

Stress, Anxiety, Depression, Coping Strategies and Quality of Life of Infertile Women in Lahore, Pakistan

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ABSTARCT

Though infertility is not considered a life-threatening condition, it is perceived as a crisis in a woman's life, due to the societal and cultural norms of Pakistan. The diagnosis is accompanied by psychological issues which impact the quality of life in women. The current research investigates the impact of stress, anxiety, and depression on the quality of life of infertile women and to understand the coping strategies adopted by them. A correlational research design was used and a purposive sample of 108 infertile women was taken from health centers. The Urdu translations of The Fertility Quality of Life, The Perceived Stress Scale, The Hospital Anxiety and Depression Scale, and The Brief COPE Scales were used. Pearson Product Moment correlation was used to understand the relationship between variables and mediation analysis was conducted through PROCESS software. Results show that anxiety and stress were significantly correlated with quality of life and maladaptive coping. Anxiety and stress also played a mediating role in explaining the relationship between maladaptive coping and quality of life. There was no significant difference between the mean scores of women diagnosed with primary and secondary infertility, indicating that women are going through the same struggles regardless of the type of infertility diagnosis. It is recommended that mental health awareness, counseling support, and social support interventions should be provided to women experiencing infertility in Pakistan.

Keywords: Infertility, primary infertility, secondary infertility, anxiety, depression, stress, quality of life, coping strategies

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INTRODUCTION

Infertility is the most common diagnosis given to a woman during their childbearing years. There are various causes of infertility due to which a woman is unable to conceive naturally. Advancements in medical sciences have made it possible for many women to successfully conceive and give birth to a healthy child with treatment (Rizvi et. al., 2004). However, very little effort is made towards understanding the experience of psychological aspects during the journey of seeking medical treatment. The pressure is on both the males and females but given South Asian societal norms, it is the women who go through greater emotional turmoil and social stigma when a couple faces infertility (Jafree & Rahman, 2020). In addition, the treatment for infertility puts women in a difficult situation since there is no way to determine how much time it will take for a woman to get pregnant (Hasanpoor-Azghdy, 2014).

Although in recent years much interest has been developed in addressing the causes of infertility, very little research in Pakistan has been done to understand the impact of seeking infertility treatment on the emotional and psychological well-being of women. We believe the findings of this study will help to design better support services for women seeking infertility treatment. Women suffering from infertility are suffering from stress, anxiety, and depression and need prompt mental health services when undergoing fertility treatment (Yusuf, 2016). In Pakistan having a child increases the sociocultural worth of women and is an important factor in maintaining the quality of spousal relationships (Mobeen & Dawood, 2023). Therefore, the social pressure of having a child is greater for women as compared to men (Jordan & Ravenson, 1999). Moreover, psychological distress is also present for women with secondary infertility who are not able to conceive again or have poor childbirth outcomes such as abortion or stillbirth, women are harassed by family members and face marital instability (Sami & Ali, 2006). If a married woman does not conceive, she is constantly compared to other women in the family

who have children. All these aspects develop tremendous stress and lead to depression, anxiety, and poor quality of life. Also, when infertile women are under stress, they turn to maladaptive coping, such as avoiding the situation or seeking refuge in denial, which further deteriorates their mental health (Ali et al., 2023). The current research will highlight the psychological characteristics and different coping strategies of women undergoing infertility treatment.

LITERATURE REVIEW

Infertility is defined as the inability to achieve pregnancy after one year of unprotected intercourse; however, in females, infertility is further divided into two sub-categories, primary and secondary infertility. Primary infertility is when a woman has never achieved a pregnancy and secondary infertility is when there is at least one previous live birth. Infertility is a problem affecting at least 1 in 6 adult population (World Health Organization, 2023). The issues that lead to infertility in women can be for varied reasons such as abnormalities of the ovaries, endocrine system, uterus, or fallopian tubes (World Health Organization, 2018). The inability to have a child hurts woman especially, as they bear the brunt of social stigma in society (Brugo-Olmedo et al., 2001).

The psychological impact of infertility makes women vulnerable to anxiety and depression and overall contributes to a decline in psychological well-being (Sharma et al., 2022). Infertile women feel hopelessness, along with varied emotions such as anger, fear, and guilt. Infertility is also considered an extremely stressful life event and a cause of social stigma for women (Egrin et al., 2018). The prevalence of infertility is reported as 22% and primary infertility accounts for 4% of the cases in Pakistan (Ahmed et al., 2020). New and advanced technology is available that provides hope to women to fulfill their dream of becoming a mother and there is an increase in the number of women who seek fertility treatment. However, there are barriers to affording treatments. The cost of the treatment makes it

very difficult for the general population to have easy access to highly qualified doctors and the process becomes an economic burden due to non-affordability (Shaheen et al., 2010). Thus, in addition, women facing infertility may face more mental health problems due to costly treatment (Sharma & Shrivastava, 2022).

Accessibility is also an issue for women, as they may have to travel long distances to seek the desired treatment (Simopoulo, 2019). Moreover, cultural and societal factors such as lack of awareness regarding treatment modalities i.e. painful treatment process also become a barrier to completing treatment (Mosalanejad et. al., 2013). Many women who opt for treatment are unable to understand the diagnosis and the treatment plan due to low socioeconomic status as compared to those with high socioeconomic status (Hoffman, et. al, 2020). The dilemma is that in Pakistan all these three factors, of social stigma, distance and access issues of treatment, and low literacy may exist simultaneously (Shaheen et. al., 2010).

There has been a tremendous amount of advancement in the field of medicine and technology related to the treatment of infertility. There are various options available for fertility treatments. The treatment is provided according to the nature and severity of the problem. These treatments include oral medications and injectables, such as In Vitro Fertilization (IVF) (American Society of Reproductive Medicine, 2006). The increased awareness of seeking out infertility treatment has also led to great interest in research in this area and the attempt to investigate the association between infertility treatment and psychiatric comorbidity. Lakatos and colleagues (2017) have established a link between mental health and infertile conditions. While men also experience considerable psychological impact of infertility diagnosis, women are known to suffer far greater psychological consequences (Cavdar & Coskun, 2018). During infertility treatments, women go through a roller-coaster of emotions. First, there is the reaction to infertility, a psychological turmoil that leads to the consequences of the treatment

process, ranging from anxiety (worry), and depression (hopelessness, fatigue) to a lack of social support. Thus, dealing with infertility and its treatment has a considerable negative effect on the mental health and well-being of infertile women (Nahrin et al., 2017). The social system in Pakistan is such that women are pressured to bear a child as soon as they are married (Abbas, 2015). Even though infertility can be a disease of both male and female reproductive systems, it is the women who mostly suffer from great psychological turmoil when the couple is infertile. The consequences of the treatment process can lead to reduced self-esteem and feelings of failure. Furthermore, women may face emotional and affective reactions such as worry, fatigue, helplessness, and hopelessness (Hasanpoor-Azghdy, 2014).

Mills (1982, p. 167), defined stress as an individual's inner reaction to something that happened in the environment and the demands placed on us. Stress can be caused when a person is ashamed, angry, and worried. Sandhu and colleagues (1994), defined it as an adaptive physiological response to external and internal events that disturb our homeostasis. One common definition of stress that has been reached through the consensus of multiple researchers is that stress is the process in which the adaptive capacity of an individual is inept to overcome environmental demands (Cohen et al., 1995). When seeking fertility treatment women undergo stress because there is a lot of social pressure on them to get pregnant. The more social pressure, the more stressed and overwhelmed a woman can feel (Patel, et. al., 2018). Continuous stress, during treatment-seeking, can lead to further mental health problems such as anxiety and depression (Greil, 1997). It has also been argued that stress is not the cause of infertility, rather it is the consequence of going through the treatment process. There have been very few studies related to infertility treatments and stress related to it, but currently, there has been great interest in the research efforts to investigate the various psychological aspects that are related to infertility treatment (Aslzaker, et. al, 2016).

Rooney and Dormar (2018), have highlighted that high levels of stress related to infertility lead

to compromised mental health among women and harm their quality of life. Increased stress can cause the elevation of various hormones such as cortisol, catecholamine, growth hormones, glucocorticoids, and prolactin (Ranabir & Reetu, 2011). These hormones help a person during a 'fight or flight' situation, and if a woman is continuously under stress during infertility treatments, these hormones might delay conception. Moreover, stress also has a significant impact on the coping strategies that women adopt. Women may revert to behavioral disintegration, venting, denial, and self-blame (Aflakseir & Zarei, 2013).

Assisted reproduction treatment is one of the most commonly used fertility treatments that also brings a lot of fear, anxiety, worries, and nervousness on the part of women as there is an uncertain or low chance of getting pregnant (Odiete, et al., 2016). The anxiety was more prevalent during treatment in women as compared to men (Khalesi & Kenarsari, 2024) since women are the ones who bear the familial and social problems and tolerate most burden of infertility (Souza, et. al., 2023). fertility treatment brings a psychological burden and is financially exhausting (Vayena et al., 2002) that is why the dropout rate is high as desirable results are not achieved (Boivin, 2012). Depression is one of the most common aspects of infertility because the treatment is associated with loss, inability to control the situation, social stigma, incompetence, and defectiveness (Deka and Sarma, 2010). Depression also differs with the type of infertility i.e. primary or secondary infertility. Also, there is an association between the age of the women and depression. With the increase in age, the chances of becoming pregnant are bleak thus there is a rise in the symptoms of depression in older women (Al Asadi & Hussein, 2015).

Having a child is a significant aspect of a couple's life after marriage. Couples who are diagnosed with infertility feel pressure whether it is social, economic, or psychological in comparison to the ones who can get pregnant without medical assistance. This greatly affects the life quality of these

couples who face infertility (Cavdar and Coskun, 2018). Women facing infertility use different types of coping strategies depending on the situation and circumstances. In addition, they may shift from one coping strategy to another, for example, a person might be doing emotion-focused coping and then do problem-focused vice versa (Buettner et al, 1995). Problem-focused coping centers on active steps taken to overcome a stressful situation. It is more of a rational approach to change something in the environment (Lazarus & Folkman, 1984). Thus, it is quite clear that this type of coping reduces the demands of the external environmental situation and expands resources. However, this type of coping is used when a person believes that the demands are changeable (Baqtayan, 2015).

Women who are infertile use problem-focused coping as compared to men who imply emotion-focused coping (Keshavarz et. al., 2018). On the other hand, in some scenarios, women implied emotion-focused coping to psychological distress such as anxiety, depression, anger, and frustration (Hanson, 1997). In emotion-focused strategies, the person attempts to make themselves feel better about the situation instead of changing the environmental situation (Zamble and Gekoski, 1994). These coping strategies are used not just to overcome psychological distress and avoid society (Karaca & Unsal, 2015).

Objective of the study

The objective of this study is to investigate the psychological impact of infertility on mental health as well as on coping strategies and quality of life of the women undergoing fertility treatments.

METHODOLOGY

Research Design

A quantitative, correlational research design has been used to find the relationship between study variables.

Sample and Sampling Strategy

A total sample of 108 women between the age of 20-45 years was included in the study, with the selection criterion of women who were seeking infertility treatments at various hospitals and clinics in Lahore. The data collection depended on the permission and cooperation of the hospital and clinic staff members and the women involved in the study due to the sensitive nature of the study. A purposive sampling technique was used.

Measures

The following scales were used for this study:

The Fertility Quality of Life

This is a self-reported survey, which assesses the problems related to infertility in various areas of life such as general health, emotional relationship with the partner, social relationship with family, and self-perception (Boivian et al., 2011). The core subscale has 24 questions. Items marked 'Q' are Core FertiQoL items and those marked with an R need to be reversed before summing. The scaled score range is 0 to 100. The Cronbach alpha reliability of the scale ranges from 0.72 to 0.92.

The Perceived Stress Scale

This scale has been developed by Sheldon Cohen (1983). The scale has 14 items and is a self-reported survey (Kausar & Tahira, 2013). It is designed to assess the degree to which one's life is perceived as stressful (Cohen et al., 1983). The items are scored on a five-point Likert-type scale. Some items of the scale have to be reverse-coded before analysis (items 4, 5, 7, and 8). The scale has Cronbach's alpha of .84 to .86 for the 14-item scale and the test re-test reliability is .86 for 2-day intervals and .55 for 6 weeks interval. The scale has been translated in Urdu and Cronbach's alpha of the translated version was .80.

The Hospital Anxiety and Depression Scale

This is a self-assessment scale to measure the level of anxiety and depression in hospital outpatient clinics (Mumford et al., 1991). The scale has two subscales that are independently scored and evaluated for anxiety and depression. The scales are also a valid measure of emotional disorders in respondents. There are a total number of 14 items on the scale. Seven items measure depression and 7 measure anxiety severity in respondents. Each item has a different set of responses. The patient is instructed to mark or respond to the nearest feeling. The items are scored on a 4-point Likert-type. The lowest possible score on the scale is 7 and the highest possible score is 21. Cronbach Alpha for anxiety items ranges from 0.76 – 0.41, and depression items range from 0.60 – 0.30.

The Brief COPE

This scale is a multidimensional measure of coping strategies that people use in response to stress or stressors (Carver, 1997). It has a total of 28 items. It is an abbreviated inventory that has 60 items. The scale assesses the frequency of use of various coping strategies. There are 14 coping strategies that the scale caters to with two questions for each coping strategy. The subscales are as follows along with the questions- Self-distraction, items 1 and 19; Active coping, items 2 and 7; Denial, items 3 and 8; Substance use, items 4 and 11; Use of emotional support, items 5 and 15; Use of instrumental support, items 10 and 23; Behavioural disengagement, items 6 and 16; Venting, items 9 and 21; Positive reframing, items 12 and 17; Planning, items 14 and 25; Humour, items 18 and 28; Acceptance, items 20 and 24; Religion, items 22 and 27; Self-blame, items 13 and 26. The score of each subscale is computed separately on a four-point Likert scale. There is no negative scoring of any item in the scale and the Cronbach alpha of each subscale ranges between 0.60 to 0.80.

Ethical Considerations

This research was approved by the Institutional Review Board, of Kinnaird College for Women Lahore. Permission for data collection was taken from the governing authorities of the hospitals and the clinics.

Written and verbal consent were taken from research participants, confidentiality was maintained, and participants were briefed about the procedure and significance of the study.

Procedure

The researcher approached a total of 140 women coming for fertility treatments in government hospitals, semi-government hospitals, and private clinics. The names of these health centers are not disclosed due to confidentiality purposes. Out of these women, some of them had to drop out because of the time constraints and a few of the women's husbands did not let them participate. In total 108 women were able to complete the research questionnaires. Respondents were also referred to the psychiatry department of the respective hospital or a private psychotherapist in case they needed support. The researcher herself read the consent form for the women who could not read and took a thumb impression on the consent form after making sure that the respondent had understood the aim and process of the research. The participants were briefed about the nature and the purpose of the study, they were also given psychoeducation about the fact that if they read the questionnaire themselves or if the researcher read it to them, they might feel vulnerable to emotions at the time of answering questions.

All the scales administered were translated versions of the original scales, keeping in mind the illiteracy rate of the women coming for treatment, the researcher read the questionnaire to the participants who could not read and gave ample time to the participant to answer the closest possible option. A demographic information sheet was used to identify information about participants' age, education, duration of marriage, years of treatment, primary or secondary infertility, working status, and family system. The researcher verbally enquired about any history of mental illness. All the scales were separately administered to the participants who came for the treatment in the outpatient clinics. The participants were educated about not leaving any items unanswered. If they had any confusion, they could ask the researcher freely. All the scales were completed in the presence of the researcher and no

question was left unfinished. It took almost 15 minutes to complete the questionnaire for participants who completed it on their own and approximately 20 minutes if the researcher had to read the items for the participants.

The data was analyzed through the Statistical Package for Social Sciences (SPSS 23). Descriptive statistics were computed for the demographic variables. Pearson Product Moment correlation was used to understand the relationship between variables and mediation analysis was conducted through PROCESS software to investigate the mediating role of stress anxiety between maladaptive coping and quality of life.

RESULTS

Table 1 shows the average age of women (mean = 28.8, *SD* = 4.8) and total married years (mean=6.1, *SD*= 4.1). The majority of the women were diagnosed with primary infertility (80.6%), while 19.4% of women were diagnosed with secondary infertility.

Table 1
Demographic information of study participants

Demographics	<i>f</i>	%	<i>M</i>	<i>SD</i>
Age (years)			28.8	4.8
20 – 28	54	50.0		
29 – 36	49	45.4		
37 – 44	5	4.6		
Type of Infertility				
Primary	87	80.6		
Secondary	21	19.4		

Table 2 shows the Pearson Product Moment Correlation between anxiety, depression, stress, and quality of life and subscales. Results show that there is a significant positive relationship between anxiety and stress ($r=.50, p<0.01$), and anxiety had a significant negative relationship with quality of life ($r=-.43, p<0.01$) and its sub-scales; social ($r=-.41, p<0.01$), emotional ($r=-.31, p<0.01$), and mind-body ($r=-.47, p<0.01$), however, anxiety had a non-significant relationship with a relational subscale of quality of

life ($r=-.14, p>0.05$). Stress had a significant negative relationship with the overall scale of quality of life ($r=-.42, p<0.01$) and its sub-scales relational ($r=-.21, p<0.05$), social ($r=-.43, p<0.01$), emotional ($r=-.38, p<0.01$) and mind-body ($r=-.39, p<0.01$). Quality of life overall sub-scale had a significant positive relationship with all of its subscales; relational ($r=.28, p<0.01$), social ($r=.79, p<0.01$) emotional ($r=.83, p<0.01$), and mind-body ($r=.78, p<0.01$). The subscale of quality of life is relational and does not have a significant relationship with other subscales i.e. social ($r=.12, p>0.05$), emotional ($r=.01, p>0.05$), and mind-body ($r=.04, p>0.05$). The social subscale of quality of life has a significant positive relationship with emotional ($r=.63, p<0.01$) and mind-body ($r=.64, p<0.01$). The subscale of emotional quality of life has a significant positive relationship with mind-body ($r=.67, p<0.01$). Furthermore, depression did not have a significant relationship with any of the study variables such as anxiety ($r=.03, p>0.05$), stress ($r=-.13, p>0.05$), quality of life ($r=-.09, p>0.05$) as well as subscales of quality of life; relational ($r=-.08, p>0.05$), social ($r=-.04, p>0.05$), emotional ($r=-.10, p>0.05$) and mind-body ($r=-.05, p>0.05$).

Table 2
Correlation Matrix of study variables

	1	2	3	4	5	6	7	8
1. Anxiety	-							
2. Depression	.03	-						
3. Stress	.50**	-.13	-					
4. Quality of Life	-.43**	-.09	-.42**	-				
5. QoL (Relational)	-.14	-.08	-.21*	.28**	-			
6. QoL (Social)	-.41**	-.04	-.43**	.79**	.12	-		
7. QoL (Emotional)	-.31**	-.10	-.38**	.83**	.01	.63**	-	
8. QoL (Mind Body)	-.47**	-.05	-.39**	.78**	.04	.64**	.67**	-

$p<0.05, **p<0.01$

Table 3 shows the percentages of 14 coping strategies. The most common coping strategy is religious coping (91%), followed by planning (84%) and positive reframing (83%). The other implied common coping strategies were self-distraction (78%), acceptance (77%), behavioral disengagement (74%), emotional support (74%), venting (71%), active coping (70%), self-blame (63) Coping strategies that are

least used include denial (59%), instrumental support (55%), and humor (54%). While substance use coping strategy is used by only 29% of the infertile women.

Table 3
Percentages of Coping Strategies Implied by Women (N = 108)

Coping Strategies	Percentage %
Self-Distraction	78
Active Coping	70
Denial	59
Substance Use	29
Emotional Support	74
Instrumental Support	55
Behavioral Disengagement	74
Venting	71
Positive Reframing	83
Planning	84
Humor	54
Acceptance	77
Religion	91
Self-Blame	63

Correlation results showed a significant relationship between maladaptive coping, stress, anxiety, and infertility quality of life, therefore the mediating role of stress and anxiety in the association of maladaptive coping and infertility quality of life was explored by mediation analysis. Figure 1 shows the mediating role of stress and anxiety in the association of maladaptive coping and infertility quality of life. In path a1, the direct effect of maladaptive behavior on stress is significant ($\beta=.28$, $SE=.34$, $p<.000$, $R^2=.07$) and in path a2, the direct effect of maladaptive coping to anxiety ($\beta=-.29$, $SE=.06$, $p<.001$, $R^2=.09$) is significant. Furthermore, in the path b1, stress to fertility quality of life ($\beta=.45$, $SE=.26$, $p<.001$, $R^2=.34$) is significant and in path b2, anxiety to fertility ($\beta=.19$, $SE=.53$, $p<.05$, $R^2=.34$) is also significant. In path c, the total effect of maladaptive coping, fertility, and quality of life ($\beta=-.27$, $SE=.34$, $p<.001$, $R^2=.07$) was significant. Whereas the results revealed that stress and anxiety fully mediate the association between maladaptive coping and infertility quality of life ($\beta=.09$, $SE=.31$, $p>.05$, $R^2=.34$).

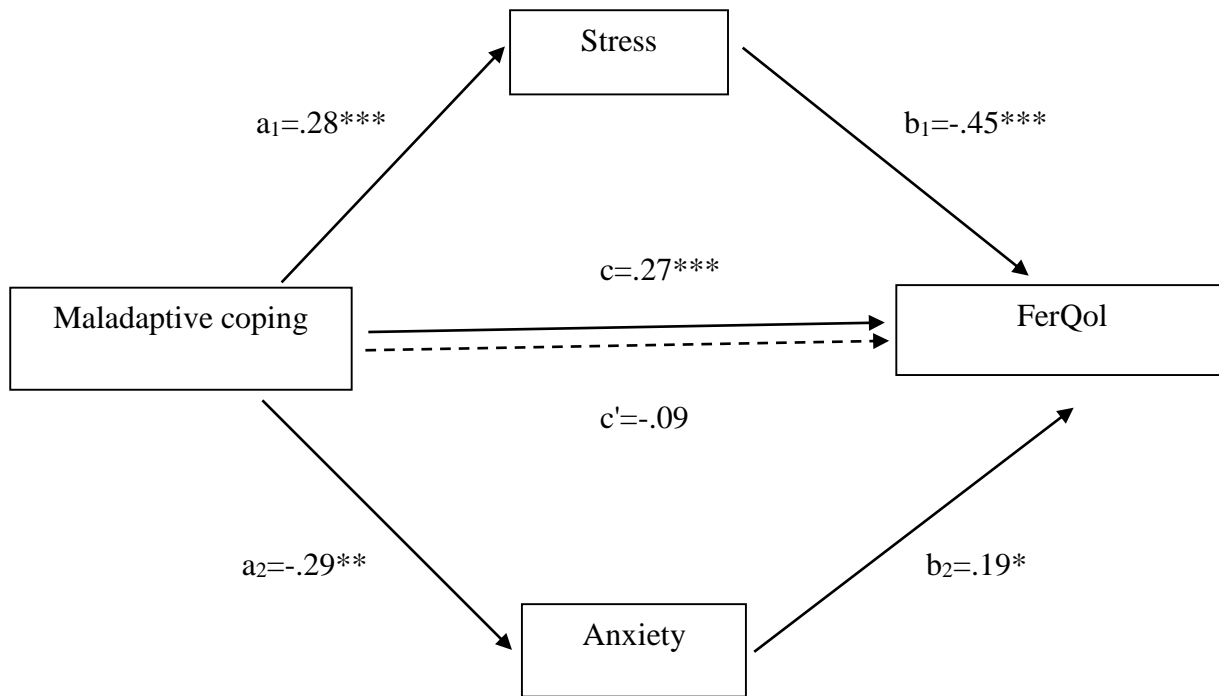


Figure 1
Mediation Path Framework of maladaptive coping, stress, anxiety, and infertility quality of life

DISCUSSION

The result of the study emphasizes the impact of infertility treatments on the quality of life, stress, depression, anxiety, and coping strategies of women. The women included in the present study were all actively seeking treatments for various diagnoses and visiting government and private hospitals for treatment consequences and feeling of lack of control regarding the treatment procedures.

The research findings show that stress and anxiety had a significant negative relationship with the quality of life of women and its subscales, while depression did not have a significant relationship with any of the study variables. In the current study, women were more anxious than depressed as reported previously by Zhang and colleagues (2022), and anxiety and stress had a mediating role in the relationship between maladaptive coping and quality of life. As reported by Hocaolglu (2018) anxiety is the most prevalent psychosocial aspect of infertility, followed by depression, and there is a correlation

between infertility and generalized anxiety disorder, which can mostly be because of the unpredictability of the treatment outcome. The results from the study show that stress related to infertility impacts the relationship quality of women, which is consistent with the findings of previous research. During the treatment, women are usually more focused on conceiving and less concerned about the relational part of the marriage (Shayesteh-Parto et al., 2023).

Experiencing infertility is not only stressful, it impacts different aspects of a woman's life and thus decreases the overall quality of life. A qualitative study by Kianfar and colleagues (2023) explored the experiences of women with infertility and the results showed that infertility affected the relational, social, emotional, and physical relationship between husbands and wives. In the present research, there was no significant relationship between anxiety depression and stress in women with primary infertility and secondary infertility. The reason can be the fact that women with both conditions are struggling through the same treatment phase, which is equally stressful for both groups. Maladaptive coping strategies had a significant negative relationship with stress, anxiety, and quality of life of the women, and stress fully mediated between maladaptive coping and quality of life in women. Women were subjected to discrimination, had financial problems, received poor social support had low quality of life, and implied maladaptive coping strategies (Dadhwal, 2022).

CONCLUSION

The findings of this study imply promoting mental health awareness in infertile women. It is evident from the results that both anxiety and stress have a significant negative impact on quality of life of infertile women in the country. As mentioned before, the process of fertility treatment takes the shape of a vicious cycle, and unpredictable treatment modalities put women's mental health at stake. The important thing is to help infertile women have better quality of life, while seeking treatment. It is also

important to note that seeking treatment in health centers exposes women to other women undergoing the same treatment, and interaction with each other makes women amplify their experiences and adds to the stress and anxiety. Hospital staff and doctors who are treating these women need to collaborate with psychologists to help women deal with the stress of undergoing infertility, through a multi-disciplinary approach.

In addition, there is a need to break the stigma related to seeking mental health support for women experiencing infertility conditions. Counseling sessions must be held in safe environments, where women feel protected, can express themselves freely, and can learn effective coping strategies. Couples also need to be counseled together, and support groups can be established within the hospitals and private clinics so that husbands and wives can discuss their issues with each other in a more structured way. The presence of a professional therapist can help couples break the vicious cycle of negative thought processes regarding treatments and their outcome. The support groups would help women realize that they also have value, like fertile women, and lead towards better quality of life. Such support is especially important for the majority of illiterate and semi-literate women in Pakistan. Certain women may also need specific counseling for grief related to infertility, to strengthen their relationship with their partner, and to build coping to make effective decisions regarding treatment modalities and future planning.

DECLARATION STATEMENTS

Conflict of interest statement

The authors declare no conflict of interest.

Funding

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Ethics and Permission

The present study was approved by the institutional review board of Kinnaird College for Women Lahore.

Data sharing and availability statement

Data is available from the corresponding author based on request.

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