

Depression among women with infertility versus pregnant women at General Hospital Ilorin: A comparative analytical study.

***Sulyman D. and Kuranga A.T.**

Abstract

Objectives: Infertility is associated with emotional distress because of the pressure placed on the couples, especially women, in sub-Saharan Africa. The study found the prevalence of depression and associated factors among women attending infertility clinics and compared them with pregnant women at antenatal clinics.

Methods: The study was a comparative analytical study consisting of 199 respondents with infertility and a control group of 200 pregnant women. General Health Questionnaire 12 was administered to both groups, and respondents that scored 3 points and above were administered the Mini International Neuropsychiatric Interview questionnaire (MINI) to make the diagnosis of depression and data were analysed.

Results: The prevalence of depression among the case group was 52.0%, while the control was 9.5%. Factors associated with depression were longer duration of the marriage and women with utero-tubal infertility.

Conclusion: Depression is common among women with infertility when compared with pregnant women.

Keywords: Infertility, Depression, pregnant women, psychiatric morbidity, comparative study, General Hospital Ilorin

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Dépression chez les femmes infertiles contre les femmes enceintes à l'hôpital général d'Ilorin: Une étude analytique comparative

***Sulyman D. and Kuranga A.T.**

Résumé

Objectif de l'étude : L'infertilité est associée à une détresse émotionnelle en raison de la pression exercée sur les couples, en particulier les femmes, en Afrique subsaharienne. L'étude a trouvé la prévalence de la dépression et des facteurs associés chez les femmes fréquentant les cliniques d'infertilité et les a comparées aux femmes enceintes dans les cliniques prénatales.

Méthode de l'étude : L'étude était une étude analytique comparative composée de 199 répondants infertiles et d'un groupe témoin de 200 femmes enceintes. Un questionnaire de santé générale à 12 a été administré aux deux groupes, et les répondants ayant obtenu 3 points et plus ont reçu le questionnaire Mini International Neuropsychiatric Interview (MINI) pour poser le diagnostic de dépression et les données ont été analysées.

Résultats de l'étude: La prévalence de la dépression dans le groupe de cas était de 52,0 %, tandis que le groupe témoin était de 9,5 %. Les facteurs associés à la dépression étaient la durée plus longue du mariage et les femmes atteintes d'infertilité utéro-tubaire.

Conclusion : La dépression est fréquente chez les femmes infertiles que les femmes enceintes

Mots-clés : Infertilité, dépression, femmes enceintes, morbidité psychiatrique, étude comparative, hôpital général, Ilorin

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INTRODUCTION

Infertility is associated with significant psychiatric morbidities (1, 2). This may be due to the pressure mounted on couples by the families and society due to couples' inability to have babies sometime after the wedding (3). Infertility could be described as the inability of the woman to be pregnant after 12 months of regular unprotected sexual intercourse (4). Although both genders contribute almost equally to infertility problems, women are often blamed in many sub-Saharan societies (5). This may negatively affect the psychological wellbeing of the woman as well as her quality of life. Major depressive disorder is a prevalent psychiatric morbidity found among women with infertility (6).

Every society experiences infertility, however, the prevalence rates vary across the globe. In America, Martinez et al. reported 12% among women aged between 15 and 44 years, while Slama et al. reported a prevalence rate of 24% among the French population (7, 8). Researchers in Nigeria have also documented different prevalence rates of infertility across the geopolitical zones of the country. Odunvbun et al. reported a rate of 32% among couples assessing health facilities in Delta State, South-south Nigeria (9). In comparison, Panti and Sununu reported a prevalence rate of 15.7% of infertility in Northwestern Nigeria (10). Cases of infertility tend to be more in sub-Saharan Africa than in other parts of the world, and it is observed that secondary infertility contributed more to this higher prevalence (11). For instance, Panti and Sununu reported that secondary infertility was about 59% of infertility cases in their study, while Odunvbun noted that 77% of their respondents had secondary infertility (9, 10). Reasons for more secondary infertility cases in this environment were not unconnected with a high rate of pelvic infection, urogenital diseases, septic abortion, and poor access to medical facilities (12). Generally, causes of infertility in women could be classified as tubal factors, uterine factors, ovarian factors, cervical factors, pelvic factors, and unknown causes (13).

Depression is one of the common psychiatric disorders found among women with infertility problems. Sulyman et al. found more than 25% of their respondents with infertility in Bauchi, Northeastern Nigeria, to have depression (14). Ikeako et al. similarly reported a prevalence rate of 38.5% in Awka, Southeastern part of Nigeria (15). Likewise, Adelosoye et al. reported a rate of 42.5% among their respondents in Benin,

the South-south region (16). Factors associated with the development of depression among women with infertility include a history of abuse, the woman's advanced age, lack of social support, and type of infertility (1, 14, 16).

It is vital to identify depression among women with infertility because it will affect the treatment's prognosis and outcome. Depressed women may be unwilling to go for infertility treatment or abandon treatment plans (17). Conversely, treatment of depression in infertile women is associated with improvement in the success rate of infertility treatment and an increase in pregnancy rate (18, 19).

This study used women attending antenatal clinics as a comparative group. It is important to note that majority of the studies on the presence of depression among infertile women in this area do not have comparative groups. Using a comparative group will support the fact that infertility is responsible for the increase in the prevalence of depression and no other factors common to the women in the said environment.

Therefore, this study aimed to determine the prevalence rate of depression among women with infertility attending a fertility clinic at the General Hospital, Ilorin, Kwara state, north-central Nigeria, and compared this with the prevalence rate of depression among pregnant women attending antenatal clinics in the same hospital. It also highlighted factors that were associated with the presence of depression among the two groups.

MATERIALS AND METHOD

Study design

This study is a comparative analytical one. It compared two groups of women known as the case group comprised women with infertility, and the comparative group comprised women attending antenatal clinics. The study was carried out at the General Hospital Ilorin, one of the tertiary health facilities in Ilorin, Kwara State, North-Central Nigeria.

Sample Size Calculation

Sample size was calculated using the formula for sample size determination for comparative study $N = (Z_{\alpha} + Z_{\beta})^2 [P_1(1 - P_1) + P_2(1 - P_2)] / (P_1 - P_2)^2$

Where N is the estimated sample size

$$Z_{\alpha} = 1.96$$

$$Z_{\beta} = 0.84$$

$P_1 = 32\%$ (prevalence of depression among infertile women in previous study, (20))

$P_2 = 14\%$ (prevalence of depression among pregnant women in previous study, (21))

$$N = (1.96 + 0.84)^2 \times [0.32(1 - 0.32) + 0.14(1 - 0.14)] / (0.32 - 0.14)^2$$

$$N = 84$$

When attrition rate of 10% was added, estimated sample size = 93 for each group.

The sample size was increased to 199 and 200 for the case and comparative groups respectively in order to improve the power of the study.

Sampling Technique and Sample Characteristics

One hundred and ninety-nine women aged 18 years and above consecutive patients attending the fertility clinic of the General Hospital, Ilorin with the diagnosis of infertility made by the gynaecologists, that gave their informed consent constituted the case group. Those patients that declined to participate were replaced with the subsequent patients on the line. The comparative group consisted of 200 pregnant women aged 18 years and above attending antenatal clinics in the same hospital.

Instruments

(i) Pro Forma Questionnaire: This questionnaire was designed by the researchers to assess the socio-demographic characteristics (such as age, marital status, and income, support available), clinical/infertility history (duration of infertility, causes, type of treatment) which were extracted from the patients' case notes.

(ii) General Health Questionnaire-12 (GHQ-12): It is a screening tool developed by David Goldberg as a self-administered instrument for detecting psychological morbidity in primary care, general medical practice, or community surveys (22). The score of 3 and above on GHQ-12 was considered the cut-off point for probable psychiatric morbidity cases.

(iii) Mini-International Neuropsychiatric Interview (MINI): This instrument assesses specific mental disorders such as depression, anxiety, and substance use disorders (23). The depression module was used to diagnose depression among the already screened respondents that met the cut-off point of 3 and above on GHQ-12. MINI has been validated and used widely in Nigeria.

Procedure

After explaining the purpose of the study to the respondents, those that gave their informed consent were recruited into this study. One hundred and ninety-nine were recruited into the case group from the infertility clinic while two hundred and one respondents were recruited

from the antenatal clinic. They were interviewed by the research assistants using a pro forma questionnaire to obtain the respondents' socio-demographic data. Additional histories and clinical variables were extracted from the respondents' case notes.

The GHQ-12 questionnaire was administered to both groups and the research assistants assisted those who were not literate with the filling of the questionnaires. Any respondents with a score of 3 and above from both groups were subjected to the second stage interview using the depressive module of the Mini International Neuropsychiatric Interview (MINI) questionnaire. Senior registrars from the department of psychiatry, who had earlier been trained on the use of MINI, conducted the second stage interview. Those who met the criteria for clinical depression were counseled and appropriately referred to the hospital's psychiatric unit for further evaluation and management. An average of five respondents were seen at every clinic day and the study lasted for about six months.

Ethical issues

Approval for the study was obtained from the Ethics and Research Committee of the Ministry of Health, Kwara State. Permission to use the patients was also obtained from consultants in charge of the clinics. Consent of the respondents was also sought, and only those that gave their informed consent were recruited into the study.

Data analysis

Data were analyzed using Epi-Info version 6.04d. The distribution of socio-demographic variables was analyzed with the use of percentages, and frequency distribution of all variables was generated. Cross tabulation and chi-square statistics were used to evaluate the association between variables. The chi-square statistics were also used to evaluate the relationship between the presence of depression among the case group and the comparative group. The level of significance was set at less than 0.05.

RESULTS

The age range of respondents at the fertility clinic was between 21-46 years, with an average age of 33±2.2 years. They were all in a relationship as at the time of the study. About one-fifth of the respondents had a previous marriage. Almost 70% of them had up to tertiary education,

and less than 5% had no formal education. The majority of them were working class. Among those working, roughly 35% were traders, 35% were government workers, and 13% were artisans.

When the duration of current marriage was analyzed, above 62% of the respondent in the case group had been married between 1 to 5 years, 28% had been married for more than five years and up to 10 years, while the remainder had been married for more than ten years. The most typical type of marriage was monogamy which accounted for 70% of marriage, and the remaining 30% were into a polygamous marriage.

Primary infertility was commoner than secondary infertility. It was made up of 66% of this group. Furthermore, about 75% of the cases of infertility were between 1 to 5 years, 19% were above five years to 10 years, while the rest had their infertility problem for more than ten years.

Infertility secondary to cervical-Uterotubular factors was the commonest (48.7%). Hormonal problems as well as post-infection, especially pelvic inflammatory infections, were also common. The Male factors as causes of infertility constituted 14.6% in this study, while the rest were unknown causes or still under investigation. The majority of these women received medical treatment (72.2%), while the rest were on surgical treatment or a combination of medical and surgical treatments. Table 1

The control group was pregnant women attending antenatal clinics. Their age range was between 18- 41 years, with a mean age of 29±5.6 years. About 20% of them had a previous marriage. When the duration of marriage was considered, 58.3% were in their first five years of marriage, 35.7% were married for more than five and up to 10 years, while the rest had been married for more than ten years. The majority (70%) of them were also in monogamous relationships. 56.5% of them has previous children. Table 2.

One hundred and four of the respondents among the case group had clinical depression. This gave the prevalence rate of depression among them to be 52.0%. However, only 19 out of 200 of the control group met the diagnostic criteria of depression. This gave the prevalence of depression among them to be 9.5%. There was a statistically significant difference in the prevalence rates of the case and control groups ($X^2=23.94$, P-value < 0.001)

The factor that was statistically significant between the case and control group

was the level of education. The women with infertility were more educated than the pregnant women. Also, among the women with infertility, those with depressive illness tend to have married for a longer duration than those without depression ($X^2=6.670$, P-value = 0.01); the commoner cause among depressed infertile women was a tubal factor. All other variables were not significant ($X^2=10.528$, P-value 0.015). Table 3.

None of the socio-demographic factors were statistically significant when the respondents at the antenatal clinic that had depression were compared with those without depressive illness. Table 4

DISCUSSION

This study found that the majority with infertility had primary infertility. This is different from studies from sub-Saharan Africa where secondary infertility was reported to be commoner (10, 24). However, our current study conformed to northwestern Nigeria, where almost 60% of infertility cases were reportedly due to primary infertility (25). In another study in southeastern Nigeria, the rate of primary infertility was about 65% (26). This could be due to the fact that the age of exposure to sex and hence pelvic infection might be changing making more women to have tubal factor disease before getting married or planning for their first pregnancy. It could also mean that information about previous pregnancies was not volunteered by the respondents because of perceived societal stigma.

Infertile women also tend to be older than pregnant women; however, this did not reach a statistically significant level among our study cohort. Both groups were similar in most of the socio-demographic variables except the level of education. It was found that women with infertility were more educated than their pregnant counterparts. This difference might be because years spent in school robbed off infertile women of their fertile period. This is because fertility declines with an increase in age (27, 28). Another possible explanation might be that more educated women with infertility might seek help from orthodox medical care than less educated ones who resort to traditional treatment methods; hence, they might not be captured in a hospital-based study. It has been reported that socioeconomic status of women determined where they sought for treatment of infertility problem. Those in the upper socioeconomic class are more likely to go for assisted reproductive

technologies (29).

Utero-tubal causes were the commonest causes of infertility in this survey. It is made up of almost half of the cases of infertility. Audu et al. also reported that 67.2% of cases of infertility in Nigeria comprises Utero-tubal cases (30). This comprised problems with the uterus and fallopian tubes. Septic abortion, sexually transmitted diseases, endometrioses, abdominal surgeries, and previous ectopic pregnancies are common problems leading to Utero-tubal complications, which might eventually cause infertility (30, 31). The association might be that tubal factor infertility tends to require assisted reproductive technique (ART) to resolve. ART is not available in many public institutions and is out of reach in terms of affordability to many infertile couples hence the women concerned may be tipped to depression.

In this study, the prevalence rate of depression among women with infertility was 52.8%, against 9.5% among pregnant women attending clinics in the same hospital. The difference was significant and showed that infertility is associated with the development of depressive illness among our respondents. This was in keeping with the finding from a meta-analytical study of almost 10,000 women with infertility. The prevalence rates range from 21.01% to 52.21%, which tends to be higher in low and middle-income countries (32).

Oladeji and OlaOluwa in Ogbomoso, Southwestern Nigeria, got a prevalence rate of depression of 52.7% (33). Olarinoye and Ajiboye also reported a prevalence of 39.6% among women with infertility in a sister tertiary health institution in the state (24). Makanjuola et al. also reported in their comparative study between patients with infertility and the control who are fecund that the prevalence of depression among women with infertility was 48.8% as against 11.2% among fertile women (1). Sulyman et al., in their study in Bauchi, Northeastern Nigeria, found that about 25.6% of their respondents had depression while an additional 17.9% had comorbidity of depressive and anxiety disorders (14). Domar et al. reported that the prevalence of depression among infertile women ranges between 15 and 54%, and it has always been consistently higher than the rates among fertile women attending a clinic in the same facility (34).

Factors that were due to be associated with depressive disorders among respondents with infertility were the long duration of the marriage and Utero-tubal problems as the cause

of infertility. The duration of marriage usually corresponded with the duration of infertility. Hence, those respondents who have been married for a long and had infertility for a more extended period were more prone to developing depressive illness. Ramezanzadeh et al. observed that the longer the duration of infertility, the more severe the depression. Hence severe depression was found to be commoner in respondents who have been married for more than seven years, unlike mild depression usually found among those who were less than five years of marriage (35, 36).

This study also showed that utero-tubal causes of infertility were significantly associated with the presence of depression. This might be because the affected individual might believe that they contributed to the cause of their infertility, and guilt feeling might set in. though another study reported that infertility of unknown cause might be more associated with the development of depression among infertile women undergoing treatment (35).

Other factors such as level of education, occupation status; support from husband and husband relatives, and discrimination reported as associated factors for the presence of depression were not found in this present study.

Limitations

The study was a cross-sectional one, therefore, causal relationship between infertility and depression may not be established. A prospective study might be more informative in this regard.

CONCLUSION

Infertility is associated with emotional and psychological distress. This might lead to the development of depression in the affected women. This study found a significant level of depression among women with infertility compared with women attending antenatal clinics. Duration of infertility and utero-tubal causes of infertility were the factors found to be associated with the presence of depression in this group of patients. Efforts should be made to specifically screen for the presence of depression among women undergoing infertility treatment. This will reduce the psychiatric morbidity among them and will also improve the outcome of the infertility treatment.

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Table 1. Socio-demographic variables and clinical parameters of respondents with infertility (n= 199)

Variables	Frequency (%)
Age	
18-30	106 (53.3)
>30	93 (46.7)
Education	
Up to secondary level	61 (30.6)
Post-secondary	138 (69.4)
Types of marriage	
Monogamous	138 (69.3)
Polygamous	61 (30.7)
Duration of current marriage	
1 – 5	124 (62.3)
>5	75 (37.7)
Previous marriage	
No	163 (81.9)
Yes	36 (18.1)
Types of infertility	
Primary	133 (66.8)
Secondary	66 (33.2)
Causes of infertility	
Hormonal	27 (13.6)
Male factor	29 (14.6)
Utero-tubular	97 (48.7)
Unknown	46 (23.1)
Duration of infertility	
1-5	149 (74.9)
>10	50 (25.1)
Types of treatment	
Medical	143 (72.2)
Surgical	42 (21.2)
Both	14 (6.6)
Support	
Not present	85 (42.7)
Present	114 (57.3)
Relationship difficulty	
No	54 (27.1)
Yes	145 (72.9)

Table 2. Socio-demographic variables of respondents attending antenatal clinics (n = 200)

Variables	Frequency (%)
Age	
18-30	95 (47.5)
>30	105 (52.5)
Education	
Up to secondary school	45 (22.5)
Post-secondary school	155 (77.5)
Types of marriage	
Monogamous	140 (70.0)
Polygamous 6-10	60 (30.0)
Duration of current marriage	
1 – 5	116 (58.3)
>5	83 (41.7)
Previous marriage	
No	159 (79.5)
Yes	41 (20.5)
Support	
Not present	68 (34.0)
Present	132 (66.0)
Relationship difficulty	
No	39 (19.5)
Yes	161 (80.5)

Table 3: Comparison of socio-demographic variables and clinical parameters of respondents with infertility who had depression and those without depression

Variables	Not Depressed (n = 104)	Depressed (n = 95)	X ²	P-value
Age				
18-30	56	50		
>30	39	54	2.357	0.125
Education				
Up to secondary	33	28		
Post-secondary	62	76	1.426	0.189
Types of marriage				
Monogamous	66	72		
Polygamous	29	32	0.001	0.970
Duration of current marriage				
1-5	64	50		
>5	32	53	6.670	0.010
Previous marriage				
No	78	84		
Yes	16	20	0.162	0.687
Types of infertility				
Primary	64	69		
Secondary	31	35	0.023	0.878
Causes of infertility				
Hormonal	16	11		
Male factor	18	11		
Utero-tubal	35	62		
Unknown	26	20	10.53	0.015
Duration of infertility				
1-5	75	74		
>5	20	30	1.603	0.205
Types of treatment				
Medical	69	74		
Surgical	20	22		
Both	6	8	0.149	0.928
Support				
Not present	36	49		
Present	59	55	1.725	0.189
Relationship difficulty				
Not present	29	25		
Present	66	78	1.388	0.239

Table 4: Comparison of socio-demographic of respondents at the antenatal clinic who had depression and those without depression

Variables	Not depressed (n = 181)	Depressed (n = 19)	X ²	P-value
Age				
18-30	90	5		
>30	91	14	3.778	0.519
Education				
Up to Secondary	42	3		
Post-Secondary	139	16	0.542	0.462
Types of marriage				
Monogamous	125	15		
Polygamous	56	4	0.800	0.371
Duration of current marriage				
1-5	100	16		
>5	81	3	5.804	0.160
Previous marriage				
No	146	13		
Yes	35	6	1.581	0.209
Support				
Not present	61	7		
Present	120	12	0.076	0.783
Relationship difficulty				
No	79	6		
Yes	102	13	1.025	0.311