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Original Research Article

Assessment of socio-demographic factors associated with depression among couples attending a tertiary-care infertility clinic

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ABSTRACT

Background: Infertility rates vary amongst countries from 5%-30%. Data extrapolated from WHO by the Indian council of medical research suggest that approximately 13-19 million couples are likely to be infertile in India at any given time. Many studies give evidence that depression is highly prevalent among infertile couples, especially women. Demographic and social factors are expected to impact the fertility behaviours. It is estimated that psychological factors have an important role in the pathogenesis of infertility. Aim of this study was to assess socio-demographic factors associated with depression among couples attending a tertiary-care infertility clinic.
Methods: This cross-sectional study was conducted among 126 infertile couples attending the infertility clinic of government medical college, Thiruvananthapuram, Kerala, India. We used descriptive design as the research design and purposive sampling as sampling technique. PHQ9 depression tool and an interviewer administered semi-structured questionnaire were used in study. Qualitative variables were expressed as frequency and percentages. Chi-square test of independence and Fisher's exact test used to test association between categorical variables as applicable.
Results: Among the infertile couples the prevalence of depression was 51.6% (n=65). Depression was more prevalent in females (48.4%, n=61) than in males (33.3%, n=42) and when the reason for infertility was female related. The differences were not statistically significant (p>0.05). The risk of development of depression was significantly high when the other partner had depression (p=0.001, odds ratio=25.196). Presence of children in the family had a significant association with development of depression in infertile couples who belonged to joint or extended family (p=0.020). Depression was significantly associated with social pressure (p=0.021) in female participants and with impaired concentration in both females (p=0.013) and males (p=0.001). Causal relationships could not be established between depression and socio demographic as well as fertility variables due to cross sectional design.
Conclusions: Prevalence of depression is comparatively high among infertile females. Support from spouse, family, friends and society have been estimated to have an impact on prevalence of depression. Interventions like counseling and supportive psychotherapy to decrease and prevent development of severe depression among these patients should be considered.

Keywords: Depression, Infertile couples, Socio-demographic variables

INTRODUCTION

Infertility is increasingly being recognized as both a medical and social condition that can lead to significant social, emotional, and psychological distress.[1] Infertile couples often experience loss of status and prestige.[2] Several factors contribute to the development of depression in infertile individuals, including the cause and duration of infertility, repeated treatment failures,

educational level, age, occupation, and pressure from family, among others.[3] Psychological factors are believed to play a significant role in the pathogenesis of infertility.[4] It is now thought that infertility treatment by itself can result in negative psychological effects which may potentially undermine its effectiveness.[5] Addressing psychological issues during infertility treatment is now recognized as crucial. This is due to growing awareness that depression could be a contributing factor to infertility, its consequence, or both, potentially interfering with the effectiveness of infertility treatments.[6] Relationship crisis can occur in infertile couples due to the negative effect of infertility on the quality of relationships.[7] Support from family members, particularly from their partners, has been linked to lower levels of depression among women experiencing infertility.[8] Social pressure can exacerbate the psychological effects of infertility. Research indicates that in India, this pressure is intensified due to the joint family system and the influence of elders, which place a strong emphasis on parenthood.[9] The trend of delaying childbirth for various reasons has made advanced age a significant psychosocial stress factor for women experiencing infertility.[9,10] Psychological distress related to infertility appears to be influenced by the socioeconomic status of the couple, although research findings in this area are inconclusive. Findings of a study by Greil et al support the fact that general distress level is lower with higher socioeconomic status.[5] According to some studies, psychological distress due to infertility is primarily associated with age and not with other demographic variables.[10]Demographic factors such as age, marital status, number and sex of children already born, and social factors including employment status, income, education level, and family type can influence fertility behaviors.[11] Some studies indicate that higher levels of education and current employment are associated with a decrease in the severity of depression among infertile females.[12,13] while other studies have found no significant association.[8,14] Cwike et al found that hopelessness is more prevalent in infertile women with lower educational levels, uneducated spouses, and unemployment.[15] Factors such as patient age, marital duration, and cause of infertility showed no significant correlation.[15] Verma et al correlated the occurrence and severity of depression with increasing age, longer duration of infertility, rural background, lower education, and socioeconomic status.[16] Neetu and Jyotsna observed a higher infertility rate among well-educated women.[17] Behrami et al reported that individuals with higher education generally have better mental health and, consequently, better fertility outcomes.[18] Noorbala et al found a higher incidence of psychiatric disorders and unstable personality traits among infertile patients, even those with higher education levels.[19] El-Messidi et al determined that infertile couples who experienced repeated treatment failures had a lower quality of life compared to fertile couples.[20] Research consistently shows that poor marital quality is associated with various family and community challenges. A systematic review by Tao et al indicated that male infertility does not typically negatively impact marital relationships, whereas infertile females often experience less stable marital relationships. This effect is influenced by socio-demographic circumstances, treatment experiences, and the congruency of couples' perceptions of infertility.[21] Wang et al conducted a cohort study to assess the psychological health status and marital quality of Chinese women undergoing IVF. They found that psychological health status and marital quality were negatively correlated with age, yearly income, duration of infertility, and history of unsuccessful IVF treatment. The study also examined the impact of clinical and socio-demographic determinants on these outcomes.[22] Many infertile couples face challenges coping with their condition, exacerbated by difficulties in accessing quality care and high out-of-pocket expenditures on various treatments.[23] These findings underscore the complex interplay of psychological, social, and economic factors in the experience of infertility and its impact on individuals and couples.

Relevance of the study

Demographic and social factors are expected to impact the fertility behaviors.[5-8] The way people cope with infertility is influenced by the beliefs and sociocultural norms of the society in which they live in. It is affected by the interactions between individual's behaviour and the physical and social environment.[8] In this light, a study on the prevalence of depression among infertile couples and the assessment of associated sociodemographic factors becomes relevant.

Aims and objectives

Aim and objectives were to assess the socio-demographic factors associated with depression among infertile couples. attending infertility clinic of Reproductive medicine department, Sree Avittom Thirunal (SAT) hospital, government medical college, Thiruvananthapuram.

METHODS

A cross-sectional study was done in the Infertility clinic of the Reproductive Medicine department of Sree Avittom Thirunal (SAT) hospital, government medical college, Thiruvananthapuram, Kerala, India. The study population included couples who attended the clinic during the study period between September to October 2019 using the interviewer method. Every consecutive couple who attended the infertility clinic who consented to be in the study was recruited to the study till the required sample size was met.

Inclusion criteria

Couples who attended reproductive medicine department of SAT hospital during study period between September to October 2019 and consented for study were included.

Exclusion criteria

Couples who were not willing to participate in the study were excluded.

A meta-analysis by Masoumi et al showed that nearly 50% of the infertile couples were affected with some degrees of mild, moderate or severe depression.[24] Applying this in the formula $(Z\alpha 2\ pq)/d^2$ where 'p' is the prevalence of depression and 'd' is the relative precision of 20%, the sample size was fixed as 126, after allowing a non-response rate of 5%.

The prevalence of depression and its severity was assessed by the PHQ9 depression tool. The PHQ-9 scores the 9 items of the diagnostic and statistical manual of mental disorders, 4th edition (DSM-IV). Scores on each item range from '0'indicating no depressive symptoms to a maximum of '3' indicating severe symptoms. The total score can thus range from 0 to 27. A score of 0-4 indicates minimal or no depression, 5-9 suggests mild depression, 10-14 is for moderate depression, 15-19 for moderately severe depression and 20-27 indicates severe depression. An interviewer-administered semi structured questionnaire was used to collect data on study variables. Data was analyzed using SPSS version 16 and qualitative variables were expressed as proportions and quantitative variables as mean and standard deviation. Chi-square test of independence and Fisher's exact test were used to test association between categorical variables. A $p<0.05$ was considered statistically significant.

Ethical considerations

This study was under taken after obtaining clearance from the institutional ethics committee (HEC No. 08/12/2019/MCT). Hospital ethics committee approval was obtained before conducting the study (HEC.No.08/12/2019/MCT). Written informed consent was obtained from all the participants.

RESULTS

Prevalence of depression

Out of the 126 couples assessed, depression was present in 51.6% (n=65) couples, 30.2% (n=20) of couples had depression in both male and female partners (Figure 1). In 3.2% (n=2) of the sample population only male partner was depressed and in 18.3% (n=12) only female partner was depressed. The prevalence of depression in all the males who participated in the study was 33.3% (n=42) and in females, it was 48.4% (n=61) (Figure 2). The 66.7% (n=84) of male participants and 51.6% (n=65) of female participants had either a minimal form of depression or no depression. None of the male participants had severe depression. Only one female participant had severe depression.

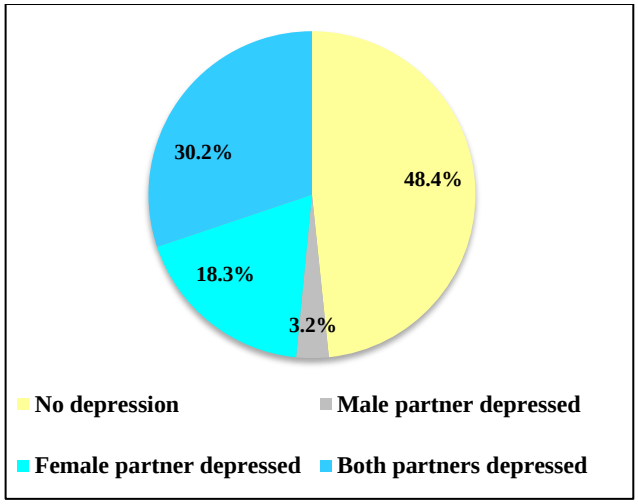

Figure 1: Depression among couples.

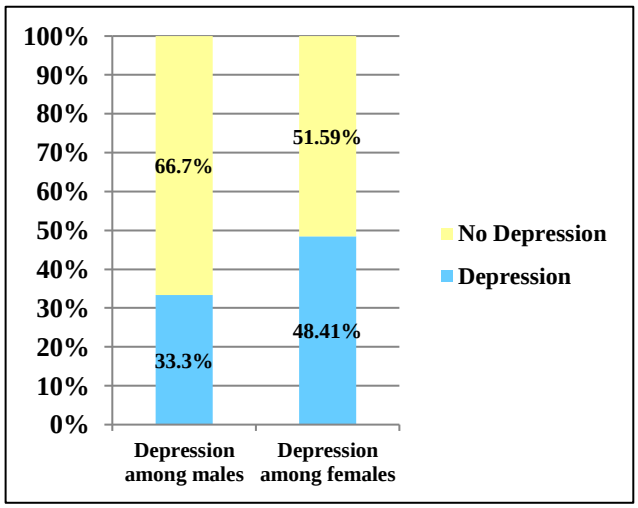

Figure 2: Depression among males and females.

Association of age

For comparison we divided the participants into 2 groups- one group with age <30 years and another group with age >30 years. Prevalence of depression was high in males as age increased. But in female prevalence of depression was low in the group >30 years. But the result was not significant in both males (p=0.725) and females (p=0.353) (Tables 1 and 2).

Association with education level

For comparison we divided the participants into 2 groups- one group with education level ≤SSLC (10th pass) and another group with education level >SSLC (10th standard). The 117 males and 121 females responded to this question. Analysis of the received responses showed that prevalence of depression was high in both males and females who belonged to higher level of education group. But the result was not significant in both males (p=0.197) and females (p=0.777) (Tables 1 and 2).

Association of occupational status

For comparison we divided the participants into 2 groups-unemployed and employed. The 117 males and 119 females responded to this question. Majority of females were unemployed (63%) and majority of males were employed (90.1%). Prevalence of depression was high in unemployed group in females where as it was high in employed group in males. But the difference was not statistically significant (p=0.333 in males and p=0.242 in females) (Tables 1 and 2).

Association with monthly income

The 95 each from male and female participants responded to this question. Prevalence of depression was slightly more (53.6%) in couples with low income when compared to those with higher income (46.4%). But this difference was not significant (p=0.606). Similar, trend was observed when males (56.7% and 43.3% respectively) and females (52.3% and 47.7% respectively) were studied separately. But the result was not statistically significant when couples, males alone or females alone were considered (p=0.606, 0.725, 0.353 respectively) (Tables 1 and 2).

Association with socioeconomic status

For comparison we divided the couples into 2 groups-first group belonged to lower and upper lower class and second group belonged more than upper lower class. The 98 each from male and female participants responded to this question. Prevalence of depression was high in the second group but the result was not significant (p=0.183) (Tables 1 and 2).

Association with type of family

Almost equal number of couples belonged to joint/extended family or nuclear family (50.8% and 49.2% respectively). Prevalence of depression was found high in couples who had joint/extended family (65.8%). Same trend was observed when males (61.9%) and females (60%) were studied separately. But the difference was not statistically significant (Tables 1 and 2).

Association with the place of residence

There were 2 groups for comparison. Those who resided in Panchayat areas and those in municipality/corporation areas, 117 each from male and female participants responded to this question, 77.8% resided in panchayat areas. Prevalence of depression in couples was high in the first group (75%). This might be due to the fact that majority of the participants were from panchayat areas. The difference was not statistically significant (p=0.630). Similar, trend was observed when males (73.7% prevalence; p=0.460) as well as females (77.6% prevalence; p=0.961) were studied separately (Tables 1 and 2).

Assessment of social and familial attributes of depression

Among the social and familial attributes of infertility related depression which were studied, impaired concentration and social pressure was significantly associated with depression in females' participants (p=0.013 and p=0.021 respectively). Impaired concentration was significantly present in male participants also (p=0.001). Most of the participants had support from spouse, family and friends (Table 3).

Association with the presence of children and elderly members in the family

The presence of children in the family was found to have a significant association (p=0.020). Prevalence of depression was low in both males and females who had children in the family. No significance was seen with the presence of elderly people in the family (Table 3).

Association with partner's depression status

There was significant risk of development of depression in both males and females when the other partner had depression (p=0.001). There was some form of depression in 62.3% (n=38) females when their male partners had depression. In females whose male partners were not depressed, 93.8% (n=61) had no depression (Odds ratio=25.196) (Table 4).

Table 1: Association of sociodemographic variables with depression in males.

Characteristic	Depression N (%)	No depression N (%)	Chi square test	P value
Age (in years)				
<30	7 (16.7)	12 (14.3)	0.124	0.725
≥30	35 (83.3)	72 (85.7)		
Education				
≤SSLC (10th)	14 (36.8)	27 (34.2)	0.080	0.777
>SSLC (10th)	24 (63.2)	52 (65.8)		
Occupation				
Unemployed	1 (2.6)	0 (0)	*	0.333
Employed	38 (97.4)	78 (100)		

Continued.

Characteristic	Depression N (%)	No depression N (%)	Chi square test	P value
Monthly income (INR)				
≤2640	17 (56.7)	30 (46.2)	0.908	0.341
>2640	13 (43.3)	35 (53.8)		
Place of residence				
Panchayat	28 (73.7)	63 (79.7)	0.546	0.460
Municipality/corporation	10 (26.3)	16 (20.3)		
Socioeconomic status#				
≤Upper lower	4 (12.9)	18 (26.9)	2.373	0.123
>Upper lower	27 (87.1)	49 (73.1)		
Type of family				
Nuclear	16 (38.1)	46 (54.7)	2.901	0.089
Joint/extended	26 (61.9)	38 (45.8)		
Duration of infertility				
<2	16 (38.1)	19 (22.9)	3.198	0.074
≥2	26 (61.9)	65 (77.3)		
Type of infertility				
Primary	31 (73.8)	57 (67.9)	0.471	0.493
Secondary	11 (26.2)	27 (32.1)		
Shared problems with family, relatives and /or friends				
Yes	38 (90.5)	75 (90.4)	*	1.000
No	4 (9.5)	8 (9.6)		
Self-perceived impaired concentration				
Yes	20 (47.6)	15 (17.9)	12.363	0.001
No	22 (52.4)	69 (82.1)		
Self-perceived social isolation				
Yes	17 (40.5)	21 (25)	3.184	0.074
No	25 (59.5)	63 (75)		
Self-perceived social pressure				
Yes	25 (59.5)	36 (42.9)	3.114	0.078
No	17 (40.5)	48 (57.1)		
Self-perceived spouse support				
Yes	41 (97.6)	84 (100)	*	0.333
No	1 (2.4)	0 (0)		
Self-perceived difficulty in attending social functions				
Yes	20 (47.6)	31 (36.9)	1.530	0.216
No	22 (52.4)	53 (63.9)		

*Fisher's exact test, *Kuppuswami scale.

Table 2: Association of sociodemographic variables with depression in females.

Characteristic	Depression N (%)	No depression N (%)	Chi square test	P value
Age (in years)				
<30	36 (59)	33 (50.8)	0.864	0.353
≥30	25 (41)	32 (49.2)		
Education				
≤SSLC (10th)	11 (19.3)	7 (10.9)	1.664	0.197
>SSLC (10th)	46 (80.7)	57 (89.1)		
Occupation				
Unemployed	39 (68.4)	36 (58.1)	1.367	0.242
Employed	18 (31.6)	26 (41.9)		
Monthly income (INR)				
≤2640	23 (52.3)	24 (47.1)	0.257	0.612
>2640	21 (47.7)	27 (52.9)		
Place of residence				
Panchayat	45 (77.6)	46 (78)	0.002	0.961
Municipality/corporation	13 (22.4)	13 (22)		

Continued.

Characteristic	Depression N (%)	No depression N (%)	Chi square test	P value
Socioeconomic status#				
≤Upper lower	5 (11.4)	17 (31.5)	5.636	0.018
>Upper lower	39 (88.6)	37 (68.5)		
Type of family				
Nuclear	24 (40)	38 (57.5)	3.576	0.059
Joint/extended	36 (60)	28 (43.1)		
Duration of infertility				
<2	22 (35.4)	14 (21.9)	2.441	0.118
≥2	40 (65.6)	50 (68.1)		
Type of infertility				
Primary	40 (65.6)	48 (73.8)	1.022	0.312
Secondary	21 (34.4)	17 (26.2)		
Shared problems with family, relatives and /or friends				
Yes	55 (90.2)	59 (90.7)	0.008	0.930
No	6 (9.8)	6 (9.4)		
Self-perceived impaired concentration				
Yes	30 (49.2%)	18 (27.7)	6.161	0.013
No	31 (50.8)	47 (72.3)		
Self-perceived social isolation				
Yes	28 (45.9)	20 (30.8)	3.056	0.080
No	33 (54.1)	45 (69.2)		
Self-perceived social pressure				
Yes	36 (59)	25 (38.5)	5.324	0.021
No	25 (41)	40 (61.5)		
Self-perceived spouse support				
Yes	60 (98.4)	65 (100)	*	0.484
No	1 (1.6)	0 (0)		
Self-perceived difficulty in attending social functions				
Yes	31 (50.8)	27 (41.5)	1.091	0.296
No	30 (49.2)	38 (58.5)		

*Fisher's Exact test, *Kuppuswami scale.

Table 3: Association of presence of children and elderly members in the family with depression among infertile couples.

Characteristic	Depression N (%)	No depression N (%)	Chi-square test	P value
Have other children in the family (in case of joint or extended family)				
Yes	12 (31.6)	12 (13.8)	5.393	0.020
No	26 (68.4)	75 (86.2)		
Have elders in the family				
Yes	24 (64.9)	41 (47.1)	3.275	0.070
No	13 (35.1)	46 (52.9)		

Table 4: Association of depression with partner's depression status.

Variables		Male depression, N (%)		Total, N (%)	Chi-square value	P value
		No	Yes			
Female depression	No	61 (93.8)	4 (6.2)	65 (100)	44.632	0.000
	Yes	23 (37.7)	38 (62.3)	61 (100)		
Total		84 (66.7)	42 (33.3)	126 (100)		
Male depression	No	61 (72.6)	23 (27.4)	84 (100)	44.632	0.000
	Yes	4 (9.5)	38 (90.5)	42 (100)		
Total		65 (51.6)	61 (48.4)	126 (100)		

DISCUSSION

The present study was aimed to assess the prevalence of depression and its relationship to socio-demographic characteristics among a population of infertile couples attending the assisted reproductive treatment center of SAT hospital Trivandrum.

The research design was descriptive design and the sampling technique was purposive sampling. The sample size estimated was 118 couples. We could collect the data from 126 couples during the study period. Couples studied were in different stages of treatment: first consultation, under examination, diagnosed (not yet under treatment) and those under treatment. None of the couples were pregnant when participating in this study. The patient health questionnaire-PHQ 9 questionnaire was used to assess the prevalence of depression and its severity. Test-retest reliability and validity of this questionnaire has been proven by several studies and researches. Another questionnaire approved by institutional review board and institutional ethics committee was also used to collect data. This questionnaire was used to get data on socio-demographic profile which included name, age, sex, place of residence, educational level, occupation, type of family and monthly income of the participant. Information about certain variables like duration of marriage, pressure from family members to conceive, support from husband etc. were also collected. Questions to assess the effect of infertility on quality of life especially marital quality, general health and emotions, family and social relationships were also included. Descriptive analysis was carried out and qualitative variables were expressed as frequency and percentages. Chi-square test of independence and Fisher's exact test were used to test the association between categorical variables as applicable.

In this study prevalence of depression among the infertile couples was found to be 51.6%. Out of this 21.5% had depression in either of the partners and in 30.2% both the partners had some form of depression. These findings are similar to that by Masoumi et al.[24]

Our study showed that prevalence of depression was more in females than in males.33.3% of all the males and 48.4% of all the females studied had some form of depression (Figure 1 and 2). Similar results were observed in a study by Al-Homaidan.[8] In a meta-analysis by Abate males were found to be 63% less likely to develop depression than females.[25] He opined that gender had a very important role in defining susceptibility and exposure to a number of mental health risks. Women are habitually more affected by infertility than men.[26] In the Indian cultural context, women often face the risk of divorce, even when male infertility is the primary cause. In Kerala, as in other parts of India, children hold immense cultural, social, and economic importance. Therefore, childlessness frequently leads to substantial challenges for couples, particularly for women who are often held accountable for infertility, especially in rural areas of Kerala. The high prevalence of depression observed among females in this study could be attributed to the considerable societal and familial pressure to conceive a biological child.

Our study showed significant association between prevalence of depression in the partner when the other partner was depressed (Table 4). This cross spousal sharing of depressive symptoms can be explained by the stress process model in which stress due to infertility manifests as depression not only with in the person but also between persons (spouse to spouse). But a study by Thomeer et al reported that wife's depressive symptoms influence her husband's future depressive symptoms but not vice versa.[26]

Analysis of the severity of depression revealed that in both males and females majority had only mild level of depression. None of the respondents had severe form of depression. The infertile couple visiting the ART clinic, SAT hospital receive routine counseling. This might have definitely helped to reduce the severity of depression in these people.

In the present study it was observed that most of the infertile females (54.8%) belonged to the age group of 20-29 years and most of the males (63.2%) belonged to the age group 30-39 years. Prevalence of depression was high in males as age increased. But in females prevalence of depression was low in the group >30 years. But the result was not significant in both males (p=0.725) and females (p=0.353) (Table 1 and 2). This might be because age of majority of the females who participated in the study and the age of marriage of females in the study were below 30 years. Due to increased number of participants below 30 years the prevalence of depression was also found high below 30 years. In males the age group and the age of marriage for majority of the participants was above 30 years. Due to increased number of participants above 30 years the prevalence of depression was also found high above 30 years. Increased prevalence of infertility associated depression with age was found in some studies.[8,12,15,16,27] In these studies as age increased, participants exhibited a greater tendency towards depression. It is estimated that female fertility peaks around the ages of 26-35 years and infertility becomes more pronounced after the age of 35. This knowledge that their fertility will be declining as age advances results in psychological pressure which could have contributed to this high depression as observed in the present study. No association with age was found in another study.[28]

When secondary school education level was considered as the cutoff, 65% of males and 85.1% of females could be considered as belonging to higher level of education group. Only 1.7% females and 3.5% males had low level of education i.e. below secondary school level. In our study showed prevalence of depression was found to be

high in participants who attained higher education. (Table 1 and 2). This could be because majority of the males (65%) as well as females (85.1%) who participated in the study belonged to higher level of education group. Due to increased number of participants in that group the prevalence of depression was also found high in the group with higher level of education in both males and females But, there was no significant association with the prevalence of depression with the education level in couples as well as when males and females were separately studied. Our results are similar to some studies which also reported no significant association between educational level and depression in infertile people.[8,14,28] The results of our study differ from that of a study by Rahmati et al who reported that higher education level of both women and their husbands was associated with a reduction in anxiety and depression levels.[29] High-educated husbands behave appropriately with their infertile wives which is a protective factor against psychological problems including anxiety and depression. A study by Ramezanzadeh et al on the psychopathological profile of 370 infertile women also showed negative correlations between depression and education.[30]

Most of the males in the study population were employed (90.1%) and majority was doing skilled occupation. But majority of females were unemployed (63%). Prevalence of depression was high in unemployed group in females where as it was high in employed group in males (Table 1 and 2). Due to increased number of participants who were unemployed prevalence of depression was found high in unemployed females in our study. Similarly, prevalence of depression was found high in employed males as most of the male participants were employed. In our study there was no significant association between the occupational status and prevalence of depression. This finding is different from the work of other researchers who found a decreased trend of depression with educational level and occupational status. In these studies, low educational level, uneducated spouse, and unemployment were found to be associated with increased prevalence of depression. According to them higher education increases the chance for obtaining a stable job. This will have relieving effect on the psychological impact of the infertility. Some other studies showed no significant association.[8,12,14,24,27,28] But a study by Noorbala et al showed higher incidence of psychiatric disorder and unstable personality in infertile patients even with higher education level.[30] People with higher education are much aware of the treatment options for infertility, their complications, and tentative outcomes including the probability for treatment failures. This can be the reason for in increased prevalence of depression in some highly educated infertile people.

Prevalence of depression was high in the low-income group. We could not find any significant association between the income status and depression prevalence (Table 1 and 2). This might be because of the fact that there was only one couple who belonged to high income group in our sample. All others were from low to middle income categories. To assess the association, we need to do a study on a larger population with different income levels.

Most of the participants in this study belonged to the socioeconomic class above upper lower class. This might be there as on for the increased prevalence of depression in that group in our study. But the difference was not significant (p=0.183) (Table 1 and 2). Some studies reported that infertility was most prevalent among participants belonging to lower socioeconomic class.[31,32] Mittal et al reported higher rate of infertility in SES class III.[33] This reflects that middle-class families cannot afford the expenditure for the treatment of infertility resulting in persistence of infertility.

In this study there was no significant association between the type of family and depression although almost equal proportion of the respondents belonged to joint/extended families and nuclear families (50.8% and 49.2% respectively). But the prevalence of depression was found high in residents of joint/extended families (65.8%). A study conducted by Shamila and Sasikala reported that majority of couples seeking infertility treatment belonged to nuclear family.[34] This could be due to the fact that couples in such nuclear families need to take self decision in many matters as they chose to live independently. This may lead to stress to manage multiple tasks and stress is one of the reasons affecting infertility.

In our study, impaired concentration and social pressure was significantly associated with depression in female participants (p=0.013 and p=0.021) respectively. Impaired concentration was significantly present in male participants also (p=0.001) (Table 3). Yang et al in their study opined that although societal norms regarding the necessity of couples having children vary across different cultures the presence of support from one's partner remains crucial in maintaining stable mental health.[35]

Our study showed that the presence of children in the family had a significant association (p=0.020) with development of depression in infertile couples who belonged to joint or extended family. Prevalence of depression was low in both males and females who had children in the family. No significance was seen with the presence of elderly people in the family (Table 1 and 2).

There was no significant difference in the prevalence of depression between urban and rural areas (Table 1 and 2). Some sociocultural practices connected with infertility are found to be prevalent in India especially in rural areas. In a study by Udgiri et al it was found that most of the infertile couples seek various traditional methods and religious practices. Visiting religious places was reported to be the most common cultural practice among both rural and urban residents.[36] Other methods practiced include observing tantric rites, wearing charms, participating in

rituals and visiting astrologers. There is no convincing evidence that these practices will be of benefit or harm regarding the mental health of infertile couples.

Most of the respondents had support from spouse, family, friends and society. In this study it was found that support from friends and society had an impact on the prevalence of depression. Those couples who did not get mental support from the society and friends had higher prevalence of depression than others who had support.

Limitations

Since the study was done in a limited area it may not necessarily reflect the characteristics of the general population. Due to the cross-sectional design, causal relationships could not be established between depression and variables related to infertility and its treatment.

CONCLUSION

Many people in developing countries depend on their children for economic survival, especially in old age. The consequences of infertility in such situations include economic hardship, social isolation, and denial of proper death rites. Reproduction is one of the highest valued factors in oriental culture. So, there is high possibility of occurrence of a psychological crisis when reproduction appears impossible. Addressing the psychological issues during infertility treatment is now considered important. In developing countries, the burden of infertility is disproportionately placed on women as it is often assumed to be the fault of the woman, as pregnancy and child birth are manifested in the woman. This leads to physical and psychological abuse of such women. Treatments for infertility have effects on estrogen and progesterone levels. These hormones influence mood of the woman through their actions on serotonin. On the other hands emotional distress itself can suppress ovarian function or implantation resulting in decreased fertility and reduced response to its treatment. This interaction creates a vicious circle between depression and infertile status and can result in treatment dropouts or treatment failure. In conclusion, the prevalence of depression among infertile couples is high, especially among infertile women. methods, especially supportive psychotherapy and interventions to decrease and prevent the development of severe depression, among these patients should be considered

Recommendations

Efforts should be taken to educate people about infertility so that there is less pressure on infertile couples. Psychological and psychiatric services associated with infertility treatment centres will undoubtedly facilitate the treatment by reducing the psychological problems of infertile couples and their families

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