UNIVERSITY OF CAPE COAST

IMPACT OF BECK'S COGNITIVE BEHAVIOURAL THERAPY ON PREVALENCE OF DEPRESSION AMONG INFERTILE WOMEN IN CAPE COAST, GHANA

FRANK LAMADOKU ATTILA

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BY

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APRIL 2018

DECLARATION

Candidate's Declaration

I hereby declare that this thesis work is the result of my own original research and that no part of it has been presented for another degree in this university or elsewhere.

Candidate's Signature: ..... Date: .....

Name Frank Lamadoku Attila

Supervisors' Declaration

I hereby declare that the preparation and presentation of the thesis were supervised in accordance with the guidelines on supervision of thesis laid down by the University of Cape Coast.

Principal Supervisor's Signature: ..... Date: .....

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Co-Supervisor's Signature: ..... Date: .....

Name: Prof. Francis K. Amedahe

ABSTRACT

This study aimed at examining the effect of Beck's Cognitive Therapy on females who exhibit depressive symptoms due to their suffering from infertility in Cape Coast Metropolis. To achieve this, the study adopted the experimental design which included 29 infertile women, to better understand their thoughts, emotions and behaviours, purposive and census sampling techniques were used. These infertile women were grouped into experimental and control groups. Treatment was administered to the experimental group. At the end of two months, the depressive the symptoms of the infertile women in the experimental group were very much improved as compared to the women in the control group. The obtained data were analysed using inferential and descriptive statistics. The conclusion drawn at the end was that the use of Beck's Cognitive Therapy is very effective in reducing depressive symptoms among infertile women. In light of this, it is recommended that Counsellors, and Clinical Psychologists apply Beck's Cognitive Therapy to treat people who suffer depression especially due to infertility and other emotional disturbances. Besides, the study recommends that our health facilities use multi-discipline approach to solve our health needs.

KEY WORDS

Beck's Cognitive Therapy

Depression

Infertility

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DEDICATION

To Grace, my wife and children,

Aku Duanya, Dziedzom Lamadoku, Esiga Amenuve, Esivi Domenyo

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CHAPTER ONE

INTRODUCTION

Background to the Study

Marriage is one of the most important institutions of human societies. Human beings have certain urges like hunger, thirst and sex. Society works out certain rules and regulations for satisfaction of these urges. The rules and regulations that deal with sex life of human beings are found in the marriage institution. It lays foundation for the institution of family. Probably the most fundamental reason why people want children is that they themselves were raised in the family and have come to feel a want to raise the child themselves or they feel obliged to do so.

According to Ghanaian belief, an offspring is necessary for salvation of the individual. In many cases, the desire to have an heir for the family motivates the person to get married. In Ghana, which is mostly a patriarchal society, motherhood has connotations of respect and power. A woman is considered as complete only when she becomes a mother. Moreover, she proves her womanhood by bearing children and feeling secure in her marriage because it is believed that children bond not only the spousal relationship but in fact all the familial bonding. As a mother, a woman feels she has accomplished what she was supposed to do as an adult being. In such case if couples come to know about their infertility, they get depressed (Alhassan, Ziblim & Muntaka, 2014).

Globally, infertility has come to be recognized as a significant social problem. Infertility is not always women's problem. Both women and men may have problems that result in infertility. Irrespective of which couple is infertile, it is a serious psychological trauma and a terrible emotional distress for infertile couples ever (Boivin, Griffiths, & Venetis, 2011).

Infertility is clinically defined as "a disease in the reproductive system which causes failure to achieve a clinical pregnancy after one year or more after having regular sexual intercourse without any protection (Zegers-Hochschild, Adamson, De Mouzon, Ishihara, Mansour, Nygren, & Van der Poelet, 2009). Infertility is a severely emotional and physically distressing experience for many women. Infertility is the failure to achieve pregnancy after a year of frequent, unprotected intercourse. It is prevalent in approximately 10 to 20% of women (Sadock & Sadock, 2000).

Globally, almost one-third of infertility problems are due to women, another one-third of cases are caused by men and the other one-third of cases is caused by a combination of both women and men problems or by unknown reasons (Center for Disease Control & Prevention, 2012). According to a report by the International Institute of Population Sciences, infertility is growing at an alarming pace, especially in the cities. Out of around 250 million individuals estimated to be attempting parenthood at any given time, 13 to 19 million couples are likely to be infertile (Sadock & Sadock, 2003). Nowadays, there are many factors which contribute to infertility such as changes in lifestyle, mental stress, alcohol consumption, increase work pressure, lack of physical activity, medication, obesity, smoking and the recent trend of late marriages due to high ambition towards career especially among

females contribute to infertility and further give rise to psychological problems (Dyer, Abrahams, Hoffman & Van der Spuy, 2002; Larsen, 2005).

There are numerous infertile cases among many couples who try to conceive a child. The type and prevalence varies widely, being less in developed countries and more in the developing countries where there is limited resources for investigation and treatment (Zarger, Wani, Mastoid, Lawny & Salahuddin, 1997).A multicounty study carried out by the World Health Organization in 2015 placed the incidence of infertility between 10%-15% in every woman. It affects almost 13% to 15% of women worldwide. In the United Kingdom it is estimated that one in six women would be companied of infertility (Cates, Farley & Rowe, 2005).

WHO (2014) found that 300 had infertility problems such as, low sperm count, problem in the vagina and hymen, and detects in the Fallopian tube or the uterus; 200 suffered from erectile dysfunction or ejaculation problem; 100 had dyspareunia pain during sexual intercourse; 99 were observed with libido sexual anorexia. The in-vitro fertilization industry, in fact, reportedly has a year-on-year growth of 20% to 30% with around 40,000 in-vitro fertilization cycles done every year (WHO, 2014). In Sub-Saharan Africa, secondary infertility is the most prevalent type of infertility (Larsen, 2005). Secondary infertility is defined as the inability of a sexually active non-contraceptive using woman who has previously had a live birth to have a child despite cohabitation and the wish to become pregnant for at least 12 months (Mascarenhas, Cheung, Mathers & Stevens, 2012; WHO, 2014).

In Ghana, couples walking into infertility clinics and asking about assisted methods of reproduction is common these days unlike in the past.

This explains the rising number of infertility clinics in metros and urban parts of the country and long queues outside them (Alhassan, Ziblim & Muntaka, 2014). The inability to have children is undeniably a very distressing experience in both men and women that lead to major psychological disorders such as depression. Many studies have showed that infertility and depression frequently go together. It is the response to the excessive losses and prolonged stress created by the infertility process. Depression is considered as one of the main psychological disorders associated with infertility and plays a significant role in the life of infertile individuals, their infertility treatment and follow-up and in their hopefulness for the future. Infertility has a tremendous psychological impact, like anxiety and depression on infertile couples. These disorders may increase the duration of infertility (Galundia, Sethia & Sharma, 2012).

Depression is considered as one of the main psychological disorders associated with infertility especially in Africa including Ghana where children are highly valued for socio-cultural and economic reasons (Mascarenhas, Flaxman, Boerma, Vanderpoel & Stevens, 2012) and it may significantly affect the life of infertile individuals, their treatment, and follow-up (Dyer et al., 2002). Depression is known as a set of psychological signs and symptoms caused by infertility (Cwikel, Gidron & Sheineret, 2004). Depression always pushes the person towards negativity. Depression is a common mental disorder affecting about 121 million people worldwide. The prevalence of depression is also mentioned on 15% of the total population in the various statistics.

Sadock and Sadock (2005) indicated that depression is 10 to 25% prevalence in women. On the one hand, one of every 6 couples is infertile and is deprived of having children. Depression developing and increasing the annual incidence will cause that depression in future years, be at the forefront of world health problems (Guz, Ozkan, Sarisoy, Yanik&Yanik, 2003). Depression is a serious condition that can influence every area of life. It is a mental illness in which a person experiences deep, unshakable sadness and diminished interest in nearly all activities. It can affect person's social life, relationship, career, sense of self - worth and purpose.

Depressed infertile women exhibit low mood, loss of interest or pleasure in daily activities, feelings of guilt or low self-worth, disturbed sleep or appetite, low energy, and poor concentration, extreme feelings of hopelessness, overeating or lack of appetite. It may lead to lifestyle habits that can negatively impact fertility. People who are depressed are more likely to smoke or drink which can also hurt fertility (Galundia et al., 2012; Nilforooshan, 2006; WHO, 2014). Depression may affect infertility treatment, follow-up and hope for the future; it may also influence the intensity and longevity of relationship of the affected couple (Ashkani, Akbari & Heydari, 2006) while Lapane, Zierler, Lasatar, Stein, Barboutand Hume (2005) have reported that depression could also have role in the pathogenesis of infertility.

Al-Homaidan (2011) conducted a study to determine the prevalence and predisposing factors of depressive disorders among 91 infertile women compared to 94 fertile women and found that 49 (53.8%) of the infertile women and 35 (37.2%) of the fertile women had depression. Infertile women were found to be more severely depressed. A study was conducted by Thara,

Ramachandran and Mohammed-Hassan (2006) among 40 infertile women and the study revealed that all the infertile women in the study were depressed. Shamsah, Rajesh and Firuza (2009) conducted a study among 30 infertile women who were presented for in-vitro fertilization treatment and found that 60% of the infertile women presented for treatment had depression. Similarly, Domar, Zuttermeister, Seibel and Benson (2002) reported that among 338 infertile women, 37% had depressive symptoms on the Beck Depression Inventory (BDI), which was twice as common as in the control group. Nelson, Shindel, Naughton, Ohebshalom and Mulhall (2008) used Centre for Epidemiological Studies Depression Scale (CES-D) for depression and found that 19% of 94 infertile women had moderate and 13% had severe depression. Equally, Drosdzol and Skrzypulec (2009) found that 35.4% infertile women scored above the cut-off for severe symptoms of depression, compared with 19.47% of fertile women.

In Ghana, Alhassan et al. (2014) revealed that among 100 infertile women in Tamale Teaching Hospital, 62.0% had depression on Beck Depression Inventory. The level of depression was significantly higher among subjects with low or no formal education and among the unemployed. Women with primary infertility also presented with high depression scores as measured by BDI. Infertility is a stressful event that can give rise to psychological difficulties.

Beck Cognitive Therapy is well-established treatment for depression. The use of cognitive-behavioural therapy (CBT) that includes different methods such as relaxation, cognitive restructuring, biofeedback, systematic desensitization, behavioural training, thought stopping methods and assertive

training as one of the ways to deal with psychological problems during medical treatments have been proposed by many researchers (Stuart, &Laaraia, 2006). Also several studies have shown the effectiveness of CBT on the depression in infertile women (Gharaee, Mazaheri, Sahebi, Peivandi, & Aghahoseini, 2005; Nilfroushan, Ahmadi, Abedi & Ahmadi, 2006). For example, Faramarzi, Alipour, Esmaelzade, Kheirkhah, Poladi and Pash (2008) in a research with title of the treatment of infertile women depression and anxiety, compared the effects of CBT in the treatment of depression and anxiety with Fluoxetine effects on 89 infertile women. Their results showed that CBT alone is not a valid proposal treatment versus medication but best of Fluoxetine acts in treatment or decreases infertile women depression and anxiety.

In Ghana, the problem of infertility is a rising issue and it needs to be uncovered (Boateng, 2015). The impact of infertility on the psychological well-being of females and males involved has been the object of increasing attention in recent years. To the researcher's knowledge, some research (Alhassan et al., 2014; Naab, Brown & Heidrich, 2013) has been done in Ghana on the prevalence of depression among infertile women in Ghana, but very little is known about the impact of Beck's Cognitive Behavioural Therapy on the prevalence of depression among infertile women Cape Coast Teaching Hospital in the Central Regional. It is against this void or gap that the researcher aimed to examine the impact or effectiveness of Beck Cognitive Behavioural Therapy on the prevalence of depression among infertile women in the Cape Coast Teaching Hospital of Cape Coast to fill the gap.

Statement of the Problem

Infertility is of particular concern in Ghana because of the extent of the problem and social stigma attached to it. Motherhood in Ghana is often the only way for women to enhance their status within their families and communities. In the Ghanaian society, childlessness often creates enormous problems for couples; especially for women who are generally blamed for the infertility status of couples. In some communities, the stigma of childlessness is so great that infertile women are socially isolated and neglected (Dyer et al., 2005). Studies from African communities such as Egypt, Nigeria, Mozambique and Gambia showed that infertile women are often excluded from social events and ceremonies or may even be despised and perceived as inauspicious. Available evidence suggests that the social and psychological consequences of infertility are particularly profound for African women as compared to the men (Gerrits, 2007; Sundby, 2007).

In Ghana and elsewhere, 24 infertile women are confronted with psychological upsets and depressionas a result of societal stigmatisation. (Alhassan et al., 2014; Naab et al., 2013). Depression as a psychological consequence of infertility may play a significant role in the life of an infertile person. In Ghana, Alhassan et al. (2014) revealed that 62.0% of infertile women in Tamale Teaching Hospital had depression on Beck's Depression Inventory. Also, Naab et al. (2013) revealed that 24 infertile women there were high levels of infertility-related stress, low levels of anxiety, some social isolation, low levels of perceived stigmatization of infertility, and high levels of depressive symptoms. Habiba et al. showed that 58% of the infertile women suffered from depression. Naab et al. (2013) adapted a depression intervention

(Oh Happy Day Class [OHDC]) to treat depression among Ghanaian women with infertility comorbid with depression and found high prevalence of depression and stress among women with infertility in Ghana. Ramezanzadeh, Aghssa, Abedinia, Zayeri, Khanafshar, Shariat, and Jafarabadi (2004) study conducted in Tehran found that in a total sample of 370 female with infertility, 151(40.8%) female had depression.

In some parts of Africa and elsewhere studies have demonstrated the psycho-social impact of infertility especially depression in infertile women (Matsubayashi, Hosaka, Izumi, Suzuki & Makino, 2001; Ramezanzadeh et al., 2004). Women with depression present various symptoms such as sadness, helplessness, lack of motivation and sexual desire, sleeping and eating problems and thoughts of self-harm, grief, denial, depression. Others become nervous, guilty, anxious, lost of control, self-blame, sexual incompetence, threats to self-esteem and marital distress. The most serious symptoms are sexual dysfunction and problems in relationships with others such as feeling of anger toward couples who havechildren and suicidal (Alhassan et al., 2014; Fassino, Piero, Boggio, Piccioni, &Garzaro, 2002; Naab et al., 2013).

The use of Cognitive-Behavioural Therapy (CBT) as one of the ways to deal with psychological problems during medical treatments have been proposed by many researchers (Stuart & Laaraia, 2006,&Ashkani&Heydari 2006). Also, several studies have shown the effectiveness of CBT on depression in infertile women (Gharaee et al., 2005; Nilfroushan et al., 2006). For example, Tahereh (2014) showed that CBT significantly improved the depression in experimental group in comparison with control group. Equally, Faramarzi, Kheirkhah, Esmaelzadeh, Alipour, Hijahmadi and Rahnama(2008)

found that CBT alone is not a valid treatment versus medication but best of Fluoxetine acts in treatment or decreases depression and anxiety among infertile women. Similarly, Frouzandeh and Del Aram (2004) in their study demonstrated the effectiveness of CBT in reducing depression. According to these findings, it can be concluded that CBT can be used as an effective intervention method to reduce depression among infertile women.

In Ghana, the desire of many young women to become parents may be influenced by the premium placed on children by their society. Children are highly valued for social, cultural and economic reasons. Even though some researches (such as Alhassan et al 2014 & Naab et al 2013) have been done on infertility and depression among infertile women in Ghana, very little is known about how Beck's Cognitive Behaviour Therapy could be used to reduce depression among infertile women in Ghana. It was against this backdrop that the current study aimed at examining the impact or the effectiveness of Beck's Cognitive Behaviour Therapy on depression among infertile women in the Cape Coast Teaching Hospital at Cape Coast.

Purpose of the Study

The main purpose of the study was to examine the impact of Beck's Cognitive Therapy on depression among infertile women in the Cape Coast Teaching Hospital of Cape Coast. Specifically, the study sought to:

1. Assess the impact of Beck's Cognitive Therapy on depression among infertile women
2. Examine the association between socio-demographic characteristics of the infertile women with depression.

3. Determine the prevalence of depression among infertile women in the Cape Coast Teaching Hospital of Cape Coast.
4. Find out the difference in the pre-test mean scores of depression levels among infertile women in the experimental group and those in the control group
5. Assess the difference in the post-test mean scores of depression levels among infertile women in the experimental group and control group.
6. Examine the difference in the pre-test and post-test mean scores of depression levels among infertile women in the experimental group.

Research Questions

1. What is the prevalence of depression among infertile women in Cape Coast Teaching Hospital?
2. What is the association (relationship) between socio-demographic characteristics of infertile women depression?
3. What is the impact of Beck's Cognitive Behavioural Therapy on the depression among infertile women?

Research Hypotheses

H_1 1: There is a statistically significant difference in the pre-test mean scores of depression levels among infertile women in the experimental group and those in the control group.

H_1 2: There is a significant difference in the post-test mean scores of depression levels among infertile women in the experimental group and control group.

H_1 3: There is a significant difference in the pre-test and post-test mean scores of depression levels among infertile women in the experimental group.

Significance of the Study

Since there are few empirical studies of this kind in Ghana, it is believed that the findings and implications of this study would be of a great importance to all stakeholders. The results of this study would help in the design and development of programmes for prevention and treatment of depression among infertile women in Ghana. Understanding how Beck's Cognitive Therapy would help to reduce depression among infertile women would enable Ministry of Health (MOH), health clinics, doctors and nurses and policy makers in the health sector to develop strategies and techniques for intervention to minimize women's infertility in general. The findings of this study would help depressed infertile women understand the important role they must play in reducing their level of depression.

Lastly, few studies of this nature do exist in Ghana and as such, the findings of this study would go a long way to help contribute to, and fill gaps in the literature on the impact of Beck's Cognitive Therapy in reducing depression among infertile women.

Delimitations

The study was delimited to all registered infertile women between 20 and 45years attending treatment in the Cape Coast Teaching Hospital at Cape Coast. This study was delimited to the impact of Beck's Cognitive Behavioural Therapy in reducing the prevalence of depression among infertile

women. It is also delimited to the relationship between socio-demographic characteristics, pre-test post-test measurement of the infertile women.

Limitations

This study was to examine how Beck's Cognitive Behavioural Therapy could be used to reduce depression among Ghanaian infertile women in the Cape Coast Teaching Hospital at Cape Coast. Therefore, registered infertile women in the hospital formed the population for this study. This limited the strength of generalisation, because the larger the sample size the better the applicability of the generalisation of the findings of the study. Secondly, because the study was cross-sectional study, it involved the use of questionnaire (Beck's Depression Inventory of 21 items and a self-developed questionnaire) which was self-administered and was based on self-reports or responses of participants. Such self-report responses have the tendency of being exaggerated so the researcher was at risk of gathering inaccurate data which may not represent their true circumstances. But this was minimized by the researcher explaining the inventory to the subjects and encouraging them to be as honest as possible in answering the inventory.

As in other studies of this kind, convenience sampling has a limitation in that ideas gathered through this study may not represent views of the general population. Convenience sampling was used to select the Cape Coast Teaching Hospital because that allowed a researcher to select those who have the key information, personnel and facility needed for the study.

This study was conducted on healthy individuals and the respondents' own history of infertility and in addition the use of single intervention might

have impacted on the success of my work. Another limitation was the single instrument to measure the level of depression.

Definition of Terms

Infertility: Infertility is the inability of a person to reproduce by natural means. Infertility as used in this research refers to the situation of a woman who is unable to conceive as well as being unable to carry a pregnancy to full term

Primary infertility: Primary infertility is defined as the absence of a live birth for woman who desire a child and have been in a union for at least 12 months, during which she has not used any contraceptive(s).

Secondary infertility: Secondary infertility is defined as the absence of a live birth for women who desire a child and have been in a union for at least 12 months since their last conception or live birth, during which she did not use any form of contraceptive.

Barrenness: The state of being unable to conceive nor produce offspring (especially) among women.

Organisation of the Study

The study is organised into five chapters. Chapter one deals with the introduction, the statement of the problems, and purpose of study, research questions, and significance of the study, delimitation and limitation of the study. Chapter two presents an overview of existing literature on Beck's Cognitive Behavioural Therapy and depression among infertile women. Chapter three contains the research methodology. It describes the research design, study area, population, sample and sampling procedures, research instruments, data collection procedures and data processing and analysis.

Chapter four focuses on analysis presentation and discussion of the data collected from the field. The summary of the research findings, conclusions and recommendations are in chapter five.

CHAPTER TWO

LITERATURE REVIEW

Introduction

The purpose of this study was to examine how Beck's Cognitive Behaviour Therapy could be used to reduce depression among Ghanaian infertile women in the Cape Coast Teaching Hospital of Ghana. In light of this, this chapter reviews relevant literature in relation to the problem under investigation. The chapter reviews literature on Beck's Cognitive Behavioural Therapy, clinical definition and epidemiology of infertility, primary and secondary infertility, etiological factors contributing to infertility among women, psychological and social outcomes of infertility among women, diagnostic and medical treatments of infertility, concept and prevalence of depression among infertile women, psychological intervention for depression, models of psychological intervention, coping strategies for managing depression among infertile women and impact of Beck's cognitive therapy on depression among infertile women.

Theoretical Framework of the Study

The theoretical frame work which underpins this study is Cognitive Behavioural Theory (CBT) championed by Aaron T Beck in 1975.

It was developed to address the role cognition (thinking) in our way of doing things and how people respond to environmental stimulus.

It is well suited for combating depression and other psychological disorders among the populace. This theory also lends itself for .research and

clinical practice have shown that CBT is effective in reducing symptoms and prolonging the maintenance rates on depression, anxiety, phobia, personality disorder, hostility , anger and suicide (Sanders, Raue & Wetzler 2008).

The Beckian theory holds that the leading cause of depression and other mental disorders are faulty thinking (cognitive distortions) which are manifested in various ways such as catastrophizing, abtraction, magnification and mental reading. Beck also proposed methods for reducing cognitive distortions to promote normalcy and happiness.

Beck's Cognitive-Behaviour Therapy (CBT)

It is believed that much can be said about how a person reacts to a situation. In times of successes and positive moments, most people celebrate with joyous reactions. However, in troubled times, people react with different shades of negative emotions. Some spring back right away and take positive action while others dwell in doom and even fall into a dark depressive state. For these people, how do they find their way back to the light? This study outlines Aaron Beck's model of depression as culled from research. It shall discuss some major components in his Cognitive theories and identify strategies used in Cognitive Behavioural Therapy, as well as the strength and weakness of this model would be identified.

Cognitive Behavioural Therapy (CBT) is a psychotherapeutic approach which aims to solve problems concerning dysfunctional emotions, behaviours and cognitions through a goal-oriented, systematic procedure in the present. It is used in diverse ways to designate behavioural therapy, cognitive therapy, and to refer to therapy based upon a combination of basic behavioural and cognitive research (Corey, 2005; Sharf, 2004). CBT is based on the idea that

how we think (cognition), how we feel (emotion) and how we act (behaviour) all interact together. Specifically, our thoughts determine our feelings and our behaviour. Therefore, negative and unrealistic thoughts can cause us distress and result in problems. When a person suffers with psychological distress, the way in which they interpret situations becomes skewed, which in turn has a negative impact on the actions they take.

Cognitive Therapy as a treatment for depression was spearheaded by Aaron Beck. In the year 1979, Beck, Rush, Shaw and Emery initially developed cognitive therapy as a treatment for depression. Beck (1975) developed a model to treat depression. He writes that, in the broadest sense, "cognitive therapy consists of all of the approaches that alleviate psychological distress through the medium of correcting faulty conceptions and self-signals" (p. 214). Specifically, it goes to the root of depressive self-schemata. Depressive self-schemata have been defined as maladaptive cognitive structures, consisting of networks of information about the self, formed through developmental processes and social learning experiences that negatively bias information processing and emotional and behavioural responding (Beck, 1996; Pace & Dixon, 1993).

Beck's Cognitive Behavioural Therapy (CBT) for treating depression involves the application of specific, empirically supported strategies focused on depress-organic information processing and behaviour (Beck, 1996; Lewinsohn, Munoz, Youngren, & Zeiss, 2006; Sharf, 2004). Beck's CBT aims to help people become aware of when they make negative interpretations, and of behavioural patterns which reinforce the distorted thinking. It helps people to develop alternative ways of thinking and behaving which aims to reduce

their psychological distress. Becks' CBT involves a specific focus on cognitive strategies such as identification and modification of maladaptive cognitive errors and restructuring of core beliefs and/or representations of the self. Further focus is on behavioural strategies that are designed to activate clients in the environment with a view to effect desired behaviour change. Beck's Cognitive Therapy teaches clients to identify faulty patterns of thinking. Clients are introduced to intervention strategies that assist in changing thought patterns and consequently changing behaviour (Beck, 1995; Corey, 2005). Cognitive therapy is based on the belief that depressed people unconsciously have negative and irrational beliefs and the main purpose of cognitive therapy is to create positive beliefs and attitudes in order to move forward recovery (Afrooz, 2007).

Cognitive model of depression refers to logical thinking as main factor of depression. According to this model, the influence of basic cognitive structures can be quite certain that it is not conscious. These cognitive structures or schemas may be formed by childhood experiences that expose and processes negatively (Sanders & Wills, 2005). While depressed people encounter negative schemata and stress, processing of negative information has been active and leads to a depressing thought. Factors affecting cognitive levels of depression include: automatic thoughts, schemas or default and cognitive distortions. Automatic thoughts are passing and usually are unknown but there can be awareness. Automatic thoughts shape the perception of a situation that causes emotional and behavioural responses (Beck, 1996).

In order to alleviate depressive effect, treatment is directed at the following three domains: cognition, behaviour, physiology (Klosko &

Sanderson, 2009). In the cognitive domain, patients learn to apply cognitive restructuring techniques so that negatively distorted thoughts underlying depression can be corrected, leading to more logical and adaptive thinking. Within the behavioural domain, techniques such as activity scheduling, social skills training, and assertiveness training are used to remediate behavioural deficits that contribute to and maintain depression (e.g., social withdrawal, loss of social reinforcement (McGinn, Asnis & Rubinson, 2006).

The goal of therapy is to help the client realize that reorganizing the way they view situations will call for a corresponding reorganization in behaviour. In therapy, clients are taught ‘’Thought Catching’’ or the process of recognizing, observing and monitoring their own thoughts and assumptions and catch themselves especially their negative automatic thoughts when they dwell on it. Once they are aware of how their negativity affects them, they are trained to check if these automatic thoughts are valid by examining and weighing the evidence for and against them (Field, 2000).

Finally, within the physiological domain, patients with agitation and anxiety are taught to use imagery, meditation, and relaxation procedures to calm their bodies. CBT is oriented towards empowering the patient. Within this specific, brief psychotherapeutic treatment modality, the emphasis is on providing patients with skills to offset their depression. One primary goal of CBT is to facilitate the use of treatment techniques outside therapy sessions to create a "positive emotional spiral" wherein patients can implement specific strategies to offset their depressive mood (e.g., cognitive restructuring is used to offset negative thought patterns and the consequent depressive effect, scheduling pleasant activities is used to offset decreased reinforcement

secondary to social withdrawal (Sanderson, Raue, & Wetzler, 2008; Wolfe, 2004).

Beck's Cognitive Therapeutic Strategies

The therapist uses a variety of therapeutic strategies depending on what he decides will work on his particular client. He also delegates responsibility to his client by expecting him to do homework outside the therapy sessions. Homework or task assignment is aimed at positive behaviour that brings about emotional and attitudinal change (Corey, 2005). Therapists also engage in Socratic dialogues with the clients, throwing questions that encourage introspection with the goal of the client arriving at his own conclusions. Reality Testing lets the client do tasks to disprove negative beliefs such as phoning a friend to disprove the belief that no one wants to speak to him (Field, 2000).

Therapy for depressed clients focuses on their specific problem areas and involves doing activities to deeply process the problem and probable solutions. This can result not only in a client feeling better but also behaving in more effective ways. Clients feel overwhelmed with all their responsibilities and their inability to attend to all the details of their lives lead them to be depressed. The therapist usually needs to take the lead in helping clients make a list of their responsibilities, set priorities and develop a realistic plan of action. Because carrying out such a plan is often inhibited by self-defeating thoughts, it is well for therapists to use Cognitive Rehearsal techniques in both identifying and changing negative thoughts. If clients can learn to combat their self-doubts in the therapy session, they may be able to apply their newly acquired cognitive and behavioural skills in real-life situations (Corey, 2005).

Another technique in Cognitive Behaviour Therapy is Alternative Therapy. It focuses on coping options. Clients are encouraged to generate a number of alternative solutions or courses of action to given situations which might render them helpless. This brainstorming welcomes even ridiculous or counter-productive ideas, as the benefits and costs of each alternative is discussed anyway. This exercise makes the clients realize that they can be in control of situations after all. (Field, 2000). Finally, in dealing with underlying fears and beliefs, the therapist makes the client go to the core and origin of such beliefs and discuss the vulnerability factors that exist with it. These beliefs are then challenged again using tasks (Field, 2000).

After undergoing intensive CBT, relapse prevention is essential. All throughout treatment, clients are encouraged to integrate the techniques they have learned in therapy in their daily lives with the goal of keeping CBT effective even when therapy ends (Roth, Eng & Heimberg, 2002). However, clients are also warned that they might still encounter difficult times in the future even after successful treatment but their newly acquired skills at dispelling negative thoughts and reactions must be at their disposal to use whenever they would need them and maintain the belief that a single difficult event is not a failure on their part. “An important goal of therapy should be to ensure that clients can apply cognitive and behavioural techniques on their own, with less reliance on the therapist over time, thus facilitating relapse prevention efforts ’’ (Roth et al., 2002, p 234).

Pace and Dixon (1993) have done a study to confirm that brief individual cognitive therapy, as compared with a no-treatment control condition, was effective in reducing depressive symptoms and the number of

negative self-referent judgments. For mildly and moderately depressed college students. Depressed people appear to be more likely than non-depressed people to actively distort information about the self in negative ways that are consistent with the depressive features of their self-schemata (Haaga, Derubeis, Stewart & Beck 2001). However, no matter how effective Cognitive Therapy seems to be, it should be noted that it's not a psychotherapeutic panacea for depression. It may suit some clients and not others, so appropriateness for each particular case needs to be evaluated well (Dobson, 2009). For example, for depressed geriatric patients, pharmacotherapy, or the use of anti-depressants to treat their depression may be more effective because the nature of their symptomatology is often characterized by the so-called vegetative, or physical, signs Bielskiand-Friedel, (as cited in Dobson, 2009). Although the use of CBT as the sole treatment for unipolar depression has certainly been advocated, CBT is viewed as an adjunct to pharmacotherapy in the treatment of bipolar disorder (Roth et al., 2002)

Strengths of Beck's Cognitive Therapy (BCT)

Since Cognitive Therapy was first formulated by Beck (1996), numerous studies have demonstrated the efficacy of Cognitive Therapy for depression. The first landmark study conducted by Rush, Beck, Kovacs and Hollon (2000) in the late seventies demonstrated that Cognitive Therapy was more effective than tricyclic antidepressant therapy in patients suffering from clinical depression. In contrast with previous outcome research which demonstrated that psychotherapies were no more effective than pill-placebos and less effective than antidepressant medications, the Rush et al. (2000) study was the first to show that a psychosocial treatment was superior to

pharmacotherapy in the treatment of depression (Hollon, Shelton, & Loosen, 2001).

There is empirical evidence that CBT is effective for the treatment of a variety of problems, including mood, anxiety, personality, eating, substance abuse, and psychotic disorders (Butler, Chapman, Forman, & Beck, 2006; Mick, 2008). Treatment is sometimes manualized, with specific technique-driven brief, direct, and time-limited treatments for specific psychological disorders. BCT is used in individual therapy as well as group settings, and the techniques are often adapted for self-help applications. Some clinicians and researchers are more cognitive oriented (e.g. cognitive restructuring). While others are more behaviourally oriented in vivo exposure therapy). Other interventions combine both (e.g. imaginable exposure therapy) (Abramowitz, & Kalsy, 2001; Foa, Rothbaum & Furr, 2011).

Further, a follow-up study conducted twelve months post-treatment showed that relapse rates were lower among patients who received CT (39%) versus those who received antidepressant medication (65%), although this difference did not reach statistical significance (Kovacs, Rush, Beck, 2001). In the two decades since the initial trial, many controlled trials have been undertaken to replicate these findings. Although many experts now believe that the Rush study was sufficiently flawed to negate study findings (Hollon et al. 2001), many qualitative and quantitative reviews now conclude that cognitive therapy: 1) effectively treats depression, 2) is at least comparable, if not, superior to medication treatment, and 3) may have lower rates of relapse in comparison to medication treatments (Dobson, 2009). As a result, cognitive therapy has gained widespread acceptance as a first-line treatment for

depression, and cognitive behavioural therapy is one of only two psychotherapies included in the guidelines for the treatment of depression.

Criticism against Becks' Cognitive Therapy

Beck's Cognitive Therapy has been criticized for focusing too much thinking positively; being too superficial and simplistic and not putting enough emphasis on the client's past. It is also criticized for being too technique-oriented, thereby not maximizing the therapeutic relationship between client and therapist. It was claimed to work only on eliminating symptoms but not entirely exploring the root causes of the client's difficulties. Ignoring the role of the unconscious factors and neglecting the role of feelings are likewise criticisms of this therapeutic approach (Corey, 2005). Cognitive therapy practitioners are quick to defend that although they are straightforward in their approach and seek simpler instead of more complicated solutions does not imply that the practice of cognitive therapy is simplistic. They also argue that they do not explore the unconscious or underlying conflicts but work with the clients' present circumstances to be able to bring about the necessary schematic changes. They also deny that they do not give importance to the clients' past, as most of their issues spring from earlier experiences (Corey, 2005).

Cognitive Behaviour Therapists admit that Cognitive Behaviour Therapy places central emphasis on the client's cognition and behaviour, but does not ignore emotions in the therapy process, rather, it is considered a by-product of cognition and behaviour (Corey, 2005). Like other therapeutic models, Beck's Cognitive Behaviour Therapy has its limitations, but nevertheless proves to be effective in most cases of depression. Its premise of

changing the way one thinks about things brings about changes in behaviour and feelings is one simple but wise advice worth following.

Clinical Definition and Epidemiology of Infertility

Infertility is a global health issue which is a multidimensional problem with psychological, and social impact. According to a clinical definition of the International Committee for Monitoring Assisted Reproductive Technology (ICMART) (2009) and the World Health Organization (WHO, 2009, p. 2686), infertility is considered as "a disease of the reproductive system defined by the failure to achieve a clinical pregnancy after 12 months or more of regular unprotected sexual intercourse". However, a proper definition of infertility is still missing in the literature. Newer and newer debates within researchers try to find one or more specific definitions of sub fertile and infertile conditions (Gnoth, Godehardt, Frank-Herrmann, Friol, Tigges, &Freundl, 2005; Larsen, 2000).

The researcher agreed that there is a need to differentiate the wide range of infertility cases considering the severity of reduced fertility (slightly, moderately, seriously), the number of prior unsuccessful treatments and the age of partners. At the same time, infertility causes psychosocial strains for the couple, so an even more proper definition would contain the psychosocial aspects of involuntary childlessness, too (Pápay, Rigó, & Nagybányai, 2013). The World Health Organization (WHO) definition based on 24 months of trying to get pregnant is recommended as the definition that is useful in clinical practice and research among different disciplines. It is noted from the above definitions that the period of marriage is very important on the definition. But the researcher thinks that culture also has a strong influence on

the definition. Infertility can be defined according to Ghanaian culture as the inability to get pregnant. Mostly in the Ghanaian society the main goal of marriage is child bearing and also the females' belief that children are the strong link that maintains marriage.

In a worldwide estimate, prevalence of infertility is approximately 9 % and life-time prevalence is rated about 16% in the developed countries (Boivin et al., 2007). According to recent studies by the World Health Organization, (WHO) approximately 8-10% of couples are facing some kind of infertility problem (Benagiano, Bastianelli & Farris, 2006). This means that 50-80 million people globally are facing the problem of getting an integrated family. In the USA, approximately 5 million people have infertility problems, while in Europe the incidence is estimated around 14%. Boivin et al. (2007) noted that the incidence of infertility is associated with geographic differences. For example, in some west-African communities infertility rate is around 50%, while in some western European countries is 12%.

Likewise Ombelet et al. (2008) pointed to the differences that they observed both in developed countries, where rates range from 3.5% to 16.7%, as well as in less developed countries, where rates of infertility range from 6.9% to 9.3%. It noted from the above that the geographical distributions of infertility that the lowest rate is in less developed countries, the researcher think thismay be related to the cultures of these countries, where marriage in these countries has a primary goal which is family formulation and having children. Also the most risk factor of infertility which is the age of the women in Western countries is also existent in Ghanaian culture.

Primary and Secondary Infertility

Infertility can be classified as primary and secondary infertility. Primary infertility is defined as the absence of a live birth for women who desire a child and have been in a union for at least 12 months, during which they have not used any contraceptives (Khetarpal & Singh, 2012). The World Health Organisation (2010) also adds that 'women whose pregnancy spontaneously miscarries, or whose pregnancy results in a still born child, without ever having had a live birth would present with primarily infertility. Primary infertility is when a couple have never had children, or unable to achieve pregnancy even after one year despite having unprotected sexual intercourse (WHO, 2012).

Infertility is classified as primary when the female partner has never conceived before as most experts define it as not being able to get pregnant after at least one year of trying without the use of contraceptive (Ombelet, Cooke, Dyer, Serour, & Devroey, 2008). Infertility may be secondary when women have previous pregnancy irrespective to the final outcome of pregnancy but unable to get pregnant for another time after one year of the previous pregnancy (Nouriani, & Glendale, 2006).

Secondary infertility is defined as the absence of a live birth for women who desire a child and have been in a union for at least 12 months since their last live birth, during which they did not use any contraceptives (Cousineau & Domar, 2007). Thus the distinguishing feature is whether or not the couple have ever had a pregnancy which led to a live birth. Secondary infertility is when a couple have had children or achieved pregnancy previously, but are unable to conceive at second time, even after having

unprotected sexual intercourse for one year (WHO, 2012). Secondary infertility occurs more commonly than primary infertility, especially in developing countries where sexually transmitted infections are common. About 67–71% and 29–33% of patients have primary and secondary infertility, respectively (Mueller & Daling, 2009; Irvine, Cawood & Richardson, 2006). In many countries, induced abortion contributes much to secondary infertility, which accounts for 60% of the total number of infertile cases (WHO, 2014). Idiopathic infertility is a condition of couples unable to conceive for more than two years, with no abnormalities seen on repeated investigations of tubes or as regards ovulation, luteal phase, cervical mucus, semen, sperm–oocyte interaction or intercourse (WHO, 2012).

Etiological Factors Contributing to Infertility among Women

The organic causes of infertility affect both men and women. There are several known causes of why a woman may be infertile. Infertility in general can be caused by physical or emotional factors, male or female reproductive problems, or even environmental, psychological or modern lifestyle issues or unknown causes (Kelly-Weeder, & Cox, 2006). Female infertility may be related to female as fallopian tubes problems uterus, disorders of menstruation, sexual disorders, age and ovarian failure and prolonged use of contraceptives (Benoff, Jacob, & Hurley, 2000),attributed male infertility to oligspermia, nospermia, teratozoospermia and azoospermia, immunological problems may produce antibodies-induced damage to gametes that cause male infertility. Besides life style, environmental factors including smoking can affect gamete and embryo development, leading to sub infertility (Sharpe, 2000).

In 30-35% of the cases, only a female cause is in the background of the infertility, and also in 30-35% of the cases only the man is infertile. In 20-25% of the cases, infertility is a combined problem (Williams, Bischoff, & Ludes, 2002). Approximately in 10-15% of the cases, the causes of infertility cannot be identified. However, the number of unexplained infertilities has been reduced by using new diagnostic technologies. Primary causes of infertility in women are hormone problems, ovarian cysts, structural abnormalities in the fallopian tubes or in the womb which hinder the producing and releasing of mature eggs, the proper transport of the egg to the uterus or the proper implantation of the fertilized egg in the womb (Williams, et al., 2002).

In men, fertility impairments consist of low number or/and improper motility or/and high rate of abnormally formed sperms. In some cases, there is not any measureable quantity of sperm in the semen. The most common risk factors of infertility are life styles factors (Petraglia, Serour, Chapron, 2013). Delayed child bearing can increase the risk of reproductive impairments in women such as hormonal anomalies with anovulation (e.g. polycystic ovarian syndrome), and endometriosis and also in men, such as hormonal changes, genital inflammation or cancer. Smoking and abnormally low or high body weight reduce fertility, whereas caffeine and drinking prolong the time to pregnancy. Radiation, chemicals and other toxic environmental agents can adversely affect the reproductive system. Psychological stress, especially on the work place for women, can decrease the reproductive success. Oncologic treatments in cancer survivals can reduce

the fertility perseveration, as well. Sexually transmitted infections and disease increase the risk of damaging the reproductive tracks (Jacobs, 2005).

Infertility may be related to a geographical factor. It has also been observed on developed countries the most common risk factor of infertility is age, while in Africa is sexually transmitted diseases this may be referred to environmental factor (Ombelet et al., 2008). Different attitudes regarding the causes of infertility in underdeveloped and developing countries, infertility may be linked to social beliefs such as punishment for sins of the pastor witchcraft. Actually, infertility can be caused by distinct dietary habits, which is causing childlessness whereas people in developed countries viewed infertility as caused by biological and other related factors (Bharadwaj et al., 2000; Boivin et al., 2007). Infertility in both males and females may be due to physical, psychological, environmental and geographical factors. It could be inferred from previous studies that infertility in Gaza Stripe is mostly related to environmental pollution that have occurred due to the wars which have prevailed in the area for more than six decades .

Psychological and Social Outcomes of Infertility among Women

The impact of infertility on the psychological well being of couples involved have been the object of increasing attention in recent years. It cannot be denied that infertility is a deeply distressing experience for many couples. Infertility among women is associated with a large number of psychological problems. Although a huge body of literature describes the complex relationship of mood disorders and fertility, further research is needed to investigate how mood disorders influence the development of infertility and which mood problems show up during infertility (Williams et al., 2007). Our

overview focuses mainly on the emotional reactions to infertility. Couples facing infertility may experience a range of negative feelings as shock, anger, denial, guilt, grief and isolation (Weinshel, Meyers, & Scharf, 2004).

The women suffering from infertility underwent severe psychological distress, used various coping mechanisms to improve their overall quality of life (Joshi, Singh & Bindu, 2009). In the study by Van Balen and Gerrits (2001) individuals who are thought to be infertile are generally relegated to an inferior status and stigmatized. Childlessness has varied consequences through its effects on societies and on the lifestyles of individuals. Though in some cases the childless lifestyle enhances life satisfaction for some individuals, yet it is diminishing for others for whom parenthood is a personal goal. While the researchers added a less satisfaction in acceptance by in-laws than wives experiencing a diagnosed male infertility, one of the most difficult aspects that infertile women describe is the difficulty in social settings, such as dealing with feeling of jealousy and when learning of other women's pregnancies or in the presence of others who have children (Domar & Seibel, 2007).

A number of comparative studies have found that infertile women underwent high psychological distress than normal counterparts. The incidence of depression in infertile couples presenting for infertility treatment is significantly higher than in fertile controls, with prevalence estimates of major depression in the range of 15-54% (Gorgani, 2001). Depression has also been shown to be significantly higher in infertile couples as compared to the general population. With 8-28% of infertile couples reporting clinically significant to anxiety infertile women were compared to women with cancer, hypertension, myocardial infarction, chronic pain, or HIV-positive status, and

their depression and anxiety scores were indistinguishable from other patients except those with chronic pain (Mirzamani, 2001). Females with infertility experienced higher distress, low self-esteem, loss of life control (Nilforooshan et al., 2005).

Another type of problem that the infertile couples are confronted with is changing in the individual's mental picture and feeling a change in the self-identity comparing with healthy persons (Younesi, Akbari, & Behjati, 2005). But the high levels of mental distress found among infertile patients are often interpreted as short-term reactions surrounding their wish for a child, coping with this unfulfilled wish, and medical (Hammerli, Znoj & Berger, 2010; Zahid, 2004). In addition to emotional psychological and social reaction cultural and economic issues also emerged so infertile women face double tension (Dadfar, 2001).

A new form of challenge that the women are exposed to is carrying the psychological burden of infertility even when the reproductive impairment lies with the husband. The female is typically the identified patient in fertility centres regardless of which spouse carries the reproductive impairment. (Peterson, Newton, Rosen & Skaggs, 2006). It is most often the women who undergo the bulk of the invasive procedures, are responsible for daily monitoring of their menstrual cycles, and experience disruption in their schedules to accommodate rigid treatment regimes and these clarify the disappointment problem and hopelessness (Saki, Jenani, & Asti, 2005; Sardari, 2005; Seif, 2001).

Denial is a common reaction to sudden changes and saves one from the overwhelming situation in a short-time range. Anger is often experienced with

the loss of control over the function of one's own body, especially during medical treatments (Williams et al., 2002). Infertile individuals may feel anger against family and friends expressing social pressure towards becoming a parent and other persons who have children, mistreat their children or undergo abortion or even jealousy of other women who conceive and get a baby (Menning, 2000). Perceived stigmatization is also common in men and women dealing with fertility problems and predicts less perceived social support (Slade, O'Neill, Simpson, & Lashen, 2007).

Infertility can lead to isolation resulting in not disclosing the secret of involuntary childlessness or avoiding frustrating meetings with parents and child-centred family holidays (Meyers, Diamond, Kezur, Scharf, Weinshel, & Rait, 2005; Menning, 2000). Self-blame is also a common reaction to infertility offering an easily available cause for infertility. Changes of hope and disappointment during each cycle is called as emotional roller-coaster indicating feelings of anxiety before ovulation, hopefulness around the time of ovulation, and depression after failure to conceive or miscarriage (Jacobs, 2005).

Diagnostic and Medical Treatments of Infertility

A large proportion of couples with fertility problems seek medical care and receive a kind of assisted reproduction treatment (ART) (Boivin et al., 2007). Diagnostic and treatment processes in the reproductive medicine are stated and are regulated by the Ghana Ministry of Health. The first medical consultation always should consist of a general interview about the couple's medical and sexual history in order to explore e.g. improper sexual behaviours (Williams et al., 2002). The evaluation of female's fertility involves analysis

of hormone levels throughout the woman's cycle, of daily body temperature and of sperm antibodies which focus on abnormal hormonal functioning (Jacobs, 2005; Weinshel et al, 2004).

A more invasive workup could include endometrial biopsy, hysterosalpingogram and laparoscopy for exploring structural abnormalities in the ovaries, the fallopian tubes, the uterus and the peritoneal cavity. For men, the most common diagnostic procedures are analysis of sperm count and motility and form hormonal-level assessments. The most common assisted reproductive treatments are nowadays Intracytoplasmic Sperm Injection (ICSI) and In Vitro fertilization (IVF) (Kupka, Ferraretti, de Mouzon et al., 2010).

In these procedures hormonally stimulated oocytes are fertilized with a concentration of sperm (IVF) or with one single sperm (ICSI) out of the female body in a laboratory procedure and embryos are transferred after a few days into the woman's uterus (embryo transfer, ET). Sometimes not every fertilized egg is placed to the uterus but they could be frozen and used in a later cycle (Frozen Embryo Transfer Fycle, FET). ART does not include intrauterine insemination (IUI) where concentrated sperm from the partner or donor is placed into the woman's womb close to the time of ovulation (Zegers-Hochschild et al., 2009).

Concept and Prevalence of Depression among Infertile Women

Infertility is a global phenomenon that affects between 60 million and 168 million people worldwide. The majority of those who suffer live in the developing world (Neelofar & Tazeen, 2006). Infertility is a source of distress for couples as societal norms and perceived religious dictums may equate

infertility with failure on a personal, interpersonal, emotional or social level. Women bear the brunt of these societal perceptions in most of the cases. Psychologically, the infertile woman exhibits significantly higher psychopathology in the form of tension, hostility, anxiety, depression, self-blame and suicidal ideation (Fido, 2004).

In Latin America, strong social stigma attached to infertility and machismo cause women to blame themselves for infertility (Vayena & Griffin, 2001) while in Mozambique, infertile women are excluded from certain social activities and traditional ceremonies (Gerrits, 2007). Social stigma regarding infertility is especially common across South Asia. For example, in Andhra Pradesh, India 70% of women experiencing infertility reported being punished with physical violence for their failure (Daar, & Merali, 2002). Women are verbally or physically abused in their own homes, deprived of their inheritance, sent back to their parents, ostracized, looked down upon by society, or even have their marriage dissolved or terminated if they are unable to conceive (Ahmed, 2007; Cain, 2006).

Infertility being a medical problem leads to serious psychosocial problem. Due to many life style factors, infertility is rising at an alarming pace. The stress of the non-fulfilment of a wish for a child has been associated with emotional squeal such as anger, depression, anxiety, marital problems and feelings of worthlessness among the parents (Gerrits, 2008). The American Psychological Association's (APA) diagnostic criteria for depression (APA, 2003) must include low mood and/or loss of interest or pleasure in activities and, over two weeks, at least five of the following associated with functional impairment: reduced or increased sleep, agitation or

slowed down movements, loss of energy, feelings of worthlessness and guilt, difficulties with thinking, concentration or decision making, and thoughts of death or suicidal ideation, intent or plan. Symptoms should not: be better explained by mania or bereavement, the physiological result of either substance abuse or a general medical condition (APA, 2003).

Depression is one of the most common reactions to infertility problem. It is the response to the excessive losses and prolonged stress created by the infertility process. Infertile couples may have feelings of failure, loss, disappointment and betrayal due to depression. The term depression is often used to express the deep sadness. People who suffer from depression will experience a deep disappointment that takes long time and often affect their personal and business life and also their social states (Medical Association of America, 2010). Depression is a common mental disorder that has recently greatly increased. Almost all people have mild depression, bad feelings, boredom, sadness, disappointment, frustration and unhappiness . It is also said that all the negative experiences may lead to depression. This is called normal depression (Rosenhan & Seligman, 2010). The World Health Organization has estimated that by 2020 depression will be the second largest in the world after cardiovascular diseases which will endanger the health and life of humans (Emami, 2012).

In Ghana, bearing progeny is regarded as part and parcel of a stable marital nexus. Children, particularly sons, are regarded as a source of income and security in old age. A study conducted by Hakim and Sultan (2001) in Karachi on the psycho-social consequences of secondary fertility revealed that more than two thirds (67.7%) of women, who were unable to give live births

or give birth to sons had marital conflicts. These women had been threatened with divorce (20%), husband's remarrying (38%) or were being forced to return to their parent's home (26%) by their in-laws or husbands. They also reported that they were being physically and verbally abused by their husbands and in-laws leading to severe mental stress. It is a common view in Ghanaian culture that infertility is a disorder and being blessed with children is only by God's will.

Depression is regarded as a general consequence of infertility and have a significant relationship with infertility. Another research shows that around 40.8% and 86.8% of infertile women have depression and anxiety respectively (Abedinia, Ramazanzadeh & Aghsa, 2003). Matsubayashi et al., 2001) reported that depression is more common among infertile women as compared to fertile or pregnant women. The results of the studies performed by Wischmann (2005) showed that the prevalence of depression is higher among infertile women than infertile men and it causes loss of self-confidence.

Beck et al. (2001) studied the prevalence of psychiatric disorders using the SCL- 90-R test and Eysenck personality questionnaire (EPQ) in a comparative study between a group of 150 infertile women receiving treatment in the infertility clinic of Vali-e-Asr Infertility Research Centre and 150 fertile women attending the gynaecology clinic of Imam Khomeini Hospital. Results show that psychiatric disorders exist in 44% of infertile women and 28.7% of fertile women; this difference was significant in respect to interpersonal sensitivity, depression, phobia paranoid thoughts, and psychoticism and based on EPQ, fertile women were significantly more stable than infertile women.

Ramazanzadeh et al. (2007) used Beck's questionnaire to study the prevalence of depression and the effect of psychiatric intervention on the rate of depression of 638 infertile couples (319 couples) in Vali-e-Asr Infertility Research Centre. Findings showed that 48% of women and 23.8% of men suffer from various degrees of depression. Among the 48% of women, 30% suffered from mild, 12.5% from moderate, and 5.3% from severe depression and among the 23.8% of males, 16.6% suffered from mild, 4.7% from moderate and 2.5% from severe depression. The most important reason may be the importance of having a child in Iranian society. This study also showed that the prevalence of depression was two-fold among infertile women as compared to fertile women. The point prevalence of depression in the general population in the UK is 2.6% (Singleton, Bumpstead, O'Brien, Lee & Meltzer, 2001) rising to 5-10% in primary care (Boland, Diaz, Lamdan, Ramchandani & McCartney, 2006).

Ramezanzadeh et al. (2004) conducted a study and found that 51 women (40.8%) had depression out of 370 infertile women. National Comorbidity Survey Replication Initiative found that depression was the most common disorder in every country except the Ukraine (7.1%), with 1-year prevalence ranging from 2.4% in Shanghai, to 18.2% in the United States, also anxiety disorders was the most prevalent form of psychological disturbance (Kessler, Chiu, Demler, & Walters, 2005). About the gender on the teenager stage girls suffer higher rates of anxiety disorders than boys (Costello, Mustillo, Erkanli, Keeler, & Angold, 2003). At the stage of tensile femaleshave a significantly higher incidence of most depression disorders than males with the possible exception of OCD, where the rates are approximately

equal. Community-based and epidemiological studies generally have confirmed a 2:1 ratio of female to male in prevalence of depressive and anxiety disorders (Olfson, Shea, Feder, Fuentes, Nomura, & Gamero, 2000).

In the general population, major depression is twice as prevalent in women as it is in men (Llewellyn, Stowe, & Nemeroff, 2007). Many authors have reported that depression is a common consequence of infertility (Domar & Seibel, 2007). However, the exact nature of this relationship has been understudied (e.g., severity, directionality). Only a few articles exist that directly examine the relationship between depression and infertility. While these findings are helpful in furthering our understanding between these variables, the majority of studies examining infertility and depression have been limited to female populations.

Domar, Broome, Zuttermeister, Seibel, and Friedman (2002) conducted a study examining the prevalence rates and predictability of depression in infertile women. Three hundred seventy-six infertile participants were recruited for the study from an infertility treatment centre. A control group of fertile women were obtained through patients from a hospital based gynaecological practice. Participants were asked to complete two depression measures, the Centre for Epidemiological Studies Depression Scale (CES-D) and the Beck Depression Inventory (BDI). Study results indicate no significant differences between infertile women and fertile women with regard to demographic variables.

However, the mean BDI score of infertile women (8.3) was significantly greater than that of the control group (5.1). Comparisons between the two groups were also significant when measured by the CES-D. Compared

with control subjects, a significantly greater percentage of infertile women scored in the depressed range on the BDI (37% compared to 18%). It was also noted that none of the control subjects reported depression levels greater than 18, while 8.4% of infertile women scored above 18. Demographic variables that influenced depression outcomes included a history of infertility-related surgery (higher BDI) and a history of psychotherapy prior to infertility treatments (higher BDI).

Duration of treatments was also related to depression as women in the 2-3 year range of treatments reported significantly higher levels of depression than women with durations of less than one year or greater than six years. Diagnosis was also predictive of depression. Women with female, male, or combined diagnosis reported significantly higher BDI scores when compared with women with unexplained or undiagnosed infertility. There were no significant differences between male and female factor diagnosis. These findings showed that depression is apparently a very common and significant problem in infertile populations as infertile women consistently reported higher levels of depression than women in the control group according to a number of variables.

Downey and McKinney (1992) conducted a study examining the psychiatric status of women presenting for infertility evaluation. The authors recruited 118 infertile women and 83 women in a control group to participate in the study. Participants completed the reproductive functioning questionnaire, the ideas about your future questionnaire, the attitudes of family questionnaire, the partner relationship satisfaction scale, the sexual behaviour scale, the concept scale, the brief symptom inventory, and the mood disorder

questionnaire. Although not statistically significant, the authors noted that 11.0% of infertile women in the study met criteria for a current major depressive episode compared to only 3.6% of the control group. Infertile women and women in the control group experienced depression similarly.

Although apparently contradictory to Domar et al. (2002) findings, it is difficult to make comparisons between studies that use different methods such as use of different data collection instruments (BDI and CES-D compared with the Brief Symptom Inventory and the Mood Disorder Questionnaire). In a rare study examining the potential association between a history of depressive symptoms and the increased risk of infertility in women, Lapane et al. (2005) collected data from the household health survey of the Pawtucket Health Program (PHP). The study selected a sub-sample of 2,920 women ages 18 to 45 who participated in the PHHP and sent them a data collection instrument measuring their history of depressive symptoms, antidepressant medication use, history of sexually transmitted diseases, and history of infertility. Logistics regression revealed that, a history of depressive symptoms was associated with a two-fold increase in risk for infertility.

These results were similar to a study, which found that women who were unable to conceive after 12 month of unprotected intercourse were twice as likely to report a history of depressive symptoms prior to attempting to conceive as women who were successful in conceiving within a 12-month period (Llewellyn, et al., 2007). Lapane et al. (2005) noted the methodologic shortcomings of the study including potential misclassification based on self-report, confounding variables that could be the result of instead of the cause of

infertility, and an extremely low response rate of 14%. Further study is needed to address the directional link between infertility and depression.

In Nigeria, Lawali (2015) conducted a study to explore the psychosocial experiences of women with infertility in Zamfara, Nigeria. Basic interpretive design of a qualitative approach was used to obtain information relevant to the research questions. Twelve (12) women who fulfilled the inclusion criteria were selected using a purposive sampling technique. Semi structured interview guide was administered to the women who fulfilled the inclusion criteria after filling out the consent form. The responses were elicited and analyzed using content analysis. The findings of this research revealed that, psychologically, majority of the women had experienced anxiety, stress and depression as a result of their inability to get pregnant. Socially, the women suffered social isolation, social stigma, social pressure and marital problems. The psychological experiences were linked to social experiences and were mostly from mother in-laws and husbands` relatives.

In Ghana, Alhassan et al. (2014) found that the prevalence of depression among the women was 62.0% with the level of depression showing a significant positive correlation with age of the women and the duration of infertility. The level of depression was significantly higher among subjects with low or no formal education and among the unemployed. Women with primary infertility also presented with high depression scores as measured by the BDI. Despite the need for treatment for depression among these women, unfortunately the depression goes untreated because in Ghana treatment for infertility is primarily medical.

In a related development, Nachinab, Donkor and Naab (2016) explore the threats that infertility poses to women. It is a qualitative research with an exploratory descriptive design. Fifteen women attending fertility clinic in a Mission Hospital in the Upper East Region were purposively sampled for the study. The data were collected by interviewing the women using a semi-structured interview guide. The interviews were audio recorded, transcribed verbatim and analysed using content analysis. The study revealed that the women suffered psychological threats such as anxiety, stress, and low mood. Social threats suffered by the women centered on marital instability, social pressure, social stigma and decreased social recognition. Women did not receive the needed support from their husbands and other members of the family in their struggle for conception. Health education on infertility should include husbands and others in the family.

In support of this finding, Donkor, Naab and Kussiwaah (2017) explored the psychological experiences of women with infertility in Ghana. A qualitative exploratory descriptive approach was used to conduct in-depth interviews. The psychological component of the bio-psychosocial model was used as a guiding framework to understand the experiences of women with infertility. Fourteen women were selected based on the purpose of the study and provided their informed consent, and were interviewed between November 2015 and January 2016. All the women were recruited from the Greater Accra Region of Ghana. Each interview lasted for 30 to 40 min. All interviews were audio taped, transcribed verbatim and analyzed using thematic content analysis. The findings from the study showed that women with fertility problems experienced many emotional difficulties such as loneliness, anxiety,

depression, lack of concentration, worrying, and reduced sexual satisfaction. Such women would benefit from psychological support such as counselling to help alleviate their psychological problems. These findings have implications for the care of women with infertility in Ghana.

Psychological Intervention for Depression among Infertile Women

Psychological Intervention,**i**s a therapy developed in order to help a client to take control or regain control by teaching them problem solving skills, coping skills, and strategies to manage their pain, psychosocial problems, the researcher define it as a broad range of treatment services designed to assist people in managing their lives more effectively, and achieving greater satisfaction with themselves, their relationships, and their careers, also provide diagnostic and testing services to help identify psychological problems, assess various psychological variables, and to make recommendations about a person's potential adjustment in a variety of situations.

According to Clark, Mccarthry and Mcdonaldal (2005), psychotherapy can be defined as an interpersonal, relational intervention used by trained psychotherapists to aid clients in problems of living. This usually includes increasing individual sense of well-being and reducing subjective discomforting experience. Psychotherapists employ a range of techniques based on experiential relationship building, dialogue, communication and behaviour change and that are designed to improve the mental health of a client or patient, or to improve group relationships (such as in a family). Psychotherapy may be performed by practitioners with a number of different qualifications, including psychologists, marriage and family therapists,

licensed clinical social workers, psychiatric nurses, and psychiatrists (Wampold, 2010).

Most forms of psychotherapy use only spoken conversation, though some also use various other forms of communication such as the written word, artwork, drama narrative story, music, or therapeutic touch. Psychotherapy occurs within a structured encounter between a trained therapist and client(s). Purposeful, theoretically based psychotherapy began in the 19th century with psychoanalysis; since then, scores of other approaches have been developed and continue to be created (Hodgson, McDonald, Tate, & Gertler, 2005). Therapy is generally used to respond to a variety of specific or non-specific manifestations of clinically diagnosable crises. Some practitioners, such as humanistic schools, see themselves in an educational or helper role. Because sensitive topics are often discussed during psychotherapy, therapists are expected, and usually legally bound, to respect client or patient confidentiality (Kirk, 2001).

From the researcher's overview it's a purposeful and willing relationship between at least two people, one who is supposed to know what he is doing, and the other who wants help to change his life for the better. It is also the process by which we examine our thoughts, feelings, actions and relationships, evaluate where problems exist, or where changes are likely to improve our life satisfaction, adjustment and learn how to make the changes that are necessary to achieve better life adjustment and satisfaction more realistically and have the desire to cope effectively with our problems. This is all with the assistance of a skilled professional.

Sanders and Wills (2005) clarify that psychotherapy as a demonstrating therapeutic techniques causes positive outcomes (i.e., decrease distress, dysfunction, and impairment; increase adaptive functioning) among infertile women. Understanding the processes or mechanisms through which the disease occurs, so general goals of psychotherapy are as follows: (a) removal of distressing symptoms, (b) altering disturbed patterns of behaviour, (c) improved interpersonal relationships (d) better coping with stresses of life and (e) personal growth and maturation.

Different studies have shown the beneficial effects of psychiatric and psychological treatments not only in adapting to unsuccessful treatments but also in reducing stress and bringing about successful pregnancy. The rehabilitation of one's life after unsuccessful treatment for infertility is a cognitive model (Daniluk, 2001; Newton, Hearn, & Yuzpe, 2000) in which the infertile subject is assisted in trying their best for having children or in adapting to the condition of being childless. Studies show that knowledge before treatment of distress and acceptance of the probability of being left childless are factors which determine the emotional response which occurs in response to infertility treatment failure.

Infertility specialists can help improve the process of acceptance of such situation by discussing the problems of infertility with couples so that they can handle the condition in a better way such as the opportunities that exist in case of treatment failure (Domar et al., 2000; Hjelmstedt, Widstrom, Wramsby, & Collins, 2004). Clinicians must also help couples in becoming emotionally ready for facing unsuccessful treatment in case it occurs. Psychocognitive teachings such as opening the situation for infertile couples

can probably help them in overcoming and controlling the natural emotional distress brought about by treatment failure.

Other researchers have also pointed to the importance of psych cognitive intervention in preparing for pregnancy. The results of studies performed by researchers (Domer et al, 2000) show the effect of psychological intervention and psychotherapy on psychiatric disorders and the rate of success of pregnancy among infertile couples, show that the intervention group had lower anxiety and depression and higher pregnancy and marital satisfaction rates. Other reports show that psych cognitive therapy (behavioural, cognition and psychotherapy) during the process of diagnosis and treatment, especially prior to IVF therapy and pregnancy testing, can result in higher rates of pregnancy and the use of psychological treatment which can increase the chance of pregnancy even after six months of follow-up (Noorbala et al., 2007; Terziogla, 2001).

Models of Psychological Intervention

According to Craighead and Craighead (2001), psychological intervention can be carried out in four models namely: (a) Individuals, (b) Couples (c) Groups and (d) Family.

a) **Individual Therapy:** Individual psychotherapy, is the verbal interaction between two -the therapist and the individual seeking for help. These two work together to identify and address the individual's problems with the expectation of making a positive change. The change is directed at characteristically fixed patterns of thought, feeling, or behaviour that are causing difficulties. Individual therapy may encompasses many different treatment styles including

psychoanalysis and Cognitive-Behavioural Therapy (Craighead & Craighead, 2001).

b) **Couples' Therapy:** Couples therapy is a form of psychological therapy used to treat relationship distress for both individuals and couples. The purpose of couples' therapy is to restore a better level of functioning in couples who experience relationship distress. The reasons for distress can include poor communication skills, incompatibility, or a broad spectrum of psychological disorders that include domestic violence, alcoholism, depression, anxiety, and schizophrenia (Sperry, Carlson, & Peluso, 2006).

c) **Group Therapy:** Group therapy can be defined as a form of psychosocial treatment where a small group of patients meet regularly to talk, interact, and discuss problems with each other and the group leader (therapist) with the purpose to give individuals a safe and comfortable place where they can work out problems and emotional issues. Patients gain insight into their own thoughts and behaviour, and offer suggestions and support to others. In addition, patients who have a difficult time with interpersonal relationships can benefit from the social interactions that are a basic part of the group therapy experience (Barbara, & Schwartz, 2003)

d) **Family Therapy:** Family therapy is a type of psychotherapy that involves all members of a nuclear family or stepfamily and in some cases, members of the extended family (e.g., grandparents). Conducts in multiple sessions help families deal with important issues that may interfere with the functioning of the family and the home environment

(Lou, 2003). The purpose is to help family members improve communication, solve family problems, understand and handle special family situations (for example, death, serious physical or mental illness, or child and adolescent issues (Ombelet, Cooke, Dyer, Serour, & Devroey, 2008). To create better functioning home environment for families with one member who has a serious physical or mental illness. Family therapy can educate families about the illness and work out problems associated with care of the family member (Linda, 2004). Family therapy most often is used when the child or adolescent has a personality, anxiety, or mood disorder that impairs their family and social functioning, and when a stepfamily is formed or begins having difficulties adjusting to the new family life.

Coping Strategies for Managing Depression among Infertile Women

Infertility is a complex life crisis and the most important problem for infertile couples. The inability to bear children is a stressful situation. The effect of infertility is its adverse social and psychological consequences. Most infertile couples experience emotional suffering from infertility (Cousineau & Domar, 2007). For most couple, infertility is associated with increased distress especially in infertile women and it can endanger the mental health (Bayley, Slade, & Lashen, 2009). Infertility associates with mental consequences including anxiety, depression, and psychosomatic complication (Ahmadi, Montaser-Kouhsari, Nowroozi & Bazargan-Hejazi, 2011; Pasha, 2011). Nelson and Gellar (2011) reported that infertility and treatment process are associated with meaningful stress especially between infertile women. It causes negative psychological outcome such as anxiety and depression.

Assessment of infertility has association with elevated stress (Stanton, Tennen, Affleck & Mendola, 2002).

Also, studies conducted by Cousineau and Domar, (2007), showed that psychological distress affect the result of infertility treatment process. There are different ways that individuals use to cope with the stressful encounters. Identification of copying strategies for stressful events like infertility is important. Lazarus and Folkman (2004) reported that coping strategies refer to cognitive or behavioural effort to manage a stressful event that is perceived to exceed an individual's personal responses. Adapting to coping strategies include activities intended to solve the stressor (active and problem-focused coping strategies) and maladaptive coping strategies which is passive and emotion focused strategies and typically less effective in delivery with a stressor than adaptive coping strategies.

Providing some practical coping strategies about infertility can help infertile couples to understand their infertility problem (Cousineau, & Domar, 2007). Evidence shows that an individual's coping strategies influence distress and relationship satisfaction (Bayley et al., 2009). Nelson and Gellar (2011) suggested that stress and infertility have an inverse relationship with confidence of infertile women in their capability to cope with fertility problem. The reaction of infertile couple in the stressful situations is influenced by the coping strategies for infertility adjustment. There are many evidence which show that coping strategies are important factor influencing the infertility stress (Thorn & Wischmann, 2009).

Principally, individual's psychological make up is related to his or her perceptions of infertility (Benyamini, Gozlan, & Kokia, 2009), but infertile

women have problems in coping with emotional ability in infertility treatment process, therefore, counselling depressed infertile woman on how to cope better with infertility problems may be a nice resolution for psychological consequence (Podolska & Bidzan, 2011). Potential psychological intervention should be expected to reduce depression and anxiety in infertile couples. Psychosocial interventions in infertility increase active coping skills (Martins, Peterson, Almeida, & Costal, 2011). Studies have showed that, intervention programs for infertile couples should be related to cognitive coping strategies (Kraaij, Garnefski, & Vlietstra, 2008).

Mahbobeh, Hajar, Seddigheh, Gholamali, Mohamad and Sharareh (2013) conducted a study to investigate the relationship between coping strategies with depression and anxiety symptoms in men and women's infertility. The study found that escape or avoidance contributed the greatest amount of unique variance to the model for anxiety depression of infertile women ($P < 0.0001$, $P < 0.001$) and followed by distancing ($P < 0.0001$, $P < 0.01$), accepting responsibility ($P < 0.0001$, $P < 0.01$). Seeking social support was negatively significant predictor for both depression and anxiety in infertile women ($P < 0.01$, $P < 0.01$), but panful, problem solving was the inversely predictor for only depression in infertile women ($P < 0.01$). Escape or avoidance was the only predictor factor of the model of anxiety for infertile men ($P < 0.01$). Escape/avoidance and self-controlling were the positive predictor ($P < 0.001$) and planful problem solving was the negative predictor for men depression ($P < 0.05$).

Therefore, the coping strategies in infertile couple is a considerable topic and clinicians should be determined in using coping strategies and

provide medical care and supportive counselling for them in infertility treatment process (Podolska, & Bidzan, 2011). Counselling could be adopting coping strategies in order to reduce stress (Thoits, 2005). A better understanding of coping strategies at the initial visit may help identify individuals who may benefit from counselling earlier and inform the direction of therapeutic work. An evaluation of adaptive coping strategies may help in recognizing the need for cognitive intervention for mental health (Stanton et al., 2002).

In Nigeria, Lawali (2015) conducted a study to explore the psychosocial experiences of women with infertility in Zamfara, Nigeria. The findings of this research revealed that, the major coping strategies adopted by the women to reduce depression were spiritual, social support, informal child adoption and diversional coping strategies. The women in Zamfara sought help for their infertility from both traditional medicine and medical treatment. However, they frequently withdrew from treatment or changed the health facility due to perceived less benefit.

Empirical Review

Impact of Beck's Cognitive Behaviour Therapy on Depression among Infertile Women

Frouzandeh and Del Aram (2004) in their study demonstrated the effectiveness of CBT in reducing depression. A study was conducted by Tahereh (2014) to investigate the effect of Cognitive Behavioural Therapy (CBT) on depression in infertile women. For this purpose among all the women who had been referred to MehrProffetionl Clinic during 4 months in Rasht using Beck Depression Inventory 30 people who had high depression

were randomly selected and randomly assigned to two groups of 15 subjects for experimental and control groups. After an initial assessment of participants' depression, the experimental group underwent CBT for 8 sessions of 90 minutes and control group did not receive any intervention. Finally, participants' depression was measured again. Findings from the analysis of covariance showed that CBT significantly reduced the depression in the experimental group in comparison with control group. According to the findings it can be concluded that CBT can be used as an effective intervention method in women with high depression.

Galundia et al. (2012) conducted a descriptive study to examine the depression level among fertile and infertile couples. The sample of the study comprised of 60 fertile and 60 infertile couples who were registered at infertility clinics of the Udaipur District in Rajasthan. A self-prepared Proforma was administered for obtaining background information and Beck Depression Inventory was used for collecting the data. Statistical analysis was done by utilizing frequency, percentage distribution, mean, standard deviation and t-test. Results revealed that there was a significant difference between fertile and infertile couples in scores of depression. Findings showed that depression level of infertile couples was significantly high as compared to fertile couples. As psychological factors play an important role in the pathogenesis of infertility, exploration of such factors is also an important task to manage this devastating problem which has cultural and social impact.

Ramezanzadeh et al. (2011) conducted a study to evaluate the effectiveness of psychological intervention on the pregnancy rate and reducing depression among infertile couples. The sample was 638 infertile patients who

were divided into two groups, control and experimental groups. The intervention strategy was psychotherapy (using Cognitive Behavioural Therapy) for 6–8 sessions. Using the following scales Beck Depression Inventory (BDI), the Stress Scale (Holmes-Rahe) to measure their depression level, and a socio demographic questionnaire was used to gather background information from the women .They found that pregnancy occurred in 47.1% couples in the treatment group and in only 7.1% couples in the control group. There was a significant difference in the depression and pregnancy rates between the treatment and control groups. The depression among the experimental group was lower than that of the control group.

Similarly, Tahami (2011) investigated the effects of coping skills training on stress reduction of depressed female-headed households. Results showed that coping skills can improve the mental health of female headed households, meaning that the stress and depression, after training, was significantly different between the two groups.

Correspondingly, Dehghani (2008) conducted a study to evaluate the effectiveness of group cognitive–behavioural stress management on quality of life, depression in patients with alopecia in skin research centre of Isfahan showed that the experimental group than the control group on the post-test and follow-up has been significantly reduced. Faramarzi et al. (2008) conducted a study to compare the effectiveness of cognitive behavioural therapy with fluoxetine in the resolution or decreasing depression and anxiety in infertile women. The sample was 89 mild to moderate anxiety and depressed infertile women. They were recruited into three groups; group which received Cognitive Behaviour Therapy (CBT); group which received antidepressant

therapy, and a control group. The intervention strategies included the use of CBT which involved relaxation training, restructuring, elimination of negative automatic thoughts and dysfunctional attitudes towards depression for 10 sessions. and those in the pharmacotherapy group took 20 mg of fluoxetine daily for 90 days. The control group did not receive any intervention. The researchers used the Beck Depression Inventory and Cattell Anxiety Inventory scales. The main result was Cognitive Behavioural (CBT) was not only a reliable alternative to pharmacotherapy but also was superior to fluoxetine in the resolution or reducing depression and anxiety of infertile women..

Likewise, Ahmadi et al. (2008) carried a cross-sectional study to determine factors affecting depression in infertile couples and the impact of a psychological intervention before or during infertility treatment. The sample was 638 infertile couples assessed for depression and divided equally into two groups, control and intervention group. The intervention methods were Cognitive Behavioural Therapy and psycho education. The researcher used the Beck Depression Inventory scale (BDI). Infertility Stress Scale and a socio-demographic questionnaire. The study found that the psychological intervention was found useful in alleviating depression in infertile couples before they received infertility treatment. Congruently, Nilforooshan (2006) researched on the effect of cognitive behavioural counselling on depression and attitudes to infertility in infertile couples. The results showed that the therapy was effective ($p<0.01$) . The effect of this approach based on gender was different and changed the mind of infertile couples in the positive direction.

In China, Zhen, Xie and Xu (2005) conducted a study to reduce insomnia related to depression and anxiety among infertile couples. The sample was 258 each for both intervention and control groups. The intervention methods used were psychological supportive therapy and Cognitive Behavioural Therapy, the duration was 6 weeks with 14 sessions. The scales used were Anxiety scale and depression scale, the main result was that symptoms of depression and insomnia were reduced. The Psychological intervention helped the infertile women in the experimental group .

Tarabusi and Volpe (2004) also carried out a research to examine the effect of using Cognitive Behavioural Therapy (CBT) to reduce stress among 98 infertile females waiting for InVitro Fertilization (IVF). The sample was as following; intervention group 50 and control group 48 the intervention type was Cognitive Behavioural Therapy (CBT). The duration was 12 weeks. The researchers used Symptom Rating Test (SRT), Westbrook Coping Scale and the main result of the study was that CBT reduced depression and stress among the infertile women.

Another study, conducted by Domar et al. (2000), was to evaluate the impact of group psychological interventions on reducing depression among 98 infertile women. The sample was divided into two groups, intervention group was made of 47 females and control group 48 females. The intervention method was Cognitive Behavioural Therapy and the duration was 10 weeks. The researchers used the State-Trait Anxiety Inventory (STAI), Beck Depression Inventory (BDI), Profile Of Mood States (POMS) and Rosenberg Self-Esteem Scale (RSES). The main result was that there was positive effect

of CBT on psychological outcomes and pregnancy rate among the infertile women.

Although it is medically proven that, both men and women usually have similar percentage of infertility, African custom still views infertility as always the woman's fault rendering them to undesirable psychosocial maltreatments. Meanwhile, the only management given to these women is solely medical whilst their psychosocial needs are totally neglected (Kussiwaah, Donkor & Naab, 2016).

In Ghana, Kussiwaah et al. (2016) determined whether psychosocial management is actually incorporated in the management of women with infertility. The psychosocial component of the bio-psychosocial model was used as a guiding framework to understand whether women with fertility problems received total management. The study utilized a qualitative exploratory descriptive approach to conduct an in-depth interview using a semi-structured interview guide. Fourteen (14) women who were purposively selected were interviewed in November 2015 to January 2016. Each interview lasted 30 to 40 minutes. Questions asked included the psychosocial management given to women with fertility problems. All interviews were audio taped, transcribed verbatim and analysed using thematic content analysis. The study found that women with fertility problems although expressed numerous desires for psychosocial management, did not have it. Hence they themselves sought for an informal psychosocial management which included: counselling from family members, counselling from friends, peer mentoring, drawing more closely to the Supreme Being and reading or watching inspirational movies.

Chapter Summary

Beck's Cognitive Behavioural Therapy (BCT) is a form of psychotherapy used to treat depression was developed by Aaron T. Beck about four decades ago. The application of the therapy involves the use of some strategies to correct bad thinking patterns; such as muscle relaxation, assertiveness training, identification of automatic thought pattern, disputing and rebutting of automatic thoughts. The therapy lends itself very well for research and verification of methods. There is also enough proof that Beck's Cognitive Behavioural Therapy (BCT) works very well to reduce depression and other psychological problems such as anxiety, fear and suicide thoughts. Others have also criticized the therapy for not focusing on the causes of depression, and its mechanistic nature.

Infertility is explained as the state of a person not being able to reproduce offspring. This phenomenon is very wide spread across the globe as it affects persons of all races, cultures and regions. For the purpose of this study, infertility is grouped into two main categories; primary and secondary infertility.

Infertility is found among both men and women. It is caused by physical, emotional and unknown causes. People who suffer from infertility also suffer from aggression, maltreatment, stigmatisation, social exclusion and divorce. All these factors lead to a buildup of mental problems such as depression, mostly among women who are blamed for their childlessness.

The prevalence of depression is very wide spread. It affects as high as about 170 million wide world. With most affected regions found in developing

countries. Infertility leads to mental problems, and also drains a lot of money from sufferers as they try to treat or find cure to it.

There seems to be a link between infertility and depression because couples who are infertile experience depression, and their depression state hinders treatment for infertility.

There are two main ways of treating both infertility and depression, that is by use of pharmacology or psychological means. But of the two, if psychological method is used for treatment by means of CBT, the relapse state is lower as compared to other methods.

The models of psychological intervention used in Beck's Behavioural Cognitive Therapy are individual, couples, group and family therapy. Aaron T. Beck himself applied the therapy using individual and group sessions and it worked effectively for each group. I also used the group therapy approach for eight sessions over a period of two months. The result from this study correlated very well with others who have also conducted similar studies on infertile depressed women.

Literature was reviewed extensively on the use of CBT from across various countries in Europe, Asia, Middle East and Africa, including a study conducted by a Ghanaians. From the literature review, it was found out that only two studies have been done on the use of Beck's Cognitive Behavioural Therapy (CBT) to reduce depression among infertile women in Ghana. There is therefore a wide gap in the literature that needs to be filled.

The studies shown here are but a small part of ongoing research on and using Beck's Cognitive Theory of Depression, but it certainly has had a large impact on the way we look at depression in terms of clinical psychology. This

study does side strongly with Beck's Theory, and this is due to the fact that most of the literature surrounding the theory is perceived to be positive.

In conclusion, Beck's Cognitive Behavioural Therapy was found to be very effective in treatment of adults who suffer depression, based on the empirical literature reviewed so far which carries the greatest weight of evidence in Psychotherapy.

CHAPTER THREE

RESEARCH METHODS

Introduction

This chapter focuses on research design, population, sample size and sampling techniques. It also focuses on research instruments, pilot study, validity and reliability. Finally, it looks at data collection procedures and data analysis.

Research Design

The research approach for the study was quantitative study using the quasi-experimental design which includes manipulation, control and experimental groups. The experimental approach is defined to be the criteria that depends on dimension and applied experiments; it is used to disaggregate between two groups in order to choose one of them to be directly applied or to be applied after modifications according to what suits the results, needs and goals. Advantages of this method are that the quasi-experimental design is very useful in situations where preselection or randomisation is not possible which makes it ideal to study the general trends in population. It is also used in situations where a complete experimental control is impossible.

Study Area- Cape Coast Teaching Hospital

This study was conducted in the infertility OPD of the Cape Coast Teaching Hospital in Cape Coast. The hospital serves as the main referral health institution for medical attention for the Central Region and adjoining regions. It is also the facility for training medical students from the University

of Cape Coast. Additionally, it is also a centre of learning for several nurses training colleges in its catchment area.

The Central Region shares borders on the East with the Greater Accra region, on the North with Ashanti Region and on the North-East with Eastern Region. The region has 20 administrative districts with the historical city of Cape Coast as the capital. About 63% of the region is rural (Demographic Health Survey, 2008). The population was estimated at 2,413,050 for the year 2013 with an annual growth rate of 3.1% (PPME/CHIM-GHS, 2012) and a population density of about 215 inhabitants per square kilometre.

Study Population

The target population of the study comprised married infertile women in the Cape Coast Metropolis between the age of 19-46 years. The accessible population was 89 registered infertile women attending infertility clinic at the Cape Coast Teaching Hospital, Cape Coast. These women shared some characteristics such as being married adults, living in the same geographical area, had some level of education, were concerned about their infertility state, and were seeking treatments from a competent health facility nearest to them.

Sampling Procedure (Selection of Subjects)

The Beck Depression Inventory (BDI-II) was used to measure the depression level of the infertile women. Eighty one (81) out of the 89 infertile women registered at the Fertility Clinic at the Cape Coast Teaching hospital were tested. Thirty-three infertile women who scored above 16 on the Beck's Depression Inventory (DBI-II) were selected for the study. However, three of them declined for personal and unexplained reasons. This therefore means that

29 of the depressed infertile women were used for the study. A self-prepared questionnaire was used to collect background data from the women.

To select respondents for the study, multistage sampling procedure was adopted. This includes purposive and census technique. The purposive sampling method was used to select the infertile women who attended infertility clinic at the Cape Coast Teaching Hospital. This method was used because according to Gory, et al, (1996), the goal of purposive sampling is to select respondents who possess the same characteristics.

The census method was used to select all the 29 depressed infertile women because the number was "realistic to include everybody in the study'' (Creswell, 2009; p 5). The participants of the study were all married women who were also willing to participate in the study. According to Creswell (2009), the census method has these strengths: it allows a lot of information to be gathered which provides a true measure of the population, it also allows to be included a greater number of subjects to be used in a study, and lastly the census method allows the investigator to have an extensive study of a particular problem. It has these weakness, firstly, the census method is very time consuming and laborious to employ in a study if the population is very large and secondly, it takes a longer time to collect data, process and release**.**

Data Collection Instruments

The Beck Depression Inventory (BDI-II) was adopted and used for the study. Variables including age, duration of marriage, educational level, occupation, duration of infertility and years spent on treatment were added to the inventory to collect background information of the subjects.

The Beck Depression Inventory is a 21- item self-report instrument intended for assessing the existence and severity of symptoms of depression. Test-retest reliability and validity of Beck questionnaire has been proven by several studies and researches. Each item of the inventory describes a specific behavioural, emotional and somatic manifestation of depression. The 21 items cover sadness, pessimism, and sense of failure, dissatisfaction, guilt, and expectation of punishment, self-dislike, self-accusations, suicidal ideas, crying, irritability, social withdrawal, indecisiveness, body image change, work retardation, insomnia, fatigability, anorexia, weight loss, somatic preoccupation and loss of libido

Scoring of the Instrument

Scores on each item range from 0, indicating no depressive symptomatology, to 3, indicating a severe level of symptomatology. Total scale scores can thus range from 0 to 63. Total scores of above 16 indicate a clinically significant depression. The classification of depression scores is as follows:

Interpretation of Scores

a) 1-16 (low depression)

b) 17-20 (mild depression)

c) 21–30 (moderate depression)

d) 31–63 (severe depression)

Ethical Considerations

Before the actual data collection, ethical consideration was ensured. Introductory letter was obtained from the Department of Guidance and Counselling (See Appendix C). An approval from the Ethical Review Boards

of the College of Educational Studies, UCC and Cape Coast Teaching Hospital (See Appendix E and F respectively) was sought in order to allow the selection the participants. I was introduced to other senior officers of the hospital including the Director of the Counselling Unit. The participants were approved to establish rapport. The objectives of the study were explained to them before initiating the study. After this, informed verbal consent was obtained from all the selected participants in the study and they were asked to sign a list to confirm participation. Participants were assured that the collected data would be used for academic purpose only. They were assured of their anonymity and confidentiality of the information gathered. Eighty-nine (89) women were registered at the fertility clinic.

Validity and Reliability of the Instrument

In order to enhance the validity of the study, the questionnaire was given to my supervisors for expert assessment. This ensured both face and content related evidence to the items and examine whether the items would relate to the research questions and also comprehensively cover the details of the study.

A Reliability test was carried out with the purpose of testing the consistency of the research instruments. The BDI-II was pilot tested on 33 infertile woman in University Cape Coast Hospital in Cape Coast and obtained Cronbach Alpha of .967 (See Appendix B) which is very strong (Corey, 2005), and correlates well with others who have tested it elsewhere.

Data Collection Procedures

After obtaining approval from the hospital, in a systematic randomized controlled clinical trial, 29 infertile women with depression were selected to

participate in the study. They were assigned into one of the two groups. Nine infertile woman attending clinic on Tuesday were assigned to the control group, the other 20 infertile women attending clinic on Wednesday were put into the experimental group. The experimental group received weekly Beck's Cognitive Behavioural Therapy (BCT) and the other, those without intervention (control group). The infertile women in the experimental group received gradual relaxation training, cognitive restructuring, and eliminating of negative automatic thoughts and dysfunctional attitudes to infertility for eight (8) sessions. Both groups were subjected to pre-test and post-tests using Beck's Depression Inventory (BDI-II) scale of 21 items.

Experimental 01 X 02

Control 03 04

Key:

O_1 – Pre-assessment of depression levels

O_2 – Post-assessment of depression levels

X – Therapy: Becks' Cognitive Therapy

It is worth to mention that the experimental procedure to achieve the goals of the study was followed, which was applied on an experimental group (intervention) using a suggested program developed by Beck to reduce the depression among infertile women.

The actual data collection for the study was done from February 2017 to end of March 2017, thus for a period of up to 2 months. The data was collected by the researcher from infertile women attending the infertility clinic for two days in a week and each week according to available time to women and their attendance schedule for clinic as doctor ordered and their needs. Each infertile woman takes time approximately between 15-25 minutes to fill

a questionnaire; I guided the infertile women in filling their questionnaire. The data collection took two months. To establish more reliable data, the researcher employed an experience personal (therapist) from the Cape Coast Teaching Hospital assist in the intervention process.

Pre-Intervention Phase

Pre-test was performed for the participants who agreed and were available for the study, using the Beck's Depression Scale, 29 out of the 81 who showed depression symptoms were divided into two groups. Twenty (20) for experimental and 9 for control group. This grouping choice was based on Carrey (2013) grouping for homogeneous group since they shared the same characteristics of being depressed and infertile. Then I began with the program application for the first phase of knowing each other, boost their morale, and explained the objectives, framework, rules and regulations governing the therapeutic sessions.

Intervention Process

The experimental group underwent Cognitive Therapy treatment based on Aaron Beck's Model for 8 sessions of 60 minutes once a week, but the control group did not receive any intervention. Therapy sessions lasted for two months. At the end of the therapy, the post-test was administered to both groups. Later, the control group was counselled but this did not form part of the report. Therapy session topics in each session are summarised as follows as culled from by Beck's Enriched Intervention Manual of Operations (1995):

1. **The first Session (Description Session):**
    a) Welcoming the respondents, motivating them with word of encouragement, overview of the structure and rules of the group

meetings, stating the number and duration of meetings and expressing their expectations of treatment sessions

b) Understanding one another through interaction for familiarization.

c) Talk about CBT and interactive expression of thoughts, emotions, anxiety and depression-related behaviours.

2. **The Second Session:**

a) An overview of the content of the previous session with the active participation of all members.

b) Analysis of arbitrary inference, overgeneralisation, selective abstraction, magnification, personalisation, dichotomous thinking. from the client perspective

c) Talk about positive self-talk and its role in controlling dysfunctional emotions and behaviours.

d) Determine the next session task to identify dysfunctional beliefs underlying anxiety and depression and also the practice of positive self-talks and its effects on their behaviour.

3. **The Third Session:**

a) An overview of the content of the previous session with the active participation of all members.

b) Checking the assignments given to the client in the areas of dysfunctional thoughts and positive self-talks.

c) Muscle relaxation training

d) Determine the next session task in the area of muscle relaxation.

4. **Fourth session:**
    a) An overview of the content of the previous session with the active participation of all members.
    b) Checking homework in the field of muscle relaxation and its effects on anxiety and depression.
    c) Discussion on problem solving skills, their processes and effects on anxiety and depression.
    d) Providing various examples of problem solving skills and stages.
    e) Determine homework in the field of problem solving skills in relation to the problem that the respondents are have.
5. **The Fifth Session:**
    a) An overview of the content and techniques presented in previous sessions from the beginning of therapy sessions up to date.
    b) Review homework on problem solving.
    c) Discussion on objective analysis, logical analysis and benefit analysis in relation to anxiety and depression.
    d) Providing homework on logical analysis, usefulness and objectivity in relation to anxiety and depression.
6. **The Sixth Session:**
    a) An overview of the content presented in previous session with the active participation of all members.
    b) Review homework on objective analysis, logical analysis and benefit analysis.
    c) Discussion in the field of social skills such as assertiveness, interpersonal skills and self-control.

d) Providing homework on social skills.

7. **The Seventh Session:**

a) An overview of the content of the previous session with the active participation of all members.

b) Review homework on social skills.

c) Discussion on the role of attribute in behaviour and in particular its role in the treatment of anxiety and depression and also training in relation to opposed beliefs and experience two incompatible emotional states through role play.

d) Determine homework in the field of attribute, opposed beliefs and experience two incompatible emotional states in relation to the problem that client is suffering from.

8. **The Eighth Session:**

a) An overview of all the contents and techniques presented in previous sessions from the beginning of therapy sessions to date.

b) Checking the assignments given to the clients on the session seven.

c) Discussion on identification of automatic thought, identifications of cognitive distortions, disputing and rebuttal of automatic thought.

Closing Session

i. Prepare participant for termination of the therapy sessions.

ii. Emphasize continuation of homework assignments and practising other strategies after termination. Emphasize counselling as a learning process that continues throughout the individual's life.

iii. Delineate anticipated problems and rehearse coping strategies.

Post-Intervention

Finally, after the intervention process, a post-test was administered to both groups, by measuring their levels of depression using the BDI-II.

Data Processing and Analysis

The data collected were processed using SPSS version 21. The data were analysed and discussed using descriptive (frequency and percentages, means and standard deviation) and inferential statistics (paired t-test and independent samples t-test and chi-square test).

Research question one was analysed using frequency and percentages in order to determine the prevalence of depression among infertile women. Concerning research question two, association of socio-demographic (categorical) variables were demonstrated using the chi square tests and all statistical tests were performed at 5% significance level (95% confidence level).Research question three was analysed by comparing the mean scores of both the control and experimental groups.

Research hypotheses one and two were analysed using independent samples t-test to determine the difference between experimental group and control group on the basis of pre-test and post-scores. Research hypothesis three was analysed using paired samples t-test to determine the difference between the pre-test and post-test score in order to assess the impact of Becks' Cognitive Behaviour Therapy on depression among infertile women.

Chapter Summary

The method employed was semi quasi experimental design. Purposive sampling was used to select the Cape Coast Teaching Hospital for the study, and the census method was used to include all the 29 depressed infertile -

women who scored above 16 on the BDI-II for treatment lasting up to 2 months. The therapy was carried out with the collaboration of a Clinical Psychologist at the Cape Coast Teaching Hospital, Cape Coast.

Some limitations noted were as follows; firstly, the research was conducted at only one health facility. Hence the generalisation of findings is limited to the study population. Also, the use of only one depression measuring instrument and thirdly, the subjects answered the inventory based on their personal history which might have impacted the study.

CHAPTER FOUR

RESULTS AND DISCUSSION

Introduction

The main purpose of the study was to investigate the impact of Becks' Cognitive Behavioural Therapy on infertile women suffering from depression in the Cape Coast Metropolis. This chapter deals with the presentation, interpretation and discussion of the results. The presentation of the results is in two sections. The first section presents the results of the respondents' socio-demographic characteristics and the second section presents the results based on the research questions and hypotheses.

Socio-Demographic Characteristics of Respondents

The purposive sampling method was used to select 29 respondents from the Cape Coast Teaching Hospital. A total of 29 infertile women (9 control group and 20 experimental group) participated in the study. The socio-demographic characteristics of the depressed infertile women were sought. These included their age distribution, educational level, employment status, years of marriage, and the duration of infertility. The data of the background information of respondents were analysed using frequency and percentages as shown in Table 1.

Table 2 shows the results of the socio-demographic profile of the depressed infertile women respondents from the Cape Coast Teaching Hospital. The respondents were grouped into experimental group and control group. The study shows that 13(44.8%) depressed infertile women were

within the age group 26-30 years and 11(37.9%) of them were within the age range of 31-35 years. With respect to educational level, 14(48.3%) had a minimum of elementary (primary) school education. This was followed by 9(31.0%) of them who had secondary education and the least number had tertiary education and were 2 respondents, representing 6.8%.

Table 1: *Socio-Demographic Characteristics of Respondents*

Variables	Experimental Group (n=20) N (%)	Control Group (n=9) N (%)	Total (n=29) N (%)
Age Distribution			
20-25 years	3(15.0)	2(22.2)	5(17.2)
26-30 years	9(45.0)	4(44.4)	13(44.8)
31-45 years	8(40.)	3(33.3)	11(37.9)
Educational Level			
Elementary (Primary)	9(45.0)	5(55.6)	14(48.3)
JHS	8(40.0)	1(11.1)	9(31.0)
Secondary	2(10.0)	2(22.2)	4(13.8)
Tertiary	1(5.0)	1(11.1)	2(6.8)
Employment Status			
Self-employed	13(65.0)	5(55.6)	18(44.8)
Government	2(10.0)	1(11.1)	3(20.7)
Private	1(5.0)	1(11.1)	2(6.9)
Unemployed	4(20.0)	2(22.2)	6(27.6)
Years of Marriage			
1-3 years	8(40.0)	5(55.6%)	13(44.8)
4-6 years	4(20.0)	2(22.2)	6(20.7)
7-10 years	1(5.0)	1(11.1)	2(6.9)
10 years +	7(35.0)	1(11.1)	8(27.6)
Years of Duration of Infertility			
Below 3 years	8(40.0)	7(77.8)	15(51.7)
3-5 years	9(45.0)	0(0.00)	9(31.0)
6-9 years	2(10.0)	2(22.0)	4(13.8)
10 years +	1(5.0)	0(0.00)	1(3.4)

Source: Field data, (Attila 2017)

Even though majority of the couples had attended school, most of the depressed infertile women were self-employed (n=18; 44.8%) and 6(27.6%) of them were unemployed as indicated in Table 1. Table 1 indicated that 13(44.85) of the depressed infertile women had married for about 1-3 years and 8 of them representing 27.6% had married for more than 10 years. The mode of duration of infertility was found among those who were those who were recently married below 3 years (n=15; 51.7%) and 9(31.0%) of them were within 3-5 years (Table).

It is evident from the results obtained that the prevalence of depression run across all the infertile women used in the study. A closer look at their socio-demographic background reveals, all the infertile women irrespective of their background had some level of depression. Comparatively, the results suggest that, the employment status (n=-13, 65.0%) and duration of infertility (n=-8, 40.0%) were major determinants of depression level of the infertile women.

This could mean that once, married, they were expected to have at least a child within the first 3 years of marriage. As time elapsed, they might have become accustomed to their infertile state or had acquired means to combat their childlessness; hence, their lower level of depression.

Research Question 1: What is the prevalence of depression among infertile women in Cape Coast Teaching Hospital?

Figure 1 was used to analyse Research Question One (1)

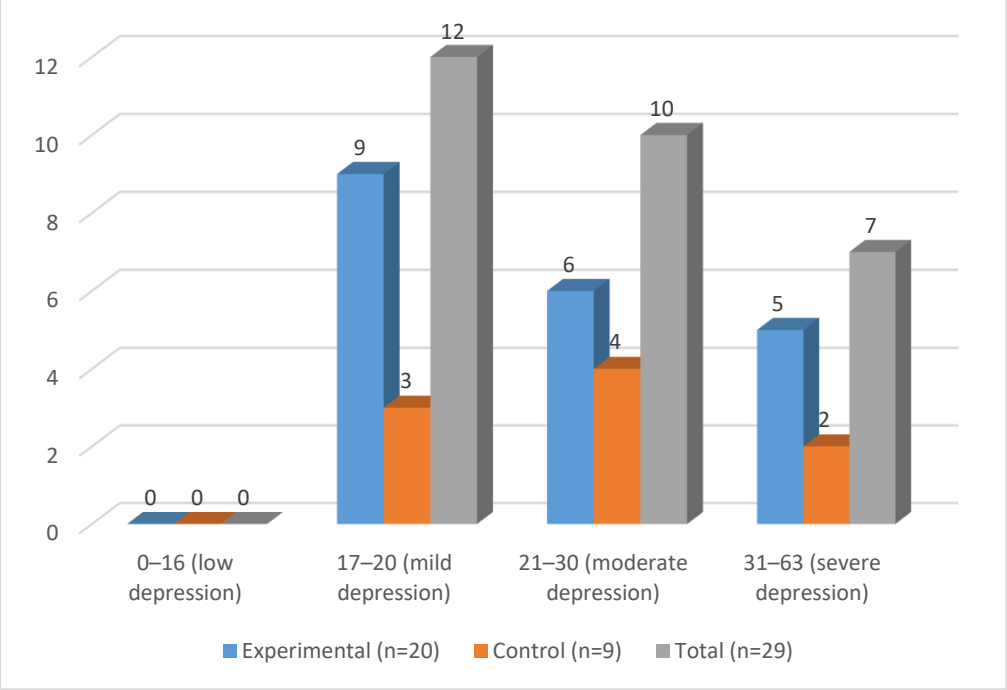

Figure1-Frequency analysis of Prevalence of Depression among Infertile Women

The main purpose of this research question was to investigate the impact of Beck's Cognitive Therapy on the prevalence of depression among infertile women seeking treatment at Cape Coast Teaching Hospital of Cape Coast. The data were analysed using frequency and percentages and presented in Figure 1.

Figure 1 shows the prevalence level of depression among infertile women in the Cape Coast Teaching Hospital. Using Beck's Depression Inventory, it was found that 12(41.45%) of the respondents had mild depression, 10(34.5%) of the respondents had moderate depression and 7(24.1%) of the respondents had severe depression.

The study concluded that majority 17(58.6%) of the infertile women used in the study were depressed. The high level of depression among the subjects could be explained by the fact that fertility is one of the main and most important reason for marriage in this culture hence their inability to

reproduce makes them develop negative thoughts leading to the depression. The finding of a high depression prevalence of 58.6% among the infertile women in the present study buttresses the psychological challenges that childless women are confronted with. The high prevalence of depression in the present study could be attributed to the societal and family demand on Ghanaian women to have their own children. In Ghana, children are seen as a form of social security at old age and as a means of perpetuating the family lineage. The results of the study imply that the inability to have children has a tremendous psychological impact on infertile couples. Depression increases the duration of infertility among infertile women. Depression is considered as one of the main psychological disorders associated with infertility, especially in Africa including Ghana where children are highly valued for socio-cultural and economic reasons.

Many studies have shown that infertility and depression frequently go together. The results of the current study confirm the findings of Alhassan et al, (2014) in Ghana that among infertile women in Tamale Teaching Hospital, 62.0% had depression on Beck Depression Inventory questionnaire. Similarly, Domar et al. (2002) reported that among infertile women, 37% had depressive symptoms on the Beck Depression Inventory (BDI-II). Again, the result of the current study support the findings of Habiba et al. (2013) in Ghana that 58% of the infertile women suffered from depression. Ramazanzadeh et al. (2007) using Beck's questionnaire showed that 48% of his respondents suffer from various degrees of depression. Among the 48% of women, 30% suffered from mild, 12.5% from moderate, and 5.3% from severe depression.

Moreover, the results of the current study also agreed with the findings of Awoyinka and Ohaeri (2014) who found that about half of their respondents had mild depression, while approximately 30% of the respondents had moderate depression and severe depression was above 20%. The present finding also agrees with the findings of Greil et al. (2011). Al-Homaidan (2011) found that 53.8% of the infertile women in his study had depression. Thara et al. (2006) revealed that all the infertile women in their study were depressed. Shamsah et al. (2009) found that 60% of the infertile women presented for treatment had depression. The result of the current study is consistent with the findings of Nelson et al. (2008) that 19% of infertile women had moderate depression and 13% had severe depression. The prevalence of depression in the present study is however higher than the findings of Ramezanzadeh et al. (2004) which showed a prevalence of 40.8% among infertile women in Iran.

It is evident from the results obtained that the prevalence of depression run across all the infertile women used in this study, irrespective of their socio-demographic background. Also the duration of infertility seems to be a major determinant of their depression level, among the variables. The percentage among this variable ranged from 3.4% -51.1%. The prevalence of depression was there in the form of being mild, moderate and severe. Those with the highest prevalence rate of depression were the newly married infertile women who made scores more than half (51.1%) of the combined score on the scale. The least percentage score were those infertile women who have been married for more than 10 years, representing 3.4%.

This could be that once married, they were expected to have at least a child within the first three years. As time elapsed they might have become used to their state of infertility or had acquired means to accept their childlessness hence the lower level of depression after many years of being infertile.

Research Question 2: What is the association between socio-demographic characteristics of infertile women and the prevalence of depression between them?

Table 2 was used to analyse Research Question Two (2).

Table 2-*Chi Square test of Association between Socio-Demographic Characteristics of Depressed Infertile Women and Prevalence of Depression Level*

Variables	Level of Depression				
	Total N (%)	Mild N (%)	Moderate (%)	Severe N (%)	p-value
Age Distribution					
20-25 years	5(17.2)	2(16.7)	3(30.0)	0(0.0)	
26-30 years	13(44.8)	4(33.3)	6(60.0)	3(42.9)	0.002*
31-35 years	11(37.9)	6(50.0)	1(10.0)	4(57.1)	
Educational Level					
Elementary (Primary)	14(48.3)	6(50.0)	4(40.0)	4(57.1)	
JHS	9(31.0)	4(33.3)	3(30.0)	2(28.6)	0.010*
Secondary	4(13.8)	1(8.3)	2(20.0)	1(14.3)	
Tertiary	2(6.8)	1(8.3)	1(10.0)	0(0.00)	
Employment Status					
Self-employed	18(44.8)	9(75.0%)	6(60.0%)	3(42.9)	
Government	3(20.7)	0(0.00)	1(10.0)	2(28.6)	0.422
Private	2(6.9)	0(0.00)	1(10.0)	1(14.3)	
Unemployed	6(27.6)	3(25.0)	2(20.0)	1(14.3)	
Years of Marriage					
1-3 years	13(44.8)	5(41.7)	5(50.0)	3(42.9)	
4-6 years	6(20.7)	2(16.7)	1(10.0)	3(42.9)	0.034*
7-10 years	2(6.9)	0(0.00)	1(10.0)	1(14.3)	
10 years +	8(27.6)	5(41.7)	3(30.0)	0(0.00)	
Infertility Duration					
Below 3 years	15(51.7)	5(41.7)	7(70.0)	3(42.9)	
3-5 years	9(31.0)	3(25.0)	3(30.0)	3(42.9)	0.041*
6-9 years	4(13.8)	3(25.0)	0(0.00)	1(14.3)	
10 years +	1(3.4)	1(8.3)	0(0.00)	0(0.00)	

Source: Field data, (Attila, 2017). *Significant @ 5 % level

This research question aimed at finding the association between the level of depression among infertile women and their socio-demographic characteristic. The results were analysed using Chi Square tests, and all statistical tests were performed at 5% significance level (95% confidence level) and presented in Table 2.

Table 2 indicates the results of Chi Square Analysis of the association between socio-demographic characteristics of depressed infertile women and the level of their depression.

From Table 2, the chi-square value was significant for age, educational level, years of marriage and the duration of infertility. It means there is an association between depression and age, educational level, years of marriage and duration of infertility. But there was no association of depression with respect to the employment status of the infertile women.

Table 2 shows that depression was more common in infertile women aged between 26-30 years and also prevalent in those infertile women age 31-35years ($\chi2(4) = 6.225$, $p = 0.002$).The findings of this study revealed that the level of depression increases with age which is not an unexpected result, because it is logical that when a woman gets older she might be anxious since she knows there is an age limit to fertility.

As shown in Table 2, the levels of depression as stratified by employment status of the infertile women indicated that the percentage scores of depression were higher among infertile women who are self-employed and unemployed than the rest, even though this trend was not statistically significant ($\chi2(4) = 6.007$, $p = 0.222$). In most societies, employment status increases an individual's chances of securing a well-paid and stable job which

may relieve the psychological impact of infertility. This may go a long way to explain the trend as observed in the present study with respect to mean depression scores having a negative relation with employment status. According to Ramezanzadeh et al. (2004) house wives may experience more psychological signs of depression and anxiety than married women who work outside of the home. This finding is similar to the work of other researchers who have found a similar trend of depression with employment as well as educational status (Domar et al., 2002).

With regard to the percentage scores of depression stratified by years of marriage, it was found that infertile women with less years of marriage (1-3 years) tended to be more depressed. This was followed by infertile women whose marriage is more than 10 years. More importantly, this trend was statistically significant ($\chi2(4) = 6.737$, $p = 0.034$). The analysis of the percentage score of depression stratified by duration of infertility revealed that the infertile women who were diagnosed below three years and within 3-4 years tended to be more depressed as compared with those infertile women diagnosed for longer years.

In Table 2, Duration of infertility showed a significant association ($\chi2(4) = 5.336$, $p = 0.041$) with the prevalence of depression level among infertile women as observed. It is a common finding for duration of infertility to have any effect on depression. This finding agrees with previous studies (Ashkani et al., 2006; Greil et al., 2011) who reported that depression increases with duration of infertility and that there was a trend of increasing psychological stress with lengthening of infertility time. The present finding of this study is similar to the finding of Alhassan et al. (2014) that duration of

infertility had a significant positive association with the depression level. Alhassan et al. (2014) found that women who had infertility duration of 3 years and above showed more depression. Several studies have also reported similar observations in different infertile populations (Domar et al., 2002; Guerra et al., 2008).

This could even be more dissatisfying in an African country like Ghana, where emphasis on fertility of a woman determines social identity as well as acceptance into the family (Awoyinka & Ohaeri, 2014; Umeora et al., 2009). The findings of the current study is consistent with the findings of Alhassan et al. (2014) who found that the mean depression score was high among women aged 26 years and above and tended to be higher as the women advanced in age. Studies have shown that female fertility is at its peak around the ages of 26-35 years and infertility becomes more pronounced after the age of 35 (van Noord-Zaadstra et al. 2001; Gindoff & Jewelewicz, 2006). The knowledge that their fertility may be declining after this age may put the women under some kind of psychological pressure which could have contributed to this high depression as noted in the present study.

Similarly, concerning the percentage score of depression by educational level, it was found that infertile women with only elementary education tended to be more depressed than those who, at least, had a higher form of education with the level of depression decreasing with a higher education. More importantly, this trend was statistically significant with regard to educational level ($\chi 2$ (6) = 1.499, p = 0.010) as shown in Table 2. The fact that most of the infertile women on treatment at Cape Coast Teaching Hospital at Cape Coast, had a minimum of basic education (primary and JHS),

means the group were moderately educated. It is, therefore, not surprising that this could have contributed to the persistent worry associated with the group as they might have not sourced for educational materials to improve their knowledge on infertility. Studies have shown that the more educated an individual is, the more knowledgeable they are about their condition (Awoyinka & Ohaeri, 2014).

The result of the current study also agreed with the findings of Alhassan et al. (2014) that women who attained higher education had lower depression levels. In the current study, high depression levels were more among infertile women who had elementary (primary) education and lower among infertile women who had higher levels of education. The findings of the current study is in line with previous findings (Awoyinka & Ohaeri, 2014) on educational and depression level among infertile women.

The finding of the current study, however, disagrees with the finding of Awoyinka and Ohaeri (2014) who found the uncommon finding that duration of infertility did not have any effect on depression. During the early stages of being diagnosed with infertility the hopefulness of the woman for a successful outcome of medical intervention was higher.

However, as the intervention progresses without success combined with the stress of moving from one hospital to the other, the women may become psychologically stressed up with fading hopes of conception.

Research Question 3: What is the impact of Beck's Cognitive Behavioural Therapy on the prevalence of depression among infertile women?

This research question aimed at investigating the effect of Cognitive Behavioural Therapy on depressed infertile women in the experimental group.

Evidence from independent samples t-test of the pre-test and post-test scores of the experimental and control groups revealed that CBT had a positive impact on depression among the infertile women. The independent samples t-test scores from Table 3 of the pre-test scores of the two groups shows the pre-test mean scores of the control group was 29.56 whilst those in the experimental group pre-test mean score 27.65. Again the table four reveals that the mean score the post-test the experimental group who received treatment had dropped to 13.80 about half of their pre-test mean score.This reduction is clinically significant because a score below 17 on the BDI-II means there is minimal level of depression which should not call for concern nor any intervention. But the post-test mean score of the control group which did not benefit from the therapy was marginally reduced to 25.56.

This can be interpreted to mean that the women who were treated with CBT did significantly well than those who did not receive any treatment. The findings from this work confirm the findings of Ashkani et al (2006) and Alhasan et al (2014) that Beck's Cognitive Therapy has a positive impact on depression of infertile women.

In this study, the depression levels among both the experimental and control groups were high, as evident in the pre-test scores. But the post-test mean scores comparison of the two groups show that those in the experimental group's mean score has been halved.

Research Hypothesis 1: There is a statistically significant difference in the pre-test mean scores of depression levels between infertile women in the experimental group and control group.

Table 3 was used to test Research Hypothesis One (1).

Table 3: *Independent Samples t-test Summary of Pre-test Score of Experimental and Control Group*

	Group	N	Mean	SD	t-value	df	p-value
Depression Pre-test score	Control	9	29.56	6.29	0.704	27	0.488
	Experimental	20	27.65	6.93			

Source: Field data, (Attila 2017) * Significant @ 0.05 level

As indicated in Table 3, the scores of the independent sample t-test show that there is no significant difference between the two groups in the pre-test. The mean score of depression level was mean=29.56; (SD=6.29) in the control group and it was mean=27.65; (SD=6.93) in the experimental group.

This result inferred that the level of depression was relatively higher in the control group than the experimental group. However, the difference between the two groups in depression level [t(27)=0.704; p=0.488] was not significant. In brief, each group consisted of infertile women with about similar depression levels before the treatment using Becks' cognitive-behavioural therapy (CBT). By implication, there was homogeneity in the depression levels of the two groups prior to treatment. Therefore, the alternative hypothesis is rejected; hence, there is no significant difference in the depression pre-test scores of infertile women in experimental and control group.

The results from the table 3 give ample evidence to settle there was homogeneity of scores among the two groups (Control and experimental). The results justify the reason that, on average, almost all the selected infertile women suffered depression prior to treatment. Again, the results could be interpreted as, the fact that there could only be differentiated when the

Cognitive Behavioural Therapy (CTB) is well treatment on the participants (infertile women).

Furthermore, since the participants were having similar characteristics such as infertility, same hospital, same doctors it could be mean that they all suffered similar depression problem and such as only the treatment could bring about the difference.

Research Hypothesis 2: There is a statistically significant difference in the post-test mean scores of depression levels between infertile women in the experimental group and the control group.

Table 4 was used to test Research Hypothesis Two (2).

As shown in Table 4, the results of the independent samples t-test revealed that there was significant difference between the two groups in the post-test. The mean score of the depression level in the control group was (mean =25.56; SD=4.61) and it was (mean=13.80; SD=6.47). This result indicated that the infertile women who received treatment using Beck's Cognitive Behavioural Therapy (CBT) did have significantly lower level of depression than infertile women in the control group who did not receive any treatment

Table 4: *Independent Samples t-test Summary of Post-test Score of Experimental and Control Group*

	Group	N	Mean	SD	t-value	df	p-value
Depression Post-test score	Control	9	25.56	4.61	4.898*	27	0.00
	Experimental	20	13.80	6.47			

Source: Field data, (Attila, 2017) * Significant @ 0.05 level

This shows that the infertile women exposed to treatment had lower level of depression than those of the control group. The difference between the control group and the experimental group reached a significant level after being examined by the independent sample test [t(27)=4.898; p=0.000). By implication, there was significant difference in the level of depression of the two groups after treatment in favour of the experimental group (Table 4).

The implication of these results is that Beck's Cognitive Behavioural Therapy (CBT) is an effective strategy in psychology. In other words, Beck's Cognitive Behavioural Therapy (CBT) is obviously effective in reducing depression among infertile women, thus, the answer to the third research question (What is the impact of Beck's cognitive therapy on the prevalence of depression among infertile women in the Cape Coast Teaching Hospital of Cape Coast) is that Beck's Cognitive Behavioural Therapy (CBT) helps reduce the level of depression among infertile women in the Central Regional Teaching Hospital of Ghana. Also, this finding support research hypothesis two that there is a significant difference in the post-test mean scores of depression levels among infertile women in the experimental group and control group (Table 4).

Cognitive Behaviour Therapy (CBT) as a treatment for depression is a psychotherapeutic approach aims to solve problems concerning dysfunctional emotions, behaviours and cognitions through a goal-oriented, systematic procedure in the present. (Corey, 2005; Sharf, 2004). Becks' Cognitive Behavioural Treatment (CBT) of depression involves the application of specific, empirically supported strategies focused on depress-organic information processing and behaviour (Beck, 1996; Lewinsohn et al., 2006;

Sharf, 2004). One primary goal of CBT is to facilitate the use of treatment techniques outside therapy sessions to create a "positive emotional spiral" wherein depressed infertile women can implement specific strategies to offset their depressive mood (Sanderson et al, 2008; Wolfe, 2004).

In order to alleviate depressive effect of the infertile women, treatment was directed at the following three domains: cognition, behaviour, physiology (Klosko & Sanderson, 2009). In the cognitive domain, the depressed infertile women learn to apply cognitive restructuring techniques so that negatively distorted thoughts underlying depression can be corrected, leading to more logical and adaptive thinking. Within the behavioural domain, techniques such as activity scheduling, social skills training, and assertiveness training are used to remediate behavioural deficits that contribute to and maintain depression (e.g., social withdrawal, loss of social reinforcement (McGinn et al., 2006). Finally, within the physiological domain, depressed infertile women with agitation and anxiety are taught to use imagery, meditation, and relaxation procedures to calm their bodies (Table 4).

From these results, it is clearly seen that Beck's CBT aims to help depressed infertile women become aware of when they make negative interpretations, and of behavioural patterns which reinforce the distorted thinking. It also helps depressed infertile women to develop alternative ways of thinking and behaving which aims to reduce their psychological distress. The results of the current study correspond to the findings of the previous studies that Becks' Cognitive Behavioural Therapy (CBT) help improve infertile women depression level. Rush et al. (2000) demonstrated that cognitive therapy was more effective in patients suffering from clinical

depression. There is empirical evidence that CBT is effective for the treatment of a variety of problems, including mood, anxiety, personality, eating, substance abuse, and psychotic disorders (Butler, Chapman, Forman, & Beck, 2006; Mick, 2008). Several studies have shown the effectiveness of CBT on the depression in infertile women (Gharaee et al., 2005; RabiZadeh & Kormi, 2003; Kormi, 2001; Nilfroushan et al., 2006; Mousavi Far et al., 2008).

Research Hypothesis 3: There is a statistically significant difference in the pre-test and post-test mean scores of depression level among infertile women in the experimental group

Table 5 shows the results of the paired sample t-test examining the differences in the pre-test and post-test scores of prevalence of depression among infertile women in the experimental group. Comparing the scores, the researcher was able to identify whether the experimental group gained differently between the pre-test and post-test.

Table 5: *Paired Sample Statistics of Pre-test and Post-test Score of Experimental Group*

	Group	N	Mean	SD	t-value	df	p-value
Experimental Group	Pre-test	20	27.65	6.93	6.513*	19	0.000
	Post-test	20	13.80	6.47			

Source: Field data, (Attila, 2017) * Significant @ 0.005 level

Table 5 revealed that the difference between the two means for the prevalence of depression among infertile women was 13.85 with a standard deviation of 9.51. This difference reached a statistically significant level

[t(19)=6.513; p=0.000]. The significant findings indicated that the intervention (CBT) helped reduce depression among infertile women; thus, infertile women level of depression after the treatment was affected by the use of CBT.

Becks' Cognitive Behavioural Therapy (CBT) of depression involves the application of specific, empirically supported strategies focused on depress-ogenic information processing and behaviour (Beck, 1996). From these results, it was clearly seen that Beck's CBT aims to help depressed infertile women become aware of when they make negative interpretations, and of behavioural patterns, which reinforce the distorted thinking. The results of the current study confirmed previous findings that used CBT in reducing depression among infertile women.

Frouzandeh and Del Aram (2004) in their study demonstrated the effectiveness of CBT in reducing depression. Tahereh (2014) using cognitive behavioural therapy (CBT) on depression in infertile women showed that CBT significantly has improved the depression in experimental group in comparison with control group. According to findings in this present research, it can be concluded that CBT can be used as an effective intervention method in women with high depression. Ahmadi et al. (2008) found that the psychological intervention (CBT) was found useful in alleviating depression in infertile couples before they received infertility treatment. Domar et al. (2000) found that cognitive behavioural and support had positive effect on infertile women psychological outcomes.

It is now very evident that the Beckian cognitive therapy holds the practical foundation which evidence based efficacy has been demonstrated for the treatment of depression. This proves that the theory is verifiable in the

West and our part of the world. This also goes a long way to explain the reason why more research is conducted into CBT and its beneficial effects.

The members in the experimental group appeared happier than before. This shows that the result is of clinical significance. A test for clinical significance of the results obtained a Cohen value of 1.8 (See appendix G) which is interpreted to mean that the intervention had moderate positive effect on the infertile women. Which suggests that CBT was effective in reducing the depressive symptoms of the infertile women at Cape Coast Teaching Hospital.

Chapter Summary

Summary of Findings:

The study found that (a) the infertile women were highly depressed before the treatment 40% of the infertile women were depressed (b) there was statistically significant association (relationship) between age, educational level, years of marriage, and duration of infertility each with the prevalence of depression level among infertile women, (c) CBT was effective in reducing depression among infertile women, (d) there was no significant difference between the control group and experimental group in the pre-test scores of the prevalence of depression and (e) there was significant difference between the control and experimental groups in their post-test depression scores in favour of the experimental group.

With regard to the research hypothesis 3, the study found that there was a significant difference in the pre-test and post-test mean scores of depression levels among the infertile women in the experimental group. Their

post-test scores were significantly lower than their pre-test scores. The value for the clinical significance showed that the therapy was effective.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Introduction

This chapter provides summary of the study. The summary of the study is divided into two aspects. The first aspect is about the summary of the research process and the second is about the summary of the key findings. Conclusions are drawn from the key findings and based on the conclusions, recommendations have been made.

Summary of the Study

The main purpose of the study was to examine the impact of Beck's Cognitive Behavioural Therapy on the prevalence of depression among infertile women in the Cape Coast Teaching Hospital of Cape Coast. The study was guided by three research questions and three hypotheses. Quantitative approach using quasi-experimental design (pre-test and post-test with control groups) was used for the study. The study population comprised all registered infertile women (within 20-45 years) attending infertility clinics at Cape Coast Teaching Hospital. The sample for the study was 29 depressed infertile women. Census survey was conducted on all the depressed infertile women registered at the hospital. Self-prepared questionnaire was used to obtain the background data from the infertile women, and Beck's Depression Inventory (BDI-II) instrument was used in collecting the data on their levels of depression. The actual data collection for the study was done from the beginning of February 2017 to the end of March 2017, covering a period of

two months. Ethical consideration was ensured during the data collection. The data collection was in three stages, the pre-intervention stage (to assess the prevalence of depression among infertile women using the BDI-II), the intervention stage (apply the treatment on the experimental group using CBT-8 strategies) and the post-intervention (administering post-test). The data collected was processed using SPSS version 21. The data was analysed and discussed using descriptive (frequency and percentages, means and stand deviation) and inferential statistics (paired t-test and independent sample t-test and Chi-Square test).

Summary of Key Findings

1. Concerning research question one, the study found that majority of the infertile women were highly depressed.
2. With regard to research question two, the study found that there was statistically significant association (relationship) between age, educational level, years of marriage, and duration of infertility each with the prevalence of depression level among infertile women.
3. For research question three, it was found that CBT was effective in reducing depression among infertile women.
4. For research hypothesis one, the study found that there was no significant difference between the control group and experimental group in the pre-test scores of the prevalence of depression.
5. With reference to research hypothesis two, the study found that there was significant difference between the control and experimental groups in their post-test depression scores in favour of the experimental group.

6. With regard to the research hypothesis 3, the study found that there was a significant difference in the pre-test and post-test mean scores of depression levels among the infertile women in the experimental group. Their post-test scores were significantly lower than their pre-test scores.

Conclusions

It was very surprising that in the post-test scores, the control group has reduced marginally. This could be explained that some people's depression could reduce over time without any intervention.

Pressures within a person, the family and friends on infertile women to conceive is a major factor leading to their depression. Also it was realised that most of the women did not know that counselling could reduce depression. This could be due to the fact counsellors do not advertise their services to the Ghanaian public.

Infertility is a global health issue. It is a multidimensional problem with psychological and social impact. Infertility is a source of distress for couples as societal norms and perceived religious dictums may equate infertility with failure on a personal, interpersonal, emotional or social level. Depression is one of the most common reactions to infertility problems. Depression is regarded as general consequences of infertility and they have a significant relationship with infertility.

Using the Beck's Depression Inventory (BDI-II) the study concluded that most of the infertile women who took part in the study were highly depressed. The level of depression among infertile women was significantly associated with their socio-demographic characteristics (age, educational

level, years of marriage, and duration of infertility). In conclusion, the prevalence of depression among the infertile women is high, especially among infertile women aged 26 and above infertile diagnosed with infertility for more than 3 years.

This level of depression was similar to each groups (control and experimental) before the treatment or intervention. Thus, each group consisted of infertile women with similar depression level. By implication, there was homogeneity in the depression level of the two groups prior to treatment. The study also concluded that there was difference between the control and experimental group in the post-test in favour of the experimental group. Thus, infertile women in the experimental group gained significantly between the pre-test and post-test score of the prevalence depression. This result indicated that the infertile women who received treatment using Beck's Cognitive-Behavioural Therapy (CBT) did significantly by better in depression control and management than those infertile women who did not receive any treatment. This shows that the infertile women exposed to treatment had lower level of depression than those of other group.

The implication of these results is that Beck's Cognitive Behavioural Therapy (CBT) is an effective strategy in psychology in reducing depression among infertile women. Cognitive Behavioural Therapy (CBT) as a treatment for depression is a psychotherapeutic approach which aims to solve problems concerning dysfunctional emotions, behaviours and cognitions through a goal-oriented, systematic procedure in the present. From these results, it is clearly seen that Beck's CBT aims to help depressed infertile women become aware of when they make negative interpretations, and of behavioural patterns which

reinforce the distorted thinking. The overall analysis is that my study helped the depressed infertile women to develop alternative ways of thinking and behaving which aims to reduce their psychological distress. Beck's CBT had a positive effect on infertile women in reducing some aspects of self-perceived depression.

Implication for Counselling

1. From observation it was realized that Beck's CBT is not well used by the counsellors at Cape Coast Teaching Hospital and as such counsellors at the Hospital are to use the Beck's CBT to help them give effective treatment to the infertile woman.
2. The results again imply that counseling plays a central role in treating depression counselors who are very knowledgeable in the use of CBT should be posted to hospitals to help infertile to deal with possible depression they may have.
3. Since Beck CB. T. was effective in treating depression among infertile, counsellors are encouraged to use the therapy during counselling sessions.
4. Counsellors must consider the age, educational level, years of marriage and the duration of infertility when counselling depressed infertile women as these variables have an association with depression.

Recommendations

Based on the findings and conclusions, the following recommendations are made:

1. Beck's CBT had a positive effect on infertile women in reducing some aspects of self-perceived depression, therefore, it is recommended that,

counsellors and Clinical Psychologists make use of the theory in their work to reduce depression especially among infertile women at the Cape Coast teaching Hospital.

2. Treatment of infertile women in all infertility centres should be through the combined efforts of Counsellors, Clinical Psychologists, Gynaecologists, Psychologists and Psychiatric Nurses to help infertile women to improve their mental health and increase their chances of conceiving,
3. It is recommended that Ministry of Health and Ghana Health Service (MOH/GHS) should develop and provide effective awareness programmes to educate medical professionals about the importance of role of counselling in the treatment of infertility.
4. It is recommended that hospital administrators, doctors, nurses and other medical professionals should increase the awareness level of infertility in women, especially on the importance of combined use of psychotherapy and routine treatment to treat infertility. This can help increase the success rate of infertility treatment and improve the quality of life of these patients.
5. It is recommended that MOH/GHS through hospital administrators, medical professionals should increase the awareness level of the general population about the benefits of the social support and how to deal with infertile couples to prevent further complication for their situation. More especially the counselling unit of the Cape Coast Teaching Hospital should periodically organise seminar and symposia to educate people and advertise their services.

Suggestions for Further Research

1. Cross-sectional designs that replicate this study using infertile populations not pursuing treatment or who recently completed treatments would be valuable. This will allow researchers to fully understand the relationship between coping and infertility stress, marital adjustment and depression across the various phases of the infertility experience.
2. Other studies looking at the effect of therapeutic interventions on infertile couples who exhibited the risk factors identified in this study and received treatment would provide a wealth of information about the most beneficial interventions for these couples.
3. Another interesting avenue for future research might be to examine the knowledge, and use of CBT among counsellors, Clinical Psychologists, nurses and other who have contact with infertile couples seeking infertility treatment.
4. The researcher further suggests that a study examining the awareness level of Cognitive Behavioural Therapy among infertility specialists, their patients and others be conducted.
5. It is also recommended that future researchers could do a follow up testing, after some months to measure the maintenance or relapse rates after cessation of the therapy session.
6. More research should be done in our part of the world to unearth other potential benefits of the therapy and theory

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APPENDICES

APPENDIX A

UNIVERSITY OF CAPE COAST

COLLEGE OF EDUCATION STUDIES

DEPARTMENT OF GUIDANCE AND COUNSEELING

INFERTILE WOMEN QUESTIONNAIRE

Topic: IMPACT OF BECK'S COGNITIVE BEHAVIOURAL THERAPY ON PREVALENCE OF DEPRESSION AMONG INFERTILE WOMEN IN CAPE COAST, GHANA

Dear Respondents

This instrument has been designed to gather information on depression among infertile woman, this research seeks to find out the levels of depression and how to overcome it using an internationally accepted testing tool called the Beck Depression Inventory (BDI-II). Kindly note that, the purpose of this research is purely academic and that the validity of the outcome depends largely on how objective and sincere you respond to these questions. It is hoped you be truthful as possible in giving responses, you confidentially is fully assured. You can withdraw at any stage of this study if you feel you uncomfortable.

Instructions: Please, write/tick (√) or provide an answer where necessary
Thank You

Part A

Background Information

1. No. ……

2. Age (years) a) 18-25 [ ] b) 26-33 [ ] c) 34 -45 [ ]

3. Educational level a) Elementary [ ] c) Secondary [ ]
   d) tertiary [ ]

4. Employment status a) Self-employment [ ] c) Private [ ]
   b) government [ ] d) unemployed [ ]

5. Years in marriage a) 1-3years [ ] c) 7-10 years [ ]
   b) 4-6 years [ ] d) 10+ years [ ]

6. Year(s) diagnosed as infertile
   a) below 3 years [ ] c) 6-9 years [ ]
   b) 3-5 years [ ] d) 10+ years [ ]

BECK DEPRESSION INVENTORY II

Instructions: This questionnaire consists of 21 groups of statements. Please read each group of statements carefully, and then pick out the one statement in each group that best describes the way you have been feeling during the past two weeks, including today circle the number beside the statement you have picked. If several statements in the group seem to apply equally well, circle the highest number for that group. Be sure that you do not choose more than one statement for any group, including Item 16 (Changes in Sleeping Pauem) or Item 18 (Changes in Appetite).

1. Sadness 0 I do not feel sad. 1 I feel sand much of the time. 2 I am sad all the time. 3 I am so sad or unhappy that I can't stand it.	**6. Punishment Feelings** 0 I don't feel I am being punished. 1 I feel I may be punished. 2 I expect to be punished. 3 I feel I am being punished.
2. Pessimism 0 I am not discouraged about my future. 1 I feel more discouraged about my future than I used to be. 2 I do not expect things to work out for me.	**7. Self-Dislike** 0 I feel the same about myself as ever. 1 I have lost confidence in myself. 2 I am disappointed in myself. 3 I dislike myself.

3 I feel my future is hopeless and will only get worse.	
3. Past Failure 0 I do not feel like a failure. 1 I have failed more than I should have. 2 As I look back, I see a lot of failures. 3 I feel I am a total failure as a person.	**8. Self-Criticalness** 0 I don't criticize or blame myself more than usual. 1 I am more critical of myself than I used to be. 2 I criticize myself for all of my faults. 3 I blame myself for everything bad that happens.
4. Loss of Pleasure 0 I get as much pleasure as I ever did from the things I enjoy. 1 I don't enjoy things as much as I used to. 2 I get very little pleasure from the things I used to enjoy. 3 I can't get any pleasure from the things I used to enjoy.	**9. Suicidal Thoughts or Wishes** 0 I don't have any thoughts of killing myself. 1 I am thoughts of killing myself, but I would not carry them out. 2 I would like to kill myself. 3 I would kill myself if I had the chance.
5. Guilty Feelings 0 I don't feel particularly guilty. 1 I feel guilty over many things I have done or should have done. 2 I feel quite guilty most of the time. 3 I feel guilty all of the time.	**10. Crying** 0 I don't cry more than I used to. 1 I cry more than I used to 2 I cry over every little thing. 3 I feel like crying, but I can't.
11. Agitation 0 I am no more restless or wound up than usual. 1 I feel more restless or wound up than usual. 2 I am so restless or agitated that it's hard to stay still.	**17. Irritability** 0 I am no more irritable than usual. 1 I am more irritable than usual. 2 I am much more irritable than usual.

3 I am so restless or agitated that I have to keep moving or doing something.	3 I am irritable all the time.
12. Loss of Interest 0 I have not lost interest in other people or activities. 1 I am less interested in other people or things than before. 2 I have lost most of my interest in other people or things. 3 It's hard to get interested in anything.	**18. Changes in Appetite** 0 I have not experienced any change in my appetite. 1a My appetite is somewhat less than usual. 1b My appetite is somewhat greater than usual. 2a My appetite is much less than before. 2b My appetite is much greater than usual. 3a I have no appetite at all. 3b I crave food all the time.
13. Indecisiveness 0 I make decisions about as well as ever. 1 I find it more difficult to make decisions than usual. 2 I have much greater difficulty in making decisions than I used to. 3 I have trouble making any decisions.	**19. Concentration Difficulty** 0 I can concentrate as well as ever. 1 I can't concentrate as well as usual. 2 It's hard to keep my mind on anything for very long. 3 I find I can't concentrate on anything.
14. Worthlessness 0 I do not feel I am worthless. 1 I don't consider myself as worthwhile and useful as I used to. 2 I feel more worthless as compared to other people. 3 I feel utterly worthless	**20. Tiredness or Fatigue** 0 I am no more tired or fatigued than usual. 1 I get more tired or fatigued more easily than usual. 2 I am too tired or fatigued to do a lot of the things I used

	to do. 3 I am too tired or fatigued to do most of the things I used to do.
15. Loss of Energy 0 I have as much energy as ever. 1 I have less energy than I used to have. 2 I don't have enough energy to do very much. 3 I don't have enough energy to do anything.	**21. Loss of Interest in Sex** 0 I have not noticed any recent change in my interest in sex. 1 I am less interested in sex than I used to be. 2 I am much less interested in sex now. 3 I have lost interest in sex completely.
16. Changes in Sleeping Pattern 0 I have not experienced any change in my sleeping pattern. 1a I sleep somewhat more than usual. 1b I sleep somewhat less than usual 2a I sleep a lot more than usual. 2b I sleep a lot less than usual. 3a I sleep most of the day. 3b I wake up 1 – 2 hours early and can't get back to sleep.	

APPENDIX B

RELIABILITY TEST

Case Processing Summary

	N	%
Case Valids	33	100.0
Excluded[a]	0	.0
Total	33	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.967	33

APPENDIX C

INTRODUCTORY LETTER

UNIVERSITY OF CAPE COAST
COLLEGE OF EDUCATION STUDIES
FACULTY OF EDUCATIONAL FOUNDATIONS
DEPARTMENT OF GUIDANCE AND COUNSELLING

Telephone: 0332091854
Email: dgc@ucc.eedu.gh

UNIVERSITY POST OFFICE
CAPE COAST, GHANA

Our Ref.:

Your Ref:

15/03/2017

LETTER OF INTRODUCTION
TO WHOM IT MAY CONCERN

We introduce to you Mr. /Mrs. /Miss. Frank L Attila, a student from the Department of Guidance and Counselling, University of Cape Coast. He/She is pursuing PhD/M. Phil in Guidance and Counselling.

As part of his/her requirements, he/she is expected to work on a thesis titled:

IMPACT OF BECK's COGNITIVE BEHAVIOURAL THERAPY ON INFERTILE WOMEN IN CAPE COAST

He/She has decided to carry out his/her study at your institution/establishment for the project. We would be most grateful if you could provide him/her the necessary assistance for the study. Any information provided will be treated as confidential.

Thank you.

Prof. Eric Nyarko-Sampson
HEAD OF DEPARTMENT

APPENDIX D

INFORMED CONSENT FORM

CONSENT FORM

I have read the consent form and recognize that my participation in this study is entirely voluntary and that I am free to withdraw at any time during the course of this study.

I understand that my information resulting in this study will be strictly confidential and that I realize that I may ask for further information about this study if I wish to do so at any time.

I have a copy of this consent form for my own records. I agree to participate in this study.

Subject's Name …….

Subject's Signature ……

Date ……....

APPENDIX E

ETHICAL REVIEW BOARD

UNIVERSITY OF CAPE COAST
COLLEGE OF EDUCATION STUDIES
ETHICAL REVIEW BOARD

UNIVERSITY POST OFFICE
CAPE COAST, GHANA

Our Ref: CES-ERB/ucc-edu/17/27

Your Ref: .....

Date: 16 . 03 . 2017

.....

.....

.....

Dear Sir/Madam,

ETHICAL REQUIREMENTS CLEARANCE FOR RESEARCH STUDY

The bearer, Mr. Frank Attila ..... Reg. No ED/GCP/15/0010 ... is an M.Phil /~~Ph.D~~ student in the Department of Guidance and Counselling ....., College of Education Studies, University of Cape Coast, Cape Coast, Ghana. He/~~She~~ wishes to undertake a research study on the topic The impact of Beck's Cognitive Therapy on infertile women suffering from depression in the Cape Coast Metropolis .....

The Ethical Review Board (ERB) of the College of Education Studies (CES) has assessed the proposal submitted by the bearer. The said proposal satisfies the College's ethical requirements for the conduct of the study.

In view of the above, the researcher has been cleared and given approval to commence his/her study. The ERB would be grateful if you would give him/her the necessary assistance that may be needed to facilitate the conduct of the said research.

Thank you.
Yours sincerely.

Dr. (Mrs.) Linda Dzama Forde
(Secretary, CES-ERB)

Chairman, CES-ERB
Prof. J. A. Omotosho
jomotosho@ucc.edu.gh
0243784739

Vice-Chairman, CES-ERB
Prof. K. Edjah
kedjah@ucc.edu.gh
0244742357

Secretary, CES-ERB
Dr. (Mrs.) L. D. Forde
lforde@ucc.edu.gh
0244786680

APPENDIX F

ETHICAL REVIEW COMMITTEE

CAPE COAST TEACHING HOSPITAL
ETHICAL REVIEW COMMITTEE

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

Our Ref.: CCTH

Your Ref.:

P. O. Box CT.1363
Cape Coast
Tel: 03321-34010-14
Fax: 03321-34016
Website: www.ccthghana.org
email: info@ccthghana.com

15th March 2017

Frank L. Attila
Department of Guidance and Counselling
Faculty of Educational Foundations
College of Education Studies
University of Cape Coast
Cape Coast

Dear Mr. Attila,

ETHICAL CLEARANCE – REF: CCTHERC/RS/EC/2017/10

The Cape Coast Teaching Hospital Ethical Review Committee (CCTHERC) is glad to inform you that you have been granted permission to carry out your study at CCTH for your project work on the topic, "**Impact of Beck's Cognitive Therapy on Depression Among Infertile Women in Cape Coast**".

Please note that any modification of the project must be submitted to the CCTHERC for review and approval before its implementation.

You are also required to submit **a copy of your final report to the Research and Development Secretariat of CCTH.**

Always quote the protocol identification number in all future correspondence with us in relation to this protocol.

Yours faithfully,

RESEARCH & DEVELOPMENT UNIT
CAPE COAST TEACHING HOSPITAL
CAPE COAST

DR. ERIC NGYEDU
MEDICAL DIRECTOR

CC: BIOSTATISTICIAN

APPENDIX G

TEST FOR CLINICAL SIGNIFICANCE

	Control Group	**Experimental Group**
Mean (m)	25.56	13.80
Standard Deviation (s)	6.38	6.38
Sample Size (n)	9	20

Cohen's d = 1.84326