A COMPARATIVE ANALYSIS OF SELF-ESTEEM AND PSYCHOLOGICAL ADJUSTMENT IN WOMEN ATTENDING THE FERTILITY AND FAMILY PLANNING CLINICS OF THE SPECIALIST HOSPITAL, MAIDUGURI.

A DISSERTATION SUBMITTED TO THE NATIONAL POST GRADUATE MEDICAL COLLEGE OF NIGERIA.

IN PARTIAL FULFILMENT OF THE REQUIREMENT FOR THE AWARD OF THE FELLOWSHIP OF THE COLLEGE IN PSYCHIATRY.
DECLARATION

I hereby declare that this study or part of it has not been, and will not be submitted for any other diploma, fellowship, degree or any other examination.

Name: Dr. Hauwa Ahmed Kudale
Signature ..............................................

Date ..................................................
CERTIFICATION

We certify that this work was carried out by Dr. Hauwa Ahmed Kudale of the Mental Health Department of Federal Neuropsychiatric Hospital, Maiduguri with our supervision.

Prof. Richard Uwakwe FMC (Psych.)  Dr. Musa Abba Wakil FWACP (Psych.)
Supervisor                                Co-supervisor

Dr. Isa Bukar Rabbebe FWACP (Psych.)
Co-supervisor
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DEDICATION

This work is dedicated to all women with infertility for their silent perseverance.

To the memory of my beloved parents for imbibing in me the principles that guide my life.

To my husband Engr. Tijjani Habib for his care, understanding and persistent support.

To my son Mustapha Tijjani Habib, whose arrival has made a positive difference in my life.
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SUMMARY

Recent studies have consistently shown that the experience of infertility is linked with emotional responses such as depression, anxiety, guilt, social isolation and decreased self-esteem in the couples.

The aim of this study was to evaluate the self-esteem and emotional health of women with infertility.

The Index of Self-esteem (ISE), Fertility Adjustment Scale (FAS), General Health Questionnaire (GHQ-12), and Hospital Anxiety and Depression Scale (HADS) were administered to 357 infertile and 381 fertile women.

The fertile women attending family planning clinic reported higher degree of self-esteem compared to those who were attending the infertility clinic ($X^2=7.12$, $P=0.008$).

More subjects attending infertility clinic (93%) reported poor adjustment, as compared with (72.5%) of those attending family planning clinic; ($X^2=53.65$, $P<0.0001$).

Subjects attending infertility clinic indicated higher psychiatric morbidity (52.9%) as compared with those attending family planning clinic (32%), ($X^2=32.55$, $P<0.0001$).

Infertility was generally associated with low self-esteem, poor psychological adjustment and higher psychiatric morbidity.

The findings in this study reinforce the need for gynaecologists and health care professionals to look for psychosocial distress in women undergoing fertility treatment. Psychological interventions and improvements in the organisation of care may be necessary for a better treatment and overall outcome in these women.
CHAPTER ONE

INTRODUCTION

1.0 DEFINITION OF THE RESEARCH PROBLEM

In the African culture, the true meaning of marriage is only fulfilled when the couple conceive and bear children. Africans consider children to be sources of power and pride, and children act as sources of insurance for their parents at old age. The most important aspect of bearing children is an assurance of family continuity (Leke et al, 1993). Infertility or the inability to conceive is a major cause of marital conflicts and contributes significantly to the rates of divorces and separation in conservative African societies, of which Maiduguri is an example (Gadzama, 2004).

Recent studies have consistently shown that the experience of infertility is linked with emotional responses such as depression, anxiety, guilt, social isolation, and decreased self-esteem in the couples (Abbey, Andrews and Halman, 1991; Bolter, 1997; Connonly and Cook, 1987; Greil, 1997; Grover, Gannon, Sherr and Abel, 1996; Hjemsteadt et al, 1999; Morin-Davy, 1998; Myers, 1990; Newton, Sherrad and Glavac, 1999; Sadler and Syrop, 1998). Infertility may also lead to physical, emotional and financial burden (Monga et al, 2004). Such emotional turmoils are more pronounced in the females, most especially
in the African setting where infertility is erroneously perceived to be linked with ‘her inability to conceive’. The consequence is that women with fertility problems may be despised, neglected and even abused by their husbands and in-laws (Dyer et al, 2005). Previous works showed that infertile females may sometimes be excluded from important social events and are also labelled as ‘barren’ in some parts of Nigeria and Mozambique (Orji et al, 2002; Gerrits, T 1998). The end-result is that the stability of the psychological functioning of such women in terms of their self-esteem and adjustments are diminished which ultimately makes them vulnerable to developing mental illnesses, particularly depression (Brown et al, 1986).

Despite these observations, the impact of the experience of infertility on the mental health of women with the problem is an area that is currently under-researched in Sub-Saharan Africa, and Nigeria in particular (Ukpong and Orji, 2006). Although, interest is growing on the issue of the psychological well-being of women with infertility, the problem still remains not well understood and the sufferings of such ‘silent patients’ hidden. This study was designed to explore the psychological adjustment and self-esteem of women with infertility in Maiduguri with a view to providing base-line data in North-eastern Nigeria.

1.1 SELF ESTEEM AS AN IMPORTANT PSYCHOLOGICAL ATTRIBUTE

Self esteem has been viewed as a stabilizing factor for the proper psychological functioning of the individual and conversely diminished self esteem can be a vulnerability factor for a mental break down such as the development of depression (Brown et al, 1986). Self esteem is seen as the sense of self contentment and self acceptance which
stems from a person’s appraisal of his own worth, significance and competence and his ability to satisfy his aspirations (Robson, 1988).

The stability of self esteem has been shown to be a positive attribute (Kernis et al, 1993) while its instability has been shown to be an important risk factor for a wide range of psychiatric disorders (De Man and Becerril, 2002) particularly for people experiencing stress such as infertility (Robert and Kassel, 1997; Kernis, 1999). Instability in self esteem has been found to be the result of excessive sensitivity and concern regarding one’s self, as well as events (Crocker et al, 2003).

Some authors have argued that self esteem was an essentially western construct which made no meaning outside the west (Heine et al, 1999). However, earlier studies have demonstrated that self esteem is important in diverse samples of human cultures including many Asian and African populations (Greenberg et al, 1992).

1.2 ADJUSTMENT TO LIFE EVENTS

Adjustment to life events depends on the coping strategy of the individual; the method used determines the tendency of the individual to cope with stressful events without a mental break down (Gross, 2000).

1.3 COPING MECHANISMS/DEFENCE MECHNISM
As regards the coping strategies patients use when faced with stressful life event, several studies have found that women in assisted reproduction tend to use passive or avoidance coping strategies and to have more feelings of guilt about the infertility, and, in some, more emotional maladjustment (Anderson et al., 2003; Lukse and Vacc, 1999). Thus, they constitute a group at risk of having feeling about themselves and a sense of isolation (Pottinger et al, 2006). However, there is no clear consensus, as other researchers suggest that it is men who are liable to employ coping strategies (Kowalcek et al., 2001). Indeed some meta-analyses indicate that women are more likely than their partners to use strategies based on seeking social support, escape–avoidance, problem-solving or positive reformulation (Jordan and Revenson, 1999). These findings seem to support the theory that high levels of fit between the members of the couple in relation to the stress they experience help them to more effectively cope with the impact of stressful life event (Peterson et al., 2003) It has been reported that sharing the stress associated with infertility can improve the couple’s relationship (Repokari et al., 2007).
LITERATURE REVIEW

2.0 DEFINITION AND EPIDEMIOLOGY OF INFERTILITY

Infertility is defined as the inability to conceive or achieve pregnancy despite regular, unprotected sexual intercourse for a period of more than one year. It may be primary infertility when no pregnancy ever resulted or secondary, when there has been a previous pregnancy irrespective of the outcome of such pregnancies- abortion or ectopic gestation (Agboola, 2006).

Infertility is most commonly perceived to be linked with the female’s inability to conceive. However, medical studies have shown that 40% of infertility is attributable to female factors (e.g. tubal factors), 40% is attributable to male factors (e.g. low sperm count or oligospermia) and the remaining 20% to an interaction between the two partners (Robinson and Stewart, 1996; Wright, Allard, et al 1989). Of the 20% related to interactional factors, 5-10% is not attributable to either partner. This type of infertility is referred to as ‘normal’, ‘idiopathic’ or ‘unexplained’ infertility.

Infertility affects between 80-168 million people globally. Approximately one in ten couples experience primary and/or secondary infertility (Covington and Burns, 2006). Although the global rates of infertility vary dramatically- from prevalence rates of 5% in some developed countries to as high as more than 30% in Sub-saharan Africa, the rate of infertility has increased by over 10% over the last 30 years (McDaniel, 1992). Rates of
primary infertility worldwide are generally between 1-8% and rates of secondary infertility reaching as high as 35%. The rates of infertility are highest in the world in what has been termed the ‘infertility belt, stretching across central and southern Africa (Covington and Burns, 2006). Approximately 75% of couples diagnosed with infertility will seek some type of infertility treatment (Sadler and Syrop, 1998). Of those who seek treatment, it is estimated that fifty to sixty per cent will eventually conceive, compared to only 5% who would conceive if they did not seek medical interventions (Andrews, Abbey, and Halman, 1991; Shapiro, 1982).

2.1 HISTORICAL REVIEW

Different cultures and historical periods possess certain peculiar beliefs and understanding of the idea of conception. Most ancient traditions subscribe to the belief that strange phenomena sometimes not related with any intervention from the male sex were responsible for pregnancy. Divination and other forms of traditional practices were used to bring about conception in case of infertility. Advances in the knowledge of the human physiology and medical sciences had led to better methods of inquiry and treatment of childlessness (Covington and Burns, 2006).

The earliest published research examining the link between psychological distress and infertility began in the 1950s. Fisher (1953) stated that, psychogenic infertility can be defined as sterility in a couple in whom no pathology or dysfunction can be demonstrated by any method available to us today. Labandiabar (1959) and Kostic (1960) examined the possible relationship between sterility and frigidity. Eisner (1963) sought to understand the perceived psychological differences between fertile and infertile women using a
Rorschach test with 20 infertile females. She noted that all of the women exhibited emotional disturbances and concluded that between 40-50% of infertile cases were caused by emotional factors.

Mozley (1976) proposed that infertility could be caused by unconscious motivations on the part of the infertile individual and that infertility could be considered a defence against dangers inherent in the reproductive functioning. These studies formed the basis of the psychogenic hypothesis which proposed that infertility was caused by the psychological and personality characteristics of men and women. Researchers continued to adhere to this theory up until the mid 1980s. However, as infertility increased in its prevalence, more research was conducted, and the hypothesis was examined more closely. It was found that the most carefully designed studies revealed no differences between the personality traits of infertile women compared to non-infertile women, and where differences were found, it was impossible to link the cause of the difference to the infertility (Greil, 1997). The literature advocating the psychogenic hypothesis was limited by several factors including failure to use systematic measures combined with an over-reliance on clinical impression, exclusive focus on females’ infertility, and assumptions of the direction of causality without any clear evidence (Greil, 1997). Seibel and Taymor (1982) were among the first to report that advances in neuroendocrinology and other medical technologies revealed that only approximately 5% of emotional factors were directly related to infertility in men and women in relation to the psychogenic hypothesis. They reported that many authors have noted increased psychological problems among infertile couples but only few have provided evidence that these problems were a cause of infertility rather than the result of it.
In 1989, it was reported that only 30 controlled studies had been conducted examining the link between psychological distress and infertility (Wright et al, 1989). However, since the mid 1980s, there has been a significant increase in the amount of research addressing this issue. As noted earlier, Greil (1997) reported that over the past twenty years a minimum of 94 quantitative articles and 26 qualitative articles have been published examining psychological distress and infertility. These studies have specifically addressed the issues of the personality differences between infertile and fertile men and women, differences in distress between infertile and fertile men and women, longitudinal studies of distress associated with infertility, and gender differences in the experience of infertility. Although, these studies were not without their limitations, for example, the use of convenience samples and an overemphasis on women, they have provided a rich theoretical base for studies on the link between infertility and psychological distress.

2.2 SELF ESTEEM OF WOMEN WITH INFERTILITY

Infertile women, compared to infertile men, experience greater psychological distress, lower self-esteem, and higher levels of depression (Daniluk, 1997; Wright et al, 1991). In addition, their marital and sexual satisfaction is likely to decrease once they begin dealing with the crisis of infertility (Sadler & Syrop, 1998). Several studies have been conducted examining the psychological profiles of infertile women compared to fertile women. Research results have often been mixed in their findings, depending on the studies’ methodologies and the limitations in the study designs. However, there is consensus that negative factors such as depression, loss of self-esteem, and grief are all commonly experienced by infertile women (Daniluk, 1997; Wright, et al., 1991; Abbey et al., 1991). Connolly reported that women in infertile couples were more prone to anxiety, more
introverted, and more likely to experience feelings of guilt than women in fertile couples (Connolly and Cooke, 1987).

In an effort to better understand the self-esteem of infertile females, Daniluk (1997) conducted a qualitative study in which she interviewed several women to gain their insight from the experience. One woman commenting on her infertility explained: ‘Infertility challenges everything. Your beliefs about yourself, about what’s important, about marriage, about what is fair and just, about God. Being infertile makes you question the purpose of marriage and of life . . . nothing is left unaffected by this experience . . . it changes you, subtly but profoundly. . . . I think that the biggest thing that we’ve had to work through as a couple and me as a person is just learning to live with it . . . because it changes everything… being infertile changes everything.’

Downey and McKinney (1992) reported that the majority of women participating in a study of infertility reported negative changes in their psychological functioning. Seventy-five percent of the women reported noticeable changes in mood, almost half reported changes in sexual functioning, and over one-third reported decreased levels of self-esteem. The study hypothesized that, over time, a proportion of women who do not conceive will experience psychiatric symptoms and/or depression directly related to their infertility.

Women commonly attribute infertility to biological failure or past behaviours such as abortion or extramarital affairs, even when the couple received a male infertility diagnosis (Daniluk, 1997). Women often perceive their inability to conceive as a direct reflection on
their identity and their self-image, especially as competent, successful women (Daniluk, 1997). Women are also more committed than males in pursuing medical treatments to achieve the goal of biological parenthood (Greil et al., 1988). Infertility appears to be much more distressing in the lives of women when compared to men. Freeman (1985) reported that while 50% of women consider infertility the most distressing experience of their lives, only 15% of men answered similarly. In cases where the cause of infertility is undetermined, women are more likely than men to attribute it to themselves (Robinson and Stewart, 1996).

Qualitative interviews show that women often report a great difficulty adjusting to the loss, as well as higher levels of depression, anger, and loss of self esteem (Greil et al., 1988). Isolation is also common in women experiencing infertility. Many women will remove themselves from social interactions involving expectant mothers or mothers with young children. Infertile women often view the majority of women they see or interact with in social situations as being pregnant or having small children (Deveraux & Hammerman, 1998). Robinson and Stewart (1996) reported that women often feel guilty due to feelings of envy or anger towards pregnant women or women with children. Several studies have shown that especially for women, isolation is one of the greatest barriers to successful coping and adaptation. Women who are less socially isolated have reported higher levels of life satisfaction and have employed more adaptive coping skills in response to stress associated with infertility (Daniluk, 1997).

Nachtigall, Becker and Wonzy, (1992) conducted a qualitative study of 36 couples in infertility treatment examining the effects of gender-specific diagnosis on men and women’s response to infertility. Both men and women were interviewed together as
men’s participation was typically contingent on being interviewed with their wives being present. Traditional qualitative methods were employed for the study analysis. Study results indicated that, no differences were found among women in their emotional response to infertility regardless of whether or not a female infertility factor was present. Women in such instances reported feeling stigma, loss, role failure, and loss of self-esteem regardless of diagnosis. However, for men, feelings of stigma, perceptions of loss, role failure, and loss of self-esteem were only reported when the man was diagnosed with male factor infertility. When it was a combined diagnosis or female factor infertility, men were highly unlikely to report stigma, perception of loss, role failure, or loss of self-esteem. The authors concluded that, men’s response to infertility will closely approximate that of women if the infertility has been attributed to a male factor but will be significantly less if a male factor is not found.

2.3 COPING IN WOMEN WITH INFERTILITY

Wright et al. (1991) conducted a large-scale longitudinal study examining the differences in men’s and women’s responses to the stress of infertility. They used a host of instruments including the Rosenberg Self-esteem scale. Findings showed that women experienced significantly more psychological distress than their partners. The women also reported lower levels of self-esteem and greater overall psychological stress.

Wright (1991) also reported that on average, infertile men and women reported greater overall psychological distress than men and women in the general population. Tarlatzis et al., (1993) reported that women and men responded to stress of infertility differently. Compared with men, women were more likely to feel guilty, angry and nervous. Women also reported more intense feelings of anxiety and depression than the men. Infertility may cause marital and sexual problems in some couples.
Abbey et al., (1991) examined the role of gender in response to infertility.

The results from their study showed that wives perceived their infertility as significantly more stressful than their husbands. They also found that infertile women were more likely to be involved in problem-solving and escape coping, and were also more likely to attribute greater responsibility to them for infertility than did their husbands. With regard to control, infertile women were more likely to perceive greater control over the infertility than did men. When compared to the control group, infertile men and women reported lower levels of self-esteem and significantly higher levels of depression than couples presumed to be fertile, supporting the findings from other studies which report that overall, infertile men and women experience higher levels of psychological distress than couples presumed to be fertile.

Slade et al, (1992) reported that a diagnosis of male infertility might lead to more negative outcome in males and that men’s emotional states early in infertility treatment might influence fertility outcome. In addition particular types of coping strategies were associated with negative emotional adjustment and more marital and sexual dysfunction especially in women.

Research has also shown that majority of women experience similar psychological problems as those of other women who suffer from physical conditions such as cancer, HIV and bereavements (Hirsch and Hirsch, 1989). They were also found to employ similar coping strategies, although the extent to which they passed through the stages of coping differs rather significantly (Rebecca Clay 2006).
In most women who suffer infertility, the initial phase of coping involves anxiety and a searching behaviour. At this phase a vigorous search for solution to the problems such as visits to herbalist and or to the orthodox practitioner are engaged in. However, with each passing years, without conception a breakdown of the coping strategy begins to become evident and despair begins to set in. At this stage the mood is likely to be depression (Michelle and Nicholas, 1999).

2.4 IMPACT OF INFERTILITY ON PSYCHOLOGICAL FUNCTIONING

Although the relationship between emotional stress and infertility has been widely accepted, this knowledge is still not widely used in the infertile couple’s care. Emotional tensions can directly affect fertility by altering hypothalamic-pituitary pathways or by causing tubal spasm, and indirectly by contributing to vaginismus, dyspareunia, and to some extent, decrease in male libido. Equally important to the concept that emotional stress can affect fertility is the concept that infertility can result in emotional stress, thus initiating a vicious cycle (Taymor and Brensic, 1979). Even the diagnosis of infertility can cause stress (Daniluk, 1988).

The psychological problems which have been most commonly investigated are anxiety and depression; anxiety because of the stressful nature of the treatment procedures and fear of treatment failure, depression because of the inability to conceive. Infertile women showed higher scores on depression and anxiety scales (Wischman et al., 2001; Golombok, 1992). It was shown that anxiety was the major difficulty that infertile couples face (Cook, Persons, and Mason, 1989).
A study in Kuwait reported that infertile women exhibited a significant higher psychopathology in the form of tension, hostility, anxiety, depression, self-blame and suicidal ideation. Childlessness results in social stigmatization for infertile women and puts them at risk of serious social and emotional consequences (Fido and Zahid, 2004).

A study in Egypt also reported that infertile women have poor quality of life with further deterioration when psychiatric morbidity is present, as it negatively influenced infertility treatment outcome. The psychiatric aspects associated with infertility are increasingly considered both as determinants and a consequence of fertility problems (Nader, 2004).

A study with somewhat different finding suggests that psychological functioning does not improve with time when comparison was made between a group of fertile and infertile couples. There is some evidence of deterioration in self-esteem in both groups especially the males. Overall marital adjustment tended to deteriorate but this was paralleled in the fertile groups as well (Slade et al., 1992).

As stated earlier, research studies in the past 15 years have advanced the literature base regarding the emotional impact of infertility on couples and individuals. Several studies have confirmed that infertility is associated with emotional responses such as depression, anxiety, guilt, social isolation, and decreased self-esteem in both men and women (Abbey et al., 1991; Greil, 1997; Sadler & Syrop, 1998). Although the association between infertility and these emotional disturbances has been shown, there has been little
research examining the specific nature of these variables in relation to infertility. Methodologic limitations such as flawed study designs and small sample sizes have limited the effectiveness of researchers in examining this issue.

Connolly et al., (1992) conducted a key study exploring the impact of infertility on psychological functioning. Using 116 couples recruited from an infertility clinic, participants completed the Eysenck Personality Questionnaire (EPQ), the General Health Questionnaire (GHQ), the Beck Depression Inventory (BDI), the State-Trait Anxiety Inventory (STAI), Dyadic Adjustment Scale (DAS), Interpersonal Support Evaluation List (ISEL), and BEM Sex Role Inventory (BSRI). The study showed that male factor infertility was the main predictor of psychological disturbance in both men and women with infertility.

For females, increased interpersonal support was predictive of lower anxiety, and trait anxiety was related to depression. Overall, the authors concluded that marital relationships of infertile couples pursuing infertility treatments were relatively stable. Indicators of lower depression scores in the study were in conflict with other findings (Link & Darling, 1986).

In a recent qualitative study, Williams (1997) examined the psychological effects of infertility on women. She found that 11 themes emerged universally from the women participating in the study: negative identity, worthlessness/inadequacy, lack of personal control, anger/resentment, grief/depression, anxiety/stress, lower life satisfaction, envy of other mothers, and loss of the dream of co-creating, emotional roller coaster, and isolation. With regard to grief and depression, each woman noted that every menstrual period represented a loss that was irretrievable, that pushed them closer to the end of their hopes. Women reported grieving and feeling a loss that was incomparable with any
other they had experienced in their lives. Williams (1997), reported that many of the women presented symptoms of clinical depression including insomnia, fatigue, and change in eating patterns resulting in weight loss or gain, and feeling helpless and hopeless. Many of the women refused to take credit for other accomplishments in their life and still took responsibility for the infertility, even when it was diagnosed in the husband.

2.5 INFERTILITY AND DEPRESSION

In the general population, major depression is twice as prevalent in women as it is in men (Llewellyn, Stowe and Nemeroff, 1997). Many authors have reported that depression is a common consequence of infertility (Domar & Seibel, 1990; Leader, Taylor and Daniluk, 1984). However, the exact nature of this relationship in terms of severity and directionality has been understudied. 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 et al., (1992) conducted a study examining the prevalence rates and predictability of depression in infertile women. Study results indicate no significant differences between infertile women and fertile women with regard to demographic variables but revealed a significantly higher prevalence of depression among the infertile women compared to fertile control.
Downey and McKinney (1992) conducted a study examining the psychiatric status of women presenting for infertility evaluation, 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.

Although apparently contradictory to Domar’s (1992) findings, it is difficult to make comparisons between studies that use different methods such as use of different data collection instruments Becks Depression Inventory (BDI) and Centre for Epidemiologic Studies Depression Scale (CES-D) compared with the Brief Symptom Inventory and the Mood Disorder Questionnaire.

In a Nigerian study that evaluated the mental status of 37 women referred to a gynaecology clinic for infertility and an equal number of healthy female hospital workers matched for age and marital status, the infertile women suffered significantly higher levels of psychopathology, especially depression, than the healthy women (29.7% versus 2.7%). The infertile women had no prior history of psychiatric illness and so it was concluded that their mental problems were likely complications of their infertility (Aghanwa et al, 1999).

In another Nigerian study conducted to determine the prevalence of psychiatric morbidity and factors associated with poor mental health in women with infertility, the results revealed that the prevalence of psychiatric morbidity was 46.4% in the infertile women and 12.5% for those attending the family planning clinic. The BDI detected depression in 42.9% of the infertility subjects and in 11.5% of the family planning comparison group. There were 37.5% cases of anxiety in the index group as against 9.4% cases of anxiety in
the comparison group. The conclusion drawn from that study was that infertility was associated with high levels of psychiatric morbidity (Ukpong and Orji, 2006).

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., (1995) reported 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 months 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 (Wagner and Berenson, 1994).

2.6 INFERTILITY AND MARITAL ADJUSTMENT

Several studies have been conducted examining the link between marital adjustment and infertility. Although there has been a general consensus that infertile individuals and couples are generally more distressed than those presumed to be fertile, there has been some disagreement whether infertility related stress has a negative effect on couples marital relationships. Several researchers propose that the stress related to infertility causes depletion in the resources of a marriage, uncovering problems that might not have been addressed and adding an unmanageable burden on the couple (Andrews et al., 1991; Greil, 1997). In these instances, the couple typically relies on each other for support. However, a second group of researchers report that infertile couples have above average levels of marital satisfaction hypothesizing that infertility acts as a challenge that brings
the couple closer together and opens up new lines of communication and problem solving (Callan, 1987). This section presents findings from both types of studies.

Shapiro (1982) was one of the first authors to write about the impact of infertility on marital relationships. Writing from a developmental perspective, he noted that infertility was an unanticipated shock for most married couples. He proposed that infertility could be viewed as a crisis, or a turning point that offers the opportunity for regression or for growth. He noted that crises are situations that are perceived as threat, loss or challenge and typically occur after the normal coping strategies and resources of the couple have been depleted. He hypothesized that couples typically mourn the loss of their expectations to have a child and commonly pass through the stages of grief: denial, anger, grief, and acceptance. He proposed ways in which counsellors may help infertile couples at each stage in the grieving process, and suggested that grief resolution was a necessary component in resolving marital difficulties associated with infertility.

Connolly and Cook, (1987) conducted a large-scale longitudinal study on infertility related distress and marital problems noting that there was a lack of systematic data available to address this issue. They examined 843 couples who were patients at an infertility clinic between 1975 and 1985. The authors noted that the only significant score was the level of female distress to the level of female tests. Results also revealed that the longer men were in treatment, the more likely they were to report feelings of guilt and anger. Although the study had inherent limitations such as the use of an unstandardized measure, the authors were startled at the findings regarding male factor infertility and its effects on the marital relationship, noting that it is clearly associated with an increase in
marital problems as seen by both the man and the woman. They noted that further study was needed to address this potential relationship.

Daniluk (1988) conducted a longitudinal study examining the impact of infertility on individuals and couples. The author reported that without obtaining data on the levels of marital adjustment before their participation in the study, it is impossible to determine whether the experience of infertility itself impacted positively or negatively on the marital relationship of the men and women involved. However, it was concluded that the process of infertility treatments did not show any positive or negative changes in the couple’s marital relationship.

Benazon, Wright, and Sabourin (1992) conducted a longitudinal study examining the effects of infertility on marital functioning (e.g., stress, sexual satisfaction and marital adjustment). Noting the conflicting findings in relation to this topic, the authors attempted to determine if infertile couples in treatment experience deterioration in marital functioning over time. Results showed that for men, martial satisfaction was not determined by the variable of pregnancy nor sexual satisfaction, but was solely accounted for by the level of stress they experienced as a result of the infertility. For women in the study, it was found that sexual satisfaction was the only variable that was predictive of marital satisfaction, suggesting that the quality of women’s sexual relationship is linked to the overall adjustment of her marriage. The authors concluded that although infertility was a stressful experience for both men and women and had effects on their sexual functioning, it did not positively or negatively affect their levels of marital satisfaction.
Levin, Sher, and Theodos (1997) conducted a study looking at the effects of stress and coping on marital distress in infertile patients. Employing a stress and coping theoretical framework, the authors studied 54 couples and 6 individuals whose partners did not complete the study. They found a significant interaction between coping styles and marital satisfaction. Women who utilized task-oriented coping styles reported the highest levels of marital satisfaction. Couples, who both reported low levels of coping strategies, reported the lowest levels of marital satisfaction. The authors hypothesized that these findings may be related to the effect of individual distress on the marital relationship and thus providing further support for the use of a family systems model when examining the influence of infertility on men and women.

CHAPTER THREE

3.0 AIMS AND OBJECTIVES OF THE STUDY

The overall aim of the present study was to evaluate the self esteem and emotional health of women with infertility in the State Specialist Hospital Maiduguri. The specific objectives were:

(1.) To assess the self esteem of women with infertility in comparison to those attending the family planning clinic in Maiduguri.

(2.) To assess the psychological adjustment of women with infertility in comparison to those attending family planning clinics in Maiduguri.

(3.) To explore the socio-demographic correlates of self esteem and
Psychological adjustment in women with infertility and those attending the family planning clinics in Maiduguri.

(4.) To estimate the rate of occurrence of psychiatric morbidity among patients with infertility in comparison to those attending the family planning clinic in Maiduguri.

3.1 HYPOTHESES

(1.) Self esteem is low among infertile women compared with matched controls attending family planning clinic.

(2.) There is poorer psychosocial adjustment among infertile women compared with matched controls attending family planning clinic.

(3.) Psychiatric morbidities are common in women with infertility compared matched controls attending family planning clinic.

CHAPTER FOUR
METHODOLOGY

4.0 SETTING AND STUDY POPULATION

The study was conducted at the State Specialist Hospital Maiduguri. The State Specialist Hospital was established in 1925 as a General Hospital and upgraded to a Specialist
Hospital in 1987. It is located in the centre of the town and is accessible to people from every part of the city. It is an eight hundred bed capacity hospital that has four functional clinical departments namely; medicine, surgery, paediatrics and obstetrics and gynaecology. The Obstetrics and Gynaecology Department of the Hospital has a total of 75 beds made up of 18 labour ward beds, 32 post natal beds and 25 Gynaecology ward beds. There is also a family planning clinic located in the Hospital. The Hospital also coordinates 27 Cottage Hospitals located in the Local Government Areas of Borno state through the State’s Hospitals Management Board (H.M.B.). This centre gets referrals from all the Local Governments Areas across the State and the neighbouring states of Yobe, Bauchi, Adamawa, Gombe, and Taraba. Patients are also referred from the neighbouring countries of Niger, Cameroun and Chad. The Obstetrics and Gynaecology Department has 2 Consultants, 7 Resident Doctors and 55 Nursing staff including those managing the family planning clinic (Information from Medical Records unit).

4.1 STUDY DESIGN

This was a descriptive hospital based cross-sectional comparative study of the socio-demographic factors affecting the mental health, self esteem, psychological adjustment and psychiatric morbidity of women attending the infertility and family planning clinics of the State Specialist Hospital, Maiduguri.

4.2 SAMPLE SIZE

Sample size was determined for both groups using the formula for sample size calculation for comparison of two groups (Araoye, 2003).
\[ N = \frac{Z^2 \cdot q \cdot p}{d^2} \]

Where;

N= the desired sample size for comparison group

Z= the normal standard deviate, usually set at 1.96(or more simply at 2.0), which correspond to 95% confidence level.

P= the prevalence of the disorder; for the purpose of this study, a prevalence of 46.4% of psychiatric morbidity among women with infertility in Nigeria as reported by Ukpong and Orji, (2006) was adopted.

q= 1 − p, which is equal to 1 − 0.46= 0.54.

d= degree of accuracy desired, usually set at 0.05.

Substituting in the above stated formula:

Then, \[ N = \frac{1.96^2 \times 0.46 \times 0.54}{0.05^2} = 381. \]

The sample was rounded up to 400 to increase the degree of precision. Therefore, based on the computations above, 400 women attending the infertility and 400 women attending the family planning clinics were targeted as subjects.

**4.3 STUDY POPULATION**
Two groups of subjects were studied. The first group (index cases) consisted of all patients diagnosed as having infertility and are attending the Gynaecology Clinic of State Specialist Hospital. An average of about 15-20 patients with infertility are seen daily in the Gynaecology Clinic of the Hospital. The clinics are conducted two times a week between the hours of 9:00 am and 2:00pm on Tuesdays and Thursdays.

The second group (comparison or control group) consisted of patients attending the family planning Clinic of the State Specialist Hospital. An average of about 25-30 women are seen weekly in the Family Planning Clinic for contraception. The family planning clinic is conducted only on Wednesdays between the hours of 9:00 am and 2:00pm. The matching was done in the following manner; after a subject with infertility was interviewed, the age, marital status, educational status and past psychiatric history were immediately extracted from the questionnaire. Thereafter, case notes of women attending the family planning clinic were examined to determine their educational status, marital status, age and past history of psychiatric illness. A person was identified as a prospective matching candidate if:

1. Her age is not more than 5 years different from the previously interviewed infertile woman.
2. She has about the same level of education as the selected index case.
3. Has the same marital status as the index case.
4. There is no past history of mental disorder.

This procedure was continued until the required sample size was attained.
4.4 ETHICAL CONSIDERATION

First ethical clearance was obtained from the Research and Ethical Committee of the State Specialists’ Hospital, Maiduguri (See appendix I). Thereafter, permission was sought from the consultants in charge of the infertility and the family planning clinics of the Hospital. The informed consent of the patients was also obtained. The subjects were assured of utmost confidentiality and that any information given shall be used solely for the purpose of the study. Only clients who gave their informed consent were recruited for the study. It was also clearly stated that refusal to participate would not in any way affect the quality or their accessibility to health care services. The informed consent form is attached as appendix II.

4.5 STUDY PROCEDURE

After obtaining the clearance from the Hospitals’ Research and Ethics Committee, familiarization visits were carried out by the researcher. During such visits, the Clinics staff members, patients, and patients’ relatives were educated on the purpose of the study and its aim of identifying the psychological well being of the respondents was highlighted. Then a pilot study was conducted on 20 subjects; consisting of 10 infertile women and 10 women attending the family planning clinic matched with the infertile women for age, marital status, level of education and past psychiatric history. These subjects selected for the pilot study were subsequently excluded from participation in the main research. This was to examine; the acceptability of the instruments, duration of administration and other problems that may be encountered in the course of the study proper.

Results from the pilot study showed:

(i) The average duration of administering the questionnaires was 30-45 minutes.
(ii) That the questionnaires were generally acceptable to the respondents.

(iii) That some respondents required assistance in filling the questionnaires.

Each subject was informed about the purpose of the study and her consent (or that of her husband) as the culture may occasionally demand was obtained, before they were included in the study. It was made clear that participation was voluntary, and even after consent, a subject was free to withdraw at any point. The information obtained was kept confidentially and used only for the purpose of the study while confidentiality was also ensured by the use of serial numbers instead of subjects 'participants' names.

4.6 SAMPLING TECHNIQUE

Consecutive attendees at the infertility clinic who give their informed consent were recruited. This was continued until the required number of participants (400) was attained. Each participant selected from the infertility clinic was matched for age (-5 to +5), marital status, and years of education (-2 to +2) with a control participant selected from the family planning clinic.

4.7 INCLUSION CRITERIA

The inclusion criteria were broadly classified into two: the first for the index group and the second for the control group.

**Index Group:**

(1). All consenting participants who met the criteria for the diagnosis of either
primary infertility (conception has never occurred in the subjects), or secondary infertility (where conception has previously occurred in the subject irrespective of the pregnancy outcome).

(2) Participants must have been engaged in regular intercourse without contraception for over one year.

**Control Group:**

(1). All consenting patients attending the family planning clinic (who have had children) and are engaged in regular sexual intercourse.

**4.8 EXCLUSION CRITERIA**

The exclusion criteria include;

(1) Non-consenting patients.

(2) Patients with concomitant severe physical illness.

(3) History of mental disorder in the past.

**4.9 INSTRUMENTS AND MATERIALS**

The languages utilized for this study were Hausa and English. All questionnaires were translated from English to Hausa language and translated back to English using the back-iterative translation method to ensure accuracy of translation and that the meanings of the original items remained unaltered. The translators were drawn from the Languages and Linguistics Department of University of Maiduguri.
The following instruments were used for the collection of data;

1. Sociodemographic Questionnaire.
2. Index of Self-esteem Questionnaire (ISE).
3. Fertility Adjustment Scale (FAS).
4. General Health Questionnaire-12 (GHQ-12).
5. Hospital Anxiety and Depression Scale.

4.9.0 The Sociodemographic Questionnaire (Appendix III)
This is a Questionnaire drawn by the researcher that elicited vital sociodemographic data
of the respondents which include their ages, marital status, occupation, educational status,
living condition, type of marital arrangement (monogamy, polygamy), parity, past
psychiatric history, family history of mental disorder, and self-reported physical illness.

4.9.1 Index of Self Esteem (ISE) Questionnaire (Appendix IV)
The ISE is a 25-item inventory that is designed to measure the sum total of the self-
perceived and self-evaluative component of self concept which is held by the person
(Hudson, 1982). Self-esteem is a term used in psychology to reflect a person’s overall
evaluation of his or her own worth. Self-esteem encompasses believes, (for example I am
competent or I am incompetent) and emotions such as triumph, despair, pride and shame.
A person’s self-esteem may be reflected in their in their behaviour, such as assertiveness,
confidence or caution. Psychologist usually regards self-esteem as enduring personality
characteristic. Self-esteem is distinct from self-confidence and self-efficacy, which involves
believes about ability and future performance (Wikipedia). The instrument was developed for individuals above 12 years of age and can be completed in about 10 minutes. The instrument is usually self-administered and the administration could be done either individually or in groups after establishing adequate rapport with the clients. For the purpose of this research, the questions were read out to the subjects and their responses recorded.

There are two sets of items that are scored either directly or in the reverse manner.

For the direct scoring, the values of the numbers shaded in the relevant items are added together to give the cumulative score. For example, if in items 6, 7, 8, 9, 10, and 11 the numbers shaded are: 3, 2, 5, 4, 1, and 2 respectively, then the total score for the six (6) items is 17.

For the reverse scoring system, the values of the numbers shaded in the relevant items are changed from 1, 2, 3, 4, and 5 to 5, 4, 3, 2, and 1 respectively and the reversed values of the numbers shaded in the relevant items are added together. For example, if in items 13, 14, 15, 16, 17, and 18 the numbers shaded are 3, 2, 5, 4, 1, and 2 respectively, the scores for the items are reversed to 3, 4, 1, 2, 5, and 4. These are then added together to give the total of the reversed items.

For the purpose of clarity, the Direct Score Items are: 1, 2, 8, 9, 10, 11, 12, 13, 16, 17, 19, 20, and 24. While the Reverse Score Items are: 3, 4, 5, 6, 7, 14, 15, 18, 21, 22, 23, and 25.
After computing the scores as outlined above, the results of the direct score and reversed score items are then added to obtain the overall score. Finally, 25 is subtracted from the client’s overall score to obtain the ISE Score.

In terms of its psychometric properties, Hudson et al, (1984) has demonstrated that the ISE has good-to-excellent internal consistency, and content, concurrent, construct, and factorial validity. Hudson (1992) reported a norm score of 30 among 1,745 male and female American subjects while Onighaiye (1996) reported a norm score of 30.89 among 80 Nigerian male subjects and a norm score of 32.04 among 80 female subjects. In terms of its reliability, Hudson (1992) obtained an alpha coefficient of 0.93 and a two-hour test-retest co-efficient of 0.92. Onighaiye (1996) obtained the following coefficients of validity by correlating the ISE with the stated tests as shown: with the Symptoms Check List 90 (SCL-90) by Derogalis et al (1973) in Scale C- Interpersonal Sensitivity = 0.46; and Scale D-Depression = 0.38. Its discriminant validity with the Ego Identity Scale (EIS) by Tan et al, (1977) was 0.42.

The ISE measures how poor a client’s self esteem is. For the purpose of this study, the Nigerian norms mean scores were used for interpreting the results of the clients. Here a norm score of 32.04 reported by Onighaiye (1996) among Nigerian females were used for the interpretation of the results. Scores higher than the norms indicate that the clients have low self esteem while, the lower a score is below the norm, the higher the client’s self esteem.

4.9.2 Fertility Adjustment Scale (FAS) (Appendix V)
The FAS was developed from pilot work and it is perceived as a clinical tool that could be used to assess psychological reactions to, and outcomes of, fertility problems. The scores on the FAS are normally distributed and are similar for both men and women. Overall, the results suggest that the FAS is a reliable measure (Glover et al, 1999).

FAS is a 12-item self-administered questionnaire developed by Glover et al in 1999. It has a short duration of administration. These items are expected to provide an indication of the extent to which individuals had considered, or come to terms with, the possibility of life with and without a child. The items cover the range of cognitive, emotional, and behavioural responses to fertility problems. The items are scored on a 6-point Likert scale ranging from 1 indicating always disagree to 6 indicating always agree.

A total score is derived by summing the scores on the individual items, where indicated, positive items are reverse-scored. A high score on the FAS questionnaire represents an indication of poor adjustment while a low score indicates good level of adjustment. The minimum possible score is 12 and the maximum score 72. FAS has a high internal consistency with Cronbach’s alpha (0.86) and a test retest reliability of 0.88, it also has a good degree of validity (Glover et al, 1999).

For the purpose of this study, the mean (SD) of 39.2 +11.2 reported by Glover et al, was adopted as the reference value. Mean score +SD greater than the reference value is considered maladjustment while values lower than that were considered good adjustment.
Though the FAS has not been widely used in Nigeria, it has good face validity. The questions represent in general what may be expected in a female population. Furthermore, since the ISE, a self-esteem inventory has been validated in Nigeria, the ISE provides a concurrent validity check on the FAS. The ISE and FAS scores were compared for the same individuals.

4.9.3 General Health Questionnaire-12 (GHQ-12) (Appendix VI)

The GHQ is a self-report psychiatric screening instrument (Goldberg and Hiller, 1979). It was developed from a pool of 140 items that are believed to cover aspects of adjustment and felt distress. These concepts include depression and unhappiness, anxiety and felt psychological disturbance, social impairment and hypochondriasis. The original version consisted of 60 items, but there are successive shorter versions of 30, 28, and 12. The 30 item GHQ has been extensively used for research in Nigeria (Morakinyo, 1979; 1994; Aghanwa, 1992, Aghanwa and Morakinyo 1997)

The GHQ 12, which was used in this study, has been shown to perform more efficiently than longer versions when used as part of a general survey (Goldberg and Williams, 1988; Graetz, 1993). It has also been found useful as a screening tool in urban primary care settings (Gureje and Obikoya, 1990; Gureje et al. 1992)

Although the GHQ 12 is widely used as a uni-dimensional instrument, two or three factors have been identified in previous studies (Martin et al, 2005; Campbell et al, 2003;
The most common factors that have been identified are those for anxiety, depression and social dysfunction. Nevertheless, using them separately does not offer many practical advantages in differentiating clinical groups or identifying association with clinical or health-related quality of life variables (Gao et al, 2004).

The scale asks whether the respondent has experienced a particular symptom or behaviour recently. Each item is rated on a four-point scale (less than usual, no more than usual, rather more than usual, or much more than usual.). The GHQ 12 gives a total score of 36 or 12 based on the selected scoring method. The most common scoring methods are bi-modal (0-0-1-1) and Likert scoring styles (0-1-2-3). Comparison between the conventional bi-modal (0-0-1-1) scoring methods and the Likert scoring style (0-1-2-3) showed very similar screening properties. (Younes et al, 2009)

In terms of its psychometric properties, the sensitivity ranges between 71% to 75% and its specificity ranges between 73% and 76%. The test-retest reliability of the GHQ-12, as expressed by Pearson’s r and intra-class correlation coefficient is satisfactory irrespective of the scoring method used (Giccinelli et al, 1993). In a review of 17 published research studies on GHQ-12 by Goldberg et al in 1997 it was found that the most common cut off scores 2/3 (a score of 2 or less indicating the absence of a mental disorder and a score of 3 or greater indicating the presence of a disorder). In Nigeria, investigators have shown that score of greater or equal to 3 yielded the best sensitivity and specificity rate for identifying persons with mental distress (Amoran et al, 2005; Gureje and Obikoya, 1990).
In this study, the GHQ-12 was used as a uni-dimensional instrument and conventional bi-modal (0-0-1-1) scoring system was adapted with a cut off score of 3 or more (maximum score 12).

4.9.4 Hospital Anxiety and Depression Scale (HADS) (Appendix VII)

The Hospital Anxiety and Depression Scale (HADS) of Zigmond and Snaith (1983) was designed to screen for the presence of mood disorders in medically ill patients. It is appropriate for use in either community or hospital settings. To distinguish between psychiatric presentations and physical illness, the items focus predominantly on subjective disturbance of mood rather than on physical signs and symptoms. The depression subscale is oriented towards the core symptoms of anhedonia rather than on sadness. There is good evidence that anhedonia symptoms are sensitive indicators of depression in the medically ill. Items on suicidal ideation, guilt feelings and hopelessness are not included. It consists of two scales, one assessing depression (consisting of 7 items) and the other assessing anxiety (consisting also of 7 items). Each of the 14 items are scored on a four-point Likert scale (ranging from 0 to 3, with varying degree of response) that applies to the previous week. The HADS is easily administered as a self-report measure or via interview and usually takes three to five minutes to complete. A total score (out of a possible 21) for each subscale is then calculated. The subscale scores are then interpreted as follows: 0-7, normal; 8-10, mild mood disturbance; 11-14, moderate mood disturbance; and 15-21, severe mood disturbance.

Moorey et al, (1991) found a high internal consistency (Cronbach’s alpha of 0.90) using the depression subscale in a population of 575 patients with recently diagnosed cancer. Snaith
and Zigmond (1994) reported a test-retest reliability of 0.92 of the depression sub-scale in a study involving healthy respondents. Razavi et al, (1990) reported a correlation of at least 0.70 between the HADS' Depression subscale and the Montgomery and Asberg Depression Rating Scale (MADRS) in a sample of 133 patients treated either in Cancer or Internal Medicine Units. Aylard et al, (1987) also found a correlation of 0.77 between the HADS and MADRS among 41 primary care outpatients diagnosed with mood disorders.

The HADS has been validated for use among Nigerian population (Abiodun, 1994) and has been extensively used in other studies such as in assessing the psychological condition of a cohort of Nigerian Diabetic Subjects (Akinlade and Ohaeri, 1996) as well as in the assessing the prevalence of depression among HIV-positive subjects in Kano, North-central, Nigeria (Shehu, S. (2006).

4.10 DATA ANALYSIS

The data obtained was cleaned and coded where appropriate and entered into Spreadsheet. Data entry and analysis was done using the Statistical Package for Social Sciences version 16.0 (SPSS 16). The rate of occurrence of psychiatric morbidity among the respondents and the sociodemographic variables was assessed using descriptive statistics. These included means, standard deviations and frequency tables. Chi Square ($X^2$) test was used for qualitative variables with Yates' correction where applicable and Fischer's exact probability test where necessary, while t-test was used for quantitative variables. Females with infertility were compared with the females from the Family Planning Clinic on ISE, FAS, GHQ, and HADS. The Student's t-test was used to compare the mean scores of these variables. Level of significance was set at 0.05, two tailed.
CHAPTER FIVE

5.0 RESULTS

The calculated sample size was 800 consisting of 400 respondents attending the fertility clinic (index cases) and 400 respondents attending the family planning clinic as the comparative. However, at the end of the study only 738 questionnaires were available for analysis, consisting of 357 and 381 questionnaires belonging to the attendees of the fertility clinic and family planning clinics respectively. This yielded an overall response rate 92.3% and when further analysed the response rates were 89.3% and 95.3% for attendees of the fertility and family planning clinics respectively.

A total of 43 questionnaires belonging to the attendees of the fertility clinic were not analysed due to missing data in 32 subjects and refusal to continue with the interview midway in 11 subjects. For the attendees of the family planning clinic, a total of 19 questionnaires were not analysed consisting of 13 due to missing data in 13 subjects and 6 due to refusal to continue with the interview.

5.1 SOCIODEMOGRAPHIC PROFILE OF THE RESPONDENTS

Tables 1 and 2 showed the sociodemographic characteristics of the fertility and family planning clinic attendees respectively.
The Mean ages of the two comparison groups were quite similar (34.60± 6.12) and (35.90± 5.59) for the fertility and family planning clinic attendees respectively.

Many of the subjects had tertiary school education in both groups, 61% versus 51% and were almost equally distributed in terms of religious affiliations. Muslims constituted 67% and 74% in the fertility and family planning clinics attendees respectively. All the subjects in this study were married. Majority of the women attending family planning clinic were from monogamous marital setting (n=221, 58%), while the women attending the fertility clinic were mainly from polygamous setting (n= 223, 62.5%). Overwhelming majority of the fertility clinic attendees were nulliparous (n=266, 74.5%) while majority of the attendees of the family planning clinic were multiparous (n=375, 98.5%). In terms of the employment status of the respondents, significant proportion of the attendees of the fertility clinic were employed (n= 224, 62.7%), similar finding was obtained for the family planning clinic attendees (n= 224, 58.8%).
<table>
<thead>
<tr>
<th>Socio-demographic Variable</th>
<th>Frequency (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age Groups (Years) (Mean age=34.60 ± 6.12)</td>
<td>N=357</td>
</tr>
<tr>
<td>20-24</td>
<td>11 (3.1)</td>
</tr>
<tr>
<td>25-29</td>
<td>63 (17.7)</td>
</tr>
<tr>
<td>30-34</td>
<td>105 (29.4)</td>
</tr>
<tr>
<td>35-39</td>
<td>84 (23.5)</td>
</tr>
<tr>
<td>40-44</td>
<td>81 (22.7)</td>
</tr>
<tr>
<td>Category</td>
<td>Count</td>
</tr>
<tr>
<td>-------------------</td>
<td>-------</td>
</tr>
<tr>
<td>Age</td>
<td>45-49</td>
</tr>
<tr>
<td><strong>Religion</strong></td>
<td></td>
</tr>
<tr>
<td>Christianity</td>
<td>119 (33.3)</td>
</tr>
<tr>
<td>Islam</td>
<td>238 (66.7)</td>
</tr>
<tr>
<td><strong>Marital Status</strong></td>
<td></td>
</tr>
<tr>
<td>Married</td>
<td>357 (100)</td>
</tr>
<tr>
<td>Unmarried</td>
<td>0 (0.0)</td>
</tr>
<tr>
<td><strong>Type of Marriage</strong></td>
<td></td>
</tr>
<tr>
<td>Monogamous</td>
<td>134 (37.5)</td>
</tr>
<tr>
<td>Polygamous</td>
<td>223 (62.5)</td>
</tr>
<tr>
<td><strong>Educational Status</strong></td>
<td></td>
</tr>
<tr>
<td>None</td>
<td>32 (9.0)</td>
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<tr>
<td>Primary</td>
<td>21 (5.9)</td>
</tr>
<tr>
<td>Secondary</td>
<td>63 (17.6)</td>
</tr>
<tr>
<td>Tertiary</td>
<td>221 (61.9)</td>
</tr>
<tr>
<td>Qur’anic</td>
<td>20 (5.6)</td>
</tr>
<tr>
<td><strong>Employment Status</strong></td>
<td></td>
</tr>
<tr>
<td>Employed</td>
<td>224 (62.7)</td>
</tr>
<tr>
<td>Unemployed</td>
<td>133 (37.3)</td>
</tr>
<tr>
<td><strong>Parity</strong></td>
<td></td>
</tr>
<tr>
<td>None</td>
<td>266 (74.5)</td>
</tr>
<tr>
<td>One</td>
<td>88 (24.7)</td>
</tr>
</tbody>
</table>
More than one 3 (0.8)

### TABLE 2

**Socio-demographic Profile of the attendees of the family Planning Clinic**

<table>
<thead>
<tr>
<th>Sociodemographic Variable</th>
<th>Frequency (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>N=381</td>
<td></td>
</tr>
</tbody>
</table>

**Age Group (Years)** *(Mean age=35.90±5.59)*

- 20-24: 4 (1.1)
- 25-29: 56 (14.7)
- 30-34: 70 (18.4)
- 35-39: 137 (36.0)
- 40-44: 102 (26.7)
- 45-49: 12 (3.1)

**Religion**

- Christianity: 100 (26.2)
- Islam: 281 (73.8)

**Marital Status**
<table>
<thead>
<tr>
<th>Status</th>
<th>Count (Percentage)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Married</td>
<td>381 (100)</td>
</tr>
<tr>
<td>Unmarried</td>
<td>0 (0.0)</td>
</tr>
</tbody>
</table>

**Type of Marriage**

<table>
<thead>
<tr>
<th>Type</th>
<th>Count (Percentage)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monogamous</td>
<td>221 (58.0)</td>
</tr>
<tr>
<td>Polygamous</td>
<td>160 (42.0)</td>
</tr>
</tbody>
</table>

**Educational Status**

<table>
<thead>
<tr>
<th>Status</th>
<th>Count (Percentage)</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td>60 (15.8)</td>
</tr>
<tr>
<td>Primary</td>
<td>28 (7.4)</td>
</tr>
<tr>
<td>Secondary</td>
<td>84 (22.0)</td>
</tr>
<tr>
<td>Tertiary</td>
<td>196 (51.4)</td>
</tr>
<tr>
<td>Qur’anic</td>
<td>13 (3.4)</td>
</tr>
</tbody>
</table>

**Employment Status**

<table>
<thead>
<tr>
<th>Status</th>
<th>Count (Percentage)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Employed</td>
<td>224 (58.8)</td>
</tr>
<tr>
<td>Unemployed</td>
<td>157 (41.2)</td>
</tr>
</tbody>
</table>

**Parity**

<table>
<thead>
<tr>
<th>Parity</th>
<th>Count (Percentage)</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td>2 (0.5)</td>
</tr>
<tr>
<td>One</td>
<td>4 (1.0)</td>
</tr>
<tr>
<td>More than One</td>
<td>375 (98.5)</td>
</tr>
</tbody>
</table>
Figure 1

Figuure of attendees by Age Group of Fertility Clinic & Family Planning Clinic

Figure 2
Figure 3

Frequency of attendees by Religion of Fertility Clinic & Family Planning Clinic
Figure 4

Frecuence of attendees by Type of Marriage of Fertility Clinic & Family Planning Clinic

- Monogamous
- Polygamous

Fertility Clinic
Family Planning Clinic

Figure 4

Frecuence of attendees by Educational Status of Fertility Clinic & Family Planning Clinic

- Fertility Clinic
- Family Planning Clinic

None, Primary, Secondary, Tertiary, Quaranic
Figure 5

Frequency of attendees by Employment Status of Fertility Clinic & Family Planning Clinic

Figure 6
5.2 COMPARISON OF THE SELF ESTEEM OF THE ATTENDEES OF THE FERTILITY AND FAMILY PLANNING CLINICS.

In terms of the self esteem of the respondents, the women attending family planning clinic reported significantly higher degree of self esteem than those who were attending the fertility clinic, and this was statistically significant ($\chi^2 = 7.12, df=1, p=0.008$). This is shown in table 3.

**TABLE 3**

**Comparison of the Self Esteem of the attendees of the fertility and the family Planning Clinics.**
### 5.3 Sociodemographic Correlates of Self Esteem Among the Attendees of the Fertility Clinic.

<table>
<thead>
<tr>
<th>ISE Group</th>
<th>Fertility Clinic</th>
<th>Family Planning</th>
<th>Total</th>
<th>$X^2$</th>
<th>P-Value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Freq (%)</td>
<td>Freq (%)</td>
<td>Freq (%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>High Self Esteem</td>
<td>49 (37.7)</td>
<td>81 (62.3)</td>
<td>130 (100)</td>
<td>7.12</td>
<td>0.008**</td>
</tr>
<tr>
<td>Low Self Esteem</td>
<td>308 (50.7)</td>
<td>300 (49.3)</td>
<td>608 (100)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**NB**

In computing the Index of Self Esteem of both groups, a mean score of 32.04 reported by Onighaiye et al, (1996) among Nigerians was used as the reference value.
Five sociodemographic variables were analysed for association with lower self esteem among the attendees of the fertility clinic. These included: Age, type of marriage setting, Educational status, employment status and parity. The findings are shown in Table 4. The degree of association of these sociodemographic variables and self esteem are shown in table 4.

5.3.1 Age and Self Esteem among fertility clinic Attendees.

The subjects were divided into 6 age groups; 20-24, 25-29, 30-34, 35-39, 40-44 and 45-49. One hundred and sixty one representing 52.2% of the respondents with lowest self esteem belong to the 30-39 years age bracket ($X^2=9.204$, df=5, $p=0.101$).

5.3.2 Type of marriage setting and Self Esteem among fertility clinic Attendees.

In this study, the proportion of infertile respondents from polygamous setting had lower level self esteem than their counterpart from monogamous setting ($X^2=0.000$, df=1, $p=1.000$).

5.3.3 Educational Status and Self Esteem among the Attendees of the fertility clinic.

Significant proportion of respondents with low self esteem consisting of 248 subjects representing 80.5% had either secondary or tertiary levels of education ($X^2=32.11$, df=1, $p=<0.001$).

5.3.4 Employment Status and Self Esteem among the Attendees of the fertility clinic.
One Hundred and Eighty Nine Subjects representing 61.4% of those with low Self Esteem were employed ($X^2=1.832$, df=1, $P=0.176$).

### 5.3.5 Parity and Self Esteem among the Attendees of the fertility clinic.

In terms of the parity of the respondents, 231 representing 75% of the attendees of the fertility clinic who had low self esteem were nulliparous almost similar finding, 35 subjects representing 71.4% of those with high self esteem were also nulliparous ($X^2=1.011$, df=2, $P=0.603$).
TABLE 4

Socio-demographic Correlates of Self Esteem among the attendees of the fertility Clinic.

<table>
<thead>
<tr>
<th>Socio-demographic Variable</th>
<th>High Self Esteem</th>
<th>Low Self Esteem</th>
<th>Total</th>
<th>X²</th>
<th>P-Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (years)</td>
<td></td>
<td></td>
<td>N=357</td>
<td></td>
<td></td>
</tr>
<tr>
<td>20-24</td>
<td>0 (0.0)</td>
<td>11 (3.6)</td>
<td>11 (3.1)</td>
<td>9.204</td>
<td>0.101</td>
</tr>
<tr>
<td>25-29</td>
<td>10 (20.4)</td>
<td>53 (17.2)</td>
<td>63 (17.7)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>30-34</td>
<td>10 (20.4)</td>
<td>95 (30.5)</td>
<td>105 (29.4)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>35-39</td>
<td>18 (36.7)</td>
<td>66 (21.4)</td>
<td>84 (23.5)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>40-44</td>
<td>11 (22.5)</td>
<td>70 (22.7)</td>
<td>81 (22.7)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>45-49</td>
<td>0 (0.0)</td>
<td>13 (4.2)</td>
<td>13 (3.6)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Type of Marriage Setting

<table>
<thead>
<tr>
<th>Marriage Setting</th>
<th>High Self Esteem</th>
<th>Low Self Esteem</th>
<th>Total</th>
<th>X²</th>
<th>P-Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monogamous</td>
<td>24 (49.0)</td>
<td>110 (35.7)</td>
<td>134 (37.5)</td>
<td>0.000</td>
<td>1.000</td>
</tr>
<tr>
<td>Polygamous</td>
<td>25 (51.0)</td>
<td>198 (64.3)</td>
<td>223 (62.5)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Educational Status

<table>
<thead>
<tr>
<th>Educational Status</th>
<th>High Self Esteem</th>
<th>Low Self Esteem</th>
<th>Total</th>
<th>X²</th>
<th>P-Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td>0 (0.0)</td>
<td>32 (10.4)</td>
<td>32 (9.0)</td>
<td>32.11</td>
<td>&lt;0.001**</td>
</tr>
<tr>
<td>Primary</td>
<td>4 (8.2)</td>
<td>17 (5.5)</td>
<td>21 (5.9)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Secondary</td>
<td>4 (8.2)</td>
<td>59 (19.2)</td>
<td>63 (17.6)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tertiary</td>
<td>32 (65.3)</td>
<td>189 (61.4)</td>
<td>221 (61.9)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
**5.4 SOCIODEMOGRAPHIC CORRELATES OF SELF ESTEEM AMONG THE ATTENDEES OF FAMILY PLANNING CLINIC.**

The degrees of association between the sociodemographic variables and self esteem among the attendees of the family planning clinic are shown in table 5.

**5.4.1 Age and Self Esteem among the Attendees of the family planning clinic.**
Like among the attendees of the fertility clinic, the subjects were subdivided into 6 age groups; 20-24, 25-29, 30-34, 35-39, 40-44 and 45-49.

Age in general was found to have significant relationship with self esteem, \((X^2=14.436, \text{df}=5, P=0.011)\). The age group 45-49 seem to have the lowest level of self esteem.

5.4.2 Type of marriage and Self Esteem among the attendees of the family planning clinic.

The type of marriage setting was found to be related to self esteem among the women attending family planning clinic, \((X^2=5.792, \text{df}=1, p=0.016)\) with women in the monogamous home having relatively higher levels of self esteem compared with those in polygamous setting (69.1% vs 30.9%)

5.4.3 Educational Status and Self Esteem among the family planning clinic attendees.

Was discovered to be related to levels of self esteem, \((X^2=30.373, \text{df}=5, p=<0.001)\).

5.4.4 Employment Status and Self Esteem among the family planning clinic Attendees.

There are no significant relationship between employment status and self esteem amongst these respondents, \((X^2=1.801, \text{df}=1, p=0.18)\).

5.4.5 Parity and Self Esteem among family planning clinic Attendees.

Parity was also found to be related with self esteem, \((X^2=14.089, \text{df}=2, p=<0.001)\). All the nulliparous women were seem to have low self esteem.
#### TABLE 5

**Socio-demographic Correlates of Self Esteem Among the Attendees of the Family Planning Clinic**

<table>
<thead>
<tr>
<th>Socio-demographic Variable</th>
<th>High Self Freq. (%)</th>
<th>Low Self Freq. (%)</th>
<th>Total Freq. (%)</th>
<th>X²</th>
<th>P-Value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>N=381</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Age Group (years)**

<table>
<thead>
<tr>
<th>Age Group</th>
<th>High Self Freq. (%)</th>
<th>Low Self Freq. (%)</th>
<th>Total Freq. (%)</th>
<th>X²</th>
<th>P-Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>20-24</td>
<td>0 (0.0)</td>
<td>4 (1.3)</td>
<td>4 (1.1)</td>
<td>14.436</td>
<td>0.011**</td>
</tr>
<tr>
<td>25-29</td>
<td>11 (13.6)</td>
<td>45 (15.0)</td>
<td>56 (14.7)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>30-34</td>
<td>7 (8.6)</td>
<td>63 (21.0)</td>
<td>70 (18.4)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>35-39</td>
<td>38 (46.9)</td>
<td>99 (33.0)</td>
<td>137 (36.0)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>40-44</td>
<td>25 (30.9)</td>
<td>77 (25.7)</td>
<td>102 (26.7)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>45-49</td>
<td>0 (0.0)</td>
<td>12 (4.0)</td>
<td>12 (3.1)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Type of Marriage**

<table>
<thead>
<tr>
<th>Type of Marriage</th>
<th>High Self Freq. (%)</th>
<th>Low Self Freq. (%)</th>
<th>Total Freq. (%)</th>
<th>X²</th>
<th>P-Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monogamous</td>
<td>56 (69.1)</td>
<td>165 (55.0)</td>
<td>221 (58.0)</td>
<td>5.792</td>
<td>0.016**</td>
</tr>
<tr>
<td>Polygamous</td>
<td>25 (30.9)</td>
<td>135 (45.0)</td>
<td>160 (42.0)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Educational Status**

<table>
<thead>
<tr>
<th>Educational Status</th>
<th>High Self Freq. (%)</th>
<th>Low Self Freq. (%)</th>
<th>Total Freq. (%)</th>
<th>X²</th>
<th>P-Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td>18 (22.2)</td>
<td>42 (14.0)</td>
<td>60 (15.8)</td>
<td>30.373</td>
<td>&lt;0.001**</td>
</tr>
<tr>
<td>Primary</td>
<td>4 (4.9)</td>
<td>24 (8.0)</td>
<td>28 (7.4)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Secondary</td>
<td>14 (17.3)</td>
<td>70 (23.3)</td>
<td>84 (22.0)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tertiary</td>
<td>35 (43.2)</td>
<td>161 (53.7)</td>
<td>196 (51.4)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
5.5 COMPARISON OF THE PSYCHOLOGICAL ADJUSTMENTS OF THE ATTENDEES OF THE FERTILITY AND FAMILY PLANNING CLINICS.

The psychological adjustments of the two groups of the respondents are shown in figure 1. Infertile respondents had a proportionately higher level of maladjustment, 93% of the total respondents while the family planning clinic attendees had a proportionately higher level of good adjustment, 27.6% of the total respondents as against 7% of the fertility
clinic respondents who had good adjustment. These findings were statistically significant, $X^2=53.65$, df=1, $P<0.0001$ as shown in Table 6.

**TABLE 6**

Table comparing the psychological adjustment among the two groups using the FAS.

<table>
<thead>
<tr>
<th>FAS outcome</th>
<th>Fertility Clinic Attendees Freq. (%)</th>
<th>Family Planning Clinic Attendees Freq. (%)</th>
<th>Total Freq. (%)</th>
<th>$X^2$</th>
<th>P-Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Good adjustment</td>
<td>25 (7.0)</td>
<td>105 (27.5)</td>
<td>130 (17.6)</td>
<td>53.65</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>Maladjustment</td>
<td>332 (93.0)</td>
<td>276 (72.5)</td>
<td>608 (82.4)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>357 (100.0)</td>
<td>381 (100.0)</td>
<td>738 (100.0)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
NB: In computing the psychological adjustment of the respondent, a mean score of 39.2 ± 1.7 reported by Glover et al, (1999) was used as the reference value.

FIGURE 7: PSYCHOLOGICAL ADJUSTMENT OF THE TWO GROUPS
Psychological adjustment of the two groups as measured by FAS

<table>
<thead>
<tr>
<th></th>
<th>INFERTILITY CLINIC</th>
<th>FAMILY PLANNING CLINIC</th>
</tr>
</thead>
<tbody>
<tr>
<td>GOOD ADJUSTMENT</td>
<td>25</td>
<td>105</td>
</tr>
<tr>
<td>MALADJUSTMENT</td>
<td>332</td>
<td>276</td>
</tr>
</tbody>
</table>
5.6 SOCIO DEMOGRAPHIC CORRELATES OF PSYCHOLOGICAL ADJUSTMENT AMONG THE ATTENDEES OF THE FERTILITY CLINIC.

The degrees of association between the various sociodemographic parameters and psychological adjustment among the attendees of the fertility clinic are shown in table 7.

5.6.1 Age and Psychological adjustment among the Attendees of the fertility clinic.

From the results obtained, there was a significant association between age and psychological adjustment. Those at the two extremes appeared to be proportionately higher for those with good adjustment while those in the middle, 30-39 year age bracket constituted the overwhelming majority of those with maladjustment, 56.0% ($X^2=33.087$, df=5, $P=<0.001$).

5.6.2 Marriage type and Psychological adjustment among the Attendees of the fertility clinic.

For the marriage type, respondents from polygamous setting constituted significant majority of those with maladjustment (65.1%), while those from monogamous setting constituted the majority of those with good adjustment(72.0%), ($X^2=5.203$, df=1 $P=0.023$).
5.6.3 Educational Status and Psychological adjustment among the Attendees of the fertility clinic.

In terms of the educational status of the respondents, those with tertiary educational attainment constituted the majority in both groups, 100% and 59% for those with good adjustment and maladjustment respectively ($X^2=16.661$, df=4, $P=0.002$).

5.6.4 Employment and Psychological adjustment among the Attendees of the fertility clinic.

The employed respondents constituted the majority of both those with good adjustment and maladjustment, 100% and 59.9% respectively ($X^2=15.887$, df=1, $P=<0.001$).

5.6.5 Parity and Psychological adjustment among the Attendees of the fertility clinic.

Nulliparous respondents constituted the overwhelming majority of those with maladjustment (79.5%), while the primiparous respondents constituted the majority of those with good adjustment ($X^2=12.292$, df=2, $P=0.015$).
### TABLE 7
Socio-demographic Correlates of Psychological Adjustment among the attendees of the fertility Clinic

<table>
<thead>
<tr>
<th>Socio-demographic Variable</th>
<th>Good adjustment Freq(%)</th>
<th>Maladjustment Freq(%)</th>
<th>Total Freq (%)</th>
<th>P²</th>
<th>P-Value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Age (years)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20-24</td>
<td>4 (16.0)</td>
<td>7 (2.1)</td>
<td>11 (3.1)</td>
<td>33.047</td>
<td>&lt;0.001**</td>
</tr>
<tr>
<td>25-29</td>
<td>7 (28.0)</td>
<td>56 (16.9)</td>
<td>63 (17.7)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>30-34</td>
<td>0 (0.0)</td>
<td>105 (31.6)</td>
<td>105 (29.4)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>35-39</td>
<td>3 (12.0)</td>
<td>81 (24.4)</td>
<td>84 (23.5)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>40-44</td>
<td>7 (28.0)</td>
<td>74 (22.3)</td>
<td>81 (22.7)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>45-49</td>
<td>4 (16.0)</td>
<td>9 (2.7)</td>
<td>13 (3.6)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Type of Marriage Setting</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Monogamous</td>
<td>18 (72.0)</td>
<td>116 (34.9)</td>
<td>134 (37.5)</td>
<td>5.203</td>
<td>0.023**</td>
</tr>
<tr>
<td>Polygamous</td>
<td>7 (28.0)</td>
<td>216 (65.1)</td>
<td>223 (62.5)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Educational Status</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>None</td>
<td>0 (0.0)</td>
<td>32 (9.6)</td>
<td>32 (9.0)</td>
<td>16.661</td>
<td>0.002**</td>
</tr>
<tr>
<td>Primary</td>
<td>0 (0.0)</td>
<td>21 (6.3)</td>
<td>21 (5.9)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Secondary</td>
<td>0 (0.0)</td>
<td>63 (19.0)</td>
<td>63 (17.6)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tertiary</td>
<td>25 (100.0)</td>
<td>196 (59.0)</td>
<td>221 (61.9)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

N=357
<table>
<thead>
<tr>
<th>Qur’anic</th>
<th>0 (0.0)</th>
<th>20 (6.1)</th>
<th>20 (5.6)</th>
</tr>
</thead>
</table>

**Employment Status**

<table>
<thead>
<tr>
<th>Status</th>
<th>Employed</th>
<th>Unemployed</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>25 (100.0)</td>
<td>133 (40.1)</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>199 (59.9)</td>
<td>133 (37.3)</td>
</tr>
<tr>
<td><strong>X²</strong></td>
<td>15.887</td>
<td>&lt;0.001**</td>
</tr>
</tbody>
</table>

**Parity**

<table>
<thead>
<tr>
<th>Parity</th>
<th>None</th>
<th>One</th>
<th>More than One</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2 (8.0)</td>
<td>68 (20.5)</td>
<td>3 (12.0)</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>264 (79.5)</td>
<td>88 (24.7)</td>
<td>3 (0.8)</td>
</tr>
<tr>
<td><strong>X²</strong></td>
<td>12.292</td>
<td>0.015**</td>
<td></td>
</tr>
</tbody>
</table>

**Statistically Significant Findings**
5.7 SOCIODEMOGRAPHIC CORRELATES OF PSYCHOLOGICAL ADJUSTMENT AMONG THE ATTENDEES OF THE FAMILY PLANNING CLINIC.

The degrees of association between the various sociodemographic characteristics of the attendees of the family planning clinic and psychological adjustment were explored and are shown in table 8.

5.7.1 Age and Psychological adjustment among the Attendees of the family planning clinic.

Overwhelming majority of both those with good adjustment and respondents with maladjustment belonged to the 35-44 years age bracket, 63.6% and 61.3% respectively ($\chi^2=23.846, df=5, P<0.001$).

5.7.2 Marriage type and Psychological adjustment among the Attendees of the family planning clinic.

Respondents from monogamous setting constituted majority of those both with good adjustment and maladjustment, 63.8%, and 55.8% respectively ($\chi^2=1.820, df=1, P=0.177$).

5.7.3 Educational Status and Psychological adjustment among the Attendees of the family planning clinic.

Overwhelming majority of those with good adjustment and of respondents with maladjustment had either secondary or tertiary education, 77.2% and 72.1% respectively ($\chi^2=25.884, df=4, P=<0.001$).
5.7.4 Employment Status and Psychological adjustment among the Attendees of the family planning clinic.

The employed respondents constituted the majority in those with good adjustment and those with maladjustment, 63.8% and 56.9% respectively ($X^2=1.203, \text{ df}=1, P=0.273$).

5.7.5 Parity and Psychological adjustment among the Attendees of the family planning clinic.

Multiparous respondents constituted the overwhelming majority of those with good adjustment, 99.1% and of those with maladjustment, 98.2% ($X^2=3.096, \text{ df}=2, P=0.542$).
TABLE 8

Socio-demographic Correlates of Psychological Adjustment among the Attendees of the family planning Clinic

<table>
<thead>
<tr>
<th>Socio-demographic Variable</th>
<th>Good adjustment</th>
<th>Maladjustment</th>
<th>Total</th>
<th>X²</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Freq(%)</td>
<td>Freq(%)</td>
<td>Freq(%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age group (years)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20-24</td>
<td>0 (0.0)</td>
<td>4 (1.5)</td>
<td>4 (1.1)</td>
<td>23.846</td>
<td>&lt;0.001**</td>
</tr>
<tr>
<td>25-29</td>
<td>14 (13.3)</td>
<td>42 (15.2)</td>
<td>56 (14.7)</td>
<td>1.820</td>
<td>0.177</td>
</tr>
<tr>
<td>30-34</td>
<td>17 (16.2)</td>
<td>53 (19.2)</td>
<td>70 (18.4)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>35-39</td>
<td>56 (53.3)</td>
<td>81 (29.4)</td>
<td>137 (36.0)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>40-44</td>
<td>14 (13.3)</td>
<td>88 (31.9)</td>
<td>102 (26.7)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>45-49</td>
<td>4 (3.9)</td>
<td>8 (2.8)</td>
<td>12 (3.1)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Type of Marriage Setting</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Monogamous</td>
<td>67 (63.8)</td>
<td>154 (55.8)</td>
<td>221 (58.0)</td>
<td>1.820</td>
<td>0.177</td>
</tr>
<tr>
<td>Polygamous</td>
<td>38 (36.2)</td>
<td>122 (44.2)</td>
<td>160 (42.0)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Educational Status</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>None</td>
<td>9 (8.6)</td>
<td>51 (18.5)</td>
<td>60 (15.8)</td>
<td>25.884</td>
<td>&lt;0.001**</td>
</tr>
<tr>
<td>Primary</td>
<td>4 (3.8)</td>
<td>24 (8.7)</td>
<td>28 (7.4)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Secondary</td>
<td>32 (30.5)</td>
<td>52 (18.8)</td>
<td>84 (22.0)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tertiary</td>
<td>49 (46.7)</td>
<td>147 (53.3)</td>
<td>196 (51.4)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

N= 381
<table>
<thead>
<tr>
<th>Qur’anic</th>
<th>11 (10.4)</th>
<th>2 (0.7)</th>
<th>13 (3.4)</th>
</tr>
</thead>
</table>

**Employment Status**

<table>
<thead>
<tr>
<th>Status</th>
<th>Employed</th>
<th>Unemployed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Employed</td>
<td>67 (63.8)</td>
<td>157 (56.9)</td>
</tr>
<tr>
<td>Unemployed</td>
<td>38 (36.2)</td>
<td>119 (43.1)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Parity</th>
<th>None</th>
<th>One</th>
<th>More than One</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td>0 (0.0)</td>
<td>2 (0.7)</td>
<td>2 (0.5)</td>
</tr>
<tr>
<td>One</td>
<td>1 (0.9)</td>
<td>3 (1.1)</td>
<td>4 (1.0)</td>
</tr>
<tr>
<td>More than One</td>
<td>104 (99.1)</td>
<td>271 (98.2)</td>
<td>375 (98.5)</td>
</tr>
</tbody>
</table>

**Statistically Significant Finding**

** Statistically Significant Finding
5.8 VALIDITY COEFFICIENT OF THE FAS:

Table 9 is a 2 by 2 contingency table that compared the fertility adjustment scale (FAS) against the index of self esteem (ISE) as a criterion. The computed validity coefficients revealed a sensitivity of 82.9% and a positive predictive value of 82.9%. Other coefficients are shown below in table 9.

**TABLE 9**

A CONTINGENCY TABLE COMPARING THE FERTILITY ADJUSTMENT SCALE (FAS) AGAINST THE INDEX OF SELF ESTEEM (ISE)

<table>
<thead>
<tr>
<th></th>
<th>LOW SELF ESTEEM</th>
<th>HIGH SELF ESTEEM</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>MALADJUSTMENT</strong></td>
<td>504</td>
<td>105</td>
<td>609</td>
</tr>
<tr>
<td><strong>GOOD ADJUSTMENT</strong></td>
<td>104</td>
<td>25</td>
<td>129</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>608</td>
<td>130</td>
<td>738</td>
</tr>
</tbody>
</table>

Sensitivity = TP/TP+FN = a/a+c = (504/608)100 = **82.9%**

Specificity = TN/TN+FP = d/a+d = (25/130)100 = **19.2%**
Positive Predictive Value (PPV) = \( \frac{a}{a+b} = \frac{504}{609} \times 100 = 82.8\% \)

Negative Predictive Value (NPV) = \( \frac{d}{c+d} = \frac{25}{129} \times 100 = 19.4\% \)

False Positive Rate = 1 - Specificity = 1 - 0.19 = 0.81

Misclassification Rate = \( \frac{b+c}{a+b+c+d} = \frac{209}{738} \times 100 = 28.3\% \)

5.9 OCCURRENCE OF PSYCHIATRIC MORBIDITY AMONG THE RESPONDENTS.

The subjects attending the fertility clinic had significantly higher psychiatric morbidity (52.9%) compared with those attending family planning clinic (32%), \( (X^2 = 32.55, \text{df}=1, P<0.001) \). This result is shown in Table 10 below:

**TABLE 10**

Table Comparing the Occurrence of Psychiatric Morbidity among the two groups using the GHQ.

<table>
<thead>
<tr>
<th>GHQ Outcome</th>
<th>Fertility Clinic Attendees</th>
<th>Family Planning Clinic Attendees</th>
<th>Total Freq (%)</th>
<th>( X^2 )</th>
<th>P-Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>GHQ-Negative</td>
<td>168 (47.1)</td>
<td>259 (68.0)</td>
<td>427 (57.8)</td>
<td>32.55</td>
<td>&lt;0.0001</td>
</tr>
</tbody>
</table>
GHQ-Positive 189 (52.9) 122 (32.0) 311 (42.2)

TOTAL 357 (100.0) 381 (100.0) 738 (100.0)

5.10 OVERALL PSYCHOLOGICAL OUTCOMES OF THE RESPONDENTS USING HADS, GHQ, FAS AND ISE SCORES:

The overall psychological outcomes of the respondents were studied and compared using the Hospital Anxiety and Depression Scale (HADS), the 12 items General Health Questionnaire (GHQ-12), the Fertility Adjustment Scale (FAS) and the Index of Self Esteem (ISE). The results are shown in table 11.

The mean total HADS scores for the two groups were 19.94 (+3.63) and 19.06 (+3.44), for the attendees of the fertility and family planning clinics respectively (t=3.406, P=<0.001). On the anxiety subscale the attendees of the fertility clinic had significant higher score, mean total of 7.55 (+3.64) as against 6.44 (+3.41) for the family planning clinic attendees (t=4.275, P=<0.001), while on the depression subscale of HADS, the family planning clinic attendees had higher mean total score, 12.62 (+2.38) as against 12.39 (+2.19) for the fertility clinic attendees, (t=-1.322, P=0.187).

One Hundred and Twenty Seven (37.6%) of the fertility clinic attendees met the HADS “cut off score” for depression as against 26 (6.8%) of the family planning clinic attendees who met similar criterion (X²=92.74, df=1, P=<0.001).
On the anxiety subscale, 144 (40.3%) of the attendees of the fertility clinic met the “cut off mark” of anxiety as against 21 (5.5%) of the family planning clinic attendees who met similar mark ($X^2=114.8$, df=1, $P=<0.001$).

The mean total GHQ scores for the groups were 3.82 ($\pm3.67$) and 2.00 ($\pm2.34$) for the fertility and family planning clinics attendees respectively ($t=8.108$, $P=<0.001$).

The mean FAS scores were 47.65 ($\pm6.94$) for the fertility clinic attendees and 43.79 ($\pm6.98$) for the family planning clinic attendees ($t=7.523$, $P=<0.001$).

When the mean ISE score for both groups were computed, it revealed 79.46 ($\pm21.18$) for the fertility clinic attendees and 73.25 ($\pm19.55$) for the attendees of the family planning clinic ($t=4.145$, $P=<0.001$).
### Table 11:
**A COMPARISON OF THE PSYCHOLOGICAL STATUS OF THE RESPONDENTS**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Fertility Clinic Attendees (n=357)</th>
<th>Family Planning Clinic Attendees (n=381)</th>
<th>Statistics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean Total HADS Score (+SD)</td>
<td>19.94 (+3.63)</td>
<td>19.06 (+3.44)</td>
<td>T=3.406, P=&lt;0.001**</td>
</tr>
<tr>
<td>Mean Score (+SD) Depression</td>
<td>12.39 (+2.19)</td>
<td>12.62 (+2.38)</td>
<td>T=-1.322, P=0.187</td>
</tr>
<tr>
<td>Subscale of HADS</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean Score (+SD) Anxiety</td>
<td>7.55 (+3.64)</td>
<td>6.44 (+3.41)</td>
<td>T= 4.275, P=&lt;0.001**</td>
</tr>
<tr>
<td>Depressed Respondents (HADS)</td>
<td>(n (%) )</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>127 (35.6)</td>
<td>26 (6.8)</td>
<td>X²=92.74, df= 1, P=&lt;0.001**</td>
</tr>
<tr>
<td>Non-Depressed Respondents (HADS)</td>
<td>(n (%) )</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>230 (64.4)</td>
<td>355 (93.2)</td>
<td></td>
</tr>
<tr>
<td>Respondents with Anxiety</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
(HADS) {n (%)} | 144 (40.3) | 21 (5.5) | $X^2=114.8$, df=1, $P=<0.001^{**}$

Respondents without Anxiety

| (HADS) {n(%)| 213 (59.7) | 360 (94.5) |
| Mean GHQ Score (±SD) | 3.82 (±3.67) | 2.00 (±2.34) | $T=8.108$, $P=<0.001^{**}$
| GHQ- Positive Respondents {n(%)| 189 (52.9) | 122 (32.00) | $X^2=32.5$, df=1, $P=<0.001^{**}$
| GHQ- Negative Respondents {n(%)| 168 (47.1) | 259 (68.0) |
| Mean FAS Score (±SD) | 47.65 (±6.94) | 43.79 (±6.98) | $T=7.523$, $P<=0.001^{**}$
| Maladjusted Respondents {n(%)| 332 (93.0) | 276 (72.4) | $X^2=53.65$, df=1, $P=<0.001^{**}$
| Well adjusted Respondents {n(%)| 25 (7.0) | 105 (27.6) |
| Mean ISE Score (±SD) | 79.46 (±21.18) | 73.25(±19.55) | $T=4.145$, $P<=0.001^{**}$
| Respondents with low Self Esteem | 308 (86.3) | 300 (78.7) | $X^2=7.12$, df=1, $P=<0.001^{**}$
| Respondents with High Self Esteem | 49 (13.7) | 81(21.3) |
5.11 COMPARISON OF THE PSYCHOLOGICAL OUTCOMES OF THE RESPONDENTS WITH GHQ RESULTS.

The various psychological outcomes of the respondents, namely, depression, anxiety, self esteem and psychological adjustment were compared against the GHQ; as a validated measure of psychological distress. The results are presented in tables 12 and 13 for the attendees of the fertility and family planning clinics respectively.

5.11.1 COMPARISON OF PSYCHOLOGICAL OUTCOMES WITH GHQ RESULTS AMONG ATTENDEES OF THE FERTILITY CLINIC.

5.11.1a Anxiety Subscale of HADS and GHQ:

Among the 144 respondents in the fertility clinic who met HADS diagnostic requirement for anxiety, 95 (66.0%) were GHQ positive as against 119 (55.9%) of those without anxiety who were GHQ-negative ($X^2=7.66$, df=1, $P=0.006$).

5.11.1b Depression Subscale of HADS and GHQ:

One hundred and three representing 81.1% of the fertility clinic respondents who were diagnosed depressed were also detected GHQ-positive. Only 86(37.4%) of the non depressed were GHQ-positive ($X^2=65.05$, df=1, $P=<0.001$).

5.11.1c Self Esteem and GHQ:

Over 49% of respondents with low self esteem were GHQ-positive and 37 (75.5%) of those with high self esteem were also GHQ-positive ($X^2=11.7$, df=1, $P=<0.001$).
5.11.1d *Psychological Adjustment and GHQ:*

Out of the 332 maladjusted respondents of the fertility clinic, 174 (52.4%) were also psychologically distressed as indicated by their GHQ scores (as against 158 (47.6%)) who were GHQ-negative ($X^2=0.569$, df=1, $P=0.182$).
Table 12:
COMPARISON OF THE PSYCHOLOGICAL OUTCOMES OF THE FERTILITY CLINIC RESPONDENTS WITH GHQ-RESULTS

<table>
<thead>
<tr>
<th>Psychological Outcomes</th>
<th>GHQ Positive (n=189)</th>
<th>GHQ Negative (n=168)</th>
<th>Total (n=357)</th>
<th>Statistics</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANXIETY SUBSCALE (HADS) (n%)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Anxiety Present</td>
<td>95 (66.0)</td>
<td>49 (34.0)</td>
<td>144 (100)</td>
<td>$X^2=7.66, df=1, P=&lt;0.006^{**}$</td>
</tr>
<tr>
<td>Anxiety absent</td>
<td>94 (44.1)</td>
<td>119 (55.9)</td>
<td>213 (100)</td>
<td></td>
</tr>
<tr>
<td>DEPRESSION SUBSCALE (HADS) (n%)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Depressed</td>
<td>103 (81.1)</td>
<td>24 (18.9)</td>
<td>127 (100)</td>
<td>$X^2=65.05, df=1, P=&lt;0.001^{**}$</td>
</tr>
<tr>
<td>Non-Depressed</td>
<td>86 (37.4)</td>
<td>144 (62.6)</td>
<td>230 (100)</td>
<td></td>
</tr>
<tr>
<td>ISE OUTCOME (n%)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low Self Esteem</td>
<td>152 (49.3)</td>
<td>156 (50.7)</td>
<td>308 (100)</td>
<td>$X^2=11.7, df=1, P=&lt;0.001$</td>
</tr>
<tr>
<td>High Self Esteem</td>
<td>37 (75.5)</td>
<td>12 (24.5)</td>
<td>49 (100)</td>
<td></td>
</tr>
<tr>
<td>FAS OUTCOME (n%)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maladjusted</td>
<td>174 (52.4)</td>
<td>158 (47.6)</td>
<td>332 (100)</td>
<td>$X^2=0.569, df=1, P=0.182$</td>
</tr>
<tr>
<td>Well adjusted</td>
<td>15 (60.0)</td>
<td>10 (40.0)</td>
<td>25 (100)</td>
<td></td>
</tr>
</tbody>
</table>
5.11.2 COMPARISON OF THE PSYCHOLOGICAL OUTCOMES WITH GHQ RESULTS AMONG ATTENDEES OF THE FAMILY PLANNING CLINIC.

5.11.2a Anxiety Subscale of HADS with GHQ:

Nineteen (90.5%) of the respondents of the family planning clinic who met HADS diagnostic criteria for anxiety were also GHQ-positive as against 103 (28.6%) of the non anxious respondents who were detected GHQ-positive ($X^2=35.142$, df=1, $P=<0.001$).

5.11.2b Depression Subscale of HADS with GHQ:

Out of the 26 respondents of the family planning clinic who met HADS diagnostic criteria for depression, 23 (88.5%) were also GHQ-positive as against 99 (27.9%) of the non depressed respondents who were GHQ-positive ($X^2=40.710$, df=1, $P=<0.001$).

5.11.2c Self Esteem and GHQ:

One hundred and fourteen representing 38% of the respondents with low self esteem were GHQ-positive as against 8 (9.9%) of those with high self esteem who were also GHQ-positive ($X^2=23.091$, df=1, $P=0.004$).

5.11.2d Psychological Adjustment and GHQ:

Over 38% of the respondents with maladjustment were also GHQ-positive compared to 14.3% of the well adjusted respondent who were also GHQ-positive ($X^2=20.899$, df=1, $P=0.006$).
Table 13:
COMPARISON OF THE PSYCHOLOGICAL OUTCOMES OF THE FAMILY PLANNING CLINIC RESPONDENTS WITH GH-RESULTS

<table>
<thead>
<tr>
<th>Psychological Outcomes (Parameters)</th>
<th>GHQ-Positive (n=122)</th>
<th>GHQ-Negative (n=259)</th>
<th>Total (n=381)</th>
<th>Statistical Findings</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Anxiety Subscale (HADS) [n(%)]</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Anxiety present</td>
<td>19 (90.5)</td>
<td>2 (9.5)</td>
<td>21 (100)</td>
<td>(X^2 = 35.142, df=1, p&lt;0.001^{**})</td>
</tr>
<tr>
<td>Anxiety absent</td>
<td>103 (28.6)</td>
<td>257 (71.4)</td>
<td>360 (100)</td>
<td></td>
</tr>
<tr>
<td><strong>Depression Subscale (HADS) [n(%)]</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Depressed</td>
<td>23 (88.5)</td>
<td>3 (11.5)</td>
<td>26 (100)</td>
<td>(X^2 = 40.710, df=1, p&lt;0.001^{**})</td>
</tr>
<tr>
<td>Non-depressed</td>
<td>99 (27.9)</td>
<td>256 (72.1)</td>
<td>355 (100)</td>
<td></td>
</tr>
<tr>
<td><strong>ISE-Outcome [n(%)]</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low-Self Esteem</td>
<td>114 (38)</td>
<td>186 (62)</td>
<td>300 (100)</td>
<td>(X^2 = 23.091, df=1, p=0.004^{**})</td>
</tr>
<tr>
<td>High-Self Esteem</td>
<td>8 (9.9)</td>
<td>73 (90.1)</td>
<td>81 (100)</td>
<td></td>
</tr>
<tr>
<td><strong>FAs-Outcome [n(%)]</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maladjusted</td>
<td>107 (38.8)</td>
<td>169 (61.2)</td>
<td>276 (100)</td>
<td>(X^2 = 20.899, df=1, p=0.006^{**})</td>
</tr>
<tr>
<td>Well-adjusted</td>
<td>15 (14.3)</td>
<td>90 (85.7)</td>
<td>105 (100)</td>
<td></td>
</tr>
</tbody>
</table>
CHAPTER SIX

6.0 DISCUSSION

Studies designed to assess the occurrence of an event between two groups requires that both groups are similar in their independent characteristics. In this study, both groups were matched by socio-demographic details, such that any observed difference in self esteem, psychosocial adjustment and mental well being can be reasonably attributed to the inherent difference between the two groups, in terms of being infertile or fertile.

Two thirds of the subjects attending the family planning clinic (70.2%) and the fertility clinic (73.7%) were aged less than 40 years old. This finding may not be unrelated to the biological clock of females which would make it imperative that those desirous of still achieving (or preventing) conception are below the menopausal age. Furthermore, 15.8% and 20.8% of those attending the family planning and fertility clinics respectively were aged less than 30 years. This is not altogether surprising as most young people tend to marry in their twenties, and if there is a failure to achieve conception within a few years, it will be a source of concern that would account for their attendance of fertility clinics. This is likely to be even more acutely felt, and thus lead to early presentation for fertility problems, in the study setting of North Eastern Nigeria, where there is a prevalent culture of early girl marriages. The National Demographic Health Survey (NDHS) report estimates that 59% of female teenagers in North-eastern Nigeria are already married, a rate that is second only to that of North-western Nigeria with 73% (NDHS, 2003).
The majority of the attendees at the fertility clinic (62.5%) were from polygamous settings, as compared with 42% of those attending family planning clinics. This may be due to several factors. The husbands of those presenting at the fertility clinic may have married other wives, on account of the problem of infertility – especially since polygamy is culturally and religiously sanctioned in the study setting; or the women in polygamous settings may be under much more pressure to find a solution, particularly if the other wives have borne children for the husband.

It is also pertinent to note that the majority of the women attending fertility and family planning clinics had a minimum of secondary education or higher (79.5% and 73.4% respectively) which is very high, especially in the study setting where female education and literacy rate is ranked as the lowest in the country (NDHS, 2003). This finding implies that a greater level of exposure and education is associated with greater utilization of these available resources.

**SELF ESTEEM**

This finding in this study, that out of all the women attending both Fertility and Family planning clinics, nearly two-thirds of those with high self esteem were from those attending the family planning clinic is not surprising in view of the previous reports in the literature, which indicates that women with infertility problems are more likely to suffer from low self esteem and other psychological problems (Abbey et al., 1991; Anvar et al., 2006).

It is however, an unexpected finding that among the women with low self esteem, there was no remarkable difference between attendees of both clinics in the light of the above mentioned studies and other reports in the literature (Connolly and Cooke, 1987). Those attending fertility clinics only had a marginal numerical advantage over those attending family planning clinics (in terms of low self esteem), with 50.7% and 49.3% respectively. This finding is however, supported by the report by Downey and Mckinney (1992), having evaluated a group of 118 women undergoing infertility evaluation and a demographically
matched group of 83 women in routine care clinics without infertility, and they found no
evidence of any significant difference in their measures of self esteem and psychiatric Symptomatology.

However, a critical evaluation of the findings in this study still indicate that the significant
majority of women attending fertility clinic (86.3%) had low self esteem which is in keeping
with the studies mentioned earlier. What may be surprising from the results of this study
are the high levels of low self esteem among the women attending family planning clinics –
a finding which may appear to have diluted the importance of the high prevalence of low self esteem among the subjects battling with infertility.

A possible explanation for these observed high levels of low self esteem among the women attending family planning clinic may be due to the socio-cultural environment of the study setting of North Eastern Nigeria, which tends to frown on family planning practices, which are largely perceived as a rejection of God’s gift in the form of children.

An epidemiological household survey by Duze and Mohammed (2006) among 1060 adult males aged 18 to 59 years in Kano, Northern Nigeria, reported that the majority of respondents disapproved of family planning and would not allow their wives to be involved. This report is also supported by the work of Renne (1996) who reported the widespread negative perceptions and attitudes to family planning in Northern Nigeria.

It is therefore conceivable that the women attending family planning clinic in this study may be suffering from low self esteem in the face of possible criticism and lack of support from their spouses and extended family networks, who may view them as failing in their responsibilities. Further studies however, will be required to address these issues adequately.

SOCIODEMOGRAPHIC CORRELATES OF SELF ESTEEM
The association of age ranges of the women attending the fertility clinic with self esteem clearly depicts that women in all the age ranges had low self esteem, which is an indication that problems with infertility may be impacting on the women’s self confidence and esteem throughout their lifespan.

The highest level of low self esteem occurred in the age range of 30 - 35 years, at which point, they may have been battling with infertility problems for over a decade, especially considering the very high rates of early girl marriages in the study setting (NDHS, 2003). The second highest level of low self esteem among women presenting at the fertility clinic occurs in the 40 – 44 years range, at which time, menopause is fast approaching and they may have started despairing of ever achieving conception.

The other correlates found to be associated with low self esteem among the women attending fertility clinic were polygamous marriage backgrounds and nulliparity. The association of nulliparity with low self esteem is not altogether surprising, in the light of previous reports in the literature (Taymor and Brensnic 1979; Daniluk 1988; Benazon, Wright and Saborin 1992). This may result from envy, anger and guilt towards women with children (Robinson and Steward, 1988) or a sense of inadequacy due to the societal and cultural significance placed upon fertility in the study environment.

However, the association of polygamy with low self esteem in this study, which was not found to be statistically significant, may have been due to the fact that nearly two-thirds of the attendees at the fertility clinic were from polygamous homes. However, this observed preponderance of women from polygamous backgrounds merely reflects the demographic structure of the larger population in the study setting.

Attendees of the family planning clinic, on the other hand, depicted the highest proportion of low self esteem among women in the age group of 45-49 years – which may be a reflection of the loss of self confidence and self esteem which comes with climacteric and
menopausal adjustments in women. Additional factors associated with low self esteem in this group of women were multiparity and type of marriage settings.

Women who were multiparous significantly accounted for the majority of those with low self esteem. This finding, though significant, may not be so remarkable considering that 93.7% of the attendees of the family planning clinic were multiparous.

The type of marriage settings was also found to be associated with self esteem among the attendees of the family planning clinic, with the women from monogamous homes accounting for slightly over two-thirds of those with high self esteem (69.1%) while those from polygamous homes accounted for about one-third (30.9%).

The consistent association of polygamous family backgrounds with low self esteem in both the fertility and family planning attendees may be due to the usually intense rivalry and competition among co-wives for attention and care from the husbands (Hamzah, 2010). Furthermore, a supporting and confiding relationship is reported to be protective in women (Brown et al 1986), and this may partly explain why most of the women from monogamous family settings had higher levels of self esteem compared with those from polygamous marital backgrounds.

The level of education and the employment status of attendees in both clinics revealed that those who were employed and who had a secondary (or higher) level of education appear to suffer more from low self esteem than the unemployed and less educated attendees. This was a surprising observation as factors like a higher level of education and being gainfully employed had been reported as protective among women with infertility (Remennick, 2000). However, these findings may be explained by the fact that the attendees at both clinics were predominantly well educated, with those having secondary school education or higher levels, making up 79.5% and 73.4% of those attending fertility and family planning clinics respectively.
Similarly, the majority of those attending the two clinics were women with employment, making up 62.7% and 58.8% of those attending the fertility and family planning clinics respectively.

**PSYCHOLOGICAL ADJUSTMENT**

The attendees of fertility clinic displayed significantly higher levels of psychological maladjustment (93%) while those attending family planning clinic also demonstrated superior levels of good psychological adjustment, compared to those battling with infertility. These findings are consistent with earlier reports by Greil et al., (1988), Golombok (1992) and Greil (1997), thus lending support to the existence of a relationship between infertility and poor psychological adjustment.

**SOCIODEMOGRAPHIC CORRELATES OF PSYCHOLOGICAL ADJUSTMENT**

The age ranges of attendees at the fertility clinic indicates that the highest proportion of maladjustment in this group of women occur in the age range of 30 – 39 years (56%), followed by those in the 40 – 44 years range. The ranges at the extremes of age (20 – 24 years and 45 – 49 years) appear to have very low levels of psychological maladjustment. This may be indicative of the realisation that within the age range of 30 – 39 years, desperation may be setting in, thus accounting for the very high levels of maladjustment reported by this age group.

Those attendees of the fertility clinic in the young age group of 20 – 24 years may not have reported high levels of psychological maladjustment because of optimism that time is still on their side, during which to achieve conception. The older extreme age range of 45 – 49 years on the other hand, may have given up hope of achieving conception, perhaps with the onset of menopausal symptoms, and may have resigned themselves to their fate, thus explaining their low levels of reported psychological maladjustment too.
The majority of the nulliparous women (79.5%) and those from polygamous backgrounds (65%) also recorded high levels of psychological maladjustment – indicating that the problem of infertility is a source of psychological stress, which is exacerbated by a polygamous marriage background, as a result of factors earlier discussed about the problems of polygamous family settings.

It is however, obvious that education and employment are protective against psychological maladjustment because the entire women (100%) attending fertility clinic that had tertiary education and were employed all reported good psychological adjustment, despite the underlying problem of infertility.

The family planning clinic attendees who were from monogamous settings with at least secondary school education, who were employed and multiparous all accounted for high proportions of those with good psychological adjustment.

This is also a consistent finding with literature reports about the protective functions of these correlates as compared with women with infertility and an absence of good social support (Remennick, 2000) and is also in keeping with socio–cultural expectations and values of the study environment.

VALIDITY COEFFICIENTS OF THE FERTILITY ADJUSTMENT SCALE (FAS)

The Index of Self Esteem (ISE) was utilized as the criterion, having been previously validated in Nigeria (Onighaiye, 1996), to assess the psychometric properties of the Fertility Adjustment Scale (FAS), even though, they do not exactly measure the same thing, because they share similar face validity and it is assumed that most women with low self esteem would similarly have maladjustment difficulties.

The validity coefficients of the FAS revealed high sensitivity and positive predictive values of 82.9% and 82.8% respectively. This is indicative of good agreement between the ISE and the
FAS in detecting the presence of psychological problems when present, either in the form of low self esteem or poor psychological adjustment in this study population. The sensitivity of 82.9% would translate into the successful detection of maladjustment in 8 out of ten cases.

However, the low specificity of 19.2% and the high rate of false positives (81%), with a high misclassification rate of 28.3% imply that the Fertility Adjustment Scale (FAS) is non-specific and would recruit a high number of false positive subjects, when utilized as a screening instrument.

These low specificity and negative predictive values of the FAS, coupled with the high false positive and misclassification rates may have arisen from the fact that even though the two instruments do detect the presence of psychological problems, as reflected by the good sensitivity rates, they do not actually measure the same specific items. Therefore, it may be understandable that their comparative specificity and negative predictive value is low, as a result of their not measuring exactly the same indicators of psychological problems.

The high sensitivity and positive predictive value of the FAS however, commends its use for screening purposes only, among women with infertility problems in order to identify those who may be having psychological difficulties and who may require further expert review and possible interventions.

**PSYCHIATRIC MORBIDITY**

Attendees of the fertility clinic significantly reported higher rates of psychiatric morbidity (52.9%) on the General Health Questionnaire (GHQ) as compared with those subjects attending the family planning clinic (32%). This finding is in agreement with studies globally (Matsubayashi et al., 2004; Domar, 1992 and Golombok, 1992) and also from within Nigeria (Aghanwa et al., 1999; Ukpong & Orji, 2006).
The rate of psychiatric morbidity found here among the women attending fertility clinic (52.9%) was significantly higher than the reported value of Aghanwa et al., (1999) who reported 29.7% among women attending fertility clinic and 2.7% among healthy controls, as compared with 32% in the current study. However, these differences may be due to the very small sample size of 37 women utilized by Aghanwa et al., (1999) and the different socio-cultural backgrounds of the current study from North Eastern Nigeria, while the former study was conducted in Southern Nigeria.

However, the values from this study are quite close to the more recent work of Ukpong and Orji (2004), who reported rates of psychiatric morbidity of 46.4% and 12.5% respectively for attendees of fertility and family planning clinics. The closer rates of the current study and the work of Ukpong and Orji (2004) may be due to the similar study design employed by the two studies in terms of using fertility and family planning clinics as comparative groups. Furthermore, both the Ukpong and Orji (2004) study and the current study utilized similar instruments of GHQ and the Hamilton Anxiety and Depression Scales (HADS), although the former study also utilized the Beck Depression Inventory (BDI) in addition, which was not used in this work. This similarity in study methodology may therefore explain the closeness of the study findings in both works.

The anxiety and depression subscales of the HADS both reflected higher cut-off scores for the attendees of fertility clinics as compared with those attending family planning clinics with anxiety scores of 40.3% and 5.5% for the two clinics respectively; and depression scores of 37.6% and 6.8% respectively, for the fertility and family planning clinic attendees.

This finding is consistent with the earlier indication of higher psychiatric morbidity among the attendees of fertility clinic, using the GHQ scores.

A comparison of the mean scores on the GHQ, FAS and ISE of the attendees of the fertility clinic in comparison to those attending family planning clinics additionally demonstrates much higher mean scores for the former group as compared with the latter category. This further buttresses the finding of higher psychiatric morbidity, lower self esteem and higher
rates of psychological maladjustment among women with infertility problems in the study setting.

Critical comparison of the subscales of the HADS with the GHQ among women attending the fertility clinic reveal that 66% and 81.1% of those with high anxiety and depression scores on the HADS respectively, also recorded high scores on the GHQ. This indicates good agreement on the detection of psychiatric morbidity when present by the GHQ and the HADS in this study sample.

However, among the same attendees of the fertility clinic, similar comparison of those with high FAS and ISE scores indicated lower agreement with the GHQ as only 52.4% and 49% respectively were detected by the GHQ. This may be due to the fact that the earlier categories of depression and anxiety are more likely to be detected by the GHQ than less categorical constructs of low self esteem and psychological maladjustments.

This explanation is supported by the similarity in the pattern of comparative analysis for attendees of the family planning clinic, who also recorded good agreement between the anxiety and depression subscales of the HADS with the GHQ as 90.5% and 88.5% respectively were also detected by the GHQ.

However, agreement with low self esteem and psychological maladjustment was even poorer in this group of family planning clinic attendees, as only 38% and 38% respectively were detected by the GHQ as having psychological distress.

In conclusion, this study has demonstrated that women attending fertility clinics tend to have lower self esteem and poorer psychological adjustment as compared with matched women attending family planning clinic who do not have problems with infertility.
The women attending fertility clinics also suffer higher rates of psychiatric morbidity, anxiety and depression when compared to the comparison group without infertility problems. This is an indication of greater secondary burden and underscores the need for psychiatric evaluation and care, as part of the overall management of infertility which currently is lacking.

The FAS and ISE are useful as screening instruments for the detection of psychological problems in women attending fertility clinics, even though the poor specificity and false positive rates would imply a need for a second review of those with high scores, either by clinical assessment or through the use of a more diagnostic assessment tool to confirm the presence or absence of psychological problems in these category of clinic attendees.

Infertility is an important cause of psychiatric morbidity, low self esteem and poor adjustment. Considering the importance of the relationship between infertility and psychological state of women and the paucity of information in this key area of social life, this study will help in increasing our understanding of the problem with a view to improving the outcome of people suffering from the consequences of infertility.

Several studies have been conducted on the gynaecological aspects of infertility which tried to explore the causes of infertility, the health seeking behaviour, and the belief of women regarding a possible aetiology for infertility. Only very few studies have been done on the psychological dimension of the state of infertility and none has been carried out in the North-East geopolitical region of Nigeria. Since infertility and the reaction to it may have an important cultural coloration, it is pertinent to investigate this phenomenon in the North-Eastern Nigerian setting to enrich our understanding of the problem and possibly make a case for the incorporation of mental health in the wholistic management of this group of patients.
CHAPTER SEVEN

7.0 LIMITATIONS

1. This was a hospital-based study, utilizing one facility whereas; a larger and more comprehensive community based survey would have been more representative.

2. The use of non-probability sampling methods may have introduced selection bias in the sampling of subjects.

3. The instruments utilized in the study were not diagnostic, and as such, could only indicate likelihood of the presence of the investigated conditions in the study sample.
CHAPTER EIGHT

CONCLUSIONS AND RECOMMENDATION

8.0 Conclusions

(i) A generally poor level of psychological functioning in both fertile and infertile women.

(ii) Greater degree of poor psychological adjustment and low self esteem among the infertile women.

(iii) Higher psychiatric morbidity in the infertile women.

8.1 Recommendations

(i) The evaluation and management of women with infertility should take into cognizance, the high likelihood of low self esteem, maladjustment and psychiatric morbidity

(ii) Provision of basic psychiatric intervention skills to reproductive health personal for prompt detection and referral for psychiatric management. Screening instruments like the GHQ may be utilized to identify and refer possible cases for expert psychiatric review and attention.

(iii) Female education and empowerment should be advocated and vigorously pursued by the relevant government agencies, as it impacts on their quality of life and their ability to utilize available health resources like family planning and infertility
clinic services. This will also impact positively on the health seeking behaviour of the entire family.
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APPENDICES

Appendix i - - Ethical Clearance
Appendix ii - - Consent Form
Appendix iii - - Sociodemographic Questionnaire
Appendix iv- - - Index of Self-Esteem
Appendix v- - - Fertility Adjustment Scale
Appendix vi- - - General Health Questionnaire (GHQ-12)
Appendix vii- - - Hospital Anxiety and Scale (HADS)