Original Research Article

Psychiatric Co-Morbidities in Couples With Infertility At A Tertiary Care Hospital

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ABSTRACT

Background: Infertility is more prevalent nowadays and affects both males and females. It is an extremely challenging and unpredictable situation with social, interpersonal, and financial consequences. Therefore, it affects psychological health and quality of life of the couple. We assessed psychiatric morbidity and quality of life among couples and the relationship of duration of infertility with psychological burden, along with comparison between primary and secondary infertility.
Methodology: 75 couples attending a tertiary care hospital in the age range of 18-45 years fulfilling the criteria for infertility and consenting for the study were interviewed and DASS 21 and WHO-QOL BREF was applied to analyze depression, anxiety, stress, and quality of life. Patients with previous psychiatric illness, intellectual disability was excluded.
Results: The mean age of males and females was 29.6 years with 75% couples of primary infertility and 25% of secondary infertility. Females showed a higher range of psychiatric morbidity than males with 56% females and 12.2% males had depression, 56% females and 18.1% males had anxiety, 88% females and 66.7% were stressed. The data was clinically significant for anxiety in males and for stress in both males and females. QOL had scores on the lower side with non-significant association between primary and secondary infertility.
Conclusions: Infertility has an impact on psychological health, and it affects females more than males. It also impairs QOL of the couple and hence there is need for an integrated approach to reach favorable outcomes.

Keywords: Infertility, Depression, Anxiety, Stress, Quality of life.

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INTRODUCTION

Infertility is defined by WHO, as inability to conceive after 12 months of regular sexual activity without using any contraceptive methods [1]. Infertility affects up to 15% of reproductive-aged couples worldwide. According to World Health Organization estimate the overall prevalence of primary infertility in India is between 3.9 to 16.8% [2].

In the last decade there has been a surge in Assisted Reproductive Techniques (ART) enabling couples to conceive but there are some cases with unsuccessful results [3]. The cause for infertility can involve one or both the partners, with higher percentage involving females as compared to males. The psychosocial, emotional, and physical burden of infertility affects both the partners as they might need referral to specialized psychosocial care [4]. It has been reported that couples seeking infertility treatments suffer from depression and anxiety, with higher rates in females as compared to males. Even if the person is not suffering

from any psychiatric disorder there is emotional distress due to the long and tedious process of infertility treatment [5]. The common reactions are guilt, anger, shock, marital distress, lowered self- esteem, sexual dysfunction [6]. The dualism between the so- called "Psychogenic hypothesis" and the hypothesis of "Psychological consequences of infertility" assumed to be an interactive and bidirectional relationship between infertility and psychosocial diseases [7]. However, the psychodynamic perspective has been replaced by stress and coping models nowadays [8-9]. The ability to deal with stress depends on various factors including underlying psychiatric co-morbidity, family and/or social support, awareness about the cause of infertility to mention some.

Infertility is a shared condition, including a woman and her partner, hence both members of the infertile couple should be studied individually before an accurate design for psychological interventions can be developed [10]. Although the females have to undergo the tedious and invasive treatment procedures, whole process of from being diagnosed as infertile to dealing with the physical, psychological and social burden affects the quality of life of both the partners. The World Health Organisation defines QoL as "individuals' perception of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards and concerns". It is a broad ranging concept affected in a complex way by the person's physical health, psycho- logical state, level of independence, social relationships, personal beliefs and their relationship to salient features in the environment [11].

Infertility could be primary or secondary. Primary infertility refers to a couple who has never been able to conceive after one year of uninterrupted intercourse while secondary infertility refers to inability to conceive following a previous pregnancy [12]. It amounts to 5.8% of total infertility in India [12]. Secondary infertility is higher in older women and lower among young women. The cause could be due to male or female or combined and factors like age, education, duration of marriage, socioeconomic status can also influence the type of infertility [13]. This leads to frustration and helplessness in the couple which can predispose them to psychiatric illnesses.

METHODOLOGY

This is a cross – sectional, descriptive and analytical study comprising of 75 couples attending Obstetrics and Gynecology OPD of a tertiary care hospital and were selected by non- randomized convenient sampling. Sample size was calculated at 95% confidence level assuming the proportion of 54% females having psychiatric morbidity as per the results of the seed article [(14)]. At an absolute allowable error of 10%, 75 couples were required as sample size for the purpose of present study.

The study spanned over a period of 6 months from October 2021 to March 2022. The patients were selected based on the WHO criteria of Infertility [(1)] and belonging to the age group from 18 – 45 years. [(15)] Patients with the following criteria were excluded: a) with previously diagnosed psychiatric disorders including Intellectual Disability b) patients already on psychotropic medication c) refusing to consent. Subsequently, written informed consent was obtained from all the eligible participants. All the subjects under the study were interviewed and detailed history was obtained by using a specially designed General Information Sheet. The study protocol was approved by the ethical committee of SMS Medical College & Hospitals.

Socio-demographic data included age (18-25 years, 26-35 years, 36-45 years), education level (Illiterate, Primary, Secondary, Senior- Secondary, Graduate, Postgraduate), belonging to locality (Rural and Urban), duration of infertility (<1 year, 1-3 years, >3 years), type of infertility (Primary and Secondary).

Participants were then interviewed with DASS 21 Hindi version (Depression anxiety stress scale) is a quantitative measure of distress along the 3 axes of depression, anxiety, and stress. [(16)] It is a shorter version of the 42-item questionnaire. It is a validated tool for evaluation of psychological burden and to assess the psychological state in wide range of diseases. Hindi version of the DASS-21 questionnaire has been validated in Indian population [17]. The WHOQOL BREF consists of 26 items measuring physical health, psychological health, social relationship, and environment during the past two weeks. Each item uses a Likert-type five-point scale. (Higher scores denote higher quality of life) [18].

Data analysis was done using SPSS and $p < 0.05$ was considered statistically significant. Descriptive statistics, in terms of percentage were used to describe the categorical variable. Chi- square test was used for association between the variables and infertility.

RESULTS

Socio-Demographic Profile

The mean age of females and males was 29.6 years, majority of them belonging to the age group of 26-35 years. 65% of the couples belong to urban locality while 35% to rural locality. 42% females were educated till secondary level whereas 26% males were educated till secondary and 23% of them are graduated. About 75% of the couples had primary infertility and 25% had secondary infertility. Among them 24% were aware of the cause of the infertility while 76% remain unaware. The duration of infertility was divided into 3 categories with <1 year for 44%, 1-3 years for >33% and >3 years for 23%.

Table 1 A-C. Distribution Of Psychiatric Morbidity According To The Duration Of Infertility

Table 1A Depression	Females		Males	
Duration Of Infertility	**Yes**	**No**	**Yes**	**No**
<1 Year	12 (52.2%)	21 (63.6%)	4 (12.2%)	29 (87.8%)
1-3 Year	14 (56%)	11 (44%)	6 (24%)	19 (76%)
>3 Year	8 (47.1%)	9 (52.9%)	1 (5.9%)	16(94.1%)

Chi-Square = 2.929 With 2 Degrees Of Freedom; P = 0.231 (For Females)
Chi-Square = 13.953 With 2 Degrees Of Freedom; P = 0.000 (For Males)

Table 1B Anxiety	Females		Males	
Duration of Infertility	**Yes**	**No**	**Yes**	**No**
<1 year	15 (45.5%)	18 (54.5%)	6 (18.1%)	27 (81.8%)
1-3 year	14 (56%)	11 (44%)	2 (8%)	23 (92%)
>3 year	7 (41.1%)	10 (58.9%)	3 (17.6%)	14 (82.4%)

Chi-square = 41.854 with 2 degrees of freedom; P = 0.000 (for females)
Chi-square = 5.327 with 2 degrees of freedom; P = 0.070 (for males)

Table 1C Stress	Females		Males	
Duration of Infertility	**Yes**	**No**	**Yes**	**No**
<1 year	29 (87.8%)	4 (12.2%)	22 (66.7%)	11 (33.3%)
1-3 year	22 (88%)	3 (12%)	15 (60%)	10 (40%)
>3 year	10 (58.8%)	7 (41.2%)	5 (29.4%)	12 (70.6%)

Chi-square = 33.034 with 2 degrees of freedom; P = 0.000 (for females)
Chi-square = 30.974 with 2 degrees of freedom; P = 0.000 (for males)

DASS 21 was applied on all the participants and table 1 depicts that 56% of females were depressed in 1-3 years of infertility duration which is not significant (p = 0.231) while it is 24% for males and significant (p = 0.000). 56% of females were suffering from anxiety in the duration of 1- 3 years of treatment with clinically significant data (p = 0.000), while 18.1% of males in the range of <1 year which is non-significant (p = 0.070). 88% females were stressed in 1-3 years and 66.7% males in <1 year with clinical significance (p =0.000)

Table 2 shows the association of QOL with duration of infertility. Comparing the four domains of the couples, mean score of physical domain was highest for males is 83.53 □ 6.39 with >3 years of duration and for females it is 77.67 ± 8.26 in <1 year of duration. In psychological domain for males mean score of 72.82 ± 8.67 was lowest in >1 year of duration, and for females in 1-3 years of duration with 63.52 ± 14.29. For social domain lowest mean score of 65.30 ± 11.52 for males and 59.81 ± 15.81for females in <1 year duration. The environmental domain had the lowest score of 67.33 ± 9.76 for males in <1 year of duration while for females it was 63.06 ± 13.30 in >3 years of. However, these findings were non-significant. (as p <0.05)

Comparison Of Who QOL Score (Mean And Standard Deviation) According To The Duration Of Infertility [Table 2(A-D)]

Table 2A

WHO QOL (Physical)	Males	Females
Duration of Infertility	**Mean SD**	**Mean SD**
<1 year	33 (81.18 ± 5.69)	33 (77.67 ± 8.26)
1 - 3 years	25 (81.4 ± 10.58)	25 (75.6 ± 10.72)
>3 years	17 (83.53 ± 6.39)	17 (77.53 ± 8.54)

F = 0.56 P = 0.576 (for males) F = 0.40 P = 0.670 (for females)

Table 2B

WHO QOL (Psychol)	Males	Females
Duration of Infertility	**Mean SD**	**Mean SD**
<1 year	33 (72.82 ± 8.67)	33 (64.88 ± 10.08)
1 - 3 years	25 (74.56 ± 12.30)	25 (63.52 ± 14.29)
>3 years	17 (73.53 ± 7.04)	17 (63.65 ± 12.09)

F = 0.23 P = 0.797 (males) F = 0.11 P = 0.897 (females)

Table 2C

WHO QOL (Social)	Males	Females
Duration of Infertility	**Mean SD**	**Mean SD**
<1 year	33 (65.30 ± 11.52)	33 (59.81 ± 15.81)
1 - 3 years	25 (70.28 ± 16.52)	25 (64.96 ± 16.91)
>3 years	17 (74.65 ± 15.74)	17 (62.88 ± 12.57)

F = 2.52 P = 0.087(for males) F = 0.80 P = 0.453 (for females)

Table 2D

WHO QOL (Environmental)	Males	Females
Duration of Infertility	**Mean SD**	**Mean SD**
<1 year	33 (67.33 ± 9.76)	33 (66.09 ± 9.58)
1 - 3 years	25 (70.16 ± 12.20)	25 (64.36 ± 11.02)
>3 years	17 (74.41 ± 12.52)	17 (63.06 ± 13.30)

F = 2.23 P = 0.115(for males) F = 0.46 P = 0.633 (for females)

Distribution Of Psychiatric Morbidity According To The Type Of Infertility [Table 3(A-C)]

Table 3A Depression

Type	Females		Males	
	Yes	**No**	**Yes**	**No**
Primary	28 (50%)	28 (50%)	9 (16%)	47 (83%)
Secondary	6 (32%)	13 (68%)	2 (11%)	17 (89%)

Chi-square = 5.974 with 1 degree of freedom; P = 0.015 (females)
Chi-square = 0.685 with 1 degree of freedom; P = 0.408 (males)

Table 3B ANXIETY

Type	Females		Males	
	Yes	**No**	**Yes**	**No**
Primary	28 (50%)	28 (50%)	10 (18%)	46 (82%)
Secondary	8 (42%)	11 (58%)	1 (5.3%)	18 (94.7%)

Chi-square = 0.986 with 1 degree of freedom; P = 0.321 (females)
Chi-square = 7.074 with 1 degree of freedom; P = 0.008 (males)

Table 3C Stress

Type	Females		Males	
	Yes	No	Yes	No
Primary	45 (80.4%)	11 (19.6%)	31 (55.4%)	25 (44.6%)
Secondary	16 (84.3%)	3 (15.7%)	11 (57.8%)	8 (42.2%)

Chi-square = 0.305 with 1 degree of freedom; P = 0.581 (females)
Chi-square = 0.081 with 1 degree of freedom; P = 0.775 (males)

In table 3 comparison between primary and secondary infertility with psychiatric morbidity is shown. In case of primary infertility in females 50% has depression, 50% has anxiety and 80.4% are stressed while in males 16% are depressed, 18% has anxiety and 55.4% are stressed. In the event of secondary infertility in females 32% are depressed, 42% has anxiety and 84.3% are stressed whereas in males 11% has depression, 5.3% has anxiety and 57.8% are stressed. Although, we didn't find any significant association.

DISCUSSION

This study assessed the prevalence of depression, anxiety and stress in both males and females in a couple with infertility unlike many of the previous studies [19-21]. It also assessed QOL of couples and association of psychiatric morbidities with duration of infertility along with the differences between primary and secondary infertility. It was found that overall females were more affected in terms of suffering from depression, anxiety and stress as compared to males. Although the data was clinically significant only for stress values in both males and females. Both males (24%) and females (56%) were depressed in the 1-3 years of duration it was found that majority of females (56%) were having anxiety in 1-3 years of duration while males (18.1%) were affected in <1 year of duration. Stress affects 88% females in 1-3 years duration and 66.7% males in <1 year. These finding have been replicated from previous studies which shows greater impact on female psychological health [22-24]. As described in Maroufizadeh et al [25] there is positive association of both anxiety and depression with duration of infertility our study has significant association of anxiety in males and stress in both males and females.

The inclusion of males makes the study more relevant as they have a pivotal role being a source of emotional strength and support to their partner when they are mostly considered secondary and non-active members regarding infertility treatments [26]. The risk factors leading to negative psychological experience in men are ambiguous cause of infertility, first infertility evaluation, male factor infertility and unstable career [27]. Awareness about the cause of infertility is crucial in acceptance and better adjustment for both partners but 75% of our couples were unaware of the cause leading to frustration and impaired well-being [28]. The scores of depression and anxiety reduced with increasing duration of infertility which could be due to various factors such as couple's adjustment to the diagnosis of infertility, willingness for in vitro fertilization treatment, or to look for other ways to satisfy parenthood goals [29].

Childbearing is a crucial event in a female's life hence infertility along with resultant social stigma, fear of loneliness, separation from the partner and long-term treatment process can trigger a psychological crisis impacting the QOL negatively [30]. All the domains except physical scored on the lower side in our study supporting the preliminary population norms reported by Hawthorne as 70.6 ± 14 for psychological health, 71.5 ±18.2 for social relationships and 75.1 ± 13 for environment [31]. In low and middle-income countries, these problems are exacerbated due to the excessive treatment cost [32]. Despite all efforts of treatment the outcome remains unpredictable which poses added burden to the couple's turmoil.

Shahraki et al [33] and Yoldemir et al [34] reported no significant association of primary and secondary infertility with psychiatric morbidity which is consistent with our results. Secondary infertility seems to have a protective effect against common mental illness, and it is also associated with a higher QOL as depicted in our results [35].

The evidence from this study suggests that infertility has a higher effect on female's overall psychological well-being than males. It also impairs QOL of a couple as it is a challenging situation with an unpredictable outcome. Our study focused on differences between primary and secondary infertility, however there wasn't any significant association found and the small sample size affects the generalizability of results. The strengths of our study are including both males and females and evaluating both anxiety and depression.

Whilst the study didn't find the said association, it partially substantiated the need for an integrated approach to alleviate the psychological burden and improve the quality of life.

REFERENCES

1. World Health Organization (WHO). International Classification of Diseases, 11th Revision (ICD-11) Geneva: WHO 2018.
2. https://www.nhp.gov.in/disease/reproductive-system/infertility (Accessed on 10th May 2022)
3. Dunn AL, Stafinski T, Mennon D. A An international survey of assisted reproductive technologies (ARTs) policies and the effects of these policies on costs, utilization, and health outcomes. Health Policy 2014;116(2-3):238–63.
4. Hasanpour S, Bani S, Mirghafourvand M, Yahyavi Kochaksarayie F. Mental health and its personal and social predictors in infertile women. J Caring Sci 2014;3(1):37-45.
5. Kahyaoglu Sut H, Balkanli Kaplan P. Quality of life in women with infertility via the fertiqol and the hospital anxiety and depression scales. Nurse Health Sci 2015;17(1):84-9.
6. Burns LH. Psychiatric aspects of infertility and infertility treatments. Psychiatr Clin North Am 2007;30:689–716.
7. Marci R, Graziano A, Piva I, Lo Monte G, Soave I, Giugliano E, Mazzoni S, Capucci R, Carbonara M, Caracciolo S, Patella A. Procreative sex in infertile couples: the decay of pleasure?. Health Qual Life Outcomes 2012;10(1):1-7.
8. Greil AL. Infertility and psychological distress: a critical review of the literature. Soc Sci Med 1997;45:1679–170
9. Seibel M, Taymore M. Emotional aspects of infertility. Fertil Steril 1982;37:137–45.
10. Huppelschoten AG, van Dongen AJ, Verhaak CM, Smeenk JM, Kremer JA, Nelen WL. Differences in quality of life and emotional status between infertile women and their partners. Hum Reprod 2013;28(8):2168-76.
11. The World Health Organisation (WHO): Programme on mental health. WHOQOL. Measuring quality of life. 1998.
12. Sarkar S, Gupta P. Socio-Demographic Correlates of Women's Infertility and Treatment Seeking Behavior in India. J Reprod Infertil 2016;17(2):123-32.
13. Benksim A, Elkhoudri N, Addi RA, Baali A, Cherkaoui M. Difference between Primary and Secondary Infertility in Morocco: Frequencies and Associated Factors. Int J Fertil Steril 2018;12(2):142-6.
14. Sethi P, Sharma A, Goyal LD, Kaur G. Prevalence of Psychiatric Morbidity in Females amongst Infertile Couples- A Hospital Based Report. J Clin Diagn Res 2016;10(7):VC04-VC07.
15. Walker MH, Tobler KJ. Female Infertility. [Updated 2021 Dec 28]. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2022.
16. Lovibond SH, Lovibond PF. Manual for the Depression Anxiety Stress Scales. 2nd ed. Sydney: Psychology Foundation; 1995.
17. Kumar K, Kumar S, Mehrotra D, Tiwari SC, Kumar V, Dwivedi RC. Reliability and psychometric validity of Hindi version of Depression, Anxiety and Stress Scale-21 (DASS-21) for Hindi speaking Head Neck Cancer and Oral Potentially Malignant Disorders Patients. J Cancer Res Ther 2019;15(3):653-8.
18. Skevington SM, Lotfy M, O'Connell KA; WHOQOL Group. The World Health Organization's WHOQOL-BREF quality of life assessment: psychometric properties and results of the international field trial. A report from the WHOQOL group. Qual Life Res 2004;13(2):299-310.
19. Rooney KL, Domar AD. The relationship between stress and infertility. Dialog Clin Neurosci 2018;20(1):41-7.
20. Massarotti C, Gentile G, Ferreccio C, Scaruffi P, Remorgida V, Anserini P. Impact of infertility and infertility treatments on quality of life and levels of anxiety and depression in women undergoing in vitro fertilization. Gynecol Endocrinol 2019;35(6):485-9.
21. Kahyaoglu Sut H, Balkanli Kaplan P. Quality of life in women with infertility via the FertiQoL and the Hospital Anxiety and Depression Scales. Nurs Health Sci 2015;17(1):84-9.
22. Drosdzol A, Skrzypulec V. Depression and anxiety among Polish infertile couples—An evaluative prevalence study. J Psychosom Obstet Gynaecol 2009;30:11–20.
23. Klemmetti R, Raitanen J, Sihvo S, Saarni S, Koponen P. Infertility, mental disorders and well-being – a nationwide survey. Acta Obstetr Gynecolog Scand 2010;89:677-82.
24. Lok IH, Lee DT, Cheung LP, Chung WS, Lo WK, Haines CJ. Psychiatric morbidity amongst infertile Chinese women undergoing treatment with assisted reproductive technology and the impact of treatment failure. Gynecol Obstet Invest 2002;53(4):195-9.

25. Omani-Samani R, Ghaheri A, Navid B, Sepidarkish M, Maroufizadeh S. Prevalence of generalized anxiety disorder and its related factors among infertile patients in Iran: a cross-sectional study. Health Qual Life Outcomes 2018;16(1):129.
26. Schick M, Rösner S, Toth B, Strowitzki T, Wischmann T. Exploring involuntary childlessness in men – A qualitative study assessing quality of life, role aspects and control beliefs in men's perception of the fertility treatment process. Human Fertility 2010;19(1):32–42.
27. Alosaimi FD, Altuwirqi MH, Bukhari M, Abotalib Z, BinSaleh S. Psychiatric disorders among infertile men and women attending three infertility clinics in Riyadh, Saudi Arabia. Ann Saudi Med 2015;35(5):359-67.
28. Volgsten H, Svanberg AS, Olsson P. Unresolved grief in women and men in Sweden three years after undergoing unsuccessful in vitro fertilization treatment. Acta Obstetr Gynecolog Scand 2007;89(10):1290–7.
29. Warchol-Biedermann K. The Risk of Psychiatric Morbidity and Course of Distress in Males Undergoing Infertility Evaluation Is Affected by Their Factor of Infertility. American Journal of Men's Health 2019;1.
30. Kiani Z, Simbar M, Hajian S, Zayeri F. The prevalence of depression symptoms among infertile women: a systematic review and meta-analysis. Fertil Res Pract 2021;7(1):6.
31. Hawthorne G, Herrman H, Murphy B. Interpreting the WHOQOL-Brèf: Preliminary Population Norms and Effect Sizes. Soc Indic Res 2006;77:37–59.
32. Alhassan A, Ziblim AR, Muntaka S. A survey on depression among infertile women in Ghana. BMC Womens Health 2014;14(1):42.
33. Shahraki Z, Tanha FD, Ghajarzadeh M. Depression, sexual dysfunction and sexual quality of life in women with infertility. BMC Women's Health 2018;18:92.
34. Yoldemir T, Yassa M, Atasayan K. Comparison of depression between primary and secondary infertile couples, Gynecol Endocrinol 2020;36(12):1131-5.
35. Jacob JA, Aleyamma TK, Kuruvilla A, Gopalakrishnan R. Common mental disorders, quality of life and explanatory models in men undergoing infertility treatment in a tertiary care hospital: A cross-sectional study. J Psychosom Res 2021;147:110536..

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