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Quality of Life, Coping Strategies, and Psychological Distress in Women with Primary and Secondary Infertility; A Mediating Model

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Abstract

Background: The situation of Women with infertility problems in third-world nations particularly Pakistan remains to be miserable. They are persistently experiencing to such conditions which lead toward psychological and physiological problems. This present research was illustrated to highlight the numerous deleterious factors that affecting the performance of women in Pakistan culture. The primary purpose of present study was to identify prevalence rates of demographic variables in Women with Primary and Secondary Infertility in Pakistan. Moreover, it examined the mediating role of quality of life between coping strategies and psychological distress in Pakistani infertile women.

Methods: 150 women (Primary infertility, n =76; Secondary infertility, n = 74) age ranged from 20 to 40 years were recruited from different hospitals of Islamabad and Rawalpindi, Pakistan. Purposive sampling technique was used based on cross-sectional design. Three instruments, Brief cope (BC) (Akhtar, 2005), Psychological Distress (PD) (Mehwish, 2013) Quality of Life (Jahanlou & karami, 2011) were used to assess quality of life, coping styles and psychological distress.

Results: Correlational and moderation analyses were applied to analyze objectives of present study. The results revealed that positive coping style was statistically significant predicted psychological distress (β=-.35, p <.001) and quality of life (β = -.27, p<.05) for primary infertile women. Whereas it was also significant predicted to quality of life (β=-.28, p<.05) for secondary infertile women. The findings also demonstrated that quality of life was statistically significant predicted psychological distress (β=-.48, p<.001) for primary infertile women. However, it was also significant predicted (β=-.68, p<.001) for secondary infertile women. Moreover, the results found that secondary infertility women had more prevalence of religious denial coping strategy as compare to primary infertile women. These results suggested quality of life was partial mediator between positive coping styles and psychological distress for secondary infertile women.

Conclusions: The result of present study would be beneficial in clinical settings to spread awareness in the society about this important issue. Moreover, it also assists in developing effective prevention and intervention programs to overcome this problem.

Keywords: Infertility, quality of life, coping strategies and psychological distress.

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Background

Infertility is defined as "a disease of the reproductive system characterized by failure to achieve clinical pregnancy after 12 months or more of regular unprotected sexual intercourse" (Dumbala et al., 2020). Worldwide, 48.5 million couples are suffering from infertility. Of these, 19.2 million couples have primary infertility and 29.3 million couples have secondary infertility (14.4 million couples live in South Asia and 10 million live in Sub-Saharan Africa). When a woman is unable to ever bear a child, it is classified as primary infertility (Dumbala et al., 2020).. Secondary infertility occurs when a woman is unable to bear a child, following either a previous pregnancy or a previous ability to carry a pregnancy to a live birth. Stress is an important factor which affects fertility as well as the success rate of *in vitro* fertilization. The prevalence of infertility-related stress is reported to be high among couples undergoing infertility treatments and also higher among women as compared to their male partners. Women with infertility have been reported to have poor psychological status in terms of trait anxiety and depressive symptoms compared to women without infertility (Dumbala et al., 2020). Since the beginning of history the phenomena of reproduction has been the essence in the continuity of human race. Motherhood is considered as the central and defining role for a woman. Especially in Indian culture pregnancy is considered as an important role to carry forward the family name. Universally every married couple wishes to have their biological child. But the Chance of achieving successful pregnancy by the perfect couple is about 80-90%.The rest of the 10% are considered as infertility.

Having children and being a parent is a normative assumption of adult life in any society. From the beginning of time, the command "Be fruitful and multiply" remains a permanent truth for most societies (Lee & Kuo, 2000). For a couple, having a child and creating a family are largely considered some of the greatest accomplishments and joys in the lives. This newly created human being resulted from much planning for some couples and much surprise for others. Fertility is the natural way to produce offspring so it is highly valued in most of the cultures and the wish for a child is one of the most basic of all human motivations. For women, pregnancy and motherhood are developmental milestones that are highly emphasized by our culture.

Infertility can represent a life event that leads women to question their life meaning as they experience feelings of helplessness, isolation, and guilt (Bridges, 2005). It is estimated that between 80 million and 168 million individuals are affected by infertility worldwide (Burns & Covington, 2006). Roughly one in ten couples will experience either primary or secondary infertility (Butler, 2003; Vayena, Rowe, & Peterson, 2002). Among the worldwide population, primary infertility rates have been estimated to range from 1 to 8% and secondary infertility has been estimated to be as high as 35% (Burns & Covington, 2006).

Infertility can be defined as 'the inability of a couple to achieve conception or to bring a pregnancy to term after a year or more of regular, unprotected intercourse'. (WHO, 2006). Infertility can be classified as either "primary" or "secondary". Infertility is labeled as primary when a woman has never conceived after a period of one years of unprotected and adequately timed intercourse (World Health Organization, as cited in Boerma & Mgalla, 2001), whereas secondary infertility is labelled when a woman has previously conceived, and is subsequently unable to conceive despite of unprotected and adequately timed intercourse for a period of one year (World Health Organization, as cited in Boema & Mgalla, 2001).

Infertility is a major negative life event which has deleterious effects on women's and man's subjective well-being. Studies examining the psychological consequences of infertility have shown that infertility leads to emotional distress such as depression, anxiety, guilt, social isolation, and decreased self-esteem in both men and women (Greil, 1997). Most couples who experience infertility consider it a major crisis (Burns, 1999).

The impact of infertility on marital relationships depends on the socio-cultural context. For example, in settings where women's roles are more closely tied to having children, where producing children for one's family is considered an important obligation and where marriage is defined in terms of producing and raising children, infertility is likely to have a greater negative impact on couple relationships. This implies that infertility will have a greater impact on relationships in the developing world. According to WHO report in 2009, infertility put forth adverse psychological effects on both men and women. Infertility among women is associated with a large number of psychological problems. The women suffering from infertility underwent severe psychological distress, use various coping mechanisms to improve their overall quality of life (Hardeep et al., 2009).

The important factor which plays significant role in experiencing psychological distress is utilization of coping strategies. Coping refers to behavioral and cognitive ways through which people attempt to deal with a situation they perceive as exceeding their resources (Lazarus and Folkman, 1984). Studies have found that coping style predict distress in women. Indeed several coping styles are related to psychological distress, including problem focused coping and Avoidance coping (Stanton, et al., 1992).

Coping style predict distress in women. Problem focused coping that is used to handle or alter the problem (Schussler, 1992). It is the negative predictor of psychological distress among infertile women. It was also found that problem focused coping strategies negatively related to psychological distress and Avoidance coping is characterized by avoiding people and reminders of the problem). It is the positive predictor of psychological distress among infertile women. Hansell et al. (1998) report that women who responded to infertility as a 'challenge' were less distressed than women who responded to infertility as a 'loss'. The focus on gender differences is also evident in studies of coping strategies (Dhillon et al. 2000, Hjelmstedt et al. 1999). A meta-

analysis of six studies using the Ways of Coping Checklist led Jordan and Revenson (1999) to conclude that women display higher levels of seeking social support, escape or avoidance, plan-oriented problem-solving and positive reappraisal. Avoidance coping, on the other hand, typically relates to higher distress (Carver et al., 1993; Dunkel-Schetter et al., 1992; Friedman et al., 1988; Friedman et al., 1990; Moyer and Salovey, 1996; Stanton and Snider, 1993).The stress-strain relationship is a function of coping strategies or mechanism by the individuals. Adaptive coping reduces stress and promotes long term health. Whereas maladaptive coping reduces stress but promotes long term ill health. Positive thinking and problem focused responses in the face of stressors are normally referred to as adaptive coping strategies; negative thinking and avoidance responses are referred to as maladaptive coping strategies (Nowack, 1990).

Park and Adler (2003) explained that positive and problem solving coping strategies can beneficial to reduce mental health problems and it can also help to enhance quality of life infertile women (Fekkes et al., 2003; Schmidt, 2006; Verhaak et al., 2007; Chachamovich et al., 2010).Whereas, a few studies found that infertility was also negatively linked to sexual and mental health (Drosdzol and Skrzypulec, 2008; Chachamovich et al., 2010). Further, several earlier studies found that those infertile women who had psychological distress symptoms, they were found with a lower quality of life as well as vice versa (Wells et al., 1989; Bonicatto et al., 2001; Aignier et al., 2006). Many contradiction studies highlighted that psychological problems such as anxiety and depression were considered vulnerable factor for development of health and psychological problems including somatic or headache, complaints and feelings of sadness, hopeless, tension and blunt emotion (Montazeri, 2008; Palermo et al., 2008).

The situation of Women with infertility problems in third-world nations particularly Pakistan remains to be miserable. They are persistently experiencing to such conditions which lead toward psychological and physiological problems. These painful sufferings bear a permanent brunt upon the psychiatrist issues of women which are illustrated as severe form of mental health issues in terms of psychological distress including stress, anxiety, depressive disorders. The effect, in turn is handled through the community as a whole that pauses behind because of the massive burden. This present research was illustrated to highlight the numerous deleterious factors that affecting the performance of women in Pakistan culture. The primary purpose of the present study was to investigate the experience of infertility for women living in Pakistan. Moreover, it examined the mediating role of quality of life between coping strategies and psychological distress in Pakistani infertile women.

Method

Design

Convenient sampling technique was used bases on cross-sectional study design.

Objectives

1. To examine the association among quality of life, coping strategies and psychological distress in women with primary and secondary infertility in Pakistan.
2. To study the mediating role of quality of life between coping strategies and psychological distress in women with primary and secondary infertility in Pakistan.
3. To investigate differences between women with primary and secondary infertility on quality of life, coping strategies and psychological distress.
4. To identify prevalence rates of demographic variables in Women with primary and Secondary Infertility in Pakistan.

Participants

Purposive sampling technique was used based on cross-sectional design. 150 women (Primary infertility, n =76; Secondary infertility, n = 74) age ranged from 20 to 40 years were recruited from different hospitals of Islamabad and Rawalpindi, Pakistan. Inclusion criteria was followed as the present study included only those women who had diagnosed infertile problems. Infertile women comprised into primary and secondary infertility. The age range of infertile women was 18-42 years and duration of infertility was from 1-20 years.

Measures

Brief cope scale. It was originally developed by Carver (1997) and translated into Urdu by Akhtar (2005). It consisted of 28 items which is further categorized into 14 subscales including self-distraction, active coping, denial, substance abuse, use of emotional support, use of instrumental support, behavioural disengagement, venting, positive reframing, planning, humour, acceptance, religion, and self-blame. Response rated in a 4-point Likert format as *1 (never), 2(very less), 3(sometimes), and 4 (a lot)*. In present study only four subscales of Brief COPE namely: active avoidance coping, problem-focused coping, positive coping and religious/denial coping were used.

Quality of life-BREF (WHOQOL-BREF). It was original developed by Jahanlou and karami (2011). It comprises of 26 items. It has four subscales as physical health, psychological health, social relationships, and environment. It was used to measure quality of life in women, response are rated five point likert scales.

Psychological distress scale. It was original developed by Veit and Ware (1983). It consisted of 24 items. It was used to measure overall psychological distress, and depressive or anxiety symptoms. Items response are rated on a 6-point Likert-type scale. Participants rated their feelings over the past month, with higher scores indicating greater distress. Items 2, 3, 8, 9, 11, 13, 14, 15, 16, 18, 19, 20, 21, 24, 25, 27, 28, 29, 30, 32, 33, 35, 36 and 38 are included as a psychological distress scale from mental health inventory.

Results

Table 1

Demographic description of variables (N=150)

Sample characteristics	Primary infertility N=76		Secondary infertility N=74	
	f	%	f	%
Age				
18- 24	23	30.3	31	41.9
25-30	33	73.7	29	81.1
31-36	15	93.4	12	97.3
36-42	5	100.0	2	100.0
Education				
Illiterate	10	23.7	5	6.8
Primary	20	36.8	11	21.6
Secondary	28	63.2	34	67.6
Higher	18	100.0	24	100.0
Family structure				
Nuclear	23	69.7	51	68.9
Joint	53	100.0	23	100.0
Duration of infertility				
1-5	50	65.8	56	75.7
6-10	20	92.1	15	95.9
More than 10	6	100.0	3	100.0

*$p < .05$, $p < .01$, ***$p<.001$*

Table 2

Correlation matrix and alpha cronbach among brief coping strategies, quality of life, psychological distress for primary and secondary infertile women (N=150)

	Variables	α	1	2	3	4	5	6	7
Primary Infertility (N = 76)									
1	Brief coping scale	.62	-	.85**	.91**	.58**	.81**	.26*	.42**
2	Active avoidance cope	.52			.71**	.31**	.53**	.03	.52**
3	Problem focus cope	.50			-	.43**	.68**	.23*	.28*
4	Religious denial cope	.52					.35**	.30**	.19
5	Positive cope	.53					-	.36**	.28*
6	Quality of life	.82							-.17
7	Psychological distress	.86							-
Secondary Infertility (N = 74)									
1	Brief coping scale	.63	-	.78**	.73**	.55**	.74**	-.01	.21
2	Active avoidance cope	.57			.45**	.27*	.40**	-.18	.19
3	Problem focus cope	.50			-	.2*	.35**	-.01	.12
4	Religious denial cope	.58					.36**	.05	.24*
5	Positive cope	.53					-	.22	-.02
6	Quality of life	.87							-.50**
7	Psychological distress	.83							-

Table 3

Mean differences between Primary infertility and Secondary infertility on brief coping strategies, quality of life, psychological distress (N=150)

Variables	Primary infertility (n=76)		Secondary infertility (n= 74)				95%Cl		*Cohen's d*
	M	SD	M	SD	t(df)	p	LL	UL	
Active avoidance cope	25.31	4.75	25.77	3.29	.69	.48	1.78	.85	-
Problem focus cope	22.65	4.68	22.71	2.87	.22	.82	1.40	1.11	-
Religious denial cope	20.29	3.76	21.39	2.83	1.99	.04	2.17	.011	.51
Positive cope	12.21	2.34	12.77	1.77	1.64	.10	1.23	.11	-
Quality of life	87.58	9.83	87.58	9.15	.01	.99	3.08	3.07	-
Psychological distress	78.70	16.41	82.43	19.33	1.26	.20	9.55	2.03	-

Table 4

The mediating role of quality of life between coping strategies and psychological distress for primary and secondary infertile women (N=150)

Variables	Psychological Distress				Quality of Life			
Primary Infertile Women (N=76)								
	B	S.E.	β	p	B	S.E.	β	p
Positive coping strategy					-.82	.34	-.26	.01
Active avoidant coping strategy	-.01	.56	-.01	.98				
Problem focus coping strategy	-1.71	.91	-.20	.06				
Positive coping strategy	-1.83	.65	-.35	.00				
Religious and denial coping strategy	-1.32	1.10	-.11	.23				
Quality of Life	-.81	.16	-.47	***				
Secondary Infertile Women (N=74)								
Positive coping strategy					-1.26	.50	-.28	.01
Active avoidant coping strategy	-.31	.52	-.05	.55				
Problem focus coping strategy	-2.87	.74	-.31	***				
Positive coping strategy	-.53	.72	-.06	.45				
Religious/denial coping strategy	-1.11	1.20	-.07	.35				
Quality of Life	-1.22	.14	-.68	***				

Note. Above table portion values show primary infertile women; below table portion values show secondary infertile women. $p < .05$, $p < .01$, $p < .001$.

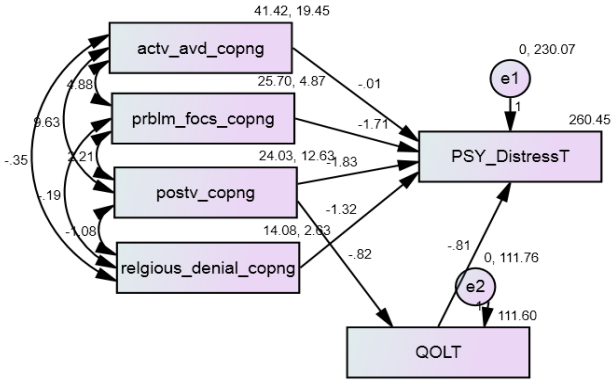

Figure 1. *The mediating role of quality of life between coping strategies and psychological distress for primary women (N=76)*

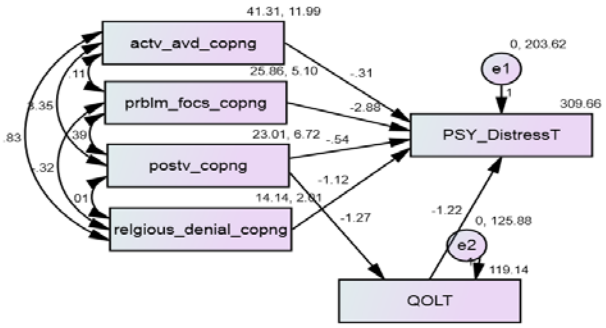

Figure 1. *The mediating role of quality of life between coping strategies and psychological distress for secondary infertile women (N=74)*

Procedure

This present study was approved from Department of Psychology, Foundation University Islamabad, Pakistan. This study was also performed through guideline of American Psychological Association (APA). 150 women (Primary infertility, n =76; Secondary infertility, n = 74) age ranged from 20 to 40 years were recruited from different hospitals of Islamabad and Rawalpindi, Pakistan. Verbal and written inform consent was obtained from all participant of study. To conduct present study, permission was taken from higher authority of hospitals after that verbal instructions were provided to study participants. Three scales were used to measure quality of life, psychological distress, and coping styles. Correlation and moderation analyses were used to confirmed study hypotheses. Descriptive analysis was used to check prevalence of demographic variables in primary and secondary infertility. Further, correlational analysis was applied to examine association among quality of life, psychological distress, and coping strategies in primary and secondary infertility. Furthermore, mediation analysis was utilized to investigation the mediating role of quality of life between psychological distress and coping styles in primary and secondary infertility.

Results

In the Table 2, Results of current study shown overall alpha reliability coefficient of all scales are satisfactory for primary and secondary infertile women. In the Table 2, the results revealed that active avoidance coping was statically positively significant associated with quality of life and psychological distress for primary infertile women. Problem focused coping strategy was significantly positive associated quality of life and psychological distress. Further, religious denial coping strategy was significantly positive quality of life and psychological distress. Moreover, positive coping strategy was statistically significantly positive associated quality of life and psychological distress. However, Quality of life was significantly negatively associated with psychological distress for primary infertile women.

In the Table 2, the results revealed that religious denial coping strategy was statically positively significant associated with psychological distress for secondary infertile women. Whereas, active avoidance, problem focused, and positive coping strategies were non-significantly associated quality of life and psychological distress. Moreover, quality of life was significantly negatively associated with psychological distress for secondary infertile women.

In Table 3, the findings of current study revealed active avoidance coping, problem focus, positive coping strategies were found statistically non-significant difference between primary and secondary infertility women. Religious denial coping strategy was also found significant difference between primary and secondary infertility women. The result

revealed that secondary infertility women had more prevalence of religious denial coping strategy as compare to primary infertile women. Moreover, there was found non-significant difference between primary and secondary infertility on psychological distress and quality of life.

In Table 4, The results of the study's model fit indices revealed data adequately fit for present study model ; RMSEA, .05(.06, .04), $p < .15$, $\chi 2(12) = 16.96$, x2/*df* = 1.41, TLI = .97, NFI = .98, CFI = .99, IFI= .96. In Table 4, the results of present study revealed that positive coping strategy was statically negatively significant predicting quality of life (β=-.26, p<.01) and psychological distress (β=-.35, p<.000) for primary infertile women. Whereas, findings also demonstrated that positive coping strategy was statically negatively significant predicting quality of life (β =.28, p <.01) and psychological distress (β=-.06, n.s) for secondary infertile women. Further, the findings revealed that active avoidant coping strategy was statically non-significant predicting psychological distress for primary and secondary infertile women.

Moreover, the results of present study illustrated that religious/denial coping strategy was statically non-negatively significant predicting psychological distress for primary and secondary infertile women. The finding shown that quality of life was statically negatively significant predicting psychological distress (β=-.47, p<.000) for primary infertile women. However, the finding shown that quality of life was statically negatively significant predicting psychological distress (β=-.68, p<.000) for secondary infertile women. These results suggested quality of life was partial mediator between positive coping styles and psychological distress for secondary infertile women.

Discussion

The situation of Women with infertility problems in third-world nations particularly Pakistan remains to be miserable. They are persistently experiencing to such conditions which lead toward psychological and physiological problems. These painful sufferings bear a permanent brunt upon the psychiatrist issues of women which are illustrated as severe form of mental health issues in terms of psychological distress including stress, anxiety, depressive disorders. The effect, in turn is handled through the community as a whole that pauses behind because of the massive burden. This present research was illustrated to highlight the numerous deleterious factors that affecting the performance of women in Pakistan culture. The primary purpose of present study was to identify prevalence rates of demographic variables in Women with Primary and Secondary Infertility in Pakistan. Moreover, it examined the mediating role of quality of life between coping strategies and psychological distress. Furthermore, to examine the association among quality of life, coping strategies and psychological distress. Additionally, to investigate differences between women with primary and secondary infertility on quality of life, coping strategies and psychological distress.

The primary purpose of present study was to examine the mediating role of quality of life between coping strategies and psychological distress for primary and secondary women. This study's results revealed that positive coping strategy was significant predicting quality of life and psychological distress for primary infertile women. Whereas, findings also demonstrated that positive coping strategy was significant predicting quality of life and psychological distress for secondary infertile women. Moreover, the finding shown that quality of life was significant predicting psychological distress) for primary infertile women. However, the finding shown that quality of life was significant predicting psychological distress for secondary infertile women. These results suggested quality of life was partial mediator between positive coping styles and psychological distress for secondary infertile women. These results are provided evidence out study objective.

These findings were also consistent with previous study findings. Numerous previous studies found that women's with infertile were experiences high level of mental health issues including stress, depression, anxiety, and mood swings as compare to normal women. Similar studies also revealed that most of women with infertility had experienced more psychological and health problems such as somatic, headache, depression, and mood swings in Asian countries due to family pressure and responsibilities. Furthermore, Park and Adler (2003) explained that positive and problem solving coping strategies can beneficial to reduce mental health problems and it can also help to enhance quality of life infertile women (Fekkes et al., 2003; Schmidt, 2006; Verhaak et al., 2007; Chachamovich et al., 2010).Whereas, a few studies found that infertility was also negatively linked to sexual and mental health (Drosdzol and Skrzypulec, 2008; Chachamovich et al., 2010). Further, several earlier studies found that those infertile women who had psychological distress symptoms, they were found with a lower quality of life as well as vice versa (Wells et al., 1989; Bonicatto et al., 2001; Aignier et al., 2006).

Many contradiction studies highlighted that psychological problems such as anxiety and depression were considered vulnerable factor for development of health and psychological problems including somatic or headache, complaints and feelings of sadness, hopeless, tension and blunt emotion (Montazeri, 2008; Palermo et al., 2008).

Moreover, this study also find out differences between women with primary and secondary infertility on quality of life, coping strategies and psychological distress. The results revealed that religious denial coping strategy was found higher in primary infertile women sample as compare to secondary infertile women. Whereas, other coping strategies, quality of life, and psychological distress was non-significant found higher in primary infertile women as compared to secondary infertile women. Previous studies did not consistent with current study findings. Earlier study's findings demonstrated that primary infertile women were shown more psychological distress as compared to secondary infertile women. However, similar studies found that primary infertile women had less prevalence of quality of life than secondary infertile women. The results of current study was not consistent with previous study findings.

Limitation and implication

A few limitations should be discussed of present study. The first drawback of current study was correlational study that did not allow to draw cause and effect conclusions. Secondly, Small sample size is a major limitation of the study as results cannot be generalized on the large population. Thirdly, the generalizability of this study is limited also because it utilized only a sample of women, rather than of men and/or couples. Finally, this research includes only those

infertile women who reported for treatment at different medical centers. Despite of above mentioned limitations, the current study provides in-depth information related to infertility and its vulnerable psycho-social consequences and spread awareness to proper address and monitor mental health issues of infertile women in Pakistan culture.

Conclusion

This study recommended that positive coping strategy could helpful to decreased mental health problems and increase quality of life in infertile women. Moreover, in Asian countries especially India, Iran and Pakistan, there is a relatively high pressure on women to have a child. In such cultures, children are an important source of social desirability. They represent the creation of family bonds that link individuals, couples and generations to each other. Therefore, infertility can have a devastating effect on women's mental health. With regard to the fact that certain coping strategies have different impacts on individuals' mental health, it is important to understand which forms of coping strategies are used more frequently by infertile women. This study highlights the importance of coping strategies in improving the mental health of women with fertility problem. The clinical interventions for infertile individuals may need to promote awareness about the usefulness of coping strategies.

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Ethical Consideration

The study was approved by the Foundation University Islamabad. Consent Form was taken before taking data and participants were asked to take voluntary participation. It was also informed to the participants that there is no harm and their data will be kept confidential.

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Availability of data and materials

The data sets used and analyzed during the current study are available from the corresponding author on reasonable request.

Authors' contributions/Author details

Miss Javeria Saif and Dr. Iffat Rohail performed the main study under the supervision of Javeria Saif and Dr. Iffat Rohail , Muhammad Aqeel. Wrote the article under the guidelines of Nature-Nurture Journal of Psychology.

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Ethics declarations

Ethics approval and consent to participate

This study was approved by the Institutional Review Board (Foundation University Islamabad). A written informed consent was obtained from all participants.

Consent for publication

Not applicable.

Competing interests

The authors declare to have no competing interests.

Additional Information

Not applicable.

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