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Research Article

Role Of Dyadic Relationships In The Quality Of Life And Mental Health Of Women Undergoing IVF

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Abstract
Background: The present study focuses on identifying effective influencers on the mental health of women undergoing IVF
Aim: To examine the role of dyadic relationships in moderating the effect of the number of IVF attempts on the quality of life and mental health of the women undergoing IVF.
Design/ Method: This is correlational research in which, a hundred women undergoing IVF were selected in the sample. these women were taking different cycles of IVF. All the participants were given the scales of mental health, quality of life and dyadic relationship. Data were analysed to see the moderating effect of dyadic relation on IVF - QoL relationship and the mediating effect of QoL between IVF and mental health. Results
IVF was significantly negatively correlated with mental health and all dimensions of quality of relationship and dyadic adjustment. Mental health was significantly positively correlated with all aspects of quality of life and dyadic relations. QoL partially mediates the relationship between IVF and mental health. The dyadic relationship was a significant moderator of the relationship between IVF and QoL.
Conclusion: The findings suggest the significance of the dyadic relationship as effective mental health protectors for women undergoing IVF.

Keywords: In-Vitro fertilization, Mental health, Quality of Life, dyadic relationship, infertility

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Introduction

An individual goes through many stages throughout their life but it is deemed that the major change is witnessed after marriage. According to South Asian culture, the family cycle begins in a couple's life after the honeymoon stage. It is marked by successful adjustments in their life and starting a family of their own. This brings another role to adults' life i.e. of parents. Parenthood is considered a valuable goal of conjugal life and the inability to conceive children is experienced as stressful by couples all around the world (Cousineau &Domar, 2007). This is associated with emotional disturbances such as anger, depression, anxiety, marital problems, sexual dysfunction, social tabooing, isolation, and rejection by the community (Hasanpoor-Azghdy, Simbar &Vedadhir, 2014). Also, in infertile couples, women show higher levels of distress than

their partners, though both men and women experience a sense of loss of self and have distinct feelings of failure and lack of ability and self-doubt persists (Rooney & Domar, 2022). When infertility was due to the malefactor, negative emotions felt by males were more than usual (Nachtigall, Becker, 1992). According to the World Health Organisation report the prevalence of infertility in India in the 25-49 yrs age groups is approximately 3.9% which is 1 in 6 couples facing infertility in India. (Katole & Saoji, 2019, NCBI, 2019). Most of these couples try to conceive with the help of advanced medical assistance before they decide to adopt children. Of all the medical procedures available to help women conceive, in vitro fertilisation (IVF) has become a blessing for couples suffering from infertility. Though the procedure is medically approved and socially sanctioned, its impact on the mental and physical health of women undergoing IVF is severe. A systematic review of studies focusing on IVF and its consequences concludes that psychosocial intervention has a profound impact on the pre and post-IVF condition of the patients (Verhaak, Smeenk, Evers, Kremer, Kraaimaat & Braat, 2006). Support of the spouse and the role of dyadic coping for emotional adjustments of couples with infertility is important during the entire procedure (Chaves, Canavarro, & Moura-Ramos, 2019). However, there is ample evidence that partners going through IVF may not have enough support from their closest social environments which impacts the couple by hampering their relationship and can also hinder conception (e.g., Malina & Pooley, 2017). Moreover, the lack of communication between couples makes them interpret the results of diagnostic tests in different ways. Such behaviour causes doubt in the patients (Kaliarnta, Nihlén-Fahlquist & Roeser, 2011).

Gender differences in how men and women cope with infertility stress showed that both have different coping styles and perspectives but women mainly use confrontation coping while men mainly distance themselves (Peterson, Newton, 2006).

Differences are also evident in coping strategies implied by husband and wife in case of an unsuccessful IVF attempt (Verhaak et al. 2007). Most of the couples emphasized the need for family support and counselling during the session (Verhaak et al. 2007) and reported that they lacked mutual support before, during and after the IVF session.

Considering these facts, it becomes important to look for the correlates and predictors of mental health and also to explore the pathways through which these predictors/correlates can help improve the mental health of women undergoing IVF. Review of literature suggested that the quality of life and health-related quality of life among infertile women, men and couples women were significant predictors of mental health. It is found that poor scores on social functioning and emotional behaviour lead to considerably lower scores on mental health. Moreover, severe QOL impairments were observed in infertile women while in men it does not appear to be powerful (Chachamovich et al., 2010). Besides this the number of in-vitro fertilisation attempts and the total duration of the infertility were also significant predictors of lower mental health scores in infertile women and men. Out of the three major predictors of mental health in infertile women, the total duration of infertility and the number of IVF attempts can not be directly manipulated by the psycho-social variables, however, such attempts can be made for the quality of life. Examining the issue further it was found that marital adjustment and family adjustment are of utmost importance for one's quality of life followed by the adjustment and the extended social environment. Studies demonstrate that women going through infertility treatment reported poorer dyadic adjustment and quality of life, and higher emotional deprivation than those of men because of the greater social pressure for being unable to conceive and give birth to a child (e.g., Busara, F, Gursoy, E and Colak, E, 2019, Sidhi & Dwivedi, R. 2022).

Based on the above facts, a study was planned to examine the relationship among mental health, Quality of life and dyadic adjustment in women undergoing IVF. It was hypothesized that quality of life is an important factor mediating the relationship between IVF and mental health. Besides this, dyadic adjustment between husband and wife can moderate the relationship of IVF and quality of life which will ultimately lead to an improved mental health status of women.

Objectives

1. To assess the impact of number of IVF attempts on the QoL and mental health of women
2. To test the possibility of QoL mediating the relationship of IVF attempts and mental health
3. To examine the moderating effect of dyadic adjustment on the relationship of IVF attempts and QoL

Hypothesis

1. The number of IVF attempts would be negatively correlated with the Quality of life and mental health of women
2. Dyadic adjustment and QoL would be positively correlated with mental health
3. QoL would significantly mediate the relationship between IVF and mental health
4. Dyadic adjustment would significantly moderate the relationship between IVF and QoL

Method

Sample

A hundred couples undergoing IVF were randomly selected from Javitri Hospital and Test Tube Baby Centre in Lucknow, India with the permission of hospital authorities. On average the hospital witness 40 new patients a day. The couples were undergoing first (60), second (24), third (14) and fourth (2) attempts on IVF. The age range of the couple is between 22 to 49 years. Women were requested to participate in the study.

Instruments

1. The World Health Organization Quality of Life (WHOQOL) -BREF World Health Organization developed a scale to test the quality of life of individuals' worldwide. To explore the quality of life using WHOQOL-BREF, the scale consists of 26 items measuring four domains i.e. Physical Health 2. Psychological 3. Social Relationships 4. Environment Scoring. All 26 items are to be rated on 5-point scale. The test-retest reliability coefficient ranged from 0.68 to 0.95. whereas Cronbach alpha values ranged from .71 to .86 for various domains of the scale. The Confirmatory Factor Index for multiple sample analysis was .961, showing parameter loadings estimated in the model to be invariant across ill and well population groups.

2. Revised Dyadic Adjustment Scale The Revised Dyadic Adjustment Scale (RDAS) is a self-report questionnaire that assesses three dimensions of couple relationships namely Consensus, Satisfaction and Cohesion. The RDAS includes 14 items, each of which asks the respondents to rate certain aspects of her/his relationship on a 6-point scale ranging from 0 to 5. Higher scores on any of these subscales indicate greater stability and satisfaction in the relationship. Lower scores indicate greater distress. The cut-off score for the RDAS is 48 such that scores of 48 and above indicate non-distress and 47 and below indicate marital/relationship distress. The RDAS has been found to have a Cronbach's alpha (reliability) of .90. Construct validity for the RDAS is supported by its high correlation with a similar measure, the Locke-Wallace Marital Adjustment Test (MAT). The correlation between the RDAS and the MAT was .68 ($p < .01$). In addition, the correlation between the RDAS and the original Dyadic Adjustment Scale (DAS) was .97 ($p < .01$). In terms of discriminant validity, the RDAS has been found to successfully differentiate between 81% of distressed and non-distressed cases.

3. General Health Questionnaire The general health questionnaire (GHQ) is a screening tool for identifying minor psychiatric disorders in the general population. It is a self-administered questionnaire which is used for the inability to carry out normal functions and the appearance of new and distressing phenomena. The scale is suitable for all ages from adolescence to old age. it assesses the respondent's current situation and checks whether it differs from the usual state. The scale contains 12 items to be rated on a 4-point scale. The minimum possible score is 12 and the maximum possible score is 48. The Cronbach alpha coefficient for GHQ was found to be 0.9. The instrument is reliable and has already been translated into 38 different languages.

Procedure

The researcher visited the hospital to meet the hospital superintendent, explained the research purpose to her and took her permission to contact the patients undergoing IVF. Suitable couples were then contacted and briefed about the objective and procedure of the study. The selected couples were told that the data collection would take approximately 20 minutes. They were also ensured of the confidentiality of the data. Written consent was taken from all the participants and data were collected in the hospital premise only. The scales of Menata health, quality of life and dyadic adjustment were administered to the patients along with a demographic record schedule. Data was collected individually to avoid the complications of social desirability.

Result

The analysis was planned in two steps. Initially, the relationship of IVF attempts with the quality of life (QoL), mental health (MH) and dyadic relationship (DR) was assessed with the help of person product moment r. The number of IVF attempts and Mental health were significantly negatively correlated with each other ($r = -.515$, $p<.001$). Furthermore, the correlation coefficients of IVF and Mental health with various dimensions of quality of life and dyadic relationship are presented in Tables 1 and 2.

Table 1: Correlation of IVF and Mental health with QoL

	QoL Physical	QoL Psycho	QoL Social	QoL Environment
IVF	-.203*	-.340**	-.481**	-.504**
MH	.512**	.423**	.813**	.766**

Table 2: Correlation of IVF and Mental health with DR

	DR consensus	DR satisfaction	DR cohesion	DR decision making
IVF	-.372**	-.460**	-.447**	-.312**
MH	.686**	.732**	.635**	.535**

The correlation coefficients are in the expected lines. IVF is significantly negatively correlated to mental health and all dimensions of QoL and dyadic relationships. Whereas the latter three were significantly positively correlated to each other. This proves hypothesis 1 and 2 correct.

Extending the argument that the quality of life plays a key role in the overall mental health of women undergoing IVF, the study attempted to examine if QoL successfully mediates the relationship between number of IVF attempts and mental health. To do so mediation analysis was done with the help of Process Macro software. The result is summarized below.

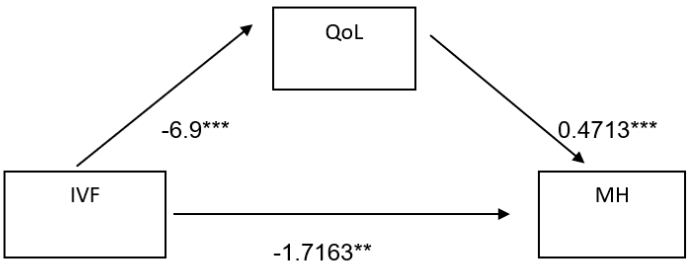

Fig. 1: proposed model of mediation by QoL

The regression coefficients show that there is a significant direct effect of IVF attempts on the mental health of the participants. However, the indirect effect mediated through the QoL is also significant and the overall effect size of the indirect route (b= -3.252) is bigger than the direct route (b= -1.716). this is an example of partial mediation and is valuable because modifications in this route can lessen the impact of IVF on mental health to a significant level. Therefore, hypothesis 3 is partially accepted.

The next important part of the analysis was to examine the role of perceived dyadic adjustment between husband and wife as a moderator of the QoL, so that this aspect can be managed to improve the mental health further.

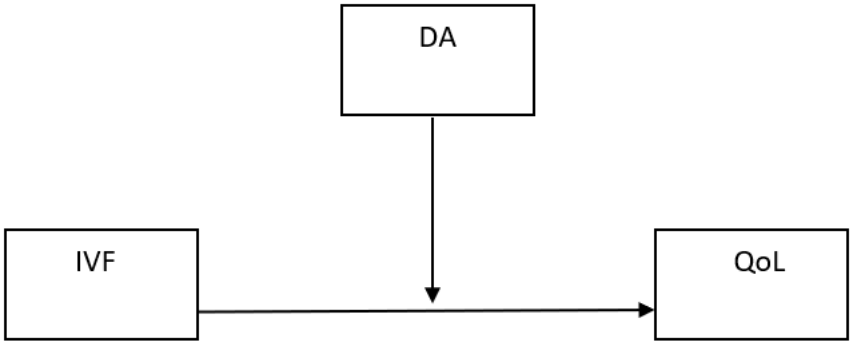

Fig.2: proposed model of moderation by Dyadic relationship

Moderator analysis was also performed using process macro software. Results are summarized below

Table 3: Showing the result of moderation analysis

Model	β	t	p
IVF	-11.26	-3.648	.0004
DR	.0574	.3747	.7087
IVF*DR	.1785	2.907	.0045

The result explicitly states the fact that the perceived dyadic relationship interacts with the number of IVF attempts to produce a significant interaction effect where an increase in dyadic adjustment neutralizes the negative impact of IVF on the quality of life of the women undergoing it. This proves hypothesis 4 correct.

Discussion

The present study aimed to understand how dyadic adjustment and QoL can help mitigate the negative impact of IVF attempts on the mental health of women. The analysis was done in three phases. In the first phase, the inter-correlations of the number of IVF attempts, Mental health and dyadic adjustment were computed. The second phase was devoted to examining the strength of QoL as a mediator in the relationship of No. of IVF attempts and Mental health. Finally, the third phase was designed to assess the effectiveness of the perceived dyadic relation as a moderator of the IVF attempts and QoL relationship. The sample had women undergoing IVF with poor mental health issues. Their QoL and Dyadic relationship quality were also assessed to understand if these variables can guard mental health effectively against the repercussions of IVF.

The first phase revealed that as expected the number of IVF attempts was significantly negatively correlated to mental health, QOL and DR. This shows that the uncertainty of results and physical pain involved in the procedure cast a bad impact on the mental health of women. In contrast, the latter three are significantly positively correlated to each other. This means changing any of them will produce sequential changes in the others.

Second phase of analysis indicated that QoL partially mediates the relationship between the number of IVF attempts and the mental health of women. It means that apart from casting a strong direct impact on the mental health of women, the IVF experience also cast negative impact on variables closely associated with mental health. Again, the effect will be passed on to the mental health status through a different route. So, the impact of IVF on mental health gets multiplied and escalated. However, this also implies that any change in this route may help mitigate the negative influence of IVF as well. To do so one needs to identify factors which can protect the QoL of women during IVF and one such factor is the dyadic relationship of the couple. The third phase of analysis addressed this issue and examined the power of dyadic relationships to moderate the relationship between QoL and IVF. Results showed a significant moderating effect of the dyadic relationship on the IVF-QoL relationship. This means if a woman finds a consensus of opinions, can participate in decision-making, is satisfied with her relationship and feels emotional warmth even though she is not able to conceive and is undergoing IVF, it helps in scrapping the potential psychological risk of infertility trauma as well as the hardships of IVF procedure including the risk of an unsuccessful IVF.

Overall, the study provides a definite direction to the counselling process. The findings are important in designing effective intervention programs for women undergoing IVF and

can substantially contribute to alleviating the psychological agony of women to some extent.

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Declaration of interest

The two authors have no conflict of interest to declare.

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