Psychosocial characteristics of infertile women in a Nigerian tertiary hospital

Olarinoye AO, Ajiboye PO
Departments of Obstetrics and Gynaecology and Psychiatry, University of Ilorin, Nigeria

ABSTRACT

Introduction: High premium is placed on childbirth particularly after marriage in our society. Sub-Saharan Africa is known to have the high incidence of infertility and the woman is usually blamed for the problem. Stress is known to have effect on ovulation and therefore conception thereby forming a vicious cycle. The study was to determine the psychosocial problems and psychiatric morbidity among infertile women and to determine the difference in psychosocial problems in primary and secondary infertility patients.

Method: The Satisfaction with Life Scale (SWLS) questionnaire, the 12-item General Health Questionnaire (GHQ-12) and the HADS (Hospital Anxiety and Depression Scale) were administered to 111 patients.

Result: The mean age for the respondents was 33.6 ± 5.8 years. There were more cases of secondary infertility 58 (52.3%) compared to primary fertility 53 (47.7%). The study revealed a fairly high degree of psychological morbidity among the respondents, a depressive rate of 39.6%, anxiety rate of 48.6% and psychiatry morbidity of 39.6%. There was no significant difference in prevalence of these morbidity between the patients with primary and secondary infertility.

Conclusion: Both primary and secondary infertility are associated with significant psychosocial and psychiatric morbidity. Psychological strain itself can also be a cause or aggravate infertility therefore psychological assessment and co-management with the psychiatrist should be encouraged.

Key words: Anxiety; depression; infertility; primary; psychosocial; secondary.

Introduction

Infertility is defined as the inability of a couple to achieve conception after one year of regular unprotected sexual intercourse.[1] It is said to be primary infertility if there has not been any previous conception and secondary if there has been a previous conception irrespective of the outcome.

Prevalence rates show that 30-40% of infertility is primarily attributable to female factors (e.g., tubal factors, endometriosis), 30-40% is attributable to male factors (e.g., low sperm count, impotence), 10% to unidentified cases and the remaining 20-30% is attributable to an interaction between the two partners.[1,2]

Despite Nigeria’s large population of 167 million, there is a high overall infertility prevalent rate of 30.3%, with rates of 9.2% for primary infertility and 21.1% for secondary infertility.[3] The WHO estimates that 8-12% of couples around the world experience difficulty conceiving a child with a sub-Saharan fertility rate at 12.5-16%.[4,5] African women are said to have the highest rate of disease induced infertility in the world.[6]
Great emphasis is placed on conception and childbirth by married couples in this country. Children are important for inheritance of family property, maintain the family name and lineage and as future carers of the parents in old age. Infertility is regarded as a stigma and is usually accompanied with much stress and unhappiness for the extended family and particularly for the couple. The literature suggests that infertility is more stressful for women than for men.[7] Pregnancy and motherhood is inextricably wrapped up in perceptions of femininity, and infertility can evoke a pervasive sense of failure as a woman. Moreover, women are often blamed for infertility, childbearing is associated with stabilizing their marriage and closer bonds with the husband’s family. Men may divorce their wives or engage in polygamy or both in an effort to have children.[8] Studies have suggested that women with infertility feel as anxious or depressed as those diagnosed with cancer or hypertension, or who are recovering from a heart attack.[9]

The extent of negative psychological impact of infertility may be affected by factors, such as their desire for a child/family, family relationships and support, diagnosis and cause of the problem, cultural and religious beliefs and fertility drugs and treatment outcome.

Typical reactions to infertility may include shock, grief, depression, anger, and frustration, anxiety, psychiatric morbidity as well as loss of self-esteem, self-confidence and a sense of loss of control over one’s destiny.[8] Relationships between spouses or partners may suffer. They may struggle with anxiety-related sexual dysfunction and other marital conflicts.[8]

While medical interventions may offer much-needed help and hope, studies suggest that they may also add to the stress, anxiety and grief that patients are already experiencing from infertility itself.[8] Infertility treatment is expensive; patients who can’t pay for treatment may feel helpless and hopeless. Infertility medications may cause anxiety, sleep interruptions, depression, mania, irritability and thinking problems. When treatment fails, on the other hand, a new cycle of grieving and distress can be triggered.[9]

Psychological strain itself can also be a cause or aggravate infertility; it may prevent ovulation from its effect pulsatile release of gonadotrophin releasing hormones. High circulating stress hormones can interfere with the timing of ovulation and shorten the luteal phase. Reduced progesterone levels in the luteal phase post-conception lessens the likelihood of a successful implantation and could cause early pregnancy failure due to luteal phase defect mechanisms. A study noted that women with high stress levels released 20% less eggs during ovulation, had up to 20% fewer oocytes retrieved and fertilized during IVF cycles than women with low stress levels.[10] Addressing and managing depression, anxiety, and stress will break the vicious cycle often formed and help increase the chances of giving birth to a child.

**Methodology**

The study was a hospital based cross sectional descriptive study involving women with either primary or secondary infertility attending the gynaecology clinics of the University of Ilorin Teaching Hospital in Ilorin, Nigeria. The study spanned from February 2014 to November 2016. The research instrument consisted of a proforma questionnaire and 3 instruments, which were the Satisfaction with Life Scale (SWLS),[11] the 12-item General Health Questionnaire (GHQ-12)[12] and the HADS (Hospital Anxiety and Depression Scale).[13] Both GHQ-12 and HADS are validated instruments and have been used extensively in this environment.[14] The GHQ-12 is a screening instrument designed to measure psychological distress, it consists of 6 positively worded and 6 negatively worded items, each item has 4 options and is rated on a 4-point scale. Using the bimodal scoring method a cut of score of 3 was chosen such that a score of 3 or more is suggestive of a probable case of psychological disorder. The HADS has also been validated, patients were asked to choose one response from the four given for each interview. They were to give immediate response and were dissuaded from thinking too long about their answers. The questions relating to anxiety were marked “A”, and depression “D”. Each item on the questionnaire is scored from 0-3 and this means that a person can score between 0-21 for either anxiety or depression, there were 7 items for each. Scoring is done by adding all the As = Anxiety, and theDs = Depression. Scores of 0-7 is normal, 8-10 is borderline abnormal, 11-14 is abnormal, 15-21 is severely abnormal. For the purpose of the study, the grading of symptoms in HADS was score 0-7 normal, 8-10 mild, 11-14 moderate and 15-21 severe for both anxiety and depressive symptoms. The SWLS has also been shown to be a reliable and valid measure of individual satisfaction with life, it has been found suitable for global and cross cultural use with different age groups and populations.

Data on the sociodemographic and Obstetric and Gynaecological information were obtained on the initial part of the proforma. This was largely self-administered except for occasional assistance when required. Data was analyzed using SPSS version 23.0 software and P value of ≤0.05 was regarded as statistically significant. Ethical approval for the research was obtained by the ethical committee of the university of Ilorin Teaching Hospital ethical committee.
Results

130 questionnaires were applied but only 111 could be adequately analyzed. There were almost equal numbers of primary and secondary infertility cases, accounting for 47.7% and 52.3% respectively. The average duration of the problem amongst the respondents was 3 years. The mean age for both groups was 33.56 ± 5.82 years. Average number of previous deliveries and miscarriages among the secondary infertility cases was one. The greater percentage of both groups 94 (84.7%) have remained with their initial marriage partners. The greater percentage 52 (46.8%) were yet to ascertain the cause of the problem. Table 1 shows the sociodemographic characters of all the respondents while Figure 1 shows the number of respondents with primary infertility and those with secondary infertility. Those with secondary infertility were more. Table 2 shows the psychological parameters of the respondents. The sociodemographic characteristics cross tabulated with the type of infertility was shown in Table 3. A greater number of respondents with secondary infertility were older than those with primary infertility, mean ages of 33.02 ± 6.76 and 34.05 ± 4.81, respectively, and 10 (17.2%) been in previous marriage relationships as compared to 7 (13.2%) of primary infertility patients, although these variables were not statistically significant. Of those with primary infertility, female factor as cause of the problem was more than twice that of male factor among those that had detected the cause of the problem. A similar pattern was also observed among those with secondary infertility with female factor been more than five times male factor. The relationship between type of infertility and psychological variables was shown in Table 4. Similar levels of anxiety and depression were seen among both groups of women. Psychiatric morbidity among the respondents with primary and secondary was 26 (44.8%) and 18 (34.0%), respectively. It was slightly higher among the women with secondary infertility but the difference was not statistical significant.

Discussion

The mean age of respondents of both types of infertility was 33.5 years, with a slightly higher age for the secondary than the primary type of 34.05 and 33.02, respectively. This is similar to what was obtained in studies done by Oladeji et al. of 34.5, but different from the study by Imran and Ramzan which showed more women in the age group

### Table 1: Socio demographic variable

| Variable                        | Frequency | Percent |
|---------------------------------|-----------|---------|
| Age group (years)               |           |         |
| ≤25                             | 8         | 7.2     |
| 26-30                           | 28        | 25.2    |
| 31-35                           | 41        | 36.9    |
| 36-40                           | 21        | 18.9    |
| 41-45                           | 10        | 9.0     |
| >45                             | 3         | 2.7     |
| Mean±SD                         | 33.56±5.82|         |
| Range                           | 19-53     |         |
| Previous marriages              |           |         |
| Yes                             | 17        | 15.3    |
| No                              | 94        | 84.7    |
| Occupation                      |           |         |
| Unemployed                      | 8         | 7.2     |
| Artisan                         | 13        | 11.7    |
| Trader                          | 47        | 42.3    |
| Teaching                        | 19        | 17.1    |
| Civil servants                  | 18        | 16.2    |
| Students                        | 6         | 5.4     |
| Number of previous deliveries   |           |         |
| Median (IQR)                    | 1 (1-2)   |         |
| Number of previous miscarriages |           |         |
| Median (IQR)                    | 1 (1-2)   |         |
| Duration of problem (years)     |           |         |
| Median (IQR)                    | 3 (2-6)   |         |
| Investigations done             |           |         |
| None                            | 27        | 24.3    |
| HSG                             | *51       | 45.9    |
| Semen analysis                  | 29        | 26.1    |
| Hormonal assay                  | 37        | 33.3    |
| USS                             | 16        | 14.4    |
| Problem detected                |           |         |
| None yet                        | 52        | 46.8    |
| Male Factor                     | 11        | 9.9     |
| Female Factor                   | 37        | 33.3    |
| Both male & female factor       | 11        | 9.9     |
| Treatment                       |           |         |
| None                            | 61        | 55.0    |
| Drugs                           | 37        | 33.3    |
| Surgery                         | 19        | 17.1    |
| ART/IVF                         | 3         | 2.7     |

*Significant P≤0.05

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Figure 1: Prevalence of Primary and Secondary infertility
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There was a larger percentage of secondary infertility 58 (52.3%), as compared to primary fertility 53 (47.7%), this agrees with the general pattern in sub-Sahara region and this is similar to what was obtained by Oladeji et al. et al. and Awoyinka et al. in Nigeria,[14,16,17] and some studies in Pakistan and some parts of Asia, but it is different from what was obtained in Iran by Imran and Ramzan – in which there was a higher incidence of primary infertility.[15] This difference was however not statistically different. This could possibly have been caused by pelvic infections acquired after the initial conception such as cases of pelvic inflammatory disease or puerperal sepsis. The high prevalence of infertility in sub-Sahara Africa has been attributed to the sequelae of poorly managed pelvic inflammatory disease, resulting in utero-tubal damage and or pelvic adhesions.

The study also revealed a higher incidence of female causes of infertility among both groups although the cause of infertility in majority of the respondents is not yet known. This is similar to what was obtained in several studies in Nigeria, but is quite different from what similar western studies have revealed. One possible reason for this could be because the respondents presented in the gynaecological clinic which is perceived to be for management of female problems and would not be a true representative of the incidence in the population.

This study revealed a fairly high degree of psychological morbidity among the respondents, it showed a depressive rate of 39.6%, anxiety rate of 48.6% and overall psychiatry morbidity was 39.6%. Ikeako et al. also obtained a similar depressive rate of 39.5% among women with infertility in Awka, Nigeria, and 37.5% was obtained in a previous study in Ilorin by Makanjuola, 39% in Tehran, and 33.5% in Poland.[18] This was however lower than rates obtained in a similar study in Pakistan, which showed 50.3% and by Oladeji et al. in Ogbomosho, Nigeria, which showed a rate of 52.7%.[6,14,18-20]

The prevalence of anxiety in this study was 48.6% and this is similar to 49.6% that was obtained by Maroufizadeh et al. in Tehran and 37.5% by Ukpong and Orji. Reasons for these differences in prevalence of depression and anxiety may include cultural and religious factors as well presence or absence of supportive measures and social pressure. The various instruments used may also have some effect in the prevalence obtained. A lower percentage (36.2%) of respondents with secondary infertility had depressive

Table 2: Psychological Variable of Respondents

| Variable                  | Frequency | Percent |
|---------------------------|-----------|---------|
| Anxiety                   |           |         |
| Normal                    | 57        | 51.4    |
| Mild                      | 23        | 20.7    |
| Moderate                  | 30        | 27.0    |
| Severe                    | 1         | 0.9     |
| Depression                |           |         |
| Normal                    | 67        | 60.4    |
| Mild                      | 21        | 18.9    |
| Moderate                  | 23        | 20.7    |
| Psychiatric morbidity     |           |         |
| Yes                       | 44        | 39.6    |
| No                        | 67        | 60.4    |
| Satisfaction              |           |         |
| Satisfied                 | 64        | 57.7    |
| Neutral                   | 11        | 9.9     |
| Dissatisfied              | 36        | 32.4    |

Table 3: Type of infertility and socio-demographic variables

| Variable                  | Primary n (%) | Secondary n (%) | χ² | P   |
|---------------------------|---------------|-----------------|----|-----|
| Age group (years)         |               |                 |    |     |
| ≤25                       | 6 (11.3)      | 2 (3.4)         | 5.906| 0.315|
| 26-30                     | 16 (30.2)     | 12 (20.7)       |    |     |
| 31-35                     | 15 (28.3)     | 26 (44.8)       |    |     |
| 36-40                     | 10 (18.9)     | 11 (19.0)       |    |     |
| 41-45                     | 3 (5.7)       | 7 (12.1)        |    |     |
| >45                       | 3 (5.7)       | 0 (0.0)         |    |     |
| Mean ± SD                 | 33.02 ± 6.76  | 34.05 ± 4.81    | -0.934| 0.353|
| Range                     | 19-53         | 24-44           |    |     |
| Previous marriages        |               |                 |    |     |
| Yes                       | 7 (13.2)      | 10 (17.2)       | 0.347| 0.556|
| No                        | 46 (86.8)     | 48 (82.8)       |    |     |
| Occupation                |               |                 |    |     |
| Unemployed                | 6 (11.3)      | 2 (3.4)         | 2.801| 0.101|
| Artisan                   | 7 (13.2)      | 6 (10.3)        |    |     |
| Trader                    | 21 (39.6)     | 26 (44.8)       |    |     |
| Teaching                  | 9 (17.0)      | 10 (17.2)       |    |     |
| Civil servants            | 6 (11.3)      | 12 (20.7)       |    |     |
| Students                  | 4 (7.5)       | 2 (3.4)         |    |     |
| Problem detected          |               |                 |    |     |
| None yet                  | 28 (52.8)     | 24 (41.4)       | 4.507| 0.212|
| Male Factor               | 7 (13.2)      | 4 (6.9)         |    |     |
| Female Factor             | 15 (28.3)     | 22 (37.9)       |    |     |
| Both male & female factor | 3 (5.7)       | 8 (13.8)        |    |     |
| Duration of problem (years)| 3.00 (2.00-4.75) | 3.00 (2.00-6.00) | 1093.500| 0.830|

χ² = Chi square P<0.05 significant

of 25-35 years.[14,15] This could be because the study was carried out in an urban area where women tend to marry at a relatively older age because of schooling and also because of the prevailing western culture of late marriage which appears to have been imbibed in this area.
symptoms as compared to 43.4% of those with primary infertility. This might be because they probably faced less pressure from family and society having proven that they are fertile from previous conception or conceptions. This was similar to what was obtained by Imran and Ramzan this difference was however not statistically significant.

Respondents with secondary infertility had an unexpected higher anxiety prevalence of 55.2% while those with primary infertility had a prevalence of 41.5%. Satisfaction with life also showed a dissatisfaction prevalence of 32.4% of which respondents with secondary infertility had a dissatisfaction prevalence of 36.2% as against 28.3% of the primary infertile group, although these differences were not statistically significant. McQuillan et al. also did not find a significant gap in satisfaction of life between fertile and infertile women. These differences could possibly be on account of the fear of losing their homes and possibly lead to separation from their child/children. The thought of the socioeconomic implications of having to care for the child/children on her own are added concerns of those with secondary infertility which are not applicable to those with primary infertility and which could possibly account for the increased anxiety. Sami et al.’s study in Karachi also revealed psychosocial consequences several women with secondary infertility faced and this was worse if the initial conception was not alive, ended up as a miscarriage or if it was a female child.

The prevalence of psychiatric morbidity of 39.6% is less than 48.8% obtained by Makanjuola et al. in a previous study in the same centre, 46.4 by Ukpong and orji. This was also slightly more 44.8% among those with secondary infertility than those with primary infertility 34%, possibly for the same reasons mentioned earlier. This was however not significant. This could be because average number of children by patients with secondary infertility was one, which was quite low.

In conclusion both primary and secondary infertility are associated with significant psychosocial and psychiatric morbidity, however psychological morbidity, anxiety issues and psychiatric morbidity were more among respondents with secondary infertility. Satisfaction with life was also less among this group of respondents. Psychological assessment and co management of infertile patients by gynaecologists and psychiatrist should be encouraged. The strengths of the study included use of validated and tested questionnaires. Anxiety, depression and satisfaction with life were tested. Limitations of the study include a fairly small study population, comparison with matched normal fertile women of the area would have helped to determine the actual psychological morbidity caused by the fertility issue in the area. Authors declare no conflict of interest.

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Conflicts of interest
There are no conflicts of interest.

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Table 4: Relationship between type of infertility and psychological variables

| Variable                  | Infertility | Total | χ² | P   |
|---------------------------|-------------|-------|----|-----|
|                           | Primary     | Secondary |     |     |
| Anxiety                   |             | n (%)  | n (%) |     |
| Normal                    | 31 (58.5)   | 26 (44.8) | 57 (51.4) | 1.234 | 0.745 |
| Mild                      | 9 (17.0)    | 14 (24.1) | 23 (20.7) |     |     |
| Moderate                  | 13 (24.5)   | 17 (29.3) | 30 (27.0) |     |     |
| Seve                      | 0 (0.0)     | 1 (1.7)  | 1 (0.9)  |     |     |
| Depression                |             | n (%)  | n (%) |     |
| Normal                    | 30 (56.6)   | 37 (63.8) | 67 (60.4) | 3.334 | 0.140 |
| Mild                      | 14 (26.4)   | 7 (12.1)  | 21 (18.9) |     |     |
| Moderate                  | 9 (17.0)    | 14 (24.1) | 23 (20.7) |     |     |
| Psychiatric morbidity     |             | n (%)  | n (%) |     |
| Yes                       | 18 (34.0)   | 26 (44.8) | 44 (39.6) | 1.366 | 0.242 |
| No                        | 35 (66.0)   | 32 (55.2) | 67 (60.4) |     |     |
| Satisfaction              |             | n (%)  | n (%) |     |
| Satisfied                 | 33 (62.3)   | 31 (53.4) | 64 (57.7) | 0.930 | 0.628 |
| Neutral                   | 5 (9.4)     | 6 (10.6)  | 11 (9.9)  |     |     |
| Dissatisfied              | 15 (28.3)   | 21 (36.2) | 36 (32.4) |     |     |

*Significant value for Anxiety.

χ²=Chi square *P≤0.05 significant
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