility since social support comforts them and provides relief. Some of the women related that significant others supported them through encouragement, assurance and informal counselling. They also expressed the urgency of integrating social support into their management.

7.2.1.6 Financial needs

The participants explained that the expenses of infertility diagnosis, investigations (both invasive and non-invasive procedures), treatments options and interventions are above their income bracket. Unfortunately, the National Health Insurance Scheme in Ghana does not cover all these expenses, especially the costly treatment and investigations. Some women explained how they have had to take on so much debt that their businesses collapsed. Others confessed how they eventually sold their properties just to try and get a cure for their predicament. Some women attributed the enormous expenses to be the number one cause for delaying starting or discontinuing treatment. Because of these financial challenges, participants requested support from both government and nongovernmental organizations.

7.2.2 Healthcare expectations of women diagnosed with infertility

Below is a summary of the healthcare expectations of women diagnosed with infertility from the healthcare system and professionals.

7.2.2.1 Expectations of the healthcare system

Expectations from healthcare system, according to women diagnosed with infertility, include structures to be put in place to meet their healthcare needs. The women will experience less stress when their healthcare expectations and needs are met. Healthcare expectations that need to be in place include less waiting time at the clinic; follow-up by the healthcare providers; a devoted clinic day for infertility care to ensure privacy; management by a specific doctor to ensure continuity of care; and involvement of partners in the management.

7.2.2.2 Expectations of healthcare professionals

Women diagnosed with infertility wished to have therapeutic and supportive relationships with their healthcare providers. They also expressed the need for understanding and paying attention to their holistic healthcare needs.

7.2.3 Phase II: Stage II: Healthcare interventions to meet the holistic healthcare needs of women diagnosed with infertility

The stakeholders of the NGT were of the view that various healthcare interventions must be incorporated into the care of women diagnosed with infertility to ensure holistic care. These are summarised in the following sections.

7.2.3.1 Medical interventions

Stakeholders recommended that a comprehensive medical assessment should include collection and documentation of both subjective and objective data; proper physical examination and recording of findings; checking of patients vital signs and recording any abnormalities; proper diagnostic tests requested to rule out diagnostic doubts; prescribing and administrating the appropriate medication; and finally, ensuring a proper referral system.

7.2.3.2 Psychological interventions

This aspect of intervention, according to the stakeholders, must aim to provide support for the impact of infertility and fertility treatment on individuals' mental health. The psychological interventions should include individual and group counselling as well as the initiation of peer mentoring.

7.2.3.3 Educational interventions

Educational interventions were also viewed as important and must therefore be incorporated in the guidelines for holistic healthcare interventions for women diagnosed with infertility. Educational interventions according to the stakeholders must include components like; creating awareness of infertility treatment options, education on causes and prevention of infertility so that women diagnosed with infertility are informed about the various treatment options.

7.2.3.4 Spiritual interventions

The stakeholders revealed that spiritual wellbeing is seen as a source of happiness. They therefore indicated that incorporating spirituality into the healthcare of women diagnosed with infertility will facilitate the healing process. Spiritual interventions have an influence on mental and physical wellbeing; and therefore, they recommended incorporating spiritual intervention in the management protocols of women diagnosed with infertility.

7.2.3.5 Social interventions

Social interventions help alleviate the social stressors women diagnosed with infertility encounter. The stakeholders were of the view that women diagnosed with infertility experience social problems and distressing situations in their lives; therefore, they need to be encouraged, supported and cared for. They added that this could include support from the family or partner, as well as support from healthcare providers themselves through follow-up and the creation of a therapeutic environment.

7.2.3.6 Financial interventions

Stakeholders indicated that financial interventions should not be left unattended when developing guidelines for holistic healthcare interventions for women diagnosed with infertility. They expressed the need for support from both government and nongovernmental agencies to help alleviate the financial stress encountered by women diagnosed with infertility.

7.3 DEVELOPMENT OF GUIDELINES

The development of the draft guidelines was based on the BPSS model by Dossey (1997: 4), the findings of the systematic literature review in Phase I, and the empirical data retrieved from the

women and stakeholders in Phase II. The guidelines were developed by the researcher in accordance with the guiding attributes in the guideline development process (Section 6.3) and the guideline development and refinement steps based on AGREE II (Brouwers *et al.,* 2017: 7). The e-Delphi technique was incorporated in the refinement of the guidelines to ensure that the guidelines were valid and reliable.

7.4 REFINEMENT OF GUIDELINES

The developed guidelines, rationale and actions were outlined in Chapter 6. The guidelines were refined by the Delphi expert participants in accordance with the criteria of scope of the guidelines, purpose of the guidelines, reliability, validity, clarity, and applicability. The criteria were developed from the guiding attributes for guideline development, reporting and evaluation based on AGREE II instrument (Brouwers *et al.,* 2017: 7).

The attributes were constructed into a checklist for the purposes of rating the guidelines. The expert participants who participated in the refinement of the guidelines were both local and international experts in government and nongovernment organizations in the field of infertility, policy and guideline development, researchers in academia, a psychologist, midwives and gynaecologists. This was to ensure that the expert participants possessed the skills and knowledge to enhance the rigour of the guidelines. The guidelines represent the views of its intended users. A 4-point Likert scale was used to rate the guidelines.

Of the 45 expert participants who were asked to participate in the refinement of the guidelines, 20 accepted the invitation. The descriptive information of the expert participants is provided in Table 6.3. The 20 expert participants rated the guidelines and provided comments and recommendations to improve the quality of the guidelines. Table 7.1 outlines the criteria and the 4-point Likert scale. Table 7.2 outlines the expert participants' ratings for each criterion of the seven draft guidelines in round 1, and Table 7.3 outlined the consensus rates for round 1.

Table 7.1 Criteria and 4-point rating scale for refinement of draft guidelines

CRITERIA	RATING SCALE			
	Strongly Disagree	**Disagree**	**Agree**	**Strongly Agree**
	1	**2**	**3**	**4**
Purpose The purpose of the guidelines is to provide holistic healthcare interventions for women diagnosed with infertility.				
Scope The guidelines were developed for healthcare providers, including professional nurses, midwives, gynaecologists and healthcare managers, involved in the care of women diagnosed with infertility.				
Stakeholders' involvement FGDs was held with women diagnosed with infertility. A NGT was held with healthcare providers (professional nurses, midwives, a gynaecologist and healthcare managers) managing women diagnosed with infertility and non-healthcare providers (assembly man, opinion leaders and a clergy) who are influential in matters of health. Delphi experts in the area of infertility and policy and guidelines development, such as academic researchers, gynaecologists, midwives and psychologists, refined the guidelines.				
Reliability The guidelines will produce the desired results if implemented.				
Validity The guidelines will guide healthcare providers managing women with infertility to provide holistic healthcare interventions for women diagnosed with infertility.				
Clarity The guidelines are clear, easily understandable, unambiguous and logical.				
Applicability The target population is clearly stated: Healthcare providers managing women diagnosed with infertility.				

Adapted from AGREE II (Brouwers *et al.*, 2017: 1-2)

Table 7.2 Rating of the guidelines in Delphi round 1 (20 expert participants)

	Scope of the guidelines				Purpose of the guidelines				Stakeholders' involvement				Reliability				Validity				Clarity				Applicability			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Guideline 1			7	13			9	11			9	11			6	14			10	10			9	11			7	13
Guideline 2			7	13			11	9			8	12			8	12			6	14			7	13		1	3	16
Guideline 3			6	14			10	10			8	12			7	13		1	6	13			6	14		1	7	12
Guideline 4			10	10			8	12			9	11	1		8	11		1	11	8	1		9	10	1	1	8	10
Guideline 5		1	5	14		1	11	9			9	11		1	5	14		1	6	13		1	5	14		1	5	14
Guideline 6			7	13			10	10			8	12		2	8	10		2	6	12		1	7	12		1	5	14
Guideline 7		1	6	13		1	9	11			11	9		1	9	10		1	7	12		1	4	15		1	7	12
Total Score		**2**	**48**	**90**		**2**	**68**	**72**			**62**	**78**	**1**	**4**	**51**	**94**		**6**	**52**	**82**	**1**	**3**	**47**	**89**	**1**	**6**	**42**	**91**

Table 7.3 Consensus rates of Delphi round 1 (20 expert participants)

	Scope of the guidelines				Purpose of the guidelines				Stakeholders' involvement				Reliability				Validity				Clarity				Applicability			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Guideline 1			21	52			27	44			27	44			18	56			30	40			27	44			21	52
Guideline 2			21	52			33	36			24	48			24	42			18	56			21	52		2	9	64
Guideline 3			18	56			30	40			24	48			21	52		2	18	52			18	56		2	21	48
Guideline 4			30	40			24	48			27	44	1		24	44		2	33	32	1		27	40	1	2	24	40
Guideline 5		2	15	56		2	33	36			27	44		1	15	56		2	18	52		2	15	56		2	15	56
Guideline 6			21	52			30	40			24	48		4	24	40		4	18	48		2	21	48		2	15	56
Guideline 7		2	18	52		2	27	44			33	36		1	27	40		1	21	48		2	12	60		2	21	48
Total		**4**	**144**	**360**		**4**	**204**	**288**			**186**	**312**	**1**	**6**	**153**	**330**		**11**	**156**	**328**	**1**	**6**	**141**	**356**	**1**	**12**	**126**	**364**
Total			**508**				**496**				**498**				**490**				**495**				**504**			**503**		
Consensus Rate			**88%**				**85%**				**85%**				**83%**				**85%**				**87%**			**86%**		

Table 7.4 outlines the summary of themes from round 1 of the e-Delphi technique.

Table 7.4 Summary of themes from e-Delphi round 1

	THEMES
GUIDELINE 1	No recommendation.
GUIDELINE 2	Include partners of women diagnosed with infertility in the psychological care.
GUIDELINE 3	Include partners of women diagnosed with infertility in every health education session. Include reading material (e.g. pamphlets) for those who can read so that they can learn about various treatment options.
GUIDELINE 4	Include other religious backgrounds as well. Involve families when giving spiritual support and guidance since infertility is a major family concern.
GUIDELINE 5	No recommendation.
GUIDELINE 6	Include nongovernmental organizations (NGO's,) specifically those in charge of women's health, in financial assistance.
GUIDELINE 7	Involve partners of women diagnosed with infertility in the therapeutic relationship.
GENERAL COMMENTS	**Consistency of Terminology** • Use one concept, either problems or needs, preferably needs. • Use terminology consistently, woman vs patient. Choose women or couple seeking care for fertility. **Therapeutic Relationship** • Add that healthcare providers managing women diagnosed with infertility should be able to recognise the cultural beliefs or practices and treat each woman as a unique individual. • Respect the women's choice of support. • Avail yourself to the women by 'being there' and making time to listen to the women's concerns. **Accessibility of Healthcare Services** • Acknowledge that women diagnosed with infertility may sometimes require assistance with particular support or service that the healthcare provider is unable to deliver. Firstly, assess the availability and accessibility of that support or services. **Involvement of Partners** • Involve the partners in the health education session. • Male partners should be involved in the care, even though it is the women that suffer most. **Spiritual Interventions**

	• Women may have diverse religious affiliations; hence this must be putting into consideration anytime there is the need to render such intervention. **Financial Interventions** • Getting financial support will really relieve women diagnosed with infertility from lots of financial burdens since the cost involved in the management of infertility is overwhelming. **Positive Comments** • Psychological interventions are fundamental as far as issues of infertility is concerned. The psychological interventions provided could help reduce the psychological burden of infertility since the mindset of the woman is key to positive outcomes in management. • The aspect of health education as stated by the researcher is important; when it will be implemented by women diagnosed with infertility, it will allow them take charge of whatever they are going through, whereas they will become responsible and independent. • The guideline on social intervention is vital as well. • The research is a good course and when all the interventions are implemented alongside the traditional approach of management, women diagnosed with infertility are likely to receive optimal health. This will increase their chances of conceiving. • The scope, purpose and stakeholders that are involved are appropriate. • The guideline is appropriate in addition to the actions. • Great guideline but its implementation will need lots of collaboration. Bring on board reps of users for their input and buying in. • The study will be highly useful in addressing gaps in the holistic management of women diagnosed with infertility in the country (Ghana). • The guidelines are realistic, achievable and will help with the management of women diagnosed with infertility.

7.5 DESCRIPTION OF THE FINAL GUIDELINES

The seven guidelines were reformulated by the researcher based on the comments and recommendations outlined by the expert participants during the Delphi rounds. This section gives a descriptive overview of the final guidelines.

7.5.1 Name of guidelines

“DEVELOPMENT OF GUIDELINES FOR HOLISTIC HEALTHCARE INTERVENTIONS FOR WOMEN DIAGNOSED WITH INFERTILITY IN GHANA”

7.5.2 Purpose of the guidelines

The purpose of the guidelines is to ensure holistic healthcare interventions for women diagnosed with infertility.

7.5.3 Scope of the guidelines

The guidelines were developed for healthcare providers including professional nurses, midwives, gynaecologists and healthcare managers involved in the care of women diagnosed with infertility.

7.5.4 Development of the guidelines

The guidelines were developed using data retrieved from women diagnosed with infertility during FGDs about their healthcare needs. Their healthcare needs guided and provided the rationale for the development of the healthcare interventions during an NGT with healthcare providers. The data was supported with a systematic literature review in relation to holistic healthcare interventions. The developed guidelines can serve as a protocol and provide direction in the rendering of holistic care for women diagnosed with infertility.

7.5.5 Methodology

The research design and method used to describe the healthcare needs of women diagnosed with infertility as well as the interventions that should be included in the holistic healthcare interventions for managing women diagnosed with infertility was outlined in Chapter 3. Chapter 6 gave an overview of the methodology for the development of the guidelines. The development of the guidelines was based on the BPSS model, findings of the systematic literature review in Phase I, and the empirical data retrieved from both the FGDs with the women and the NGT with stakeholder participants in Phase II, Stage I and Stage II respectively. In Phase III of the study, the structure and content of AGREE II (Brouwers *et al.,* 2017: 1) as well as the Delphi technique guided the refinement of guidelines. The refined guidelines and its actions with suggested recommendations from the perspectives of the expert participants are presented in Section 7.5.7 in different font colour.

7.5.6 Guideline refinement group

The method used to select the members of the guideline refinement group and descriptive information of the Delphi panel of experts who were involved in the refinement of the guidelines are provided in Table. 6.3.

7.5.7 Refinement of guidelines

Based on the seven developed guidelines with its rationale and specific actions outlined in Section 6.4.2.3, the experts participants refined the guidelines to meet its purpose. Below are the refined guidelines and its actions with suggested changes in a different font colour.

Guideline 1: Healthcare providers involved in the care of ~~managing~~ women diagnosed with infertility should conduct a holistic healthcare assessment ~~in order~~ to identify women's health support needs

- **Actions**

1. Ask critical questions ~~(subjective data)~~ and probe well into answers ~~they~~ received to ensure all vital information is obtained ~~(objective data)~~ and correctly documented.
2. Conduct a comprehensive ~~head-to-toe~~ physical examination on women diagnosed with infertility to detect their physical health ~~problems or~~ needs and manage that as well.
3. Ensure appropriate investigations are requested, done and results obtained before the commencement of treatment.

~~4. Vital signs should be monitored during every visit.~~

Guideline 2: Healthcare providers involved in the care of ~~managing~~ women diagnosed with infertility should incorporate psychological interventions in the management protocols

- **Actions**

1. Healthcare providers involved in the care of ~~managing~~ women diagnosed with infertility should render psychological interventions. This includes psychological counselling, peer mentoring, cognitive behavioural therapy, acceptance commitment therapy, body-mind intervention and emotionally focused interventions.
2. Involve the partners and families when giving psychological care to women diagnosed with infertility.

Guideline 3: Healthcare providers involved in the care of ~~managing~~ women diagnosed with infertility should provide health education as one of the strategies available to

disseminate information about causes, prevention, various treatment options and side effects

- **Actions**

1. Establish rapport to ensure the woman feels calm and relaxed. Seek her prior knowledge of her condition before giving any information to determine her individual needs.
2. Use language that is well understood, and refrain from using medical terms or jargon.
3. Provide information in bits ~~small amounts~~ by first assessing the women's readiness to learn and level of understanding and the use patient's response as a guide to teach appropriately. For example, educate the woman on the causes, risk factors, various treatment modalities while guiding her towards making an informed choice, and finally, offering information regarding preventive measures.
4. Advise appropriately on behavioural lifestyle that might alter or hinder the chances of getting pregnant, for example, avoiding smoking, alcohol consumption, losing weight and so forth.
5. Use verbal, written, pictorial or visual aids, models and diagrams that can be easily understood to convey information to women diagnosed with infertility based on their health education needs.
6. Ensure women diagnosed with infertility are well informed about everything they should know as far as their condition is concerned. Enquire what other information they need or needed more emphasis.
7. Make time to explore the health support needs of women diagnosed with infertility, give feedback and respond appropriately.
8. Ensure the education was well understood by asking questions and providing them the opportunity to summarise all that have been discussed.
9. Encourage women diagnosed with infertility to implement what they have been taught during health education so that they can ~~in order~~ take charge of what they are going through and become responsible and independent.
10. Evaluate women by asking for feedback. Elicit responses, reactions, comments as well as their emotional state concerning information given to ensure the education was well understood.

11. Involve the partners of women in the health education session so they can understand what their wives are going through and can give them the necessary support.
12. Provide reading materials (e.g. pamphlets) for those who can read so that they are informed of the various treatment options.

Guideline 4: Healthcare providers involved in the care of ~~managing~~ women diagnosed with infertility should acknowledge their spiritual needs and ensure the provision of spiritual support

- **Actions**

1. Spirituality is unique to the individual and the woman's believe systems should be respected without judgement.
2. Encourage spiritual empowerment. ~~by allowing early morning devotions at the outpatient department.~~
3. Involve reverend ministers, clergies or pastors in the care of women diagnosed with infertility to offer the needed spiritual support to those women who might need it.
4. Respond appropriately to give the women hope, meaning and purpose in life, and ensure their spiritual needs are addressed.
5. Address issues related to spiritual needs and suffering by ensuring appropriate coping strategies are put in place to improve the quality of life of these women.
6. Ask questions regarding spiritual needs and offer the needed support.
7. Assist women diagnosed with infertility to re-evaluate their life goals, focus on personal fulfilment and think about a healthy daily routine.
8. Involve partners and families when giving spiritual support and guidance since infertility is a major family concern.

Guideline 5: Healthcare providers involved in the care of ~~managing~~ women diagnosed with infertility should ensure relevant support from significant others

- **Actions**

1. Encourage the involvement of partners throughout the treatment processes.
2. Encourage couple and family support therapy. ~~when the need arises.~~

3. Encourage the support of close family relations, for example, the involvement of a mother or a sister based on the consent of the woman.
4. Encourage the involvement of partners and significant others to improve the dynamics of the family unit.
5. Offer additional psychosocial support to overcome relational and social distress.
6. Respect the women's choice of support.
7. Acknowledge that women diagnosed with infertility may sometimes require assistance with a particular support or services that the healthcare provider is unable to deliver. First, assess the availability and accessibility of that support or services.

Guideline 6: Healthcare providers involved in the care of ~~managing~~ women diagnosed with infertility need to encourage ~~them~~ the women to have their health insured and lobby for financial support from government and nongovernmental organizations

- **Actions**

1. Encourage women to enrol in the health insurance scheme.
2. Ensure reproductive healthcare is accessible, affordable and timely to meet the needs of these women.
3. Lobby for financial support from both government and nongovernmental organizations.
4. Identify the availability of other support groups and services that could offer financial support to women diagnosed with infertility.
5. Collaborate with private agencies and philanthropists to mobilize resources or support systems that will enable these women to get relief from the financial stress.
6. Include other nongovernmental organizations specifically in charge of women's health for financial assistance.

Guideline 7: Healthcare providers involved in the care of ~~managing~~ women diagnosed with infertility should create a therapeutic relationship ~~and~~ with the women and their partners ~~and~~ in a therapeutic environment ~~in order~~ to meet their healthcare needs

- **Actions**

1. Empathise with women diagnosed with infertility by reflecting on their emotions.
2. Provide adequate time for consultations. Avoid judgemental statements.

3. Ensure privacy and confidentiality when taking care of women diagnosed with infertility.
4. Nod or use other encouraging gestures or sounds such as 'I see', 'okay', 'it's well' to reflect effective communication.
5. Listen attentively when women express their challenges.
6. Establish rapport with infertile women by showing respect.
7. Maintain eye contact throughout the consultation.
8. Acknowledge their uniqueness and individuality.
9. Offer additional psychosocial support, for example, home visits and telephonic contact to follow-up.
10. Recognise cultural beliefs or practices and treat each woman as a unique individual.
11. ~~Ensure less waiting time at the clinic and~~. Provide care in a timely and accurate manner.
12. Encourage involvement of the women's partners throughout the management process by making them aware of how important their support is and that their support improves the chances of a positive outcome.
13. Address all holistic healthcare needs of women.
14. Avail yourself to the women by 'being there' and making time to listen to their concerns.

7.6 RECOMMENDATIONS

The researcher made the following recommendations for the healthcare delivery system, nursing education, nursing practice and future research.

7.6.1 Healthcare delivery system

Healthcare providers involved in the management of women diagnosed with infertility should:

- Build therapeutic relationships with these women using rapport, respect, empathy and effective communication skills.
- Be emotionally supportive and present for these women to provide them with the needed emotional counselling and support.
- Involve the partners of women diagnosed with infertility in the assessment and management process.
- Recognise their spiritual and cultural beliefs or practices and treat each woman as a unique individual.
- Ensure the provision of holistic BPSS assessment and care.

- Provide for the psychological, social and spiritual needs, as well as any other applicable needs, of women diagnosed with infertility.
- Ensure counselling before, during and after treatment to help women cope with their psychosocial experiences.
- Ensure referral options and resources are in place to refer women to the appropriate professionals for further psychological and spiritual management.
- Provide continuous health education to sensitize women diagnosed with infertility about their potential healthcare needs and empower them on how to manage or cope with the stressors they encounter.
- Ensure that a patient friendly ambience and atmosphere is created at the unit to make women diagnosed with infertility feel more relaxed and comfortable.
- Advocate for women diagnosed with infertility by addressing long waiting times and requesting a dedicated time, space and inter-disciplinary healthcare team to care for them.
- Advocate for financial assistance for infertility care and treatment.
- Advocate for family and couples therapeutic interventions.
- Advocate for peer group support.

7.6.2 Nursing education

- Healthcare providers involved in the management of women diagnosed with infertility must be continually informed about the causes, various treatments modalities and the preventive measures of infertility so that they can provide these women with the detailed information they desire to know about their condition.
- Healthcare providers involved in the management of women diagnosed with infertility must be educated and well informed on the essence of giving holistic care to women.
- Continuous workshops and in-service training on customer care and client-centred interventions should be presented for healthcare providers managing women diagnosed with infertility.
- Healthcare providers who are more experienced can provide supervision and guidance to less experienced healthcare providers.
- The curriculum and syllabus of healthcare professionals should be upgraded to reflect the changing needs of women with infertility.

- The need for therapeutic interpersonal relationships, interpersonal communication, counselling, and ethics on the morals of healthcare providers should be incorporated in the curriculum to improve knowledge and skills.

7.6.3 Nursing practice

Fertility treatment entails a long journey, often associated with disappointment. Women diagnosed with infertility want to be treated holistically. This implies that healthcare providers managing women diagnosed with infertility must adhere to the following:

- Provide holistic care and not only paying attention to the medical management approach.
- Provide BPSS support to address all the challenges women diagnosed with infertility might encounter.
- Strive towards attainment of optimal well-being for women and couples diagnosed with infertility.
- Assess and manage women diagnosed with infertility from a holistic perspective; this will help them to cope better, and their chances of getting pregnant will increase.
- Implement, test and refine the proposed guidelines developed in the study.

7.6.4 Research

Based on the findings of the study, the following recommendations are made for future research topics:

- The implementation of holistic healthcare interventions and its effect on women diagnosed with infertility.
- The views of healthcare providers on holistic healthcare interventions in the management of women diagnosed with infertility.
- An assessment of the views of healthcare providers involved in the management of women diagnosed with infertility regarding the implementation of the guidelines.
- Quantitative research to determine the healthcare needs of women diagnosed with infertility in different healthcare settings and populations.
- Research that includes the partners of women diagnosed with infertility to determine their needs, experiences and opinions.

7.7 LIMITATIONS AND STRENGTHS OF THE STUDY

This study had a number of limitations. Because of the qualitative nature of the study, the purposeful sample in this study was limited, hence the findings are limited to the setting involved. The data from the FGDs were gathered from 20 women diagnosed with infertility, and the data from the NGT were gathered from 12 stakeholders. Both sample sizes do not easily allow for the generalization of the results. The 20 women involved in the FGDs were from the Ga South Municipality only. Women diagnosed with infertility from the other municipalities or different geographic locations were not involved in the study. This implies that the findings may not be generalized to other contexts, since the women who participated in this study might not be representative of all women diagnosed with infertility in Ghana.

The developed guidelines in this study were refined and approved by expert participants; however, the guidelines have not been applied and tested in any healthcare setting. Therefore, it cannot be firmly concluded that they will achieve their intended purpose of ensuring holistic healthcare interventions in managing women diagnosed with infertility. Lastly, many of the e-Delphi experts involved in the study were from Ghana.

Despite the above limitations, the study also has the following strengths:

- A theoretical framework was used as a guide in this study to ensure the guidelines meet the standards of the holistic management approach.
- The mixed methods approach was used during the process of data collection, and both qualitative and quantitative findings were integrated into a single study. This approach provided a better understanding of the research problem and the research finding than either research approach alone would have done.
- The study was completed within the stipulated timeframe.

7.8 IMPLICATIONS OF THE STUDY

The findings of the study have implications for nursing practice and policy formulation.

7.8.1 Nursing practice

- Fertility treatment entails a long journey and is often associated with disappointments and has emotional implications. Healthcare providers managing women diagnosed with infertility should manage women holistically.

- Healthcare providers should carefully examine the healthcare needs of these women and assist them with the needed support. Assessing their condition holistically and managing them as such will help them cope better and improve their chances of getting pregnant.
- Healthcare providers should refer women diagnosed with infertility for individual, group and family counselling as indicated to prevent long-term psychosocial problems.

7.8.2 Policy formulation

- The managements of the various healthcare centres should ensure that healthcare providers managing women diagnosed with infertility receive ongoing training on providing holistic healthcare interventions.
- Government, in collaboration with the managements of the various healthcare centres, should establish counselling units at every fertility clinic to serve the psychological needs of women diagnosed with infertility.

7.9 CONCLUSION

The study was guided by the aim and specific objectives that formed the basis of the three phases of the study. The aim of the study was to develop guidelines for holistic healthcare interventions for women diagnosed with infertility in Ghana. The objective in Phase I was to review existing evidence of holistic healthcare interventions for women diagnosed with infertility. Phase II: Stage I explored and described the healthcare needs of women diagnosed with infertility in Ghana using FGDs with women. Phase II: Stage II developed draft guidelines for holistic healthcare interventions for women diagnosed with infertility in Ghana using an NGT with stakeholders. Phase III refined the guidelines for holistic healthcare interventions for women diagnosed with infertility in Ghana using the e-Delphi technique. The objectives were met as the development of the guidelines was based on the BPSS model, the findings of systematic literature review in Phase I and empirical data gathered from participants during the FGDs and the NGT. The findings were integrated to reflect the healthcare needs of women diagnosed with infertility and the healthcare interventions that needed to be incorporated in the care of these women to ensure holistic healthcare. The guidelines were refined by expert participants in accordance with the guiding attributes in the guideline development process constructed by AGREE II (Brouwers *et al.*, 2017: 11-32).

The seven guidelines were grounded in the BPSS model, the findings of the systematic literature review and empirical data. The domains and items of the AGREE II (Brouwers *et al.*, 2017: 11-32) ensured a rigorous process. The seven guidelines were reformulated based on the comments and recommendations from the experts. A descriptive overview of the final guidelines was presented.

The findings of the study may enable healthcare providers, both locally and globally, involved in the care of women diagnosed with infertility to have a holistic understanding of the healthcare needs of these women and manage them holistically. The guidelines will contribute to the knowledge base on infertility care in the healthcare delivery system and the nursing and midwifery praxis. Through the implementation of the guidelines, the healthcare needs of women diagnosed with infertility will be fully met and this will result in positive outcomes by alleviating psychosocial stressors and improving marital relationships and pregnancy rates.

7.10 REFLECTIONS OF THE RESEARCHER

Writing up this research has given the researcher more insight into the healthcare needs of women diagnosed with infertility and the need to manage them holistically to ensure optimal health. This study was conducted in three different phases with the aim of developing guidelines for holistic healthcare interventions for women diagnosed with infertility in Ghana. The research was oriented towards addressing and solving a problem and employed a pragmatic research methodology (mixed methods). This method offers opportunities to use diverse methods and ideas that help to best frame, address and provide answers to the research questions. Data for the study was gathered from three categories of stakeholders. Firstly, data was gathered from women diagnosed with infertility using FGDs to get more insight into their healthcare needs. Secondly, data was gathered using an NGT with healthcare providers managing women diagnosed with infertility and non-healthcare providers who are influential in matters of health. This group of stakeholders were engaged in the development of draft guidelines for holistic healthcare interventions. The last category of stakeholders refined the guidelines. This involved the e-Delphi experts; experts in the area of infertility, and policy and guideline development such as academic researchers, gynaecologists, midwives, and a psychologist.

The findings of the study provided more insight on how issues relating to infertility could have a negative impact on the lives of women diagnosed with it. Having followed their experiences, their healthcare needs, and their healthcare expectations from both the healthcare system and their

healthcare providers, it is clear that healthcare providers have failed to holistically manage these women. This implies that the development of these guidelines is timely. The findings of this study will be disseminated so that services or care rendered to women diagnosed with infertility will be holistic.

REFERENCES

Aarts, J., Huppelschoten, A., Van Empel, I., Boivin, J., Verhaak, C., Kremer, J. & Nelen, W. 2011. How patient-centred care relates to patients' quality of life and distress: a study in 427 women experiencing infertility. *Human Reproduction,* 27(2):491;493.

Advanced Fertility Center. 2015. Forms of infertility in women. Chicago. Retrieved from: www.advancedinfertility.com. [Accessed 27 September 2018].

Aggarwal, R.S., Mishra, V.V. & Jasani, A.F. 2013. Incidence and prevalence of sexual dysfunction in infertile females. *Middle East Fertility Society Journal,* 18(3):188.

Ahamefule, N.I. & Onwe, F. 2015. The plight of infertile women in Nigeria. *Journal of Policy and Development Studies,* 289(1851):45.

Akhondi, M.M., Binaafar, S., Ardakani, Z.B., Kamali, K., Kosari, H. & Ghorbani, B. 2013. Aspects of psychosocial development in infertile versus fertile men. *Journal of Reproduction & Infertility,* 14(2):90;92.

Alhassan, A., Ziblim, A.R. & Muntaka, S. 2014. A survey on depression among infertile women in Ghana. *BMC Women's Health,* 14(1):3;5.

Ali, H.S., Shams, H., Kessani, L.V. & Ali, R. 2015. Prevalence and predicators among Pakistani infertile women. *Infertility,* 13:1480;1481.

Anderson, K., Nisenblat, V. & Norman, R. 2010. Lifestyle factors in people seeking infertility treatment–a review. *Australian and New Zealand Journal of Obstetrics and Gynaecology,* 50(1):8.

Anokye, R., Acheampong, E., Mprah, W.K., Ope, J.O. & Barivure, T.N. 2017. Psychosocial effects of infertility among couples attending St. Michael's Hospital, Jachie-Pramso in the Ashanti Region of Ghana. *BMC Research Notes,* 10(1):690.

Anyanwu, M. & Idoko, P. 2017. Prevalence of infertility at the Gambian Teaching Hospital. *Women's Health & Gynecology,* 3(2):1;2.

Azorin, J.M. & Cameron, R. 2010. The application of mixed methods in organisational research: A literature review. *Electronic Journal of Business Research Methods,* 8(2):95.

Batool, S.S. & De Visser, R.O. 2014. Psychosocial and contextual determinants of health among infertile women: a cross-cultural study. *Psychology, Health & Medicine,* 19(6):637;677.

Beck, J.S. 2011. *Cognitive-behavioral therapy: basics and beyond*, 2nd Edition. New York, NY: The Guilford Press.

Begum, B.N. & Hasan, S. 2014. Psychological problems among women with infertility problem: a comparative study. *Journal of the Pakistan Medical Association,* 64(11):1290.

Behboodi-Moghadam, Z., Salsali, M., Eftekhar-Ardabily , H., Vaismoradi, M. & Ramezanzadeh, F. 2013. Experiences of infertility through the lens of Iranian infertile women: a qualitative study. *Japan Journal of Nursing Science,* 10(1):45.

Bell, K. 2013. Constructions of "infertility" and some lived experiences of involuntary childlessness. *Affilia,* 28(3):285.

Berhane, A. & Enquselassie, F. 2015. Patients' preferences for attributes related to health care services at hospitals in Amhara region, northern Ethiopia: a discrete choice experiment. *Patient Preference and Adherence,* 9:1299.

Blomberg, J., Giacomi, J., Mosher, A. & Swenton-Wall, P. 2017. Ethnographic field methods and their relation to design. *Participatory Design,* 123-155

Bouwmans, C.A., Lintsen, B.A., Al, M., Verhaak, C.M., Eijkemans, R.J., Habbema, J., Braat, D.D. & Hakkaart-Van Roijen, L. 2008. Absence from work and emotional stress in women undergoing IVF or ICSI: an analysis of IVF-related absence from work in women and the contribution of general and emotional factors. *Acta Obstetricia et Gynecologica Scandinavica,* 87(11):1169;1175.

Braun, V. & Clarke, V. 2006. Using thematic analysis in psychology. *Qualitative Research in Psychology,* 3(2):92-98.

Brooks, J., Mccluskey, S., Turley, E. & King, N. 2015. The utility of template analysis in qualitative psychology research. *Qualitative Research in Psychology,* 12(2):203-204.

Brouwers, M.C., Kho, M.E., Browman, G.P., Burgers, J.S., Cluzeau, F., Feder, G., Fervers, B., Graham, I.D., Grimshaw, J., Hanna, S.E., Littlejohns, P., Makarski, J. & Zitzelsberger, L. 2017. AGREE II: advancing guideline development, reporting and evaluation in health care. *CMAJ: Canadian Medical Association Journal,* 182(18):1-32.

Cabry, R., Merviel, P., Hazout, A., Belloc, S., Dalleac, A., Copin, H. & Benkhalifa, M. 2014. Management of infertility in women over 40. *Maturitas,* 78(1):17.

Carcio, H.A. & Brooks, P. 2018. The health history. In: Nieginski, E. & Parrish, K. (eds.). *Advanced health assessment of women: clinical skills and procedures.* 4th Edition ed. USA: Springer Publishing Company.

Chan, C.H., Chan, C.L., Ng, E.H., Ho, P.C., Chan, T.H., Lee, G.L. & Hui, W. 2012. Incorporating spirituality in psychosocial group intervention for women undergoing in vitro fertilization: a prospective randomized controlled study. *Psychology and Psychotherapy: Theory, Research and Practice,* 85(4):358-372.

Chandra, A., Copen, C.E. & Stephen, E.H. 2013. *Infertility and impaired fecundity in the United States, 1982-2010: data from the National Survey of Family Growth.* US Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Health Statistics.

Chirico, F. 2016. Spiritual well-being in the 21st century: it's time to review the current WHO's health definition. *Journal of Health and Social Sciences,* 1(1):15.

Choussein, S. & Vlahos, N.F. 2012. Female fertility assessment. *Current Obstetrics and Gynecology Reports,* 1(4):175.

Chow, K.M., Cheung, M.C. & Cheung, I.K. 2016. Psychosocial interventions for infertile couples: a critical review. *Journal of Clinical Nursing,* 25(15-16):2111.

Codner, E., Merino, P. & Tena-Sempere, M. 2012. Female reproduction and type 1 diabetes: from mechanisms to clinical findings. *Human Reproduction Update,* 18(5):573;580.

Collins, S.C., Kim, S. & Chan, E. 2018. Racial and ethnic differences in the utilization of prayer and clergy counseling by infertile US women desiring pregnancy. *Journal of Religion and Health,* 57(6):2237.

Contemporary Obstetrics and Gynecology e-News (2011). Retrieved from: https:// www.contemporaryobgyn.net/. [Accessed 20 September 2018].

Covington, S.N. & Burns, L.H. 2006. *Infertility counseling: a comprehensive handbook for clinicians.* USA: Cambridge University Press.

Creswell, J.W., Klassen, A.C., Plano Clark, V.L. & Smith, K.C. 2011. Best practices for mixed methods research in the health sciences. *Bethesda, MarylandNational Institutes of Health,* 544-545.

Cui, W. 2010. Mother or nothing: the agony of infertility. World Health Organization, Geneva, Switzerland: SciELO Public Health.

Dağ, Z.Ö. & Dilbaz, B. 2015. Impact of obesity on infertility in women. *Journal of the Turkish German Gynecological Association,* 16(2):111.

Dancet, E.A., Nelen, W.L., Sermeus, W., De Leeuw, L., Kremer, J.A. & D'hooghe, T.M. 2010. The patients' perspective on fertility care: a systematic review. *Human Reproduction Update,* 16(5):467.

Dang, V.H. 2015. The use of nominal group technique: case study in Vietnam. *World Journal of Education*, 5(4):5.

Dattijo, L., Andreadis, N., Aminu, B., Umar, N. & Black, K. 2016. The prevalence and clinical pattern of infertility in Bauchi, northern Nigeria. *Tropical Journal of Obstetrics and Gynaecology,* 33(1):77.

De Mendonca, C.R., Arruda, J.T., Noll, M., Paulo, M.D.O. & Do Amaral, W.N. 2017. Sexual dysfunction in infertile women: a systematic review and meta-analysis. *European Journal of Obstetrics & Gynecology and Reproductive Biology,* 215:153;161.

De Vos, A., Delport, C., Fouché, C. & Strydom, H. 2011. *Research at grass roots: a primer for the social science and human professions*. Pretoria, South Africa: Van Schaik Publishers.

Denton, J., Monach, J. & Pacey, A. 2013. *Infertility and assisted reproduction: counselling and psychosocial aspects*. UK: Taylor & Francis.

Dewey, J. 1925 *The later works of John Dewey, Volume 7, 1925-1953: 1932, Ethics.* SIU Press.

Dhar, N., Chaturvedi, S.K. & Nandan, D. 2013. Spiritual health, the fourth dimension: a public health perspective. *WHO South-East Asia Journal of Public Health,* 2(1):4.

Direkvand-Moghadam, A., Sayehmiri, K., Delpisheh, A. & Direkvand-Moghadam, A. 2014. The global trend of infertility: an original review and meta-analysis. *International Journal of Epidemiologic Research,* 1(1):40-41.

Donkor, E.S., Naab, F. & Kussiwaah, D.Y. 2017. "I am anxious and desperate": psychological experiences of women with infertility in The Greater Accra Region, Ghana. *Fertility Research and Practice,* 3(1):1-6.

Dossey, M.B. 1997. Holistic Nursing Practice. In: Consultant, H.N. & Systems, B.M. (eds.). *Core Curriculum for Holistic Nursing.* Galthersburg, Maryland: Aspen Publication.

Ehrich, K., Cowie, L. & Sandall, J. 2015. Expect the unexpected: patients' and families' expectations and experiences of new clinical procedures. *Health Expectations,* 18(5):925.

Ekpo, G., Moy, I., Pavone, M.E. & Milad, M.P. 2011. The use of clomiphene citrate for ovulation induction: when, why, and how? *Contemporary Ob/Gyn,* 56(4):42.

Engel, G.L. 1977. The need for a new medical model: a challenge for biomedicine. *Science,* 196(4286):129-132.

Eniola, O.W., Adetola, A.A. & Abayomi, B.T. 2017. A review of female Infertility; important etiological factors and management. *Journal of Microbiology and Biotechnology Research,* 2(3):382;383.

Escalada, M. & Heong, K.L. 2014. Focus group discussion. *ResearchGate*:3-4.

Fahami, F., Quchani, S.H., Ehsanpour, S. & Boroujeni, A.Z. 2010. Lived experience of infertile men with male infertility cause. *Iranian Journal of Nursing and Midwifery Research,* 15(Suppl1):265.

Faramarzi, M., Pasha, H., Esmailzadeh, S., Kheirkhah, F., Heidary, S. & Afshar, Z. 2013. The effect of the cognitive behavioral therapy and pharmacotherapy on infertility stress: a randomized controlled trial. *International Journal of Fertility & Sterility,* 7(3):199;204.

Fetters, M.D., Curry, L.A. & Creswell, J.W. 2013. Achieving integration in mixed methods designs—principles and practices. *Health Services Research,* 48(6):1-10.

Fishman, D.B. 1991. An introduction to the experimental versus the pragmatic paradigm in evaluation. *Evaluation and Program Planning*, 14(4):356

Fledderjohann, J.J. 2012. 'Zero is not good for me': implications of infertility in Ghana. *Human Reproduction,* 27(5):1383-1387.

Frederiksen, Y., Farver-Vestergaard, I., Skovgård, N.G., Ingerslev, H.J. & Zachariae, R. 2014. Efficacy of psychosocial interventions for psychological and pregnancy outcomes in infertile women and men: a systematic review and meta-analysis. *BMJ Open,* 5(1):15.

Fusch, P.I. & Ness, L.R. 2015. Are we there yet? Data saturation in qualitative research. *The Qualitative Report,* 20(9):1408.

Gameiro, S., Boivin, J., Dancet, E., De Klerk, C., Emery, M., Lewis-Jones, C., Thorn, P., Van Den Broeck, U., Venetis, C. & Verhaak, C.M. 2015. ESHRE guideline: routine psychosocial care in infertility and medically assisted reproduction—a guide for fertility staff. *Human Reproduction,* 30(11):2482.

Gameiro, S., Boivin, J., Peronace, L. & Verhaak, C.M. 2012. Why do patients discontinue fertility treatment? A systematic review of reasons and predictors of discontinuation in fertility treatment. *Human Reproduction Update,* 18(6):652-658.

Gelso, C. 2014. A tripartite model of the therapeutic relationship: theory, research, and practice. *Psychotherapy Research,* 24(2):117.

Ghana Statistical Service (GSS), Ghana Health Service (GHS), and ICF. 2018. Ghana Maternal Health Survey 2017; Pg. 37. Accra, Ghana: GSS, GHS, and ICF.

Glogowska, M. 2010. Paradigms, pragmatism and possibilities: mixed-methods research in speech and language therapy. *International Journal of Language and Communication Disorders,* 251.

Gokler, M.E., Unsal, A. & Arslantas, D. 2014. The prevalence of infertility and loneliness among women aged 18-49 years who are living in semi-rural areas in western Turkey. *International Journal of Fertility & Sterility,* 8(2):155;161.

Grace, S., Avila, C. & Bradbury, J. 2019. What patients want from their health care: Key messages for complementary medicine practitioners. *Journal of the Australian Traditional-Medicine Society,* 25(1):11.

Gray, L. & Payne, K. 2014. Quantitative Data Collection. In: Walker, D.-M. (ed.). *An Introduction to health services resaerch.* London: SAGE Publications Ltd.

Hall, J.N. 2013. Pragmatism, evidence, and mixed methods evaluation. *New Directions for Evaluation,* 2013(138):15-26.

Hamill, C. & Sinclair, H.A. 2010. Bracketing–practical considerations in Husserlian phenomenological research. *Nurse Researcher,* 17(2):18.

Harvard Mental Health Letter. (2013). The psychological impact of infertility and its treatment. Harvard health publication; Harvard medical school.

Harvey, N. & Holmes, C.A. 2012. Nominal Group Technique: An Effective Method for Obtaining Group Consensus. *International Journal of Nursing Practice,* 18(2):193.

Hasanpoor-Azghdy, S.B., Simbar, M. & Vedadhir, A. 2015. The social consequences of infertility among Iranian women: a qualitative study. *International Journal of Fertility & Sterility,* 8(4):409.

Hasson F & Keeney S. 2011. Enhancing rigour in the Delphi technique research. *Technological Forecasting and Social Change,* 78(9):1695-1704

Hatala, A.R. 2012. The status of the “biopsychosocial” model in health psychology: Towards an integrated approach and a critique of cultural conceptions. *Open Journal of Medical Psychology,* 1(04):51.

Heale, R. & Twycross, A. 2015. Validity and reliability in quantitative studies. *Evidence-Based Nursing,* 18(3):66.

Hussein, A. 2014. Effect of psychological intervention on marital satisfaction rate of infertile couples. *International Journal of Educational Policy Research and Review,* 1(3):34.

Igunnuoda, O. & Ngugi, G. 2015. Understanding Holistic Nursing practice. Bachelor of Nursing, Arcada University, Finland, 13.

Inhorn, M.C. & Patrizio, P. 2015. Infertility around the globe: new thinking on gender, reproductive technologies and global movements in the 21st century. *Human Reproduction Update,* 21(4):411;423.

Jafarzadeh-Kenarsari, F., Ghahiri, A., Habibi, M. & Zargham-Boroujeni, A. 2015. Exploration of infertile couples’ support requirements: A qualitative study. *International Journal of Fertility & Sterility,* 9(1):90.

Jafarzadeh-Kenarsari, F., Ghahiri, A., Zargham-Boroujeni, A. & Habibi, M. 2015. Exploration of the counseling needs of infertile couples: A qualitative study. *Iranian Journal of Nursing and Midwifery Research,* 20(5):552-558.

James, W. 2000. *What pragmatism means. In J. J. Stuhr (Eds.), Pragmatism and classical American philosophy: Essential readings and interpretive essays.* New York: NY: Oxford University Press.

Jasemi, M., Valizadeh, L., Zamanzadeh, V. & Keogh, B. 2017. A concept analysis of holistic care by hybrid model. *Indian Journal of Palliative Care,* 23(1):75-76.

Jensen, K. & Kelley, J.M. 2016. The therapeutic relationship in psychological and physical treatments, and their placebo controls. *Psychology of Consciousness: Theory, Research, and Practice,* 3(2):132.

Joy, J. & Mccrystal, P. 2015. The role of counselling in the management of patients with infertility. *The Obstetrician & Gynaecologist,* 17(2):88.

Kamel, R.M. 2010. Management of the infertile couple: an evidence-based protocol. *Reproductive Biology and Endocrinology,* 8(1):4.

Kangasniemi, M., Pakkanen, P. & Korhonen, A. 2015. Professional ethics in nursing: an integrative review. *Journal of Advanced Nursing,* 71(8):1746.

Kavak, F. & Kavak, M. 2018. The relationship between perceived social support and depression in infertile women. *Journal of Turgut Ozal Medical Center,* 25(4):559;562.

Keen, C. & Otter, M.E. 2014. Critical Appraisal. In: Walker, D.-M. (ed.). *An introduction to health services research.* London: SAGE Publications Ltd.

Kirca, N., Gençdoğan, B. & Çelik, A.S. 2014. Developing the scale for assessing psychosocial problems experienced by women during their infertility. *International Journal,* 7(3):834.

Kivunja, C. & Kuyini, A.B. 2017. Understanding and applying research paradigms in educational contexts. *International Journal of Higher Education,* 6(5):26.

Kuohung, W. & Hornstein, M.D. 2019. Evaluation of female infertility. *UpToDate, Waltham, MA*.(Accessed on April 01, 2019).

Kussiwaah, D.Y. 2016. *Experiences of women with infertility and their bio-psychosocial management.* Ghana: University of Ghana.

Kussiwaah, D.Y., Donkor, E.S. & Naab, F. 2016. “Management gap in the treatment of infertility in ghana”: the cry of childless women. *International Journal of Nursing and Health Science,* 3(6):57.

Kussiwaah, D.Y., Donkor, E.S. & Naab, F. 2017. “I am tired of being childless”: social experiences of women with infertility. *Asian Journal of Science and Technology,* 08(01):4221-4225.

Lewis, S. 2015. Qualitative inquiry and research design: choosing among five approaches. *Health Promotion Practice,* 16(4):473-475.

Luk, B.H.-K. & Loke, A.Y. 2016. A review of supportive interventions targeting individuals or couples undergoing infertility treatment: directions for the development of interventions. *Journal of Sex and Marital Therapy,* 42(6):529.

Maina, G., Mauri, M. & Rossi, A. 2016. Anxiety and depression. *Journal of Psychopathology,* 22(4):237.

Marinakis, G. & Nikolaou, D. 2012. National survey of the current management of infertility in women aged 40 and over in the UK. *Journal of Obstetrics and Gynaecology,* 32(4):375.

Mascarenhas, M.N., Flaxman, S.R., Boerma, T., Vanderpoel, S. & Stevens, G.A. 2012. National, regional, and global trends in infertility prevalence since 1990: a systematic analysis of 277 health surveys. *PLoS Medicine,* 9(12):1001356.

Mcmillan, S.S., King, M. & Tully, M.P. 2016. How to use the Nominal Group and Delphi Techniques. *International Journal of Clinical Pharmacy,* 38(3):655.

Menuba, I.E., Ugwu, E.O., Obi, S.N., Lawani, L.O. & Onwuka, C.I. 2014. Clinical management and therapeutic outcome of infertile couples in southeast Nigeria. *Therapeutics and Clinical Risk Management,* 10:763.

Mertens, D.M. 2015. *Research and evaluation in education and psychology,* 4th Edition. London: SAGE Publication Asia-Pacific.

Minucci, D. 2013. Psychological and ethical implications related to infertility. *International Journal of Gynecology & Obstetrics,* 123(S36-S38).

Morgan, D. 2013. *Integrating qualitative and quantitative methods: A pragmatic approach.* USA: Sage publications.

Morgan, D.L. 2007. Paradigms lost and pragmatism regained: methodological implications of combining qualitative and quantitative methods. *Journal of Mixed Methods Research,* 1(1):48-50.

Morgan, D.L. 2014. Pragmatism as a paradigm for social research. *Qualitative Inquiry,* 20(8):1045;1048.

Mortari, L. 2015. Reflectivity in research practice: an overview of different perspectives. *International Journal of Qualitative Methods,* 14(5):4.

Murto, T., Svanberg, A.S., Yngve, A., Nilsson, T.K., Altmäe, S., Wånggren, K., Salumets, A. & Stavreus-Evers, A. 2014. Folic acid supplementation and IVF pregnancy outcome in women with unexplained infertility. *Reproductive Biomedicine Online,* 28(6):766-767.

Musa, R., Ramli, R., Yazmie, A.W.A., Khadijah, M.B.S., Hayati, M.Y., Midin, M., Jaafar, N.R.N., Das, S., Sidi, H. & Ravindran, A. 2014. A preliminary study of the psychological differences in infertile couples and their relation to the coping styles. *Comprehensive Psychiatry,* 55:S65-S69.

Naab, F., Brown, R. & Heidrich, S. 2013. Psychosocial health of infertile Ghanaian women and their infertility beliefs. *Journal of Nursing Scholarship,* 45(2):132-136.

Nachinab, G.T.-E., Donkor, E.S. & Naab, F. 2017. Understanding the threat of infertility among women in Rural Northern Ghana. *Numi Hori,* 1;4.

Nowell, L.S., Norris, J.M., White, D.E. & Moules, N.J. 2017. Thematic analysis: striving to meet the trustworthiness criteria. *International Journal of Qualitative Methods,* 16(1):4-8.

O'Cathain, A., Murphy, E. & Nicholl, J. 2010. Three techniques for integrating data in mixed methods studies. *BMJ,* 341:4587.

O'Flynn, N. 2014. Assessment and treatment for people with fertility problems: NICE guideline. *British Journal of General Practice,* 64(618):50.

Okoli, C. & Pawlowski, S.D. 2004. The Delphi method as a research tool: an example, design considerations and applications. *Information & Management,* 42(1):19;20.

Osei, N.Y. 2016. Need for accessible infertility care in Ghana: the patients' voice. *Facts, Views & Vision in ObGyn,* 8(2):125.

Oti-Boadi, M. & Asante, K.O. 2017. Psychological health and religious coping of Ghanaian women with infertility. *Biopsychosocial Medicine,* 11(1):5;7.

Page, A.E. & Adler, N.E. 2008. *Cancer care for the whole patient: Meeting psychosocial health needs.* National Academies Press.

Palaganas, E.C., Sanchez, M.C., Molintas, M., Visitacion, P. & Caricativo, R.D. 2017. Reflexivity in qualitative research: a journey of learning. *The Qualitative Report,* 22(2):427.

Palinkas, L.A., Horwitz, S.M., Green, C.A., Wisdom, J.P., Duan, N. & Hoagwood, K. 2015. Purposeful sampling for qualitative data collection and analysis in mixed method implementation research. *Administration and Policy in Mental Health and Mental Health Services Research,* 42(5):533.

Papathanasiou, I., Sklavou, M. & Kourkouta, L. 2013. Holistic nursing care: theories and perspectives. *American Journal of Nursing Science,* 2(1):1;2.

Parahoo, K. 2014. *Nursing research: principles, process and issues*, 3rd Edition. Palgrave Macmillan.

Peersman, G. 2014. *Overview: data collection and analysis methods in impact evaluation.* Italy: UNICEF Office of Research-Innocenti.

Peh, A., Chang, M.J., Cheng, J., Khim, M.L.H., Huimin, M.P., Chong, T.W., Hong, T.W. & Salikin, M.Y.C. 2016. Supportive Therapy. In: Peh, A. (ed.). *Effective psychological interventions in primary care.* Singapore: Eastern Health Alliance.

Peterson, B.D. & Eifert, G.H. 2011. Using acceptance and commitment therapy to treat infertility stress. *Cognitive and Behavioral Practice,* 18(4):577.

Petre, B., Gagnayre, R., De Andrade, V., Ziegler, O. & Guillaume, M. 2017. From therapeutic patient education principles to educative attitude: the perceptions of health care professionals–a pragmatic approach for defining competencies and resources. *Patient Preference and Adherence,* 11:612.

Phillippi, J. & Lauderdale, J. 2018. A guide to field notes for qualitative research: context and conversation. *Qualitative Health Research,* 28(3):381.

Polit, D.F. & Beck, C.T. 2017. *Nursing research: generating and assessing evidence for nursing practice.* Philadelphia: Lippincott Williams & Wilkins.

Practice Committee of American Society for Reproductive Medicine. 2015. Diagnostic evaluation of the infertile female: a committee opinion. *Fertil Steril,* 103:e44–50. doi:10.1016/j.fertnstert.

Psaros, C., Kagan, L., Shifren, J.L., Willett, J., Jacquart, J., Alert, M.D., Macklin, E.A., Styer, A.K., Denninger, J.W. & Laroche, K.L. 2015. Mind–body group treatment for women coping with infertility: a pilot study. *Journal of Psychosomatic Obstetrics & Gynecology,* 36(2):75.

Qayyum, M., Ahmed, S., Kanwal, S., Ishfaq, Y., Hassan, H., Ali, W., Waheed, N. & Shoaib, K. 2014. Frequency of depression among fertile and infertile women. *Pakistan Armed Forces Medical Journal,* (4):581; 582.

Ramezani, M., Ahmadi, F., Mohammadi, E. & Kazemnejad, A. 2014. Spiritual care in nursing: a concept analysis. *International Nursing Review,* 61(2):211.

Ransohoff, D.F., Pignone, M. & Sox, H.C. 2013. How to decide whether a clinical practice guideline is trustworthy. *JAMA,* 309(2):139.

Read, S.C., Carrier, M.E., Boucher, M.E., Whitley, R., Bond, S. & Zelkowitz, P. 2014. Psychosocial services for couples in infertility treatment: What do couples really want? *Patient Education and Counseling,* 94(3):393.

Rezaei, S., Hajizadeh, M., Zandian, H., Fathi, A. & Nouri, B. 2018. Service quality in Iranian hospitals: a systematic review and meta-analysis. *Medical Journal of the Islamic Republic of Iran,* 32(59):6;7.

Romeiro, J., Caldeira, S., Brady, V., Hall, J. & Timmins, F. 2017. The spiritual journey of infertile couples: discussing the opportunity for spiritual care. *Religions,* 8(4):1.

Ryan, G. 2010. Guidance notes on planning a systematic review. James Hardiman Library Retrieved from: https://www.tcd.ie/library/support/subjects/psychology/Guidance%20on%20planning%20a%20systematic%20review%20(2).pdf [Accessed 20 September 2018].

Sauer, M.V. 2015. Reproduction at an advanced maternal age and maternal health. *Fertility and Sterility,* 103(5):1136.

Saunders, B., Sim, J., Kingstone, T., Baker, S., Waterfield, J., Bartlam, B., Burroughs, H. & Jinks, C. 2018. Saturation in qualitative research: exploring its conceptualization and operationalization. *Quality & Quantity,* 52(4):1893.

Seen Heng, Y., Sidi, H., Nik Jaafar, N.R., Razali, R. & Ram, H. 2013. Phases of female sexual response cycle among M alaysian women with Infertility: a factor analysis study. *Asia-Pacific Psychiatry,* 5:50;54.

Slauson-Blevins, K.S., Mcquillan, J. & Greil, A.L. 2013. Online and in-person health-seeking for infertility. *Social Science & Medicine,* 99:115.

Soltani, M., Shairi, M.R., Roshan, R. & Rahimi, C.R. 2014. The impact of emotionally focused therapy on emotional distress in infertile couples. *International Journal of Fertility & Sterility,* 7(4):343.

Stegenga, J. 2015. Effectiveness of medical interventions. *Studies in History and Philosophy of Science Part C: Studies in History and Philosophy of Biological and Biomedical Sciences,* 54:34.

Stockley, R.C., O'connor, D.A., Smith, P., Moss, S., Allsop, L. & Edge, W. 2017. A mixed methods small pilot study to describe the effects of upper limb training using a virtual reality gaming system in people with chronic stroke. *Rehabilitation Research and Practice,* 1.

Stoop, D., Cobo, A. & Silber, S. 2014. Fertility preservation for age-related fertility decline. *The Lancet,* 384(9950):1311.

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

Tabong, P.T.-N. & Adongo, P.B. 2013b. Understanding the social meaning of infertility and childbearing: a qualitative study of the perception of childbearing and childlessness in Northern Ghana. *PloS One,* 8(1):e54429.

Talmor, A. & Dunphy, B. 2015. Female obesity and infertility. *Best Practice & Research Clinical Obstetrics & Gynaecology,* 29(4):498.

Tembo, D. 2014. Mixed Methods. In: Walker, D.-M. (ed.). *An introduction to health services research.* London: SAGE Publications.

Trochim, W. 2000. *The research methods knowledge base.* 2nd Edition, Cincinnati: Atomic Dog Publishing.

Turan, V., Kopuz, A., Ozcan, A., Kocakaya, B., Sahin, C. & Solmaz, U. 2014. Sexual dysfunction in infertile Turkish females: prevalence and risk factors. *European Journal of Obstetrics & Gynecology and Reproductive Biology,* 182:128;130.

Unuane, D., Tournaye, H., Velkeniers, B. & Poppe, K. 2011. Endocrine disorders & female infertility. *Best Practice & Research Clinical Endocrinology & Metabolism,* 25(6):861;862;867.

Van Den Broeck, U., Emery, M., Wischmann, T. & Thorn, P. 2010. Counselling in infertility: individual, couple and group interventions. *Patient Education and Counseling,* 81(3):422-427.

Verkuijlen, J., Verhaak, C., Nelen, W., Wilkinson, J. & Farquhar, C. 2014. Psychological and educational interventions for subfertile men and women. *Cochrane Libr.,* (3):2.

Wahyuni, D. 2012. The research design maze: understanding paradigms, cases, methods and methodologies. *JAMAR,* 10(1):71.

Walliman, N. 2017. *Research methods: the basics.* USA and Canada: Routledge.

Webster, M. 2018a. *Merriam Webster's unabridged dictionary.* [Online]. Retrieved from: htpp//www.merriam-webster.com/dictionary/development [Accessed 27 June 2018].

Webster, M. 2018b. *Merriam Webster's unabridged dictionary.* [Online]. Retrieved from: htpp//www.merriam-webster.com/dictionary/woman [Accessed 27 June 2018].

Whitehouse, B. & Hollos, M. 2014. Definitions and the experience of fertility problems: infertile and sub-fertile women, childless mothers, and honorary mothers in two Southern Nigerian communities. *Medical Anthropology Quarterly,* 28(1):128.

Whittemore, R. & Knafl, K. 2005. The integrative review: updated methodology. *Journal of Advanced Nursing,* 52(5):550.

World Health Organization 2016. International Classification of Health Interventions (ICHI). Geneva: World Health Organization.

World Health Organization 2019. Infertility is a global public health issue: Retrieved from: https://www.who.int/reproductivehealth/topics/infertility/perspective/en/. [Accessed 27 September 2018].

Yazdani, F., Elyasi, F., Peyvandi, S., Moosazadeh, M., Galekolaee, K.S., Kalantari, F., Rahmani, Z. & Hamzehgardeshi, Z. 2017. Counseling-supportive interventions to decrease infertile women's perceived stress: A systematic review. *Electronic Physician,* 9(6):4694;4698.

Ying, L., Wu, L.H. & Loke, A.Y. 2016. The effects of psychosocial interventions on the mental health, pregnancy rates, and marital function of infertile couples undergoing in vitro fertilization: a systematic review. *Journal of Assisted Reproduction and Genetics,* 33(6):698.

Yvonne Feilzer, M. 2010. Doing mixed methods research pragmatically: Implications for the rediscovery of pragmatism as a research paradigm. *Journal of Mixed Methods research,* 4(1):7-9.

Zegers-Hochschild, F., Adamson, G.D., De Mouzon, J., Ishihara, O., Mansour, R., Nygren, K., Sullivan, E. & Van Der Poel, S. 2009. The international committee for monitoring assisted reproductive technology (ICMART) and the world health organization (WHO) revised glossary on ART terminology, 2009. *Human reproduction,* 24(11):2686.

ANNEXURE A: (PICD 1) PARTICIPANTS' INFORMATION & INFORMED CONSENT DOCUMENT

STUDY TITLE: DEVELOPMENT OF GUIDELINES FOR HOLISTIC HEALTHCARE INTERVENTIONS FOR WOMEN WITH INFERTILITY IN GHANA.

SPONSOR: Self

Principal Investigators: Deborah Armah (18370293)

Institution: University of Pretoria

DAYTIME AND AFTERHOURS TELEPHONE NUMBER(S):

Daytime numbers: 0655346801

Afterhours: 233 243187228

DATE AND TIME OF FIRST INFORMED CONSENT DISCUSSION:

DAY	MONTH	YEAR	TIME

Dear Participant,

1) INTRODUCTION

You are invited to volunteer for a research study that forms part of a doctoral degree. This information leaflet is to help you to decide if you would like to participate. Before you agree to take part in this study you should fully understand what is involved. If you have any questions, which are not fully explained in this leaflet, do not hesitate to ask the investigator. You should not agree to take part unless you are completely happy about all the procedures involved.

2) THE NATURE AND PURPOSE OF THIS STUDY

The aim of this study is to evaluate existing holistic healthcare interventions, refine and adapt one, or develop guidelines for the holistic healthcare interventions for women with infertility. By doing so the investigator wishes to come to a better understanding of the existing holistic healthcare interventions available and the psychosocial support needs of women with infertility. The findings of this study will enable holistic interventions to be incorporated into the already existing biological management that is being used in Ghana.

3) EXPLANATION OF PROCEDURES TO BE FOLLOWED

This study involves answering some questions regarding holistic interventions you would have wished it is incorporated into the already existing biological management you do receive from the

clinic. Interviews will be conducted in English, Akan and Ga. Discussion will be held with you in a minimum of seven and maximum of 10 at a place and time convenient to you. The interview with you will last for about thirty to forty-five minutes or as deemed necessary whiles it will also be audio-recorded.

4) RISK AND DISCOMFORT INVOLVED.

It is not expected that you would encounter any harm during your participation in the study. However, if the length of the interview may cause some discomfort, you will be allowed to break for a period between ten (10) to twenty (20) minutes as you wish. Moreover, if you experience some form of emotional distress during the interview, the services of a counsellor will be made available at no cost to you**.** Your right to withdraw from the study at any given time will be respected by the investigator.

5) POSSIBLE BENEFITS OF THIS STUDY.

There are no direct benefits as you participate in this study. However, your participation in the study will enable the researcher to understand the kind of holistic interventions you need in addition to the ready biological management. This will be refined and developed in a form of guidelines so as to provide other care givers the insight on how to manage women with such problems in the future.

6) I UNDERSTAND THAT IF I DO NOT WANT TO PARTICIPATE IN THIS STUDY, I WILL STILL RECEIVE STANDARD TREATMENT FOR MY ILLNESS.

7) I MAY AT ANY TIME WITHDRAW FROM THIS STUDY.

8) HAS THE STUDY RECEIVED ETHICAL APPROVAL?

This Protocol was submitted to the Faculty of Health Sciences Research Ethics Committee, University of Pretoria, telephone numbers 012 356 3084 / 012 356 3085 for review and written approval has been granted by that committee. The study has been structured in accordance with the Declaration of Helsinki (last update: October 2013), which deals with the recommendations guiding research involving human subjects. A copy of the Declaration may be obtained from the investigator should you wish to review it.

9) INFORMATION

If I have any questions concerning this study, I should contact:

The investigator:

Deborah Armah, Tel no. 0655346801 or 233 243187228.

The supervisors:

Dr. A Van der Wath, Tel no. +27845063142; Dr Mariatha Yazbek, Tel no. +27825763558.

10) CONFIDENTIALITY

Every conversation between you and the researcher will be protected and well secured to the best of my ability. Moreover, your name and any other information that might disclose your identity will not be mentioned or recorded in the research. Every information you give will be kept well and it only my supervisors that can have access to it when I am required to provide it. The information provided will also be for academic and research purposes only.

11) CONSENT TO PARTICIPATE IN THIS STUDY

I have read or had read to me in a language that I understand the above information before signing this consent form. The content and meaning of this information have been explained to me. I have been given opportunity to ask questions and am satisfied that they have been answered satisfactorily. I understand that if I do not participate it will not alter my management in any way. I hereby volunteer to take part in this study.

I have received a signed copy of this informed consent agreement.

....

Patient name Date

....

Patient signature Date

....

Investigator's name Date

....

Investigator's signature Date

..... ……..

Witness name and signature Date

CONSENT TO BE AUDIO RECOREDED

I hereby have understood and agreed to the fact that every information I give out is going to be audio-taped.

I have also received a signed copy of this informed consent agreement.

....

Patient name Date

....

Patient signature Date

VERBAL PATIENT INFORMED CONSENT

I, the undersigned, Dr ……..…, have read and have explained fully to the patient, named …….. and/or his/her relative, the patient information leaflet, which has indicated the nature and purpose of the study in which I have asked the patient to participate. The explanation I have given has mentioned both the possible risks and benefits of the study and the alternative treatments available for his/her illness. The patient indicated that he/she understands that he/she will be free to withdraw from the study at any time for any reason and without jeopardizing his/her treatment.

I hereby certify that the patient has agreed to participate in this study.

Patient's Name _____

(Please print)

Patient's Signature _____ Date _____

Investigator's Name _____

(Please print)

Investigator's Signature _____ Date _____

Witness's Name _____ Witness's Signature _____

Date _____

(Please print)

ANNEXURE B: (PICD 2): STAKEHOLDER PARTICIPANTS' INFORMATION & INFORMED CONSENT DOCUMENT

STUDY TITLE: DEVELOPMENT OF GUIDELINES FOR HOLISTIC HEALTHCARE INTERVENTIONS FOR WOMEN WITH INFERTILITY IN GHANA.

SPONSOR: The study will not be sponsored by any third party; the study will be self-funded.

Principal Investigators: Deborah Armah (18370293)

Institution: University of Pretoria

DAYTIME AND AFTERHOURS TELEPHONE NUMBER(S):

Daytime numbers: 0655346801

Afterhours: 233 243187228

DATE AND TIME OF FIRST INFORMED CONSENT DISCUSSION:

DAY	MONTH	YEAR	TIME

Dear Stakeholder Participant,

1) INTRODUCTION

For the fulfilment of my doctoral degree at Pretoria University, I am expected to conduct research. As part of my research, I am expected to develop guidelines for the psychosocial support of women with fertility problems. As a stakeholder you are invited to participate in Phase II of this study in this session, you are expected to help in drafting a guideline for the holistic healthcare interventions for women with infertility, so as to help these women have a holistic cure with regards to their condition. With this approach, the psychosocial stress encountered by women with infertility problems will be lessened, thereby enhancing their chances of becoming pregnant. The initial development of the draft guidelines will be based on the systematic review of literature retrieved from Phase I and supported with empirical data collected from participants in Phase II of the study.

2) WHO IS A STAKEHOLDER?

A stakeholder is anyone who is involved in or affected by a course of action. This could be doctors, midwifes, policy makers, ministers of God, psychiatric nurses, social workers, in-service coordinators and so forth.

3) EXPLANATION OF PROCEDURES TO BE FOLLOWED

The development of the draft guidelines will be done using a group discussion to ensure guidelines of high quality. It is expected that the group will comprise of 10 participants from diverse disciplines. The researcher will be the moderator of the discussion group.

4) WHAT WILL BE EXPECTED OF YOU?

As a participant, you will be expected to mention and discuss ideas in relation to how best we can meet the psychosocial needs of women with fertility problems in Ghana. Additionally, you will also be expected to help to draft guidelines. This will be based on the information collected in Phase I and that of the empirical data from participants in Phase II for the psychosocial support of these women.

6) HAS THE STUDY RECEIVED ETHICAL APPROVAL?

The Protocol was submitted to the Faculty of Health Sciences Research Ethics Committee, University of Pretoria, telephone numbers 012 356 3085 for review, and a written approval has been granted by the committee (Protocol 107/2015). The study has been structured in accordance with the Declaration of Helsinki (last update: October 2013), which deals with the recommendations guiding research involving human subjects. The copy of the Declaration may be obtained from the investigator should you wish to review it.

7) WHO CAN YOU CONTACT FOR ADDITIONAL INFORMATION REGARDING THE STUDY?

The investigator:

Deborah Armah, Tel no. 0655346801 or 233 243187228.

The supervisors:

Dr. Annatjie van der Wath, Tel no. +27845063142; Dr Mariatha Yazbek, Tel no. +27825763558

Kindly note that your participation will be highly appreciated!

8) STAKERHOLDERS PARTICIPANT INFORMED CONSENT

I, the undersigned, Prof., Dr., Mr., Mrs.....have read the stakeholders participant information leaflet, which has indicated the nature and purpose of the study, my responsibilities as a stakeholder participant and the benefits of participating in the study is to support bring out ideas on how best women with fertility problems will have their psychosocial support needs drafted into guidelines. I hereby certify that I agreed to participate in the group discussion process.

During the group discussion, your views will be needed on the development of guidelines for complete healthcare needs of women diagnosed with infertility.

You can as well withdraw from the study at any point without any negative consequences.

Participant's Name:.....

(Print)

Participant's Signature:..... Date:.....

Investigator's Name:.....
(Print)
Investigator's Signature:..... Date:.....

Witness's Name:..... Witness's signature..... Date:.....

CONSENT TO BE AUDIO RECOREDED

I hereby have understood and agreed to the fact that every information I give out is going to be audio-taped.

I have also received a signed copy of this informed consent agreement.

....
Patient name Date

....
Patient signature Date

ANNEXURE C: PICD 3: EXPERT PARTICIPANTS' INFORMATION & INFORMED CONSENT DOCUMENT

STUDY TITLE: DEVELOPMENT OF GUIDELINES FOR HOLISTIC HEALTHCARE INTERVENTIONS FOR WOMEN WITH INFERTILITY IN GHANA.

SPONSOR: The study will not be sponsored by any third party; the study will be self-funded.

Principal Investigators: Deborah Armah (18370293)

Institution: University of Pretoria

DAYTIME AND AFTERHOURS TELEPHONE NUMBER(S):

Daytime numbers: 0655346801

Afterhours: 233 243187228

DATE AND TIME OF FIRST INFORMED CONSENT DISCUSSION:

DAY	MONTH	YEAR	TIME

Dear Expert Participant,

1) INTRODUCTION

For the fulfilment of my doctoral degree at Pretoria University, I am expected to conduct research. As part of my research, I am expected to develop guidelines for holistic healthcare interventions for women diagnosed with infertility. As expert; you are invited to participate in Phase III of this study: Development of guidelines for holistic healthcare interventions for women with infertility in Ghana. The initial development of the guidelines will be based on the systematic review of literature retrieved from Phase and supported with empirical data collected from participants in Phase II.

2) WHO IS AN EXPERT?

An expert is any individual who is qualified and who has knowledge and understanding in the area of human behaviour, infertility, policy and guideline development such as academic researchers, gynaecologists, midwifes, and psychologists.

3) EXPLANATION OF PROCEDURES TO BE FOLLOWED

The refinement of the guidelines will be done using the e-Delphi technique to ensure guidelines of high quality. The most important aspect of the Delphi technique is choosing appropriate group of experts who will address the issues more appropriately. It is expected that not more than three rounds of the Delphi will be sufficient to obtain consensus on the content of the guidelines. The

researcher will be the facilitator of the Delphi rounds while expert participants remain anonymous to each other.

4) WHAT WILL BE EXPECTED OF YOU?

As a participant, you will be provided with the developed drafted initial guidelines by the researcher. You will be expected to read through the guideline then rate the guideline and write comments. Your ratings and comments will be compared with that of your fellow colleagues**.** The controlled feedback session will be given to each participant by the researcher. This feedback will consist of a well-organized summary of prior iterations which will be distributed to the panellists. This will give each participant an opportunity to generate additional insights and one can change his or her decisions in later iterations. The Delphi process will take at least two rounds; you will be expected to respond within a period of 1-2 weeks in each round. **You are expected to scan the last signed page of the consent and return it to the researcher per email with the rated guidelines.**

5) POSSIBLE BENEFITS THAT MAY COME FROM YOUR PARTICIPATION

You will contribute to the development of effective interventions and guidelines for the healthcare support needs of women with infertility. However; there will not be any monetary benefits, but you will gain more knowledge and insight into guideline development as you will learn from other experts and this could promote your personal and professional growth.

6) HAS THE STUDY RECEIVED ETHICAL APPROVAL?

The Protocol was submitted to the Faculty of Health Sciences Research Ethics Committee, University of Pretoria, telephone numbers 012 354 1677/ 012 354 1330 for review, and a written approval has been granted by the committee (Protocol 107/2015). The study has been structured in accordance with the Declaration of Helsinki (last update: October 2013), which deals with the recommendations guiding research involving human subjects. The copy of the Declaration may be obtained from the investigator should you wish to review it.

7) WHO CAN YOU CONTACT FOR ADDITIONAL INFORMATION REGARDING THE STUDY?

The investigator:

Deborah Armah, Tel no. 0655346801 or 233 243187228.

The supervisors:

Dr. Annatjie van der Wath, Tel no. +27845063142; Dr Mariatha Yazbek, Tel no. +27825763558

Kindly note that your participation will be highly appreciated!

8) EXPERT PARTICIPANT INFORMED CONSENT

I, the undersigned, Prof., Dr., Mr., Mrs.....have read the experts participant information leaflet, which has indicated the nature, purpose and benefits of participating in the development of guidelines for holistic healthcare interventions for women with infertility in Ghana. I have also understood that, my responsibilities as an expert participant is aimed at seeking agreement or consensus on the issue without direct confrontation. As a participant, am also expected to read through the guideline then rate the guideline and write my comments. Whiles my ratings and comments will be compared with that of my fellow colleagues and the controlled feedback session will be given to each participant by the researcher. I hereby certify that I agreed to participate in the Delphi process.

You can withdraw from the study at any point without any negative consequences.

Participant's Name:.....

(Print)

Participant's Signature:..... Date:.....

Investigator's Name:.....

(Print)

Investigator's Signature:..... Date:.....

Witness's Name:..... Witness's signature..... Date:.....

ANNEXURE D: PARTICIPANTS' INTERVIEW GUIDE – FGD

Section A: Demographic Data

Age in years…….

How long have you been diagnosed as having problem with fertility? ……..

Marital Status: Single ( ) Married ( ) Co-habitation with partner ( ) Widow / Widower ( ) Separated or Divorced ( )

Employment: Employed by a third party ( ) Unemployed ( ) Self-employed ( ) Retrenched ( ) Retired ( ) Permanent incapacity grant ( )

Education: Non ( ) Primary ( ) Secondary ( ) Tertiary ( ) Artisan ( ).

Section B: Experience of infertility

1. Tell me about what you experienced with regards to trying to conceive before you decided to seek medical attention.

Section C: Biological or Medical Management

2. What interventions did you receive in an attempt to conceive? (e.g. In-vitro fertilization (IVF), Hormonal medications–(orthodox / herbal), Spiritual interventions, Others).

Section D: Holistic Healthcare Interventions

3. Have you ever received a psychosocial support?

4. Which support did you receive?

5. How did the support/ intervention impact your life?

6. Which interventions do you wish to be incorporated into your care? (e.g. Counselling, peer mentoring, materials on the causes, treatment options and prevention of infertility, engagement in treatment regimen, online educations of healthy living to avoid this problem, educational interventions, spiritual interventions, cordial relationship with staff and so forth).

7. How do you want this support to be rendered to you? Thank you.

ANNEXURE E: STAKEHOLDER PARTICIPANTS' INTERVIEW GUIDE – NGT

Section A

Section A: Demographic Data

Years in service……...

Qualifications……...

Profession……

Section B: Holistic Healthcare Interventions

1.In your experience, what should entail in the holistic healthcare interventions of women diagnosed with infertility?

2. What healthcare management protocol do you think it must be followed when a woman with infertility visit the clinic?

3. Which type of the interventions must be rendered to women who comes to the clinic with infertility; before, during and after treatment? Write down everything.

4. How often should we render these interventions listed above?

5. Which healthcare interventions will these women value most?

Thank you.

ANNEXURE F: ETHICAL APPROVAL TO CONDUCT THE STUDY: UNIVERSITY OF PRETORIA ETHICS COMMMITTEE.

UNIVERSITEIT VAN PRETORIA
UNIVERSITY OF PRETORIA
YUNIBESITHI YA PRETORIA

Faculty of Health Sciences

The Research Ethics Committee, Faculty Health Sciences, University of Pretoria complies with ICH-GCP guidelines and has US Federal wide Assurance.
- FWA 00002567, Approved dd 22 May 2002 and Expires 03/20/2022.
- IRB 0000 2235 IORG0001762 Approved dd 22/04/2014 and Expires 03/14/2020.

26/10/2018

Approval Certificate
New Application

Ethics Reference No: 579/2018

Title: DEVELOPMENT OF GUIDELINES FOR HOLISTIC HEALTHCARE INTERVENTIONS FOR WOMEN WITH INFERTILITY IN GHANA.

Dear Ms. D Armah

The **Amendment** as described in your documents specified in your cover letter dated 25/10/2018 received on 25/10/2018 was approved by the Faculty of Health Sciences Research Ethics Committee on its quorate meeting of 26/10/2018.

Please note the following about your ethics approval:
- Ethics Approval is valid for 1 year
- Please remember to use your protocol number (**579/2018**) on any documents or correspondence with the Research Ethics Committee regarding your research.
- Please note that the Research Ethics Committee may ask further questions, seek additional information, require further modification, or monitor the conduct of your research.

Ethics approval is subject to the following:
- The ethics approval is conditional on the research being conducted as stipulated by the details of all documents submitted to the Committee. In the event that a further need arises to change who the investigators are, the methods or any other aspect, such changes must be submitted as an Amendment for approval by the Committee.

We wish you the best with your research.

Yours sincerely

Dr R Sommers; MBChB; MMed (Int); MPharMed,PhD
Deputy Chairperson of the Faculty of Health Sciences Research Ethics Committee, University of Pretoria

The Faculty of Health Sciences Research Ethics Committee complies with the SA National Act 61 of 2003 as it pertains to health research and the United States Code of Federal Regulations Title 45 and 46. This committee abides by the ethical norms and principles for research, established by the Declaration of Helsinki, the South African Medical Research Council Guidelines as well as the Guidelines for Ethical Research: Principles Structures and Processes, Second Edition 2015 (Department of Health).

Research Ethics Committee
Room 4-60, Level 4, Tswelopele Building
University of Pretoria, Private Bag X323
Arcadia 0007, South Africa
Tel +27 (0)12 356 3084
Email deepeka.behari@up.ac.za

Fakulteit Gesondheidswetenskappe
Lefapha la Disaense tša Maphelo

ANNEXURE G: ETHICAL APPROVAL TO CONDUCT THE STUDY: GHANA HEALTH SERVICE ETHICS COMMMITTEE.

GHANA HEALTH SERVICE ETHICAL REVIEW COMMITTEE

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

My Ref: GHS/RDD/ERC/Admin/App/18/
Your Ref. No.

Research & Development Division
Ghana Health Service
P. O. Box MB 190
Accra.
Tel: +233-0302681109
233-0302679323
Fax + 233-0302685424
ghserc@gmail.com

6th December, 2018

Deborah Armah
P. O. Box 19673
Accra-North
Ghana

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

GHS-ERC Number	**GHS-ERC: 007/11/2018**
Project Title	Development of Guidelines for Holistic Healthcare Intervention for Women with Infertility in Ghana
Approval Date	6th December, 2018
Expiry Date	5th December, 2019
GHS-ERC Decision	**Approved**

The approval requires the following from the Principal Investigator:

- Submission of yearly report of the study to the Ethics Review Committee (ERC)
- Renewal of ethical approval if the study lasts for more than 12 months.
- Reporting of all serious adverse events related to this study to the ERC within three days verbally and seven days in writing.
- Submission of a final report **after completion** of the study.
- Informing the ERC if study is discontinued and reasons why.
- Informing the ERC and your sponsor (where applicable) before any publication of the research findings.

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

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

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

SIGNED.....
DR. CYNTHIA BANNERMAN
GHS-ERC VICE CHAIRMAN

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

1

ANNEXURE H: INSTITUTIONAL APPROVAL TO CONDUCT HE STUDY: GA SOUTH MUNICIPAL DISRTICT HOSPITAL

In case of reply, please quote the reference numbers and date of this letter

Our Ref. No. **GHS/GSMH/ NUR/P**
Your Ref. No......
OUR CORE VALUES
- PEOPLE CENTRED
- PROFESSIONALISM
- TEAM WORK
- INNOVATION/EXCELLENCE
- DISCIPLINE
- INTEGRITY

GHANA HEALTH SERVICE
Your Health Our Concern

Ga South Municipal Hospitu
Ghana Health Servic
P. O. Box 36
Mallam, Accra

13th November, 2(

Tel. No 0302 91196
0302 33517
E-Mail:gsdh46 @yahoo.co

THE REGIONAL DIRECTOR OF HEALTH SERVICES
GREATER ACCRA REGION
ACCRA.

Dear Sir,

INSTITUTIONAL APPROVAL TO CONDUCT PHD STUDY
MRS. DEBORAH ARMAH – SENIOR NURSING OFFICER
STAFF ID: 97070

The above named officer's request to conduct her PHD study in Ga South Municipal Hospital has been approved.

Kindly give her the needed assistance.

Thank you.

Yours faithfully,

DR. KOFI SEMUA AYENSU
(MEDICAL SUPERINTENDENT)

ANNEXURE I: EXAMPLE OF INTERVIEW TRANSCRIPT: FGD

Study Title: Development of guidelines for holistic healthcare interventions for women diagnosed with infertility.

Date of interview: 31/12/2018.

- **INTERVIEW PROCESS:**
- **Researcher:** Good morning everyone!
- **Participants:** Good morning!
- **Researcher:** As I have introduced myself to you already during our telephone conversation, my name is Deborah Armah; a doctoral student at the University of Pretoria. As part of the requirement completing my study, I am to conduct a research, hence my meeting here with you today.
- **Participants:** okay.
- **Researcher:** Please be rest assured that this research has been approved by the University and the Ghana Health services ethics committee and this are the certificates.
- **Participants:** okay.
- **Researcher:** You are all welcome to this interview and thank you all ones again for agreeing to participate in this research interview and for honouring the invitation. As I have explained already to you regarding the interview, I will be asking you few questions and I would like you to feel free and relax, whereas you take your time in answering the questions. Please do not answer the very questions that you feel will hurt or bruise you. Everyone should also feel free to ask any question that might cross her mind.
- **Participants**: okay
  Researcher: Please be rest assured that there is no wrong answer to the questions asked and feel free to say anything that comes to mind at all. As I have already explained to you, our conversation will be audio-recorded so that we capture all the information. Thanks ones again for your understanding.
- **Participants**: Thanks too for inviting us to share what we are going through with you.
  Researcher: Please be informed also that the recorded interview will be transcribed, meaning it will be written down by myself and your name will remain anonymous. The documents of this interview will be only used for the purpose of the research.
- **Participants:** Okay.
  Researcher: Again, take note that during this interview I will be writing some notes in my note book.... don't worry about that...just continue talking. I will be writing key points just to remind me of what we have spoken about. You just continue and don't worry about it. Hope you all do not mind?
- **Participants:** Yes.
- **Researcher**: Do anyone have something to say before we start with the day's agender?
- **Participants:** No.

- **Q1. Researcher:** Okay since you want to start by telling me what you are going through and what you have been through ever since you were diagnosed with infertility, feel free and share. I have all ears.

  Participant's P; Am always depressed and unhappy. My husband always picks on me unnecessarily. This happens when his friends put pressure on him; asking him to try elsewhere…

  Participant's Q: I do not even remember the last time my husband touched me. I have stopped calling my husband for sex as well, even when he makes the attempt himself, I do not give in. I feel very unhappy now, I also do not see the need to be engaging in sexual affairs all these years and yet still nothing had come out yet.

  Participant's R; I always feel stigmatized and depressed…... in my neighbourhood, people mock at me, some point fingers at me whereas others also call me names indirectly…...

  Participant's S: I am a Muslim and anytime a relative or friend gave birth, we usually go for a ceremony known in our dialect as "SUNA", this is what Christians referred as child dedication or out dooring…. Madam, during this ceremony, friends gather courage and ask insensitive questions. Some are like "you always attend people's programmes, when are you also going to invite us". Madam after this very humiliation, I vowed not to attend any of such social ceremonies again.

  Participant's T: For the past eight years now, I have stopped going to my family house and my home town as well …the humiliations and the sensitive questions they kept asking each and every time I visited have really putting me off…due to that, I have just vowed not to visit my home town again… (shouting)….

  Q2. Researcher: What interventions did you receive in an attempt to conceive? (e.g. In-vitro fertilization (IVF), Hormonal medications–(orthodox / herbal), Spiritual interventions, Others)?

  Participant's P: I know my situation is more psychological and then physical…. I need counselling not drugs… drugs…I have taken drugs for like six years now…what has happened?

  Participant's Q: I have been on medications for a longer period, but no improvement….my condition is not physical…. I need more of reassurances...

  Participant's R: For the past five years now, I have not been on any medications and is not as if I do not want to. The very reason why I have not been on any medication is because, my doctor wrote various lab investigations for me to do before the commencement of treatment. Unfortunately, till date, I have not been able to gather that huge amount of money to have the investigations done; hence no drug has been prescribed for me yet.

  Participant's S: For me, am not on only other medications, after going through all the various investigations that were requested, all my test results came out positive indicating that am very fine. I know the problem might come from my husband. After years of seeing no positive results, I managed to lure my husband and we visited the clinic together. To my surprise, the results of all the test conducted on him indicated that, he had low sperm counts.

Participant's T: I have gone through all the necessary investigations, fortunately, everything showed I am okay. I was given folic acid to take it daily, but I do not because for all the years I have taken it, I have not seen any improvement.

Q3. Researcher: Have you ever received a psychosocial support?

Participant's R: Yes, I have but not from a healthcare provider. I received this support from relations and some friends.

Participant's T: A friend who had a similar situation but has now conceived usually shares her experience with me and also encourages me as well. My husband does encourage me as well.

Participant's S: Yes, but not from you people.

Participant's Q: Yes, but from some close relations.

Participant's P: Some Christian sisters do.

Q4. Researcher: Which support did you receive?

Participant's S: Encouragement.

Participant's Q: Counselling.

Participant's P: Encouragements / Counselling.

Participant's R: Reassurances and encouragement.

Participant's T: Peer mentoring / Encouragement.

Q5. Researcher: How did the support / intervention impact your life?

Participant's T: I always feel good and happy anytime I receive supports from my husband.

Participant's P: The few friends I have in Christ who encourages me gives me relief regardless of what am going through.

Participant's R: I know about one church member who was childless for over 12 years, but she finally had her own child. I use her as an example in my life and get encouraged hoping that mine is on the way coming, no matter how long it takes.

Participant's S: Friends with similar problems comfort me. They tell me all about their experiences in the past and how they have now been successful in having their own. In fact, I take a lot of solace from my friends.

Participant's Q: Receiving such support comforts me a lot. It also gives me the hope to move on in life despite what am going through.

Q6. Researcher: Which interventions do you wish to be incorporated into your care? (e.g. Counselling, peer mentoring, materials on the causes, treatment options and prevention of infertility, engagement in treatment regimen, online educations of healthy living to avoid this problem, educational interventions, spiritual interventions, cordial relationship with staff and so forth).

Participant's: Madam all what you have mentioned to us will do us good. Please we need these interventions so much.

Q7. Researcher: How do you want this support to be rendered to you?

Participant's S: Hmmm… madam, can it be every time we visit the clinic?

Researcher: Why not… it possible dear.

Participant's R: We need it every now and then…

Participant's P: Before we go and see the doctor, there should be something like counselling and even when are drugs are been given to us.

Participant's T: Just like my sister have said, before we go and see the doctor, when we are getting the treatment and sometimes even when we have gotten pregnant so that we do not do things that will cause a miscarriage.

Participant's Q: Every time we come to the clinic; we must be given such supports.

ANNEXURE J: EXAMPLE OF INTERVIEW TRANSCRIPT: NGT

Study Title: Development of guidelines for holistic healthcare interventions for women diagnosed with infertility.

Date of interview: 16/1/2019.

- **INTERVIEW PROCESS:**
- **Researcher:** Good afternoon everyone!
- **Participants:** Good afternoon!
- **Researcher:** As I have introduced myself to you already during our telephone conversation, my name is Deborah Armah; a doctoral student at the University of Pretoria. As part of the requirement completing my study, I am to conduct a research, hence my meeting here with you today. Am also there with my researcher assistant by name Prince Addai and he will moderate today's exercise.
- **Participants:** okay.
- **Researcher:** Please be rest assured that this research has been approved by the University and the Ghana Health services ethics committee and this are the certificates.
- **Participants:** okay.
- **Researcher:** You are all welcome to this interview and exercise session at the same time, and thank you all ones again for agreeing to participate in this research exercise and for honouring the invitation. As I have explained already to you regarding this exercise in our early conversation, you are to assist draft a guideline for a holistic healthcare interventions for women diagnosed with infertility. My researcher assistant who is going to moderate this whole exercise will be asking you few questions of which you are to put your answers in a form of writing into the papers provided. I would like you to feel free and relax, whereas you take your time in answering the questions. Your responses will assist in developing and refining guidelines for a holistic healthcare interventions for women with infertility. Everyone should also feel free to ask any question that might cross his or her mind.
- **Participants**: okay
  Researcher: Please be rest assured that there is no wrong answer to the questions asked and feel free to say anything that comes to mind at all. As I have already explained to you, our conversation will be audio-recorded, so that we capture all the information. Thanks ones again for your understanding.
- **Participants**: Welcome.
  Researcher: Please be informed also that the recorded interview will be transcribed, meaning it will be written down by myself and your name will remain anonymous. The documents of this interview will be only used for the purpose of the research.
- **Participants:** Okay.

Researcher: Again, take note that during this interview I will be writing some notes in my note book.... don't worry about that...just continue talking and writing. I will be writing key points just to remind me of what we have spoken about. You just continue and don't worry about it. Hope you all do not mind? Again, you will be divided into three main groups, 4 in each group. Hope that is also fine with you all?

- **Participants:** Yes.
- **Researcher**: Do anyone have something to say before we start with the day's agender?

  Participants: No.

  Q1. Moderator: In your experience, what should entail in the holistic healthcare interventions of women diagnosed with infertility?

  Participants Group 1:

  a**.** Medical interventions and this must include; rendering of physical care such as checking of their vital signs to rule out any abnormality, history taking and it should both come from subjective and objective data, need to perform physical examination on them from head-to-toe and record any abnormal findings, proper diagnostic request to rule out all doubts, and finally prescribing of the right drugs or antibiotics per each woman's problem.

  b. Psychological interventions and this must entail; counselling to allay the psychological stress women with infertility have to go through.

  c. Spiritual intervention; this form of intervention should be done by inspiring and giving them hope in whatever they believe in and the need to remain in that faith. Again, in times like this, prayers or devotions offered early in the morning at the outpatient department (OPD) will go a long way to heal such people spiritually, hence this must also be encouraged.

  d. Educational intervention; example, the need for lifestyle modification on wellness and healthy living including exercising and diet regimen, avoidance of alcohol, smoking, and intake of well-balanced diet must be emphasized upon. The cause, preventions as well as treatment modalities must also be thought.

  e. Social interventions; as part of this support or intervention, there is a need to ensure a serene and a peaceful environment. Family support must also be encouraged at all times since most family members can be very troublesome and worrying and finally, development of excellent and effective communication so that these women can always feel and be at peace when they are to come for a review or need to inquire about their condition.

  f. Financial interventions; Services rendered for these women must be free. They must also be given education on the essences and importance of acquiring a medical insurance so that at least, services like consultation and other trivial investigations can be taken care of by the healthcare insurance.

  Q2. Moderator: What healthcare management protocol do you think it must be followed when a woman with fertility problems presents at the clinic?

  Group 1:

  a. Registration of folder

b. Sensitize patients on the normal routine of the facility so that they know what to do at each point in time.

c. Giving health educational talks / counselling

d. Performing physical examination

e. Checking of vital signs; temperature, pulse, respiration, blood pressure.

f. Referring to the appropriate prescriber.

Q3. Moderator: Which type of the interventions must be rendered to women who comes to the clinic with infertility; before, during and after treatment? Write down everything.

Group 1:

Before Treatment

Psychological interventions.

Educational interventions.

Spiritual interventions.

During Treatment

Psychological interventions.

Educational interventions.

Spiritual interventions.

After Treatment

Psychological interventions.

Social interventions.

Q4. Moderator: How often should we render these interventions listed above?

Group 1: Each and every time the women visited the clinic.

Q5. Moderator: Which healthcare interventions will these women value most?

Group 1:

Psychological interventions.

Educational interventions.

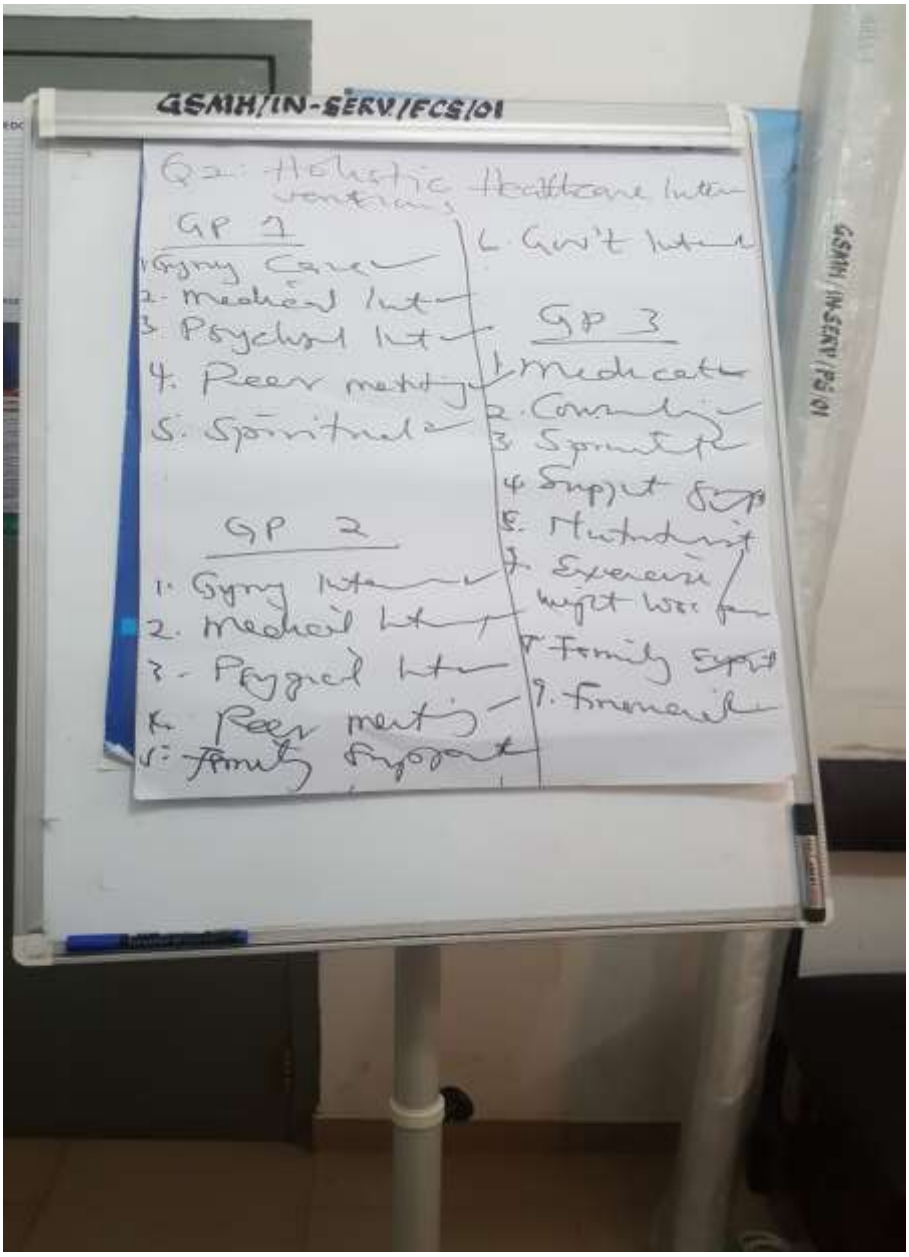
Spiritual interventions.

Social interventions.

Medical interventions.

Financial interventions.

ANNEXURE K: PICTURE OF STAKEHOLDERS' DISCUSION ON A FLIP CHART



ANNEXURE L: LETTER OF INVITATION TO EXPERT PARTICIPANTS OUTLINING THE INSTRUCTIONS, STUDY OBJECTIVES, AND SUMMARY OF THE FINDINGS

LETTER TO EXPERT MEMBER OF THE DELPHI PANEL

Dear Expert participant

INVITATTION TO PARTICIPATE IN THE REFINEMENT OF GUIDELINES FOR HOLISTIC HEALTHCARE INTERVENTIONS FOR WOMEN WITH INFERTILITY IN GHANA.

I am a PhD student in the Department of Nursing Science, Faculty of Health Sciences at the University of Pretoria. I am conducting a study entitled; "**DEVELOPMENT OF GUIDELINES FOR HOLISTIC HEALTHCARE INTERVENTIONS FOR WOMEN WITH INFERTILITY IN GHANA**" under the supervision of Dr. A. van der Wath, Dr. M. Yazbek and Dr F. Naab.

The specific objectives that formed the basis of this study were the following according to the three study phases:

Phase I

- Review existing evidence of holistic healthcare interventions for women diagnosed with infertility.

Phase II

- Exploring and describing the healthcare needs of women diagnosed with infertility in Ghana using a focus group discussion (FGD) with women.
- Develop draft guidelines for holistic healthcare interventions for women diagnosed with infertility in Ghana using a nominal group technique (NGT) with stakeholders.

Phase III

- Develop and refine guidelines for holistic healthcare interventions for women with infertility in Ghana (Delphi technique).

Phase I of this study systematically reviewed literature on holistic healthcare interventions for women diagnosed with infertility that are implemented in developed countries in addition to the traditional mode of management to ensure holistic care.

Phase II of this study was conducted in two stages. Stage I reflected and described the healthcare needs of women diagnosed with infertility. Data were retrieved through a Focus Group Discussion with women diagnosed with infertility. Findings revealed that women diagnosed with infertility desired holistic healthcare. The healthcare needs of women diagnosed with infertility were medical assessment needs, psychological needs, educational needs, spiritual needs, social needs and financial needs.
Stage II focused on developing draft guidelines for holistic healthcare interventions for women diagnosed with infertility. The use of a Nominal Group Technique with stakeholders was employed. The discussion

session with the stakeholders emphasized the various healthcare interventions needed to be incorporated in the care of women with infertility to ensure they are being cared holistically. The interventions outlined by the stakeholders includes; medical, psychological, educational, spiritual, social and financial interventions.

The preliminary guidelines were drafted and formulated based on the systematic review of literature in Phase I, and the empirical data retrieved from the FGDs and the NGT with participants in Phase II, Stage I and Stage II respectively. The aim of the guidelines is to assist healthcare providers in the provision of holistic healthcare for women diagnosed with infertility.

You are invited to participate in the development and the refinement of the guidelines. The Delphi technique has been chosen as the preferred method for the refinement process. Twenty national and international experts in government and nongovernmental organizations in the field of human behaviour, infertility, policy and guideline development such as academic researchers, gynaecologists, midwives, and psychologists are expected to participate in the process. It is expected that not more than three Delphi rounds will be sufficient to obtain consensus on the content of the guidelines.

There are seven preliminary guidelines with actions for healthcare providers managing women diagnosed with infertility in order to manage these women holistically.

- You will be expected to read the guideline, rate the guideline in accordance with the given criteria and write comments in the space provided at the end of each section. Your ratings and comments will be compared with those of the other participants.

- You are expected to sign the last page of the consent document and return it to the researcher per email with the rated guidelines.

Please complete the biographical data in the first section of the instrument by providing descriptive information on your **professional and academic experience**. This will enable the researcher to describe the sample. No names or identities will be mentioned in the research report or publications. The refinement process should take less than an hour to complete. It is anticipated that the Delphi process will take at least two rounds. You will be expected to respond within a period of a week in each round. Your participation and comments is highly appreciated. Comments received in round 1 will be collated and analysed for further validation in round 2. Attached is a consent form that should be returned with the guidelines should you agree to participate in the study. For any clarification that may be required please contact me or my supervisors at the following contact details below:

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ANNEXURE M: BIOGRAPHICAL INFORMATION OF THE EXPERT PARTICIPANTS

Please complete the biographical information by providing descriptive information on your professional and academic experience. This will enable the researcher to describe the Delphi sample.

No.	Professional Qualifications	Occupation	Employer	Experience in the field of Infertility, Gynecology, Midwifery, Psychology, Academia, Policy and Guideline Development
1.				
2.				

ANNEXURE N: SEVEN DRAFT GUIDELINES AND ACTIONS

STUDY TITLE: DEVELOPMENT OF GUIDELINES FOR HOLISTIC HEALTHCARE INTERVENTIONS FOR WOMEN WITH INFERTILITY IN GHANA.

Name of Student	Deborah Armah
Student Number	18370293
Programme	PhD
Field	Nursing Science, University of Pretoria
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Activity	Development and refinement of preliminary guidelines
Contact Details	Email: kussiwaah@yahoo.com, Tel no. +27655346801

Please complete the biographical information by providing descriptive information on your professional and academic experience. This will enable the researcher to describe the Delphi sample.

Professional qualifications	**Occupation**	**Employer**	**Experience in the field of, infertility, policy and guideline development (such as academic researchers, gynaecologists, midwives, and psychologists)**

Please read the scope, purpose and stakeholders' involvement and complete the rating scale in accordance with the criteria as described.

Criteria for guideline	Rating scale criteria	Rating Scale guide 1=Strongly disagree, 2= Disagree, 3= Agree, 4= Strongly agree
Purpose The purpose of the guidelines is to provide holistic healthcare interventions for women with infertility.	The purpose of the guidelines are explicitly stated.	1 [ ] 2 [ ] 3 [ ] 4 [ ]
Scope The guidelines were developed for healthcare providers including professional nurses, midwives, gynaecologists and healthcare managers managing women diagnosed with infertility.	Scope of guidelines are explicitly stated.	1 [ ] 2 [ ] 3 [ ] 4 [ ]
Stakeholders' involvement **Focus Group Discussion**; was held with women diagnosed of infertility. **Nominal Group Technique**; was held with healthcare providers managing women with infertility (professional nurses, midwives, gynaecologists and healthcare managers) and non-healthcare providers but are influential when matters of health is concerned (assembly man, opinion leaders and a clergy). **Delphi Experts**; experts in the area of human behaviour, infertility, policy and guideline development such as academic researchers, gynaecologists, midwives, and psychologists.	The guideline development process comprised individuals from all relevant professional groups and the views from the target population.	1 [ ] 2 [ ] 3 [ ] 4 [ ]
Comments		

SEVEN PRELIMINARY GUIDELINES
Please read the guidelines and actions and complete the rating scale in accordance with the criteria as described.

Rating scale guide: 1 = Strongly disagree 2 = Disagree 3 = Agree 4= Strongly agree	**Reliability** The guideline will produce the desired results if implemented				**Validity** The guideline will guide healthcare providers managing women with infertility to provide holistic healthcare interventions for women with infertility.				**Clarity** The guideline is clear, easily understandable, unambiguous and logical.				**Applicability** Target population is clearly stated: Healthcare providers managing women diagnosed with infertility			
GUIDELINE 1	**1**	**2**	**3**	**4**	**1**	**2**	**3**	**4**	**1**	**2**	**3**	**4**	**1**	**2**	**3**	**4**
Healthcare providers managing women diagnosed with infertility should conduct a holistic healthcare assessment in order to identify women's health support needs.																
ACTIONS	**1**	**2**	**3**	**4**	**1**	**2**	**3**	**4**	**1**	**2**	**3**	**4**	**1**	**2**	**3**	**4**
1. Ask critical questions (subjective data) and probe well into answers they receiv findings. 2. Conduct a comprehensive head-to-toe physical examination of women diagnosed with infertility to detect their physical health problems or needs and manage that as well. 3. Ensure appropriate investigations are requested, done and results obtained before the commencement of treatment**.** 4. Vital signs should be monitored during every visit. 5. Assess the women's mental status, cognitive and emotional experiences, mood, social support systems, cultural and religious beliefs about fertility and infertility as well as their social circumstances.																
Comments																

Please read the guidelines and actions and complete the rating scale in accordance with the criteria as described.

Rating scale guide: 1 = Strongly disagree 2 = Disagree 3 = Agree 4= Strongly agree	**Reliability** The guideline will produce the desired results if implemented				**Validity** The guideline will guide healthcare providers managing women with infertility to provide holistic healthcare interventions for women with infertility.				**Clarity** The guideline is clear, easily understandable, unambiguous and logical.				**Applicability** Target population is clearly stated: Healthcare providers managing women diagnosed with infertility			
GUIDELINE 2	**1**	**2**	**3**	**4**	**1**	**2**	**3**	**4**	**1**	**2**	**3**	**4**	**1**	**2**	**3**	**4**
Healthcare providers managing women diagnosed with infertility should incorporate psychological interventions in the management protocols.																
ACTIONS	**1**	**2**	**3**	**4**	**1**	**2**	**3**	**4**	**1**	**2**	**3**	**4**	**1**	**2**	**3**	**4**
1. Healthcare providers managing women diagnosed with infertility should render psychological interventions. This includes; psychological counselling, peer mentoring, cognitive behavioural therapy, acceptance commitment therapy, body-mind intervention and emotionally focused interventions.																
Comments																

Please read the guidelines and actions and complete the rating scale in accordance with the criteria as described.

Rating scale guide: 1 = Strongly disagree 2 = Disagree 3 = Agree 4= Strongly agree	**Reliability** The guideline will produce the desired results if implemented.				**Validity** The guideline will guide healthcare providers managing women with infertility to provide holistic healthcare interventions for women with infertility.				**Clarity** The guideline is clear, easily understandable, unambiguous and logical.				**Applicability** Target population is clearly stated: Healthcare providers managing women diagnosed with infertility.			
GUIDELINE 3	**1**	**2**	**3**	**4**	**1**	**2**	**3**	**4**	**1**	**2**	**3**	**4**	**1**	**2**	**3**	**4**
Healthcare providers managing women diagnosed with infertility should provide health education to disseminate information about causes, prevention, various treatment options and side effects.																
ACTIONS	**1**	**2**	**3**	**4**	**1**	**2**	**3**	**4**	**1**	**2**	**3**	**4**	**1**	**2**	**3**	**4**
1. Establish rapport to ensure the woman feels calm and relaxed. Seek her prior knowledge regarding her condition before giving any information to determine her individual needs. 2. Ensure the use of language that is well understood and refrain from medical terms or jargon. 3. Give information in small amounts by first assessing women's level of understanding and using patient's response as a guide to teach appropriately. For example, educate the woman on the causes, risk factors, various treatment modalities while guiding her towards making an informed choice and finally, offering information regarding preventive measures. 4. Advise appropriately on behavioural lifestyle that might alter or hinder the chances of getting pregnant. For example, avoid smoking, alcohol consumptions, reduction of weight gain etc. 5. Use verbal, written, pictorial or visual aids, models and diagrams that can be easily understood to convey information to women diagnosed with infertility based on their health educational needs.																

6. Ensure women diagnosed with infertility are well informed about everything they must know as far as their condition is concerned. Enquire what other information they need or needs more emphasis. 7. Make time to explore the health support needs of women diagnosed with infertility, give feedback and respond appropriately. 8. Ensure education was well understood by giving a summary of all that have been discussed. 9. Encourage women diagnosed with infertility to implement what they have learnt in order to take charge of what they are going through, be responsible and independent. 10. Evaluate women by asking for feedback. Elicit responses, reactions, comments as well as emotional state concerning information given to ensure education was well understood.																	
Comments																	

Please read the guidelines and actions and complete the rating scale in accordance with the criteria as described.

Rating scale guide: 1 = Strongly disagree 2 = Disagree 3 = Agree 4= Strongly agree	**Reliability** The guideline will produce the desired results if implemented				**Validity** The guideline will guide healthcare providers managing women with infertility to provide holistic healthcare interventions for women with infertility.				**Clarity** The guideline is clear, easily understandable, unambiguous and logical.				**Applicability** Target population is clearly stated: Healthcare providers managing women diagnosed with infertility			
GUIDELINE 4	**1**	**2**	**3**	**4**	**1**	**2**	**3**	**4**	**1**	**2**	**3**	**4**	**1**	**2**	**3**	**4**
Healthcare providers managing women diagnosed with infertility should acknowledge their spiritual needs and ensure the provision of spiritual support.																
ACTIONS	**1**	**2**	**3**	**4**	**1**	**2**	**3**	**4**	**1**	**2**	**3**	**4**	**1**	**2**	**3**	**4**
1. Encourage spiritual empowerment by allowing early morning devotions at the outpatient department. 2. Involve reverend minsters, clergies or pastors in the care of women diagnosed with infertility by ensuring they are also present during clinic days to offer the needed spiritual support to the women. 3. Respond appropriately to give the women hope, meaning and purpose in life and ensure their spiritual needs are addressed. 4. Spirituality is unique to the individual and the woman's believe systems should be respected without judgement. 5. Address issues related to spiritual needs and suffering and ensure appropriate coping strategies are put in place to improve their quality of life. 6. Ask critical questions (subjective data) and probe to ensure objective data of their spiritual needs is obtained. Document vital information and all abnormal findings.																
Comments																

Please read the guidelines and actions, then complete the rating scale in accordance with the criteria as described.

Rating scale guide: 1 = Strongly disagree 2 = Disagree 3 = Agree 4= Strongly agree	**Reliability** The guideline will produce the desired results if implemented.				**Validity** The guideline will guide healthcare providers managing women with infertility to provide holistic healthcare interventions for women with infertility.				**Clarity** The guideline is clear, easily understandable, unambiguous and logical.				**Applicability** Target population is clearly stated: Healthcare providers managing women diagnosed with infertility			
GUIDELINE 5	**1**	**2**	**3**	**4**	**1**	**2**	**3**	**4**	**1**	**2**	**3**	**4**	**1**	**2**	**3**	**4**
Healthcare providers managing women diagnosed with infertility should ensure support from significant others.																
ACTIONS	**1**	**2**	**3**	**4**	**1**	**2**	**3**	**4**	**1**	**2**	**3**	**4**	**1**	**2**	**3**	**4**
1. Encourage involvement of the women's partners throughout the treatment processes. 2. Encourage couple and family therapy when the need arises. 3. Encourage the support of close family relations, for example, the involvement of a mother or a sister based on their consent. 4. Encourage involvement of partners and significant others to improve the dynamics of the family unit. 5. Offer additional psychosocial support to overcome relational and social distress.																

Comments

Please read the guidelines and actions and complete the rating scale in accordance with the criteria as described.

Rating scale guide: 1 = Strongly disagree 2 = Disagree 3 = Agree 4= Strongly agree	**Reliability** The guideline will produce the desired results if implemented.				**Validity** The Guideline will guide healthcare providers managing women with infertility to provide holistic healthcare interventions for women with infertility.				**Clarity** The guideline is clear, easily understandable, unambiguous and logical.				**Applicability** Target population is clearly stated: Healthcare providers managing women diagnosed with infertility.			
GUIDELINE 6	**1**	**2**	**3**	**4**	**1**	**2**	**3**	**4**	**1**	**2**	**3**	**4**	**1**	**2**	**3**	**4**
Healthcare providers managing women diagnosed with infertility need to encourage them to have their health insured and lobby for financial support from government and nongovernmental organizations.																
ACTIONS	**1**	**2**	**3**	**4**	**1**	**2**	**3**	**4**	**1**	**2**	**3**	**4**	**1**	**2**	**3**	**4**
1. Encourage women to enrol in the health insurance scheme. 2. Ensure reproductive healthcare is accessible, affordable and timely to meet the needs of infertile women. 3. Lobby for financial support from both government and nongovernmental organizations. 4. Identify the availability of other support groups and services that could offer financial support to women diagnosed with infertility. 5. Collaborate with private agencies and philanthropist in the mobilization of resources or support systems that will enable these women to get relief from the financial stress.																

Comments

Please read the guidelines and actions and complete the rating scale in accordance with the criteria as described.

Rating scale guide: 1 = Strongly disagree 2 = Disagree 3 = Agree 4= Strongly agree	**Reliability** The guideline will produce the desired results if implemented				**Validity** The guideline will guide healthcare providers managing women with infertility to provide holistic healthcare interventions for women with infertility.				**Clarity** The guideline is clear, easily understandable, unambiguous and logical.				**Applicability** Target population is clearly stated: Healthcare providers managing women diagnosed with infertility.			
GUIDELINE 7	**1**	**2**	**3**	**4**	**1**	**2**	**3**	**4**	**1**	**2**	**3**	**4**	**1**	**2**	**3**	**4**
Healthcare providers managing women diagnosed with infertility should create a therapeutic relationship and environment in order to meet their healthcare needs.																
ACTIONS	**1**	**2**	**3**	**4**	**1**	**2**	**3**	**4**	**1**	**2**	**3**	**4**	**1**	**2**	**3**	**4**
1. Empathise with women diagnosed with infertility by reflecting on their emotions. 2. Provide adequate time for consultations. Avoid judgemental statements. 3. Nod or use other encouraging gestures or sounds such as “I see”, “okay”, “it’s well” to reflect effective communication. 4. Listen attentively when women express their challenges. 5. Establish rapport with infertile women by showing respect. 6. Maintain eye contact throughout the consultation. 7. Acknowledge their uniqueness and individuality. 8. Offer additional psychosocial support, for example, home visits and telephonic contact to follow-up.																

9. Ensure less waiting time at the clinic and provide care in a timely and accurate manner. 10. Encourage involvement of the women's partners throughout the management process by making them aware how important their support is, and that support enhances a positive outcome. 11. Address all holistic healthcare needs of women.																
Comments																

ANNEXURE O: SYSTEMATIC REVIEW OF LITERATURE

Author(s), Year, Country, Pages	Purpose, Sample, Setting	Design and Methods	Quality Appraisal Quality Appraisal Criteria (Scale: h=high, 1=low, nr=not)	Topic	Major Findings
Remah M., 2010, Arabia, p. 4	To provide the healthcare professionals an evidence-based management protocol for infertile couples away from medical information overload.	A comprehensive review of literature	(h) Purpose of the study well introduced. (h) Research design well described. (1) Absent of a theoretical framework to guide the study (h) Study conclusion well expatiated (h) Limitation of the study discussed. (nr) Study implications also absent.	Management of the infertile couple: an evidence-based protocol.	The findings or conclusion of the study stated explicitly that infertility per se does not threaten life, rather its undesirable psychosocial consequences. The researcher further explained that due to the undesirable consequences encountered by individuals diagnosed with infertility, there is the need for healthcare providers to offer counselling in relation to the causes, investigations, the available treatment options as well as rendering realistic information about their chances of having children.
Broeck et al, 2010, Germany, p. 427	To describe common interventions used in infertility counselling for individuals, couples and in group settings.	Summarisation of campus workshop	(h) Purpose of study well clarified (1) Study design not introduced (h) Research methods explained (h) Explicit theoretical framework (h) Conclusion well clarified (1) Limitation of the study was absent (h) Study implication is well elaborated.	Counselling in infertility: Individual, couple and group interventions	The findings of the study revealed that adhering to management protocol will encourage individuals to start up their treatment in the proper way at early time with enough financial support, hence reducing wastage of money spent on unnecessary investigations. Counselling in relation to infertility offers the chance to explore, discover and clarify ways of living more satisfyingly and resourcefully when one is diagnosed with infertility.
Yazdani et al., 2017, Iran, p. 4699, 4700	To describe counselling-supportive interventions to	Systematic review	(h) Aim of the study well expatiated (nr) Study design not introduced.	Counselling-supportive interventions to decrease infertile women's perceived stress: Systematic review.	Effective counselling is known to have positive effects on the infertile women's life since its aids in alleviating the undesirable stressors they had to encounter because of their condition. Findings again revealed that, in as much as the undesirable stress experienced by this women

	decrease infertile women's perceived stress.		(h) Research methods explained (nr) Theoretical framework absent (h) Well summarised conclusion (1) Study limitation missing (1) Implication of study missing		can sometimes worsen their plight, whereas its intensifier can lead to failure of fertility methods, there is the need to provide counselling since the intervention can help improve treatment results, skills and coping with life without treatment options and also cause significant decrease in potential struggle. Finally, the researchers concluded by adding that, counselling interventions and perceived social support greatly influence physical and mental condition, life satisfaction and various aspects of infertile women's life whiles these interventions have also been recognised as moderating factors effective in dealing with stress and coping with stressors they had to encounter because of their condition.
Gardi, A.H, 2014, Iraq, p. 28	To determine the effect of psychological intervention on the rate of marital satisfaction of infertile couples who attended the infertility centre.	Quantitative	(h) Purpose of the study presented (h) Research design described (nr)Theoretical framework absent (h) Conclusion stated (nr) Limitation not addressed (nr) Study implications absent	Effect of psychological intervention on marital satisfaction rate of infertile couples	Psychological interventions helps improve the mental health and quality of life of couples suffering from infertility and it related stressors.
Joy & McCrystal, 2015, UK, p. 83, 88	Explore the role of independent infertility counselling practitioner and the counselling service.	Qualitative	(h) Purpose of study introduced (1) Design of study missing (1) Research methods missing (1) Absences of theoretical framework (h) Conclusion of the study elaborated (1) Limitation of study absent (1) Implication of study not addressed	The role of counselling in the management of patients with infertility	Counselling was also known as a combination of medicine and mental health and for which reason, it should be integrated in the management protocol of infertility. The researchers were of the view that, counselling aims to explore, understand, resolve and most importantly, effectively deals with issues arising from infertility and it related issues.
Kenarsari et al., 2015, Iran, p. 552, 554, 557, 558	To explore infertile couples' counselling needs.	Qualitative	(h) Purpose of study well introduced (h) Design introduced (h) Research methods introduced (nr) Absence of conceptual framework	Exploration of the counselling needs of infertile couples	The study revealed that, issues of infertility and its related stressors exposes individuals to mental, social and psychological conditions and therefore individuals who finds themselves in this devastating condition expressed the need for receiving psychological counselling. The study again revealed that, infertile individuals greatest counselling needs were; psychological counselling and a need for guidance and information during treatment process. In the researchers concluding

			(h) Conclusion briefly elaborated (1) Study limitation absent (1) Implication of study not addressed		remarks they added that, infertile individuals requires various psychosocial supports and counselling interventions in order to have some form of relief.
Kavak & Kavak, 2018, Turkey, p. 562, 599	To determine the effect of perceived social support on depression in infertile women	Quantitative	(h) Purpose of study made known (h) Methods and design introduced (1) Missing theoretical framework (h) Conclusion of study well structured (h) Limitation of study introduced (1) Implication of study absent	The relationship between perceived social support and depression in infertile women	The findings of the study revealed that when healthcare providers acquaint themselves in relation to the stress levels and the psychosocial problems of infertile women and are well able to intervene appropriately, these women will overcome this process more healthily and their chances of getting positive treatment outcomes will also be increased.
Read et al., 2014, Canada, p. 393, 384	To describe the psychosocial supports that infertile couples desire to help cope with infertility-related distress, which psychosocial services they sought, and the benefits and drawbacks of these services.	Qualitative	(h) Aim of the study well expatiated (nr) Study design not introduced (h) Research methods explained (nr) Theoretical framework absent (h)Well summarised conclusion (1) Study limitation missing (h) Implication of study addressed	Psychosocial services for couples in infertility treatment: What do couple really want.	Findings of the study revealed that, in as much as infertility and its treatments options entails a long journey and often associated with varied disappointments, those victimised may need access to a variety of psychosocial services so as to help them cope with the problem they find themselves in. The researchers made mentioned of some interventions like counselling, peer mentoring system and easy-to-read-understand written materials indicating all about infertility. The desire for peer mentoring was really emphasized upon by the researchers. This simply implies that, people affected with infertility desired that, a former infertility patient will also be given the opportunity to give them an education as far as infertility is concerned.
Kussiwaah, 2016, Ghana, p. 104	To describe the experiences of women with infertility and their biopsychosocial management.	Qualitative	(h) Aim and objectives clearly stated (h) Study design well explained (h) Research methods also explained (h) Theoretical framework introduced (h)Limitation reported (h) Implication discussed	Experiences of women with infertility and their biopsychosocial management.	Study revealed that, after being peer mentored by a fellow colleague with the same condition, there is a feeling of relief. This allows women diagnosed with infertility cope better than previous.

Verkuijlen et al, 2014, Netherlands, p. 2	To assess the efficacy and safety of psychological and educational interventions for sub fertile patients on psychological and fertility treatment outcomes.	Published and unpublished randomized controlled trials	(h) Research objectives clearly stated (nr) Study design not reported (h) Research methods adequately described (nr) Limitation not reported (h) Conclusion described (nr) Implication not addressed	Psychological and educational interventions for sub fertile men and women (Protocol).	Educational intervention is known to have increased the knowledge of infertile individuals regarding infertility and it consequences. This also helps them develop better skills, whereas they are also able to deal with their condition and it related issues that comes with it. Lastly, receiving educational intervention makes them acquire more knowledge and skills and by that they experience reduced psychological burden during fertility treatment.
Luk & Lok, 2016, China, p. 521, 529, 531	To explore the types, and outcome measurements of the psychosocial approaches that have been adopted existing intervention studies for infertile individuals or couples.	Systematic review	(h) Aim and objective clearly stated (h) Study design adequately described (h) Method well defined (nr) Theoretical framework absent (h) conclusion well elaborated (h) Limitation of the study stated (h) Implication of the study present	A review of supportive interventions targeting individuals or couples undergoing infertility treatment: Directions for the development of interventions	Findings of the study showed that, cognitive behavioural therapy was the commonest adopted psychosocial intervention. This was followed by acceptance commitment therapy and counselling. These interventions are known to be effective psychosocial approaches that helps in reducing infertility-induced psychological stress in infertile individuals.
Faramarzi et al., 2013, Iran, p. 199, 204	To evaluate the effectiveness of cognitive behavioural therapy along with fluoxetine for improvement infertility stress in infertile women.	Randomized controlled clinical trial	(h) Purpose of the study present (nr) Study design not reported (h) Method well defined (nr) Theoretical framework absent (h) Conclusion present (nr) Limitation absent (nr) Implication of the study absent	The effect of the cognitive behavioural therapy and pharmaco therapy on infertility stress: A randomized controlled trial	The study revealed that, cognitive behavioural therapy training given to the women during the treatment phase helped decreased stress and anxiety. Cognitive behavioural therapy was again effective in decreasing fertility stress in dimensions of the social concerns, sexual concerns, marital concerns, rejection of child free lifestyle and finally, the need for parenthood.

Batool et al, 2014, UK & Pakistan, p. 673, 677	To assess the impact of emotional intelligence, social support and contextual factors on the general health of infertile women.	Quantitative	(h) Purpose of study stated (nr) Study design not reported (h) Research methods stated (n) Theoretical framework absent (h) Conclusion presented (nr) Limitation of the study absent	Psychosocial and contextual determinants of health among infertile women: A cross-cultural study	Finding revealed that, British and Pakistan women who received medical information were satisfied. Meanwhile, they also got satisfied with their emotional needs as well.
Frederik et al., 2014, Denmark, pp. 1, 15	To evaluate the evidence on the efficacy of psychosocial interventions for improving pregnancy rate and reducing distress in treatment.	Systematic review	(h) Objectives well defined (h)Study design well defined (h) Research method described (nr) Theoretical framework absent (h) Conclusion stated (h) Implication of the study presented (h) Limitation of the study present	Efficacy of psychosocial interventions for psychological and pregnancy outcomes in infertile women and men: a systematic review and meta-analysis.	Psychosocial interventions like CBT offered for individual diagnosed with infertility could be more effective in reducing psychological distress and in improving pregnancy rate. MBI was also identified by the researchers as also being beneficial for reducing distress and improving pregnancy outcomes.
Hussein, 2014, Iraq, p. 34	To determine the effect of psychological intervention on the rate of marital satisfaction of infertile	Quantitative	(h) Purpose of the study present (h) Study design well defined (h)Methods described (nr) Theoretical framework absent (h) Conclusion stated (nr) Limitation of the study absent (nr) Study implication absent	Effect of psychological intervention on marital satisfaction rate of infertile couples.	Cognitive behavioural therapy helps improve the quality of life of the infertile, by improving sexual activities and satisfaction as well as, marital relationship skills. Hence cognitive behavioural therapy is known to be effective in the management of infertility and its issues.

Psaros et al., 2014, USA, p. 75	To evaluate the feasibility of a 10-week mind-body intervention (MBI) for women coping with fertility challenges, examine the impact of an MBI on psychological distress.	Quantitative	(h) Purpose of the study defined (h) Study design well defined (h) Methods described (nr)Theoretical framework absent (h) Conclusion stated (nr) Implication of the study absent (nr) Study limitation absent	Mind-body group treatment for women coping with infertility: a pilot study	The intervention resulted in a significant increase in perceived social support and a decrease in depressive symptoms and perceived stress.
Ying et al., 2016, China, p. 698	To examine the effects of psychosocial interventions on the mental health pregnancy rates, and marital function of infertile couples undergoing in vitro fertilization.	Systematic Literature Search	(h) Aims and objectives clearly stated (1) Study design not mentioned (h) Methods described (nr) Theoretical framework absent (h) Conclusion clearly described (nr) Implication of the study absent (h) Study limitation present.	The effects of psychosocial interventions on the mental health, pregnancy rates, and marital function of infertile couples undergoing in vitro fertilization: a systematic review.	The results of this review indicate that CBT, MBI, counselling, and coping therapy are the most frequently adopted psychological interventions for infertile women.
Romeiro et al., 2017, Ireland, p. 1, 8	Describe spirituality and the assessment of spiritual needs	-	(h) Purpose of study well elaborated (nr) Study designed absent (nr) Research method absent	The Spiritual Journey of Infertile Couples: Discussing the Opportunity for Spiritual Care.	The reproductive health condition, along with fertility treatments, often forces couples to question their purpose and meaning in life. Spirituality should be considered from the beginning to the end of life.

			(1) Theoretical framework not mentioned. (h) Conclusion well described (nr) Implications of study absent		
Ramezani et al., 2014, Iran, p. 211	To define meaning of spirituality and delivery of spiritual care in practice	Concept analysis	(1) Purpose not defined appropriately (h) Methods described (nr) Research design absent (1) Absences of a theoretical framework (h) Conclusion stated (h) Implication of the study present	Spiritual care in nursing: a concept analysis	Spiritual care a unique aspect of care that integrates all the other aspects. The provision of spiritual care leads to positive consequences such as healing for patients and promotion of spiritual awareness.
Collins et al., 2018, UK, p. 2237	To examine the utilization of prayer and clergy counselling Infertile US women desiring pregnancy.	Quantitative	(h) Aim of study well explained (h) Methods described (h) Research design presented (nr) Conceptual framework absent (h) Conclusion clearly stated (h) Limitation of study present	Racial and ethnic differences in the utilization of prayer and clergy counselling by infertile US women desiring pregnancy	The findings of the study revealed that, 70% of infertile women in the US solely relied on God by praying when faced with infertility and its associated problems. Meanwhile, it was also revealed that, engaging the services of clergies in a way of receiving counselling from them was more paramount to these women than engaging in other formal support system.
Blevins et al., 2013, USA, p. 115	To examine online information seeking among ever infertile women.	Quantitative	(h) Objective described (h) Research method present (h) Research design absent (h) Theoretical framework elaborated (h) Study well concluded (h) Implication of the study described	Online and in-person health seeking for infertility	Study revealed that about half of those who seek medical help for infertility, seeks information online. Internet is an important area to explore for those interested in responses to infertility and other health conditions.
Soltani et al, 2014, Iran, p. 343	To investigated the effect of emotionally	semi-experimental study	(h) Purpose of the study stated. (h) Study design stated		It was revealed that EFT can reduce the rate of depression, anxiety and stress in Iranian infertile couples. The findings indicated that EFT could reduce the rate of depression, anxiety and stress in this group.

	focused therapy (Behboodi-Moghadam *et al.*, 45) on factors contributing to emotional distress among infertile couples.		(h) Research method well expatiated (1) No theoretical framework (h) Well stated conclusion (h) Limitation clearly stated (nr) Implication of the study absent		EFT was recommended as a remedy for reducing infertility problems. The infertile persons are encouraged to use psychological services.
Chan et al., 2012, China, p. 370, 372	To examine the efficacy of a group intervention, the Integrative Body-Mind-Spirit (I-BMS) intervention, which aims at improving the psychosocial and spiritual wellbeing of infertile women.	Quantitative	(h) Purpose of study well defined (h) Study design clearly stated (h) Research methods well expatiated (1) Absence of a theoretical framework (h) Well defined conclusion (h) Study limitation present (1) Absence of study's implication	Incorporating spirituality in psychosocial group intervention for women Undergoing in vitro fertilization: A prospective randomized controlled study.	Women who have received the I-BMS intervention experienced a higher level of psychosocial and spiritual wellbeing. Participants reported significantly lower anxiety, experienced less disorientation and greater marital satisfaction. Participants also reported having lowered perceived importance of childbearing.
Denton et al., 2013, UK, p. 1	To provide a comprehensive resource for all those working in assisted conception and related areas.	Editorial study	(nr) Purpose of the study was not clearly defined (nr) Study design not stated (h) Well explained conclusion (1) Study limitation absent	Infertility and assisted reproduction: counselling and psychosocial aspect.	The study indicated that, counselling must be available and offered to all people on infertility treatment. Whereas rendering of this services according to the researchers must be a routine part of care from the very first time of an encounter. The researchers added that, in order to ensure an effective counselling process, the need to make available readily understandable information is very vital.
Kamel, 2010, Arabia, p. 4	To provide the healthcare professionals an evidence-based management protocol for infertile couples away from medical information overload.	Cross-Sectional Study	(h) Purpose of study well defined (h) Study design clearly stated (h) Well defined conclusion (1) Study limitation absent (nr) Absences of conceptual framework	Management of the infertile couple: an evidence-based protocol.	The researchers were of the view that, as far as infertility is known to have a devastating psychosocial consequences on the individual diagnosed of infertility, there was a need for all healthcare providers counselling these individuals regarding their infertility become familiar with the causes, investigations and the various treatment options available. The researchers added that, the need for individuals diagnosed with infertility to be given realistic information about their chances of giving birth, as well as, the risks and costs of the management plan and its alternatives is vital.

Dancet et al., 2010, Blegium, p. 467	To examine patients' perspective on fertility care.	Mixed method	(h) Aim of study mentioned (h) Design well defined (h) Conclusion discussed (h) Implication of the study stated clearly (1) Limitation of the study absent (1) Absences of theoretical framework	The patients' perspective on fertility care: a systematic review	The result of the study turned out that, patients who suffer from infertility wished to be treated uniquely with a need for: medical skills, respect, coordination, accessibility, information, comfort, support, less waiting time, partner involvement, good attitude as well as better cordial relationship from fertility clinic staff. Dancet et.al, briefly concluded their study by adding that, patients with fertility issues also have other needs in addition to their need for medical care.
Aarts et al., 2012, Netherlands, p. 491, 493	To investigate to what extent patients' experiences with fertility care are associated with their quality of life and levels of anxiety and depression.	Quantitative	(h) Aim of study mentioned (h) Design well defined (h) Conclusion discussed (h) Implication of the study missing (1) Limitation of the study absent (1) Absences of theoretical framework	How patient-centred care relates to patients' quality of life and distress: a study in 427 women experiencing infertility	Study indicated that a holistic and patient-centred approach in providing care for individuals experiencing infertility may improve upon their quality of life and wellbeing.

ANNEXURE P: COVER LETTER FOR DELHPI EXPERTS

LETTER TO EXPERT PARTICIPANTS OF THE DELPHI EXPERT (Round 2)

Dear Expert participant,

Thank you for your participation in Delphi round 1 on the topic: **DEVELOPMENT AND REFINEMENT OF GUIDELINES FOR HOLISTIC HEALTHCARE INTERVENTIONS FOR WOMEN DIAGNOSED WITH INFERTILITY IN GHANA.**

Your inputs were much appreciated. Following an extensive analysis of the inputs and recommendations from all experts, the researcher adjusted the guidelines accordingly. Comments received in round 1 were collated and analysed. A consensus rate of 85% was obtained and this indicates an acceptable consensus rate. Changes were effected and the guidelines adapted.

Please receive the adapted guidelines. These will give you the **final opportunity** to observe how your opinions differ from other experts and to gain better understanding of the guidelines. You may choose to concur with the group or stay within your opinion.

Please see the attached refined guideline with the changes indicated in different colour font. Please read the final guidelines and add any additional comments.

Your comments could be emailed back to the researcher within a week. Your participation and comments in this regard would be much appreciated. For any clarification that may be required please contact me or my supervisors on the following:

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ANNEXURE Q: PROOFREADING CERTIFICATE

Wordplay Editing

WORDPLAY EDITING
Copy Editor and Proofreader
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Tel: 071 104 9484
Website: http://wordplayediting.net/

To Whom It May Concern:

This letter is to confirm that the research proposal *Development of Guidelines for Holistic Healthcare Interventions for Women Diagnosed with Infertility in Ghana* by Deborah Armah was edited by a professional language practitioner.

Regards,

Karien Hurter