ORIGINAL RESEARCH

Relationship between psychological stress and Recurrent Pregnancy Loss- A Prospective Study

[1]Rajesh Kumar Chandel, [2]Mustafa Ali, [3]Shaveta Bhagat, [4]Saima Hafiz, [5]Anil Mehta, [6]Pallavi Sharma

[1]Associate Professor, Department of Psychiatry, GMC Kathua, Jammu and Kashmir, India
[2]Assistant Professor, GMC Kathua, Jammu and Kashmir, India
[3]Assistant Professor, Department of Psychiatry, GMC Doda, Jammu and Kashmir, India
[4]Psychologist, India
[5]Professor, [6]Assistant Professor, Department of Obstetrics and Gynaecology, GMC Kathua, Jammu and Kashmir, India

Corresponding author
Shaveta Bhagat
Assistant Professor, Department of Psychiatry, GMC Doda, Jammu and Kashmir, India
Email:bhagatshaveta01@gmail.com

ABSTRACT
Background: Recurrent pregnancy loss is a frequently unexplained condition which affects 1–3% of couples who are trying to have children. Present study aimed to examine relationship between psychological stress and Recurrent Pregnancy Loss.
Materials and method: A total of 40 couples who had experienced at least two consecutive miscarriages were recruited by means of convenience sampling. The inclusion criteria are abortions that must be 2 or more in number and spontaneous.The socio demographic details of patients were assessed using a semi structured questionnaire. The other related history which includes parity, gestational week duration following abortions, duration of marriage and other bad obstetric history were also inquired. The history of previous pregnancy complications was also recorded. Emotional distress such as depressive cognition, anxiety features, stress, sleep disturbances among the couples were analyzed using HAM-A and HAM-D scales.
Results: Females experience more perceived stress than their counterparts. Females and males significantly differ on the dimensions of appraisal support (t (78) = 10.62, p < 0.01, belonging support (t (78) = 10.70, p < 0.01, esteem support (t (78) = 9.64, p < 0.01 and tangible support (t (78) = 10.56, p < 0.01). Observation from the table states that the mean score of females ($\bar{X}$ = 41.25) on anxiety is high than males ($\bar{X}$ = 23.48). Further stated that the mean score of females ($\bar{X}$ = 18.98) on depression is high than males ($\bar{X}$ = .75).those couples having high appraisal support and belonging support are low on stress. Those couples having high depression are having high stress. **Conclusion**: Depression, anxiety, and post-traumatic stress disorder are the most common psychological disorders seen among couples with recurrent pregnancy loss. Also due to these comorbidities the relationship among couples gets impaired which further have a negative impact on quality of life leading to a negative outcome in future conceptions. While prescribing them pharmaco-therapeutic treatment, risks-benefit ratio should always be kept in mind.
Keywords: Spontaneous abortion, recurrent pregnancy loss, infertility, psychological stress.

INTRODUCTION

Spontaneous abortion or early pregnancy loss is defined as the loss of a clinical pregnancy before 20 completed weeks of gestational age.[1]According to the American society of reproductive medicine, recurrent pregnancy loss is defined as two or more clinical pregnancy losses as documented by ultrasonography or histo-pathologic examination which is not necessarily consecutive.[2] As per European Society for Human Reproduction and Embryology [3,4]and the Royal College of Obstetricians and Gynaecologists,[5] Recurrent Pregnancy Loss refers to three consecutive pregnancy losses, including non-visualized ones. Thus the definition has long been debated and differs among international societies.

Recurrent pregnancy loss is as important reproductive health issue as infertility and affects about 2%–5% of couples.[5,6] This traumatic event may leads to symptoms of depression, anxiety, lowered self-esteem and other psychosocial consequences.[7] Also the negative psychological impact and feelings of grief and loss related to spontaneous abortion may intensify with further pregnancy loss.[8,9] The psychological effects following pregnancy loss may

also be different in women and men and this difference may be due to difference in the concept of both maternity as well paternity as culturally acceptable.[10]

As per one study conducted with 56 couples by Beutel, Willner, Deckardt, VonRad, and Weiner (1996), after a single miscarriage, higher levels of grieving were found among women, although men also suffered qualitatively similar.Also the uncertainty about each pregnancy makes these couples increasingly ambivalent about each consecutive pregnancy and as a protective mechanism, they may distance themselves from a new pregnancy, during the beginning process of bereavement and started separation from the pregnancy in anticipation of another failure, before an actual loss occurs. Thus, this ambivalence and feelings of guilt which are common may cause ongoing emotional problems.[10]

RISKS FACTORS FOR PSYCHOLOGICAL MORBIDITY AFTER ABORTION

For a woman with recurrent miscarriage, there are various risk factors associated with theirpsychological morbidity which are considered clinically significant from a public healthperspective. As per many studies conducted among females after miscarriage, no associationfound between age or marital status and psychological morbidity[11,12]. As for duration ofpregnancy results of many studies are often conflictual. As per one study, gestational age isdirectly proportional to depressive symptoms [13,15] as well grief rates[16,17]. Also increased levelsof depressive, anxiety symptoms and grief has been reported with childlessness[11]. As per one study conducted by neugebauer[13] numbers of children served as a protective factor againstdepression as an indirect social support. Women receiving less social support from theirpartners or their family members have stronger as well longer grief reactions[11].

It comes to a debate if a clinician advised a miscarrying women to wait after a miscarriage or toconceive without much delay which may further promote healing in them after miscarriage.[16]

MATERIAL AND METHODS
Study Design and Settings
This cross-sectional study was conducted in couples presenting with recurrent pregnancy loss in Government Medical College, Kathua. The study was completed over a period of 1 year from October 2021 to September 2022.

Study Participants and Sampling
Participants were recruited from the gynecology and obstetrics OPD of GMC Kathua. A total of 40 couples who had experienced at least two consecutive miscarriages were recruited by means of convenience sampling. The inclusion criteria are abortions that must be 2 or more in number and spontaneous.

Couples who had history of induced abortions, prior history of any psychiatric illness or other medical co-morbidities including patient with psychopharmacological/psychotherapeutic treatment were excluded.

Data Collection and Tools and Technique
The socio demographic details of patients were assessed using a semi structured questionnaire. The other related history which includes parity, gestational week duration following abortions, duration of marriage and other bad obstetric history were also inquired. The history of previous pregnancy complications was also recorded. Emotional distress such as depressive cognition, anxiety features, stress, sleep disturbances among the couples were analyzed using HAM-A[18] and HAM-D[19] scales. The Hamilton Rating Scale for Depression (HAM-D) measures depression in individuals before, during and after treatment. The scale is administered by a health care professionals and contains 21 items, but is scored based on the first 17 items, which are measured either on 5-point or 3-point scales. It takes 15 to 20 minutes to complete and score.

The HAM-A scale consists of 14 items, each defined by a series of symptoms, and measures both psychic anxiety (mental agitation and psychological distress) and somatic anxiety (physical complaints related to anxiety). Each item is scored on a scale of 0 (not present) to 4 (severe), with a total score range of 0–56, where <17 indicates mild severity, 18–24 mild to moderate severity and 25–30 moderate to severe.

The 10-item Perceived Stress Scale (PSS)[20] assesses a respondent's self-reported level of perceived stress on a 5-point Likert scale (0 = never; 4 = very often). Total possible scores range from 0 to 40, with higher scores indicating higher levels of perceived stress Cohen, Kamarch, &Mermelstein, 1983). It related to how unpredictable, uncontrollable and overloaded respondents perceive their current situation since finding out about pregnancy to now. Participants were also allowed to indicate any other specific sources of stress in this current phase.

Also, social support was assessed during the period of their pregnancy and also following their abortions. The interpersonal support evaluation list[21] was used for this social support measurement. It was measured along 4 dimensions i.e. tangible support, appraisal support, esteem support and belonging support. The score ranges from 0-48 with higher score indicating high level of perceived social support. The exclusion criterion of patients is physical co-morbidities.

Data analysis
All data were analyzed using statistical package for the social sciences(SPSS) version 23.Psychosocial variables of stress, anxiety, depression and domains of social support i.e. tangible support, appraisal support, belonging support and esteem support were subjected to independence t-test. In order to determine the

gender differences on these factors t-test was employed. The categorical variables i.e. perceived stress and socio-demographic variables,typeof marriage, duration of marriage, level of education,employment status, no. of children, no. of abortions, gestation weeks were subjected to chi-square.

RESULTS

Table 1.1

Variables	Group	Mean	SD	t-ratio	Significance
Perceived stress	Female	32.93	5.58	11.93	.01
	Male	18.30	5.38		
Anxiety	Female	41.25	7.11	11.89	.01
	Male	23.48	6.24		
Depression	Female	18.98	2.37	16.83	.01
	Male	9.75	2.53		
Appraisal support	Female	8.85	1.09	10.62	.01
	Male	11.23	0.89		
Belonging support	Female	8.65	1.17	10.70	.01
	Male	11.2	0.93		
Esteem support	Female	8.05	1.65	9.64	.01
	Male	10.9	0.92		
Tangible support	Female	8.03	1.39	10.56	.01
	Male	11.2	1.29		

Table 2.1

Stress	Age Group				
	19-24	25-30	31-36	37-42	43-48
Low	2	9	13	13	3
High	6	20	13	1	0

Table 2.2

Stress	Type of Family	
	Nuclear family	Joint family
Low	19	21
High	15	25

Table 2.3

Stress	Type of Marriage	
	Love	Arrange
Low	13	27
High	26	14

Table 2.4

Stress	DURATION OF MARRIAGE	
	More than 3 years	Less than 3 years
Low	36	4
High	32	8

Table 2.5

Stress	Education				
	Illiterate	Primary	High school	Graduation	PG
Low	4	12	12	8	4
High	5	9	13	9	4

Table 2.6

Stress	Employment Status	
	Employed	Unemployed
Low	17	23
High	12	28

Table 2.7

Stress	No. of children		
	0	**1**	**2**
Low	30	10	0
High	27	12	1

Table 2.8

Stress	No. of Abortions		
	2	**3**	**4**
Low	37	1	2
High	32	4	4

Table 2.9

Stress	Gestation Weeks		
	9 weeks	**9-15 weeks**	**15-20 weeks**
Low	21	9	7
High	22	13	8

Table 3.1
Model Summary

Model	R	R square	Adjusted R square	F	Sig
Depression	0.90	0.82	.82	361.4	.01
Depression, appraisal support	0.92	0.85	.85	218.2	.01
Depression; AS; Belonging support	0.93	0.87	.86	161.8	.01

Table 3.2
Coefficients of Regression

Variables	Unstandardized coefficients		Standardized coefficients		
	B	**SE**	**β**	**t**	**Sig.**
Constant	**39.67**	**7.75**		**5.12**	**.01**
Depression	**.91**	**0.16**	**0.52**	**5.72**	**.01**
Appraisal support	**-1.52**	**0.44**	**-0.26**	**-3.48**	**.01**
Belonging support	**-1.23**	**0.43**	**-0.22**	**-2.86**	**.05**

Table 1.1 depicts a significant difference in males and females (t (78) = 11.93, p < 0.01) on perceived stress. Results revealed that mean score of females ($\bar{X}$ = 32.93) is high on perceived stress than males ($\bar{X}$ = 18.30) showing that females experience more perceived stress than their counterparts. Further perusal of table states that there are significant differences among male and females on the dimensions of anxiety (t (78) = 11.89, p < 0.01) and depression (t (78) = 16.83, p < 0.01). It is stated further that females and males significantly differ on the dimensions of appraisal support (t (78) = 10.62, p < 0.01, belonging support (t (78) = 10.70, p < 0.01, esteem support (t (78) = 9.64, p < 0.01 and tangible support (t (78) = 10.56, p < 0.01). Observation from the table states that the mean score of females ($\bar{X}$ = 41.25) on anxiety is high than males ($\bar{X}$ = 23.48). Further stated that the mean score of females ($\bar{X}$ = 18.98) on depression is high than males ($\bar{X}$ = .75). Observation from the table reveals that the mean score of females on the dimensions of appraisal support ($\bar{X}$ = 8.85) than male is low on ($\bar{X}$ = 11.23); belonging support of female ($\bar{X}$ = 8.65) is low than males ($\bar{X}$ = 11.2); esteem support of females is low ($\bar{X}$ = 8.05)

than males ($\bar{X}$ = 10.9) and tangible support of females ($\bar{X}$ =8.03) than males is low ($\bar{X}$ = 11.2).

A chi square test of independence is used to examine the relation between type of family and their reaction to low and high stress. Observation from the table 2.1 states that the age group 19-30 experience high level of stress. A chi square test of independence is used to examine the relation between type of marriage and their reaction to low and high stress. It is to state that people living in nuclear family experience low level of stress whereas people living in joint families experience high level of stress. A chi square test of independence is used to examine the relation between duration of marriage and their reaction to high and low stress. It can be stated that people having love marriages perceived more stress whereas people having arrange marriages have high stress levels. A chi square test of independence is used to examine the relation between Number of abortions and their reaction to low and high stress. Those having 2 abortions are less stressed than 3 and 4. Perusal of data states that those having 9 weeks of gustatory period are highly stressed. Those having 9-15 weeks of gestation period are high on stress level.

Table no. 3.1 provides us with Model Summary table representing the values of R, $R^2$and adjusted R^2which determine how well a regression model fits the data. R column represents the value of the multiple correlation coefficients. R (regression) can be considered as one of the measure of the quality of the prediction of the dependent variable. A value of 0.93 indicates a good level of prediction. R Square is the proportion of variance in the dependent variable that can be explained by the independent variables. R square column depicts that the predictors show a variance of 87 %. The F value shows that the predictors statistically significantly predict the criterion variable i.e. stress. Perusal of table states that depression, appraisal support and belonging support are the best predictors of stress among couples with recurrent abortions among age, number of children, depression, anxiety, appraisal support, belonging support, esteem support and tangible support.

The coefficient of regression as shown in table no.3.2shows unstandardized coefficients (B) and standardized coefficients (β). The various factors obtained have either a positive or a negative association with stress. Perusal of table states that stress has a significant negative relationship with appraisal support (-0.26) and belonging support (-0.22). Stress has a significant positive relationship with depression (0.52). This states that those couples having high appraisal support and belonging support are low on stress. Those couples having high depression are having high stress.

DISCUSSION

This study focused on the outcomes of emotional variations on the couples after they suffered recurrent pregnancy loss. High rates of perceived stress and depression were found among women following recurrent abortions. Men although also suffered the same but their stress level and depressive symptoms were comparatively low than their counterparts. This variation among them may be due to the influence of gender on coping.[17] Women tend to feel greater perceptions of threat and less social support and coping skills are more cautious and avoidant[22]. Also significant differences were found among the males and females on the dimensions of anxiety features in a similar way. Further for the dimensions of interpersonal support, were also reported to be low in females than males. This finding is consistent with a study conducted by Bellhouse et al 2018[23]in which they showed that the women were not fully able to wipe off their tears after miscarriage due to substandard support received from their partners. The great emotional distress experienced by those women than by their counterpart may be one of the reason.[24]

Miscarriage although having a difference in social expectations among couples, is not only an emotional negative event in one's life but as an important physical dimension for women.[25]Discussing the stress variations among different age groups, it was found to be high among 25-30 years and also their duration of marriage was more than 3 years. This age group women usually have a responsibility to procreate following their marriage as a societal stigma and while facing miscarriage recurrently they perceived this as a punishment or kind of personal failure. Also with increasing their duration of married life, it becomes a challenge for them and fear about their future pregnancies[26]

As such many other studies conducted among females after miscarriage, no association found between age or marital status and psychological morbidity[11,12]. Also no associations have been found among emotional adaptation and occupational status[12,13] or their socio economic status[13,14]

In this study also the gestational age has no relation with level of stress as loss of pregnancy is itself a traumatic event either early or late and high stress level was found after miscarriage disproportional to gestational age.Results of many studies are often conflictual in this context. As per one study, gestational age is directly proportional to depressive symptoms[13,15] as well grief rates.[27,28] In another study, early gestational miscarriages (<16weeks) was associated with more depression.[29] Also some studies found no association between duration of pregnancy and post-miscarriage psychological morbidity.[30,31] and same in our study.Also numbers of children are considered as a protective role in their depressive symptomatology. In this study those women having no child had suffered more depressive features than those having two or at least one child. This is in accordance with a study conducted by Neugebauer[13] who considered children as an indirect social support. Thus it comes to a debate if a clinician advised a miscarrying women to wait after a miscarriage or to conceive without much delay which may further promote healing in them after miscarriage.[16]

CONCLUSION

Depression, anxiety, and post-traumatic stress disorder are the most common psychological disorders seen among couples with recurrent pregnancy loss. Also due to these comorbidities the relationship among couples gets impaired which further have a negative impact on quality of life leading to a negative outcome in future conceptions. Psychiatric comorbidities can be detected at an early by using various screening tools. Also the Obstetricians, gynecologists, and their primary care giver have an important role in screening them routinely and if needed provide them with proper consultation and psychiatry services. This should be done especially to the at risk population who presented with history of perinatal loss, past or family history of psychiatric illness. Also keeping in view of social support, psychotherapy also marks the mainstay of treatment in couples presented with recurrent abortions. To explain them about Self-help groups, counseling, cognitive therapy, yoga and exercise

intervention, improving communication skills, stress management, and successful resolution of grief are some of the important interventions. While prescribing them pharmaco-therapeutic treatment, risks-benefit ratio should always be kept in mind.

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