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Infertility: Current Scenario and Psychological Factors

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Abstract:

Psychosocial aspects of infertility in couples are of much relevant. This paper attempts to compare psychological factors which may play a role in couples with and without infertility. The prior objectives are to examine the differences concerning marital quality, attachment styles, and defense styles of infertile and fertile couples. A total of 80 individuals (40 infertile couples and 40 matched fertile couples) were assessed through administering the personal information schedule, Marital Quality Scale, Attachment Style Questionnaire, and Defense Style Questionnaire-40. General Health Questionnaire-28 was administered in the fertile couples to rule out psychiatric morbidity. Results revealed that infertile couples differed from fertile couples on marital quality dimensions of understanding, satisfaction, trust, role functioning, despair, and rejection. On the attachment style, component of preoccupation with relationships and the use of immature defenses such as acting out and displacement. This research identified several psychological dimensions related to fertility. Understanding these factors may be helpful for the couples, their family members, and practitioners, with regard to the psychological and social needs related to infertility

Keywords: *Attachment style, couple, defense style, infertility, marital quality.*

1. Introduction:

Fertility may be defined as a capacity to conceive and thus to produce offspring **(Zegers-Hochschild et al., 2017)**. In contrast, infertility is defined as a disease characterized by a failure to establish aclinical pregnancy after 12 months of regular and unprotected sexual intercourse. Infertility in females may be categorised as primary, concerning females who have never been pregnant, and secondary, concerning females who have previously been pregnant**(Vander and Wyns, 2018)**.

The problem of infertility is estimated to concern approximately 8–12% of the global population**(Ombelet et al., 2008)**, with secondary infertility occurring more often than primary infertility**(Nachtigall, 2006)**. Furthermore, infertility is found to occur more often in less developed countries**(Mascarenhas et al., 1990)**. Males are estimated

to be responsible for 20–30% of infertility individually, and are co-responsible for half of all infertility cases **(Agarwal et a;., 2015)**.

Factors that may be associated with decreased fertility include time of unwanted non-conception, age of the female partner and number of diseases impacting fertility**(Vander and Wyns, 2018)**. In addition, more recent research indicates that fertility is also influenced by male partner's age**(Lotti F and Maggi, 2018)**.7 Infertility may be caused by various diseases related only to males (e.g. testicular deficiency), only to females (e.g. polycystic ovary syndrome [PCOS], endometriosis, uterine fibroids, or premature ovarian insufficiency) or diseases that can concern either sex (e.g. systematic diseases, infections, hyperprolactinaemia, or hypogonadotropic hypogonadism)**(Vander and Wyns, 2018)**.

The experience of fertility problems can be very stressful for women and men **(Berardis et al.,2014; Pasch et al., 2016; Péloquin et al., 2018)**, as fertility problems constitute a barrier toachieving what is a central life goal for many: starting or extending a family. Women and menhave always experienced problems procreating, but a wide range of medical techniques foraddressing infertility are now available in contemporary industrialized societies. Such medicaltechniques are typically summarized under the term medically assisted reproduction (MAR)which encompasses not only assisted reproductive technology treatments (ART) such as invitro fertilization (IVF), intracytoplasmic sperm injection (ICSI), preimplantation genetictesting (PGT), cryopreservation of embryos and gametes, but also assisted insemination andhormonal treatments such as ovulation induction or stimulation **(Zegers-Hochschild et al.,2017)**. Since the birth of the first "test-tube baby" in the UK in 1978, MAR has developed at arapid pace, creating increased faith in medical solutions to problems procreating. Over thesame period, most developed countries have experienced a more or less continuous increasein the use of MAR **(Wyns et al., 2020)**.

2. Materials and Methods:

2.1 Sample size: The study included 80 respondents, i.e., 40 married couples, in two groups. There were 20 couples in one group (n = 40), who diagnosed with infertility who were compared with 20 fertile couples in the other group (n = 40). Participants were selected using convenient sampling from a fertility clinic in Varanasi city. Treatment-aspirant meeting inclusion and exclusion criteria were contacted for consent to participate in the study for 3-4 months. The participants in each groups were matched on domicile, age, education, occupation, income, language and family system.

2.2 Inclusion and Exclusion Criteria:

2.2.1 Inclusion Criteria: Respondents within the age range of 25–45 years, a minimum of 12 years of education, ability to read and write regional language and English, married for at least 3 years, and diagnosed with infertility based on the WHO criteria **(WHO, 2004)** were included in the study.

2.2.2 Exclusion Criteria: Respondents with at least one child were included in the fertility group. For each group, who have a developmental disability, history of chronic medical illness, past and/or present history of psychiatric illness, venereal diseases, those who have attained menopause and individuals with secondary infertility were excluded.

2.2.3 Measures: Personal information schedule was draw up by the investigators to elicit information on socio demographic factors.

General Health Questionnaire-28 (GHQ-28)(**Goldberg and Hillier, 1979**) was used as a screening tool to rule out psychiatric co morbidity among all the respondents. This scale gives a measure of common mental health problems/domains of depression, anxiety, somatic symptoms, and social withdrawal. The response option for the items in the scale includes, “not at all,” “no more than usual,” “rather more than usual,” and “much more than usual,” (scoring from 0 to 3, respectively). Scores above four are considered to achieve a “psychiatric caseness.” Numerous studies have investigated the reliability and validity of the GHQ-28 in various clinical populations. Test-retest reliability reported to be high (0.78–0.09)(**Robinson and Price, 1982**), and inter-rater and intra-rater reliability have both shown to be excellent (Cronbach’s ά 0.9–0.95)(**Failde et al., 2000**). The GHQ has both content validity and construct validity.

Marital quality was assessed using the Marital Quality Scale(**Shah, 1995**). It is a multi-dimensional scale in English language. Factor structure identified over and done with factor analysis, shows 12 factors and these are understanding, rejection, satisfaction, affection, despair, decision-making, discontent, dissolution potential, dominance, self-disclosure, trust, role functioning comprising of 6, 9, 5, 6, 2, 6, 2, 1, 2, 3, 1, and 4 items, respectively. Two questions/items do not represent any factors. The scale has 50 questions in a statement from a 4 point rating scale (U = Usually, S = Sometimes, R = Rarely, N = Never). The scale has 28 positively worded items and 22 negatively phrased items. The scale has higher internal consistency (coefficient alpha = 0.91) and high test-retest reliability.

Attachment styles were measured using the Attachment Style Questionnaire (**Feeney et al., 1994**) which is a self-reported questionnaire, a six-point Likert scale with 40 items. The five dimensions of the scale are confidence, preoccupation with relationships, relationships as secondary (to achievement), discomfort with closeness, and need for approval. The only dimension of secure attachment is confidence. The other four are dimensions of various insecure attachment styles. The internal consistency (Cronbach’s alpha) was reported to be 0.80, and test-retest reliability over 10 weeks was found to be 0.76(**Feeney et al., 1994**).

Defense Style Questionnaire (**Bond, 1995**): It is a self-report measure that was used to assess the defense styles of the participants.. Andrews et al.(**Andrews et al., 1993**) simplified the instrument into 40 questions related to 20 defense mechanisms among which four defenses are associated with the mature factor (sublimation, humor, anticipation, and suppression), four are related to the neurotic factor (undoing, pseudoaltruism, idealization, and reaction formation), and 12 are associated with the immature element (projection, passive aggression, acting out, isolation, devaluation, autistic fantasy, denial, displacement, dissociation, splitting, rationalization, and somatization). The internal consistency scores of the mature, neurotic, and immature defense styles are 0.70, 0.61, and 0.83, respectively. Furthermore, these three defense styles have acceptable split-half reliability and test-retest reliability coefficients.

2.2.4 Procedure: The study was carried out on a sample size of 40 married couples who came for consultation in a fertility clinic in Varanasi city. A group of 20 fertile couples having at least one child was also selected from the same town. For the present research study, through a purposive sampling technique, the sample was selected based on the unique characteristics of infertility and fertility. Convenience sampling was involved in selecting respondents primarily based on their availability and willingness to respond. For inclusion in the infertile group members, the married couples who were visiting the clinics were selected based on fulfilling the inclusion and exclusion criteria. For inclusion in the fertile group members, couples who belong to varanasi city with matching demographic features were approached separately at their residence by the researcher, briefly oriented regarding the research. Written informed consent for participation was sought from all the individual participants. Willing participants were included based on inclusion and exclusion

criteria and further screened on GHQ-28, and those who scored below cut off scores were chosen for the study sample. Data collected during the study were analyzed using SPSS version 16.0 (IBM, New York, USA)(**Levesque, 2007**).

3. Results and Discussion:

Sample characteristics and preliminary statistics Descriptive information about the participants in this study is illustrated in Tables 1 and 2.

Respondents in this study ranged from 26 to 44 years of age; the mean age of the infertile group was 31.98, while the mean age for the fertile group was 34.69(Table 1).

There was a significant difference in the mean rank of age between infertile couples and fertile couples (Table 2).

Table 1: Mean and Standard Deviations of the scores obtained from the infertile group (women, men and total) and fertile group (women, men and total) for age

Variables	Infertile couple group						Fertile couple group					
	Women (n=20)		Men (n=20)		Total (n=40)		Women (n=20)		Men (n=20)		Total (n=40)	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Age	29.50	3.942	34.247	3.84	31.98	4.557	33.58	4.533	35.78	3.348	34.69	4.072

SD = Standard Daviation

Table 2: Significance of the difference between the mean of age variable for infertile and fertile groups

Variable	Groups	t	Level of Significance (P)
Age	Infertile couples (n=40) Fertile couples (n=40)	2.509	<0.05

A comparative profile of infertile and fertile couples on the study variables:

The results (Table 3) show that infertile couples have a significantly better understanding, satisfaction, trust, and role functioning than the fertile couples. Results further show that infertile couples have substantially higher despair and rejection than fertile couples.

The results (Table 4) indicate that there is a significant difference between the two groups concerning a dimension of attachment style, namely preoccupation with relationships. Infertile couples have a higher preoccupation with relationships than their fertile counterparts.

The results (Table 5) indicate that the infertile couples use both acting out and displacement to a more significant extent as compared to their fertile counterparts.

Table 3: Significance of the difference between the mean of subjects for marital quality as total and dimensions of marital quality for infertile and fertile couples group

Variables	Infertile Couple Group		Fertile Couple Group		t
	Mean	**SD**	**Mean**	**SD**	
MQ Total	91.99	19.93	98.20	26.12	1.061 (NS)
Understanding (MQ_1)	11.30	4.81	14.40	5.59	2.171*
Rejection (MQ_2)	22.05	3.65	17.25	4.16	- 4.783**

Satisfaction (MQ_3)	6.83	2.06	9.00	4.29	2.483*
Affection (MQ_4)	9.45	3.30	10.85	3.85	1.622 (NS)
Despair (MQ_5)	4.32	1.16	3.88	1.02	- 2.007*
Decision Making (MQ_6)	10.47	2.90	12.68	5.10	2.034*
Discontent (MQ_7)	3.50	2.14	3.59	1.30	0.365 (NS)
Dissolution Potential (MQ_8)	1.78	1.19	1.92	1.10	0.565 (NS)
Dominance (MQ_9)	1.85	1.73	5.25	1.78	1.102 (NS)
Self-disclosure (MQ_{10})	4.40	2.22	5.10	1.69	1.242 (NS)
Trust (MQ_{11})	1.42	.860	2.20	1.23	2.549*
Role Functioning (MQ_{12})	6.25	2.68	8.19	3.23	2.579*

Significance levels: *P<0.05; **P<0.01. NS=nonsignificant, MQ=Marital quality, SD=Standard deviation

Table 4: Significance of the difference between the mean of subjects for attachment style for infertile and fertile couples group

Variables	Infertile Couple Group		Fertile Couple Group		t
	Mean	SD	Mean	SD	
A1: Confidence	34.28	5.804	31.98	4.813	- 1.647 (NS)
A2: Preoccupation with relationship	30.89	6.963	27.01	6.654	- 2.178*
A3: Relationship as a secondary to achievement	22.01	6.99	24.38	6.02	1.190 (NS)
A4: Discomfort with closeness	37.39	6.16	35.30	3.31	- 1.566 (NS)
A5: Need for Approval	25.12	4.76	23.98	3.11	- 1.243 (NS)

Significance levels: *P<0.05, **P<0.01. NS=Nonsignificant, SD=Standard deviation

Table 5: The significance of the difference between the mean of subjects for the use of defense mechanisms for infertile and fertile couples group

Variables	Infertile Couple Group		Fertile Couple Group		t
	Mean	SD	Mean	SD	
DM Total	46.90	11.56	46.45	6.10	-0.237 (NS)
DM1: Sublimation	10.65	3.42	11.04	2.36	0.219 (NS)
DM2: Humor	12.45	3.90	11.88	2.12	-0.741 (NS)
DM3: Anticipation	12.99	2.51	11.75	3.21	-1.509 (NS)
DM4: Suppression	11.73	2.91	11.62	2.64	-0.046 (NS)
DN Total	45.02	6.59	44.28	6.83	-0.442 (NS)
DN1: Undoing	11.80	2.73	11.01	2.71	-0.949 (NS)
DN2: Pseudo Altruism	12.48	2.74	10.91	3.24	-1.938 (NS)
DN3: Idealization	1.12	3.44	11.35	2.37	1.485 (NS)

DN4: Reaction Formation	11.50	2.24	11.09	3.92	-0.566 (NS)
DI Total	123.52	14.24	116.01	19.49	-1.717 (NS)
DI1: Projection	10.16	2.46	9.82	3.23	-0.404 (NS)
DI2: Passive Aggression	10.10	2.88	10.35	2.20	0.353 (NS)
DI3: Acting Out	10.88	3.23	9.28	2.10	-2.180*
DI4: Isolation	10.92	3.17	10.15	2.76	-1.130 (NS)
DI5: Devaluation	8.15	2.45	9.77	3.19	2.14*
DI6: Autistic Fantasy	9.62	3.70	8.52	3.90	-1.086 (NS)
DI7: Denial	9.90	3.35	8.28	3.19	-1.975 (NS)
DI8: Displacement	11.25	2.73	9.05	2.50	-3.204**
DI9: Dissociation	9.65	2.81	8.26	3.92	-1.665 (NS)
DI10: Splitting	10.88	3.20	9.70	2.21	-1.504 (NS)
DI11: Rationalization	12.69	3.33	11. 59	2.71	-1.361 (NS)
DI12: Somatization	9.55	3.87	11.09	2.59	1.880 (NS)

Significance levels: *P<0.05; **P<0.01. NS=Nonsignificant, SD=Standard deviation, DM=Defensemature, DN=Defense neurotic, DI=Defense immature

The current study found that infertile couples had a significantly better understanding, satisfaction, trust, and role functioning compared to fertile couples. This finding is inconsistent with the existing literature and warrants further exploration. One possible explanation may be that infertility treatment often includes some sort of psychological support(**ESHRE, 2002; Emery et al., 2003 and British Infertility Counselling Association, 2020**). promoting well-being among the couples seeking treatment. Nevertheless, better understanding, satisfaction, trust, and role functioning are found to have a significant role in promoting well-being among married couples(**Casad et al., 2014; Flora and Segrin, 2003**), emphasizing the need for comprehensive psychological support provided for couples seeking infertility treatments. Moreover, studies have shown that the individual's marital relation is relatedto other characteristics such as socioeconomic status(**Conger et al., 1992**),personality(**Chen et al., 2007**), mental health(**Afifi et al., 2009**), communication(**Ting-Toomey, 1983**), and duration of the marriage(**Bradbury et al., 2000**). The above factors directly or indirectly influence the marital relationship of both the infertile males and females. When both partners perceive the issue of childlessness as a common problem, they may support each other with better understanding, satisfaction, trust, and role functioning – the interactions between couples that may be more important for marital quality than social or personal traits(**Booth et al., 1994**). The present finding may be attributed to the fact that infertility is a mutual condition, and both partners shared the experience of childlessness(**Kie colt-Glaser, 1994**).

The study finds higher despair and rejection among infertile couples. Guerra et al. affirm "Infertility is a deeply distressing experience for many couples(**Guerra et al., 1998**)." Thus, in general, the likelihood of presenting despair and rejection feelings among infertile couples are higher than fertile couples; this was put forward by a study led by Mahlstedt, he postulated that "infertility sometimes is accompanied by existential crises and emotional tensions such as anxiety, suppressed anger, frustration, inferiority feeling, depression, rejected feeling, and despair(**Mahlstedt, 1985**)."

The study also finds that infertile couples have a higher preoccupation with relationships than their fertile counterparts. This could arise from a feeling of inadequacy and incompleteness that may be complicated further by infertility. Their crisis

makes them seek social support and acceptance, which, in a way, keeps them preoccupied with relationships. The result supports that the hypothesis was based on the general observation that infertile couples are more anxious than fertile couples. Editor of World Health Forum(**Singh, 1996**)argues that in India if infertile couples are provided with emotional support from their near and dear ones, it is likely to comfort them. Findings further indicate that the infertile couples use acting out and displacement to a more significant extent as compared to their fertile counterparts. The meaninglessness reflected by childlessness may lead to severe emotional conflicts. Infertile couples deal with their emotional conflicts and internal or external stressors by actions, rather the reflections or feelings or by shifting their strong emotional components and feelings from one object or idea to another. However, the defensive "acting out" is not synonymous with "bad behaviour" because, in infertile couples, this behavior is related to their unresolved emotional conflicts. Infertile couples also use displacement at a higher level when compared with their fertile comparable. Thus, this suggesting that the immature defenses function as individual adaptation methods for alleviating distress that occurs in relational contexts(**McMahon et al., 2005**).

The current study found that fertile couples use devaluation more than infertile couples do. Being infertile, they may tend to help understand each other'sloss and not blame themselves or "devalue" themselves for childlessness. Rather, the anxiety invoked by the underlying conflict may be chosen to be displaced. The age factor, coupled with the pressure of rearing children, may give rise to the "midlife crisis." In the current study, the mean age for the fertile couples was found to be significantly higher than the infertile couples. According to Erikson(**Erickson, 1950**), the stage of young adulthood is marked by the crisis of intimacy versus isolation, where the struggle is between the expression of intimacy and feeling of self-absorption. As infertile group falls in this stage, instead of devaluing themselves, they may tend to be seeking intimacy, as also suggested by their preoccupation with relationships. Instead of involving in the self-defeating behavior of devaluing themselves, they may tend to seek an intimate relationship. Although the fertile group also falls in the same stage, yet their mean age suggests that they are in middle adulthood, according to Erikson's theory, i.e., middle adulthood, marked by the crisis of generativity versus stagnation. However, no particular reason may be attributed to this finding currently, and further exploration may provide insights into the reason behind this finding.

4. Summary and Conclusion:

4.1 Summary:

The present study would support the community and mental health professionals to recognize the underlying psychological components of infertility. It may benefit couples and their family members who are unaware of this regard. A broad-based awareness of infertility and its secondary effects on couples should be given greater importance. A need for informational programs on infertility regarding its psychological aspects and its management is felt strongly. Thus, the starting of counseling centers for the help of infertile couples is very crucial.

4.2 Conclusion:

The present study indicates significant differences between infertile and fertile couples on different dimensions of marital quality. Infertile couples have better understanding, satisfaction, decision making, trust, and role functioning in the marital relationship than their fertile counterparts. Infertile couples experience a higher level of despair and rejection than fertile couples and are more preoccupied with relationships than fertile couples. Infertile couples use displacement and acting out to a greater extent than fertile couples, and devaluation to a lesser extent than their fertile counterparts. Thus, the study

concludes with a note that psychological mechanisms related to infertility need further exploration. Couples may benefit from the specific recommendations of psychological interventions so that those who are suffering from the unbearable psychological pain due to the involuntary childlessness can move at least one step forward to the path of parenthood.

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