ORIGINAL ARTICLE

Comparative Analysis of Psychiatric Morbidity of Women with Infertility and Those Attending Family Planning Clinic in a Tertiary Facility in North-East Nigeria

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ABSTRACT

Background: Infertility is a major life crisis often associated with mental health consequences. It is particularly relevant in African setting including Nigeria where women are largely blamed for the cause of infertility with its attendant shame, guilt, anxiety and hopelessness. **Objective**: The aim of this comparative study was to assess and compare psychiatric morbidity of women with infertility and those who attend family planning clinic. **Methodology**: This descriptive cross-sectional study was done using consecutive sampling technique to select 400 women in each group of those attending fertility and family planning clinics. Data were collected using semi-structured socio-demographic questionnaire, self-administered General Health Questionnaire-12 and Hamilton Depression and Anxiety Scale after matching the groups by their age, marital status and years of education. **Results:** The study found 37.6% of those who attend fertility clinic to have met HADS cut off score for depression as against 6.8% of the family planning clinic attendees. Similarly, for anxiety subscale; a high proportion of infertile group (40.3%) met anxiety cut off compared to those who attend family planning clinic. In the same manner, attendees of the fertility clinic significantly experienced high rate of psychiatric morbidity (52.9) on the GHQ compared to those attending family planning clinic (32%). **Conclusions:** This study revealed that Nigerian infertile women seeking treatment are exposed to several mental health consequences such as anxiety and Depression amongst others with devastating effects on the mental health and well-being of the infertile women. Consequently, a comprehensive biopsychosocial intervention should be integrated into the overall management of infertility to improve their quality of life and chances of conception.

Keywords: Infertility, Women, Psychiatric morbidity, Family planning, Comparative study

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Introduction

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.[1] Infertility affects between 80-168 million people globally. Approximately one in ten couples experience primary and/or secondary infertility.[2]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.[3]

Available evidence demonstrates that most infertile couple on the globe in developing countries and having children in these settings is often the only way for women to enhance their status in the community.[4] Despite the fact that 40% of infertility are male related, 40% are female related and 20% are related to both or to unknown causes, in some communities the childbearing inability is almost always attributed only to woman.[5]

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.[6-15] Infertility may also lead to physical, emotional and financial burden.[16] Such emotional turmoil's 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.[17] 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.[18]

In Nigeria, studies conducted so far on the impact of infertility on the mental well-being of women have been largely sparse with scopes not particularly focused on infertility and mental well-being. Furthermore, the studies were also none comparative in nature which perhaps would limit the objective assessment of the impact. For instance, Abiodun and colleagues assessed the psychiatric morbidities among women treated in Gynecological clinic of a Nigerian hospital. So also were the studies conducted by Obi et al and Aduloju et al who both could not specifically address the unanswered question of whether women with infertility suffer more psychological consequences than those without.[19-20]

It is worthy of note that psychological distress associated with infertility would rather worsen the infertile status of the women as it can alter the functioning of the hypothalamic-pituitary pathways or by causing tubal spasm, and indirectly by contributing to vaginismus, dyspareunia, and to some extent, decrease in libido.[21-22]

This study is therefore well positioned to bridge the gaps of sparse studies in Nigeria and by extension sub-saharan African Countries on Mental health consequences of Infertility. Being a comparative study with none of such in the Northern Nigeria at the moment, will to a large extent objectively assess the magnitude and impact of infertility on mental well-being of the affected women with findings geared towards biopsychosocial interventions at relieving mental distress of these hapless women.

Method and Materials

Study design

The study was a descriptive hospital based cross-sectional comparative study conducted among women attending the infertility and family planning clinics of the State Specialist Hospital, Maiduguri.

Sample size determination

Sample size was determined for both groups using the formula for sample size calculation for comparison of two groups.[23]

$N = Z^2qp/d^2$

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 correspo--nd 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 was adopted.[24]

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.

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:

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.

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. A specially designed tag for this study was attached to the cover of the patient's case notes to track

those interviewed as well as to prevent duplication of data collection. For the participants that declined consent, the next one on the list of matching was selected.

Data collection instruments

The Sociodemographic Questionnaire

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), and parity.

General Health Questionnaire-12 (GHQ-12)

The GHQ is a self- report psychiatric screening instrument.[25]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.[26-28]

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.[29-30]It has also been found useful as a screening tool in urban primary care settings.[31-32]

Hospital Anxiety and Depression Scale (HADS)

The Hospital Anxiety and Depression Scale (HADS) of Zigmond and Snaith was designed to screen for the presence of mood disorders in medically ill patients.[33] 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.

Data analysis

The data obtained was cleaned and coded where appropriate and entered into Spread sheet. 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 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.

Results

Sociodemographic profile of the respondents attending fertility and family planning clinics

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 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%) (Table 1 and 2)

Table 1: Socio-demographic Profile of the attendees of the fertility Clinic

Socio-demographic Variable N=357	Frequency (%)
Age Groups (Years) ***(Mean age=34.60±6.12)***	
20-24	11 (3.1)
25-29	63 (17.7)
30-34	105 (29.4)
35-39	84 (23.5)
40-44	81 (22.7)
45-49	13 (3.6)
Religion	
Christianity	119 (33.3)
Islam	238 (66.7)
Marital Status	
Married	357 (100)
Unmarried	0 (0.0)
Type of Marriage	
Monogamous	134 (37.5)
Polygamous	223 (62.5)
Educational Status	
None	32 (9.0)

Primary	21 (5.9)
Secondary	63 (17.6)
Tertiary	221 (61.9)
Qur'anic	20 (5.6)
Employment Status	
Employed	224 (62.7)
Unemployed	133 (37.3)
Parity	
None	266 (74.5)
One	88 (24.7)
More than one	3 (0.8)

Table 2: Socio-demographic Profile of the attendees of the family Planning Clinic

SociodemographicVariable N=381	Frequency (%)
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	
Married	381 (100)
Unmarried	0 (0.0)
Type of Marriage	
Monogamous	221 (58.0)
Polygamous	160 (42.0)
Educational Status	
None	60 (15.8)
Primary	28 (7.4)
Secondary	84 (22.0)
Tertiary	196 (51.4)

Qur'anic	13 (3.4)
Employment Status	
Employed	224 (58.8)
Unemployed	157 (41.2)
Parity	
None	2 (0.5)
One	4 (1.0)
More than One	375 (98.5)

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, df=1, P=<0.001).

Table 3: Comparing the Occurrence of Psychiatric Morbidity among the two groups using the GHQ.

GHQ Outcome	Fertility Clinic – freq (%)	Family Planning– freq (%)	Total Clinic attendees – freq (%)	X^2	P-Value
GHQ-Negative	168 (47.1)	259 (68.0)	427 (57.8)	32.55	<0.0001
GHQ-Positive	189 (52.9)	122 (32.0)	311 (42.2)		
TOTAL	357 (100.0)	381 (100.0)	738 (100.0)		

Overall psychological outcomes of the respondents using HADS scores

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 (X^2=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).

Table 4: comparison of the psychological status using HADS of the respondents

Parameter	Fertility Clinic Attendees (n=357)	Family Planning Clinic Attendees (n=381)	Statistics
Mean Total HADS Score (±SD)	19.94 (±3.63)	19.06 (±3.44)	T=3.406, P=<0.001**
Mean Score (±SD) Depression	12.39 (±2.19)	12.62 (±2.38)	T=-1.322, P=0.187
Subscale of HADS	7.55 (±3.64)	6.44 (±3.41)	T=4.275, P=<0.001**
Mean Score (±SD) Anxiety			
Subscale of HADS	127 (35.6)	26 (6.8)	X^2=92.74, df=1,
Depressed Respondents (HADS) {n (%)}			P=<0.001**
Non-Depressed Respondents (HADS) {n (%)}	230 (64.4)	355 (93.2)	
Respondents with Anxiety (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)	

Comparison of psychological outcomes with GHQ results among attendees of the fertility clinic

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).

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).

Table 5: comparison of the psychological outcomes of the fertility clinic respondents with GHQ-results

Psychological Outcomes	GHQ Positive (Cases) (n=189)	GHQ Negative (Non-Cases) (n=168)	Total (n=357)	Statistics
Anxiety subscale (HADS){n(%)}				
Anxiety Present	95 (66.0)	49 (34.0)	144 (100)	X^2=7.66, df =1, P=<0.006**
Anxiety absent	94 (44.1)	119 (55.9)	213 (100)	
Depression subscale (HADS){n(%)}				
Depressed	103 (81.1)	24 (18.9)	127(100)	X^2=65.05, df=1, P=<0.001**
Non-Depressed	86 (37.4)	144 (62.6)	230 (100)	

Comparison of psychological outcomes with GHQ results among attendeesof family planning clinic

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).

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).

Table 6: comparison of the psychological outcomes of the family planning clinic respondents with ghq-results

Psychological Outcomes	GHQ-Positive (Cases) (n=122)	GHQ-Negative (Non-cases) (n=259)	Total (n=381)	Statistical Findings
Anxiety Subscale (HADS) {n(%)}				
Anxiety present	19 (90.5)	2 (9.5)	21 (100)	X^2=35.142, df=1,p=<0.001**
Anxiety absent	103 (28.6)	257 (71.4)	360 (100)	
Depression Subscale (HADS) {n(%)}				
Depressed	23 (88.5)	3 (11.5)	26 (100)	X^2=40.710, df=1,p=<0.001**
Non-depressed	99 (27.9)	256 (72.1)	355 (100)	

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 their 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%.[34]

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.[33] This finding implies that a greater level of exposure and education is associated with greater utilization of these available resources.

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[35-37]and also from within Nigeria.[24, 27]

The rate of psychiatric morbidity found among the women attending fertility clinic (52.9%) was significantly higher than the reported value of Aghanwa et al who reported 29.7% among women attending fertility clinic and 2.7% among healthy controls, as compared with 32% in the current study.[25] However, these differences may be due to the very small sample size of 37 women utilized by Aghanwa et al and the different socio-cultural backgrounds of the current study from North Eastern Nigeria, while the former study was conducted in Southern Nigeria.[27]However, the values from

this study are quite close to the more recent work of Ukpong and Orji, who reported rates of psychiatric morbidity of 46.4% and 12.5% respectively for attendees of fertility and family planning clinics.[24] 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.[24] Furthermore, both the Ukpong and Orji 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.

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. 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.

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

Conclusion

Infertility is an important cause of psychiatric morbidities including anxiety and Depression. Notwithstanding the seeming limitation of this study in its ability to establish causality; there is still substantial evidence from the findings to suggest increased psychiatric morbidity in women with infertility compared to those presenting for family planning. Furthermore, this appears to have some contributory impact on the increasing rate of divorce, separation and intimate partner violence in our environment. 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. Therefore, a multi-disciplinary approach involving the Gynecologists, Psychiatrists, Clinical Psychologists and Social workers should be involved in a holistic approach to assessment and management of infertility.

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