Original Research Article

Clinico-Demographic Determinants of Depression among Infertile Women in a Tertiary Health Institution in Awka, Southeast Nigeria.

Abstract

Background: Infertility is a phenomenon which influences all lifestyle aspects of a couple and has cultural, social, legal and especially psychological consequences. Depression is a common consequence of infertility and its impact can be devastating to the infertile persons and to their partners.

Aim: To determine the prevalence of depression and its determinants among infertile women in Awka, Southeast Nigeria.

Methods: This was a cross-sectional survey on consecutive attendees at the Fertility Clinic of Anambra State University Teaching Hospital, Awka, southeast, Nigeria, over a three month period. Data on socio-demographic variables were extracted using a pretested semi-structured questionnaire. Depression was assessed using the Beck's Depression Inventory (BDI). Statistical Package for Social Sciences SPSS 10 (SPSS Inc, Chicago IL) was used for analysis. A value of $P<0.05$ was considered significant.

Results: Of the 96(100%) respondents, 37(38.5%) had depressive disorder while 59(61.5%) were normal (P=0.001). Thirty (21.3%) respondents had primary infertility while 66(68.7%) had secondary infertility. Of those with primary infertility 22(77.3%) had depression compared to 15(22.7%) with secondary infertility (P=0.001). Depression was also significantly associated with duration of infertility (P=0.001), verbal abuse (P=0.001), willingness to adopt (p=0.009) and increasing maternal age (p=0.001).

The associations between husband being supportive (P=0.140), social status (P=0.652), family setting (P=0.106), place of residence (P=0.134), employment (0.652), educational level (P=0.444) and depression were not statistically significant.

Conclusion: The prevalence of depression among infertile women in Awka is significant. This should be taken into account in the treatment of infertile women in view of the adverse effects of depression in the aetiology and outcome of management of the infertile women.

Keywords: infertility, prevalence, depression, socio-demographic, women, determinants, southeast Nigeria,

1.**Introduction**

Infertility is the failure to achieve pregnancy after a year of frequent, uninterrupted intercourse. It constitutes a crises in the affected African family with attendant emotional, psychological, cultural and social problems [1, 2] Globally, infertility occurs in about 8-12% of all couples [3]. In Africa, infertility rates among couples range from 15-30% [1]. In Nigeria, infertility constitutes more than 50% gynaecological caseloads and over 80% of all laparoscopic investigations [4]. There are dramatic increases in the number of couples seeking treatment for infertility and this has raised awareness about the psychological ramifications of infertility[3].

Both men and women aim at achieving parenthood in adult life. The failure to achieve this natural desire has been associated with anger, depression, anxiety, marital problems and feelings of worthlessness [3]. Normal grief reaction is common among infertile women and may prolong into pathological or depressive disorder[5].

Depression is a mental illness characterized by low mood, loss of interest or pleasure in daily activities, feeling of guilt, low self worth, disturbed sleep, abnormal appetite, low energy and poor concentration [6]. Proposed mechanism through which depression could directly affect infertility involve the physiology of the depressed state such as elevated prolactin levels, disruption of the hypothalamo-pituitary-adrenal axis, and regulation of luteinizing hormone (LH) that regulates ovulation[3].

Several studies have shown that the incidence of depression in infertile couples presenting for treatment is significantly higher than in fertile controls, with prevalence estimates in the range of 15% to 54% [7, 8]. However, some studies have shown that depression among infertile people is no more than in the general population [9, 10] .

Khademi et al [11] showed that depression and anxiety mean scores were higher in females with infertility problems than males with this problem. Women trying to conceive often have clinical depression rates

similar to women who have heart diseases or cancer [3]. Women are often blamed for infertility, and men may divorce their wives or engage in polygamy or both in an effort to have children[12].

There are numerous instruments with varying accuracy for assessment of psychological symptoms. Beck Depression Inventory (BDI) used in this study has a reasonable degree of sensitivity and specificty[11]. Reports on studies of depression among infertile women in the south east of Nigeria are few in spite of the enormous impact on reproductive capacity.

This study on infertile women in a tertiary institution in southeastern Nigeria will report on the prevalence of depression and its determinants among the subjects.

2.Methods

This was a descriptive cross-sectional study carried out at Anambra State University Teaching Hospital, Awka (ANSUTH) southeastern Nigeria over a three month period (1st July 2012 to 30th September 2012). Ethical clearance was obtained from the Ethics and Research Committee of ANSUTH. The consent of each attendee was also obtained after explaining the objectives of the study.

Consecutive attendees at the infertility clinic of the Department of Obstetrics and Gynaecology were recruited. Only patients aged between 18yrs and 45yrs and with a confirmed diagnosis of infertility of more than one year were included. Patients with diagnosed depressed or psychiatric state and chronic medical conditions associated with depression such as thyroid dysfunction and diabetes mellitus were excluded [5]. Illiterate patients were also excluded.

2.1. Instruments- Becks Depressive Inventory (BDI)-11

The BDI is a 21-item self report questionnaire that assesses the presence and severity of depressive symptoms [13]. The BDI has been standardized and is widely used in Nigeria[14]. Each question is scored 0=symptom absent, 1=symptom present; 2=moderate symptom and 3=severe symptom. An individual's score can be from 0 to 63. Scores of 1-10 were considered normal, 11-18 indicating mild/moderate depression, 19-29 moderate/severe depression and 30-63 extremely severe depression [15]. In this study, a cut off score of 10 for depression was used.

2.2. Socio-demographic questionnaire

A pre-tested socio-demographic questionnaire designed by the authors and administered by two trained assistants was used to record the socio-demographic variables. Variables such as age, level of education, occupation, marital status, family setting (polygamy or monogamy), place of residence (rural or urban) and social status (low, medium, and high) were recorded. Attitude of the participants to adoption, support from husband and if she has experienced verbal abuse were also ascertained.

Social status was calculated using Olusanya and Okpere [16] formula for calculating social class. This uses the woman's educational attainment and the spouse's income to calculate social class. The woman's educational attainment is assigned scores 0, 1, and 2 for tertiary, secondary and primary /no formal education respectively. Her spouse's income is assigned scores of 1, 2 and 3 for high, medium and low incomes respectively. The social class is calculated by the addition of the woman's educational score to the score of her spouse. In this study, scores 1-2 is regarded as high, 3 as medium and 4-5 as low social status.

2.3. Procedure

Consecutive attendees were first interviewed with the socio demographic questionnaire before the BDI was used. Cases of depression found were treated. The clinical data were extracted from the case notes by two trained assistants using pre-tested data extraction form. These include type of infertility (primary, secondary), causes of fertility (male, female, unexplained, combined factors) and duration of infertility.

2.4. Definition

In this study, primary infertility is used to designate those couples who have never conceived while secondary infertility refers to couples who have experienced at least one prior conception.

2.5. Statistical analysis

Analysis was done using Statistical Package for Social Sciences SPSS 10(SPSS Inc, Chicago IL). Descriptive statistical methods such as the mean, standard deviation, frequency and percentages were used. The relationship between categorical responses and explanatory variables were evaluated using chi-square test. A value of $P<0.05$ was considered significant.

3.1. Results

Of the 102 participants, 96(94%) had the relevant information completed. Of these 96(100%), 37(38.5%)

had varying degrees of depressive disorder while 59(61.5%) were in the normal range.

Table 1 shows the socio-demographic characteristics of the respondents. The age range was 18yrs to 45yrs with a mean (standard deviation) of 28.3±3.2years. Ninety two (95,8%) were married while 4(4.2%) were divorced. All the respondents were Christians. Seventy nine (82.3%) were in monogamous marital setting while 17(7.7%) were in polygamous setting. Sixty one (63.5%) were domiciled in urban areas while 35(36.5%) were in rural areas. Eighty one (84.4%) were employed as against 15(15.6%) who were not employed. On level of education, 9(9.4%) had primary, 38(39.6%) had secondary while 49(51%) had tertiary education.

Table 2 shows the association of socio-demographic and clinical variables with depression.

Depression was higher 17(51.5%) in the age range 28 to 37 years. Increasing maternal age was significantly associated with depression (p=0.001). Thirty (31.3%) participants had primary infertility while 66(68.7%) had secondary infertility. Of those with primary infertility, 22(73.3%) had scores of BDI in the depressive range while only 15(22.7%) of those assessing treatment for secondary infertility had scores of BDI above the cut off for depression. The difference was statistically significant (P<0.001).

Total of abused participants were 50(52.1%) while those not abused were 46(47.9%). Those not abused that had depression were 9(19.1%) while those not abused that did not have depression were 38(80.9%). Those abused that had depression were 28(57.1%) while those that did not have depression were 2(42.9%). Chi square test was significant with those abused more likely to have depression (P<0.001).

There was no statistically significant association between family setting (P=0.106), place of residence (P=0.134), husband being supportive (P=0.140), employment status (P=0.652), education (P=0.444), social status (P=0.939) and depression.

3.2. Association between willingness to adopt and depression

Out of 69(100%) who did not want to adopt, 21(30.4%) were depressed while 48(69.6%) were not depressed. Out of 27(100%) who wanted to adopt 16(59.3%) were depressed while 11(40.7%) were not depressed. Chi square test was statistically significant (P=0.009) with those who wanted to adopt being more likely to be depressed than those who did not want to adopt.

3.3. Association between clinical variables and depression

Of the 96(100%) participants 31(32.3%), 49(51.0%), 6(6.3%) and 10(10.4%) had male, female, unexplained and combined factors infertility respectively. A significantly lower proportion 8(25.8%) of participants with male factor infertility were depressed (P=0.001), while a higher proportion 15(65.2%) with prolonged duration of infertility (>10yrs) were depressed (P=0.003).

4. Discussion

The incidence of depression has been reported to vary widely among different countries and society [17]. The prevalence of depression in our study, 39.5% is significant and agrees with similar studies in Poland 35.4%, Ile-Ife, Nigeria 43% and Ilorin, Nigeria 37.5% [8 14 18].

In a prospective study in Shariati Hospital in Tehran, the prevalence of depressive symptoms among infertile women assessed by BDI 1 score≥ 16 was 39% [11]. Among 193 women referred to the Majidi Infertility Center, Tabriz Iran, Farzadi et al [17]reported that 72.54% of the women seemed to have some degree of depression. Similarly, Bakhtiari et al [19] reported a prevalence of 66.2% among infertile women in Kermanshah, Iran. In Ghana, ALhassan et al [20] reported a higher prevalence of 62% among infertile women in their study at Tamale Teaching Hospital. This was attributed to the male fertility factor exclusion criteria of their sample selection as well as the high number of Muslim subjects (80%). Muslims are reported to allow polygamy, divorce is easily procured and family status like child bearing is seen by them as especially important [21]. This is unlike in our study where all the subjects are Christians among whom divorce and polygamy are not popular and are even criticized. Apart from the socio-cultural impact, the variations in prevalence observed in these studies may also be due to the different diagnostic criteria.

The proportion of depressed participants was significantly higher in women with primary infertility, 73.3% compared to women with secondary infertility, 22.7% (P=0.001). This is in line with other studies [20, 22]. This may be as a result of societal demands and expectations which place more burdens on the childless woman unlike her counterpart with secondary infertility that may be seen to have partially fulfilled her societal obligations. This is more so when the search for treatment by the later was to increase family size or for a particular sex. Women with prolonged duration of infertility had higher prevalence of depression

65.2%. This is in agreement with other reports [11 20]. These women may be overwhelmed by the litany of treatment failures, prolonged periods of societal discriminations as well as the thoughts of impending end to their reproductive career due to age.

This study showed that women whose cause of infertility was male factor had significantly lower prevalence of depression 25.8%. Several studies have shown that women whose cause of infertility was traced to their spouses had changes in their BDI score [17, 20]. It could be that the women had their hopes buoyed by the prospects of having their own biological children even after disengagement from such childless union.

The prevalence of abused subjects in our study was 51%. This was lower than 64% reported in Benin City, Nigeria [23]. Abused subjects in our study were more likely to be depressed than the non-abused (57.1% versus 19.1%; P=0.001). Patel et al [24] showed that verbal abuse of a wife by her husband or his relatives is a predictor of depression. The attitude of people towards the woman with infertility in our culture is negative and is attributed to the erroneous belief that woman is solely responsible for the childlessness [12]. Griel et al [25] observed that women view infertility as a central focus for identity. An individual's identity salience hierarchy has been reported to be largely formed in response to the expectations of others, both in face to face social relationships and in the larger social context [26]. The abused would therefore experience higher identity threat and be more vulnerable to distress and depression than the non-abused.

This study revealed that willingness to adopt a child is significantly associated with depression (P=0.009). The reason could be that those willing to adopt have lost all hopes of having a biological child and therefore more likely to be depressed than those not willing to adopt who could be nursing some hopes of having their own biological children. Furthermore, awareness of the unpopularity of adoption in Nigeria could add to why those willing to adopt might be more depressed. In a study among 396 infertile women in Ibadan Nigeria, 64% found adoption culturally unacceptable while only 17% will try it as an option [27].

Although more women, 78.1% received spousal support than those who did not 21.9%, the difference in prevalence of depression between the two groups (34.7% versus 52.4%) did not reach statistical significance (P=0.140). On the contrary, Ukpong at al [14] noted that absence of spousal support was independently predictive of psychological distress among infertile women in Ile-Ife, Nigeria. It could be that spousal support in our environment does not really avert the psychological stress on infertile women who may be under further pressure from in-laws and neighbours that may refer to them as using witchcraft or some diabolical means to prevent their husband from appreciating the seriousness of the infertility.

In our study, there was no significant association of educational attainment (P=0.444), employment (P=0.652), social status (P=0.939) and depression. This is in consonance with other reports [14 20]. Drosdzol et al [8] however reported that lower level of education and lack of occupational activity was significant risk factors for depression and anxiety among Polish infertile couples. Khademi et al [11] suggested that high-educated people may have other engaging pursuits other than fertility to focus on and as such were less prone to depressive attacks.

The difference could be attributed to variations in socio-economic development since high educational attainment in our area of study does not necessarily translate into immediate employment.

The non significant association between social status and depression P=0.939 in this study must be interpreted with caution owing to the difficulty in verifying the parameters used in determining social status in our environment. Nevertheless, a childless couple placed on high social stratum could still be regarded as “mama and papa nothing” irrespective of material acquisition which may not weigh much on the societal scale of relevance [28].

This study has some limitations. Since this study did not include non-treatment seekers with different socio-demographic profile, it is impossible to generalize from studies of treatment-seekers. This study was cross-sectional rather than longitudinal in design which makes it difficult to sort out cause and effect. It is also not unlikely that in the clinic setting, most infertile patients may want to appear ‘normal’ so that their infertility will be treated as a medical disorder rather than a psychological problem [29].

In conclusion, this study revealed a high prevalence of depression among treatment-seeking infertile couples. Increasing age, type and duration of infertility, abuse of subjects, willingness to adopt and cause of infertility were significantly associated with depression. There is need for the screening of infertile women who are prone to depressive moods .This has become expedient in view of the adverse effects of depressive moods on both the aetiology and outcome of management of the infertile women.

A community survey incorporating non-treatment seekers will throw more light on the magnitude of this problem in the population.

REFERENCES

1. Inhorn MC. Global Infertility and the globalization of new reproductive technologies; Illustrations from Egypt. Soc Med 2003;56(9): 1837-51
2. Umeora OUJ, Igberese GO, Okogbenin SA, Obu ID. Cultural misconception and emotional burden of infertility in southeast Nigeria. Int J Gynecol Obstet 2009;10(2):5580-7
3. Deka PK, Sarma S. Psychological aspects of infertility. BJMP 2010;3(3):336-40
4. Umeora OUJ, Mbazo JO, Okpere EE. Tubal factor infertility in Benin City, Nigeria; Socio Demographics of patients and aetiopathogenic factors. Trop Doct 2007; 37(2):92-4
5. Akiskal HG. Mood disorders: Clinical features. In Sadock BJ, Saddock VA (eds), Comprehensive Textbook in Psychiatry, 7th edition. Philadelphia: Lippincott Williams and Wilkins; 2000:369-70
6. WHO website http://www.who.int/mental_health/management/ depression/definition/en/. Accessed on Jun 30th , 2012.
7. Chen TH, Chang SP, Tsai CF, Juang KD. Prevalence of depressive and anxiety disorders in an Assisted Reproductive Technique clinic. Hum Reprod 2004; 19:2313-18
8. Drosdzol A, Skrzypulec V. Depression and anxiety among Polish infertile couples- an evaluative prevalence study. J Psychosom Obstet Gyneccol 2009; 30(1):11-20
9. Brasile D, Katsoff B, Check JH. Moderate or severe depression is uncommon in women seeking Infertility therapy according to the beck depression inventory. Clin Exp Obstet Gynecol 2006;33:16-8
10. Guz H, Ozkan A, Sarisoy G, Yanik A. Psychiatric symptoms in Turkish infertile women.

J Psychosom Obstet Gynecol 2003;24:267-71.

11. Khademi A, Alleyassan A, Aghahosseini M, Ramezanzadeh F, Abhari AA.

Pretreatment beck Depression inventory score in fertile patient: a before-after study. BMC Psych 2005;5:25-32

12. Orji EO, Kuti O, Fasubaa OB. Impact of infertility on marital life in Nigeria. In J Gynecol

Obstet 2002; 79: 61-62

13. Beck AT, Ward CH, Mendelson M, Mock J, Erbaugh J. An inventory for measuring depression Arch Gen Psychiatry 1961;4:561-71.

14. Ukpong D, Orji EO. Mental health of infertile women in Nigeria. Turkish J Psychiatry 2006;17 (4):1-7

15. Beck A, Steer R, GArbin M. Psychometric properties of the beck Depression inventory: Twenty five years of

evaluation. Clin psychol Rev 1988;8:122-32

16. Olusanya O, Okpere EE, Ezimokhai M. The importance of social class in voluntary fertility control. W Afr J Med

1985;3:205-12

17. Farzadi L, Ghasemzadeh A. Two main independent predictors of depression among infertile

women: An Asian experience. Taiwan J Obstet Gynecol 2008;47(2):163-7

18. Makanjuola AB, Elegbede AO, Abiodum OA. Predictive factors for psychiatric morbidity among women with

infertility attending a gynaecology clinc in Nigeria. Afr J Psychiatry. March 2010:36-42

19. Bakhtiari M, Anamagh AN, Khayatan T, Nouri P, Asl STS. Depression, anxiety, happiness and satisfaction with life

among fertile and infertile women. Int J Life Sci 2014;8(4):10-14

20. Alhassan A, Ziblim AR, Muntaka S. A survey on depression among infertile women in Ghana.

BMC Women's Health 2014;14:42-9

21. Papreen N, Sharma A, Sabin K, Begum L, Ahsan SK, Baqui AH. Living with infertility:

Experiences among urban slum populations in Bangladesh. Reprod Health matters 2000;8(15):33-34

22. Obono O. Life histories of infertile women in Ugep, Southern Nigeria. Afri Pop Stud 2004;

19(2):63-88

23. Omoaregba JO, James BO, Lawani AO, Morakinyo O, Olotu OS. Psychosocial characteristics of female infertility in a tertiary health institution in Nigeria. Ann Afri Med 2011;10(1):19-24

24. Patel V, Kirkwood BR, Pednekar S. Gender disadvantage and reproductive health risk factors for common mental disorders in women: a community survey in India. Arch Gen Psychiatry 2006;63:404-13

25. Griel A, Leitko TA, Porter KL. Infertility: his and hers Gender Soc 1988;2:172-99

26. Stryker S. Identity theory: Development and extentions. In:Yardely K, Hones T(eds), Self and Identity: psychological perspectives. New York: Routledge and Kegan Paul; 1987:89-103

27. Oladokun A, Arulogun O, Oladokun R, Adenike-Bello F, Morhassan-Bello I0, Bamboye EA et al. attitude of infertile women to child adoption in Nigeria. Niger J Physiol Sci 2010:25(1)47-9

28. Dhont N, van de wijgert J, Coene G, Gasarabwe A, Temmerman M. 'mama and papa nothing' Living with infertility among an urban population in Kigali, Rwanda. Human Reprod 2011; 26(3):623-9.

29. Griel AI. Infertility and psychological distress: A critical review of the literature. Soc Sci Med 1997; 45;1647-170.

Table1: Socio Demographic Characteristics

Variable		Study N=96(100%)
Age (years)	18-27	45(46.9)
	28-37	33(34.3)
	38-45	18(18.8)
Marital Status	Married Divorced	92(95.8) 4(4.2)
Family Setting	Polygamous Monogamous	17(7.7) 79(82.3)
Place of Residence	Urban Rural	61(63.5) 35(36.5)
Social Class	High I Medium Low	29(30.2) 27(28.1) 40(41.6)
Employed	Yes No	81(84.4) 15(15.6)
Husband Supportive	Yes No	75(78.1) 21(21.9)
Willing to Adopt	Yes No	27(28.1) 69(71.9)
Abused	Yes No	49(51) 47(49)
Level of Education	Primary Secondary	9(9.4) 38(39.6)

	Tertiary	49(51.0)

Table 2: Association of Socio-Demographic variables with depression.

Variable	No.(%)	Depressed No.(%)	Not Depressed No.(%)	X^2	P-Value
Age (years)					
18-27	45(46.9)	9(20.0)	36(80.0)		
28-37	33(34.3)	17(51.5)	16(48.5)	2.712	0.001
38-45	18(18.8)	11(61.1)	7(38.9)	df=1	
Type of infertility					
Primary	30(31.3)	22(73.3)	8(26.7)	9.271	0.001
Secondary	66(68.7)	15(22.7)	51(77.3)	df=1	
Abused					
Yes	49(51)	28(57.1)	21(42.9)	13.427	0.01
No	47(49)	8(19.1)	38(80.9)	df=1	
Family setting					
Polygamous	17(7.7)	10(58.8)	7(41.2)	2.413	0.106
Monogamous	79(82.3)	27(34.2)	52(65.8)	df=1	
Place of residence					
Rural	35(36.5)	15(42.9)	20(57.1)	3.129	0.134
Urban	61(63.5)	22(36.1)	39(63.9)	df=2	
Husband supportive	75(78.1)	26(34.7)	49(65.3)	2.173	0.140
Yes	21(21.9)	11(52.4)	10(47.6)	df=1	
No					
Employed					
Yes	81(84.4)	32(39.5)	49(60.5)	0.204	0.652
No	15(15.6)	5(33.3)	10(66.7)	df=1	
Willingness to Adopt					
Yes	27(28.1)	16(59.3)	11(40.7)	6.807	0.009
No	69(71.9)	21(30.4)	48(69.6)	df=1	
Education					
Primary	9(9.3)	5(55.6)	4(44.4)	2.680	0.444
Secondary	38(39.6)	14(36.8)	24(63.2)	df=3	
Tertiary	49(51)	18(36.7)	31(63.3)		
Social Status					
High	29(30.2)	10(34.5)	19(65.5)	0.797	0.939
Medium	27(28.1)	10(37.0)	17(63.0)	df=4	
Low	40(41.6)	27(67.5)	23(32.5)		
Cause of infertility	31(32.3)	8(25.8)	23(74.2)	1.721	0.001
Male	49(51.0)	23(46.9)	26(53.1)	df=2	
Female	6(6.3)	2(33.3)	4(66.7)		
Unexplained	10(10.4)	5(50.0)	5(50)		
Combined					

Duration of Infertility (Years)					
1-5	41(42.7)	10(24.4)	31(75.6)	4.201	0.003
6-10	32(33.3)	12(37.5)	20(62.5)	df=1	
>10yrs	23(24)	15(65.2)	8(34.8)		