

Perceived Control, Marital Satisfaction, Social Support and Infertility Related Stress: A Mediated Moderation

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Abstract

*Infertility can be a significant source of stress, affecting not only individuals but also their relationships and overall well-being. This study examines the relationship between perceived control, marital satisfaction, social support and infertility-related Stress in women seeking fertility treatment. A correlational research design with a non-probability purposive sampling strategy was used. One hundred ten diagnosed infertile women were recruited at age 35 years and above. The Urdu version of all scales was administered for pilot testing to 10 diagnosed infertile women taken from Government hospitals in Lahore. For statistical analysis, SPSS version 26 was used to analyze the data by applying mediated moderation by process macro and independent sample t-test. A total of 110 responses were received. The overall perceived control score was found to be 12.10 ± 6.53 , marital satisfaction score of 10.40 ± 5.24 , social support score of 10.92 ± 4.62 and infertility related Stress score of 55.91 ± 7.90 . Perceived control has a significant impact on infertility-related Stress ($\beta = -.81^{***}$). The overall difference in perceived control score ($p < 0.05$), marital satisfaction score ($p < 0.05$), and infertility-related Stress score ($p < 0.05$) in employed and unemployed women was also significant. Overall, perceived control has a direct relationship with marital satisfaction and with infertility-related Stress. The interaction between marital satisfaction and social support ($MS*SS$) is also significant. Significant employment differences in perceived control, marital satisfaction, and infertility-related Stress were found. Implications for therapeutic interventions and support programs for women facing infertility are discussed, highlighting the need for a holistic approach to mental health and relational well-being in this context.*

Keywords: Perceived Control, Marital Satisfaction, Social Support, Infertility Related Stress.

Introduction

Having a child is considered to be important in most societies. Female fertility is the woman's ability to conceive a biological child, while female infertility is the inability to conceive a child. Fear of infertility can deter women and men from using contraception if they feel socially pressured to prove their fertility at an early age because of the high social value of childbearing. In many cultures, the inability to conceive bears a stigma and effects on a couple's relationship. Many infertile women claim that having children is an essential part of their lives and that being childless makes it challenging to maintain connections with other women who are mothers (Peterson et al., 2024). A couple is said to be infertile when the woman does not get pregnant after having regular intercourse for at least two years without using any birth control

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methods (Gourounti et al., 2012). Infertility is frequently considered as having a natural side effect of psychological Stress, which manifests in the affected individuals as an acute or chronic stressor (Patel et al., 2016). It has been reported that thirteen percent or more of ladies experience passive self-destructive thoughts after being associated with an unsuccessful IVF try (Pedro et al., 2016). A recognized social and public health problem on a global scale, infertility has an impact on relationships with family, mental health, marital happiness, and quality of life (Lei et al., 2021). According to the body of existing research, a variety of variables, including socio-demographic, cognitive perspective (such as controllability), and coping mechanisms (such as avoidance coping), may affect how people feel about infertility and fertility treatments.

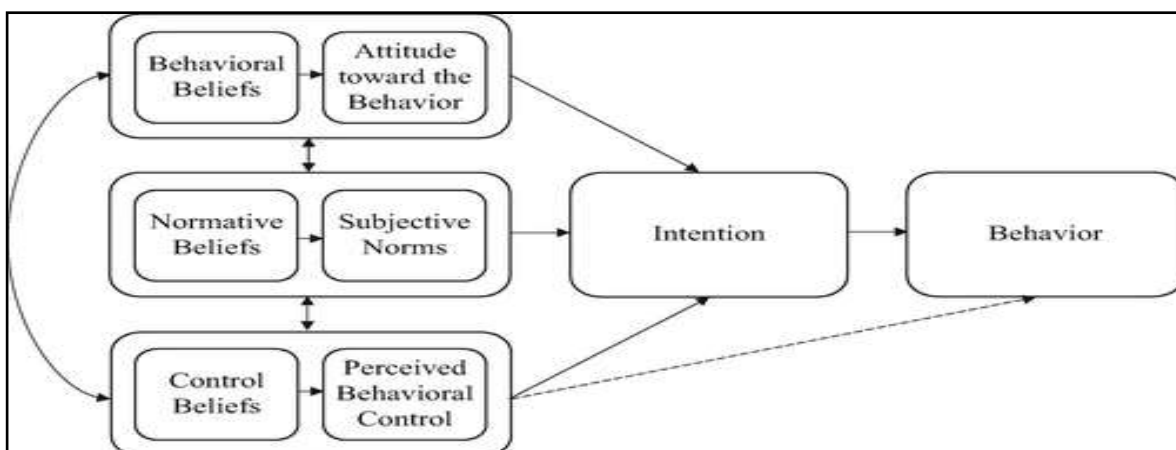
Perceived Control

The loss of control over one's life is one of the most difficult emotional consequences of infertility to live with. Perceived control (PC) refers to the belief that one has some influence over their own internal states, conduct, environment, and planned consequences (Wallston et al., 2018).

Perceptions that an occurrence is dependent on luck, fate, chance, strong others, or unexpected factors are referred to as external control. Internal control is the idea that the outcome depends on one's actions (Aflakseir & Zareh, 2019).

According to Thompson and Saucepan (2007), Perceived control is associated with better performance, reduced discomfort, lessened physiological effects of stressors, enhanced capacity to manage Stress, enhanced emotional well-being, and a greater likelihood of making complex behavioural changes. Such therapies may jeopardize the couple's sense of control over their sexual connection and the privacy that is frequently accorded to it. One of the most common causes of infertility-related Stress is a loss of perceived control over the disease and treatment results (Campbell et al., 2017). Two critical health behaviour theories deal with perceived control. 1) Two-Process Model of Perceived Control 2) Theory of planned behavior.

Figure 1: Theory of Planned Behavior



Marital Satisfaction

Couples' physical and emotional health is significantly impacted by their marital and sexual pleasure. Contrarily, incompatibility in a marriage disrupts social interactions, increases the propensity for social deviations, and weakens cultural values between partners. Therefore, a healthy sexual relationship is essential to a stable marriage (Yekta et al., 2021). Infertility might have a detrimental effect on a couple's marriage and psychological well-being. A person's and

sexual functioning are all negatively impacted by infertility and its treatment (Maroufizadeh et al., 2018).

In Pakistan, it is a typical occurrence for women to be victimized and given the blame for infertility by their loved ones, despite their being a greater understanding of the reasons of infertility. Studying the function of social support and the high degrees of social alienation and isolation reported by women with primary infertility are highly important (Hassan et al., 2021). Infertile couples that experience psychosocial and social stress have lower life satisfaction, more marital issues, and lower sexual confidence. Taking into account that a fulfilling sexual relationship might improve the likelihood of conception (Shobati et al., 2017).

Social Support

According to Taylor (2011), perceived social support is the belief that one has a strong social network to rely on and that one is taken care of when in need. People can detect social support from a wide range of individuals, including family, friends, and significant others. It can help people feel less stressed, reduce the consequences of negative emotions, and improve their overall quality of life (Ni et al., 2022).

Lack of social support can cause stress. People who are under stress could doubt their capacity to meet the demands, have reduced self-esteem, and feel less in control. According to Boivin and colleagues, in addition to having a limited social network, poor marital relationships are also situational or social risk factors for high infertility stress (Gourounti et al., 2010b).

When social support is seen positively, it is connected with improved psychological and physical health in a variety of settings (Chu et al., 2021). Social support is a significant protective element for women who are stressed as a result of infertility. Furthermore, women are more likely than males to seek help (Cwikel et al., 2004). In addition to reducing infertility stress, social support can help women feel less grief and nervous. In contrast, a lack of social support, particularly from husbands, has been connected to women's negative sentiments and marital unhappiness (Truong et al., 2022).

Literature Review

The main objective of the current study was to find out the causal relationships among perceived control, marital satisfaction, social support and infertility related stress in women seeking fertility treatment and to further examine if marital satisfaction acts as mediator between perceived control and infertility related stress and social support acts as moderator between marital satisfaction and infertility related stress.

An investigation undertook the Impact of perceived control on marital satisfaction in women who gone through the treatment of infertility reported that people with equal control to their partner reported high marriage satisfaction, whereas those with having significantly less control reported poor marital satisfaction than their spouse (Gana & Jokybowska, 2014).

Wendoowska et al. (2022) discovered that men who see their wives as more self-controlled and women who are perceived by their husbands as more self-controlled are more happy with their relationships. Less typically, research has found a correlation between couples' self-control and their shared sense of marital happiness.

Lee and McKinnish (2019) conducted a study and showed that higher levels of satisfaction with marriage are reported by those who are more inwardly focused, but they are unable to determine the relative relevance of their own and their spouse's LOC, as well as the significance of LOC similarities between couples.

Furthermore, Kaleta (2014) investigated the association between marital satisfaction and stress, discovering a strong negative relationship between both of them. Peplińska et al. (2013) investigated the link between perceived stress, conflict resolution styles, spousal support, and marital happiness in heterosexual married couples. Greater marital satisfaction was shown to

be connected with reduced perceived stress, a lower negative conflict resolution style, more spousal support, and greater positive resolution approaches.

Similarly, Aflakseir and Zareh (2019) a study found a link between perceived control (internal, powerful individuals, and chance) and infertility-related stress in a sample of women with reproductive problems in Shiraz. He found that less stress was reported by women who believed they had little control over their fertility and that it was fate or chance. They saw their condition as being under external control, which may make it easier for people to deal with less predictable circumstances like infertility.

Soleimani et al. (2023) carried out a cross-sectional, structured interview research design was used to investigate the purpose of control over stress related to infertility. The findings showed that the most significant predictor of personal control related to reproduction issues for both sexes was stress related to infertility. Increased perceived control was highly correlated with stress reduction.

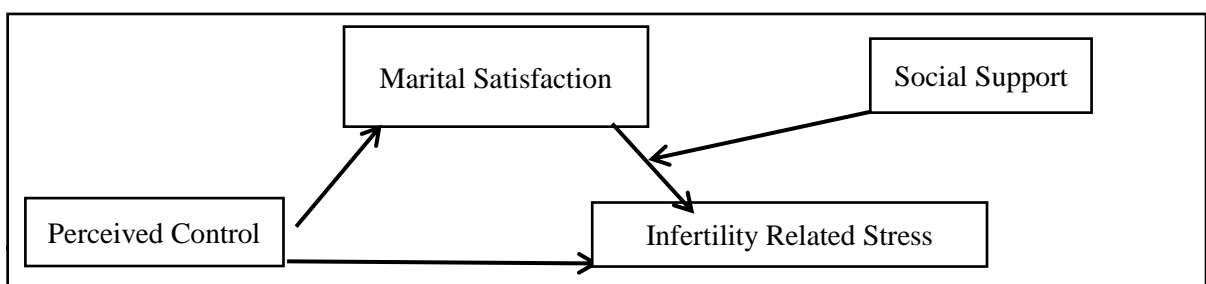
Another study looking at the relationship between social support and infertility-related stress found that those who are supported by others, feel high levels of help from others, and are satisfied with this support are more successful and compatible while coping with stressful conditions. This might be crucial throughout marriage (Ahrabi & Akbari, 2015).

Iordachescu et al. (2021) conducted a non-experimental correlational descriptive study. Findings revealed that despite the stressful situation, people who have strong social support will be less likely to experience any negative impacts, which will make readjustment easier. Social support received by spouse and significant others is significantly inversely correlated with stress brought by infertility.

Zurlo et al., (2023) investigated the mediated impact of marital satisfaction on the connection between quality family life and overall stress in married couples. The findings demonstrated substantial correlations between family life and marital satisfaction, as well as between marital satisfaction and married couples' overall stress levels. Furthermore, marital satisfaction was found to have a partial mediation impact on the association between excellent family life and married couples' stress levels.

Kara and Kalbas (2022) performed a study to evaluate a structural model for married persons and discovered that marital satisfaction acted as a complete mediator between the meaning assigned to marriage and the stress associated with marriage.

Figure 2: The Hypothesized Model: Linkage between Perceived Control and Infertility Related Stress



Iordachescu et al. (2021b) conducted a non-experimental correlational descriptive study for the moderating role of social support. The results showed that social support acts as a moderator for marital cohesion, affection, stress, and depression, and the results reflected that nonworking women with higher marital cohesion and affection showed less stress and depression because of the high level of social support.

Based on the above-cited literature, we proposed the theoretical model for the present study as shown in figure 2.

Hypotheses

To examine this paradigm, we formulated the following hypotheses.

- Perceived control would have a significant positive relationship with Marital Satisfaction and a significant negative relationship with infertility related stress in women seeking fertility treatment.
- Marital satisfaction and social support would have a significant negative relationship with infertility related stress women seeking fertility treatment.
- Perceived control, Marital satisfaction and social support would negatively predict infertility related stress women seeking fertility treatment.
- Marital satisfaction would mediate the relationship between perceived control and infertility related stress in women seeking fertility treatment.
- Social support would moderate through indirect effect of perceived control on infertility related stress through marital satisfaction.

Methodology

Sampling

A correlational study design was employed, using a non-probability purposive sampling technique, to recruit 110 (as recommended by G-power analysis) infertile married women from various hospitals in Lahore who were above the age of 35. The following criteria were followed for the recruitment of infertile women. 1) Married women who have spent at least two years of infertility and are taken any treatment for infertility was included. 2) Women working in the public or private sector were included. 3) Both young and middle adult women were included. 4) Women living in nuclear or joint family systems were included.

Translation of the Measure of Infertility Control (MPC) and Infertility Distress Scale (IDS)

Before beginning the translation process, permission was obtained from the author of the Measure of Perceived Control (MPC) and the Infertility Related Distress Scale (IDS) by email. The translation procedure began after permits were given. It contained the following stages.

Forward Translation: The initial phase in scale translation was forward translation, which involved translating the scale from its native language (English) to the language of the target population (Urdu), which consists of infertile females. This step was done by two bilingual experts (English and Urdu). They were required to consider conceptual clarity and easy comprehensibility while translating. After the translations were completed, both forward translations were compared. Inconsistencies between both translations were noted down and observations were made.

Backward Translation: The second step was backward translation. For this purpose, the scales were given to two bilinguals (different from the ones who did forward translation). These bilinguals were not familiar with English version of the scale. After backward translations, the researcher and the supervisor reviewed and comparison was made between original and backward translation.

Proof-reading: The proofreading was done with the goal of removing any errors in the needed language, including typing and grammar. The scales were sent to an Urdu-speaking individual for revision. Following that, the Urdu version of the scales was finished, and the translations were reviewed again by the supervisor. After that, the scales' translations (MPC and IDS) were employed to collect data for this study.

Participants filled out a sociodemographic information sheet as well as measures to assess the research variables. Because the data for this study was collected utilizing a multi-scaled response design, reliability tests were performed to ensure that the key components were consistent. The internal consistency of each component was assessed using Cronbach alpha values, which revealed strong indices for the Perceived Control Scale (.97), Marital Satisfaction Scale (.92), Social Support Scale (.94), and Infertility Distress Scale (.72). The data was analyzed using SPSS version 21. This range of internal consistency scores ($\alpha = .72$ to .97) suggests that the measures used are generally reliable, with higher alphas indicating stronger internal consistency across items.

Results

Table I showed Perceived control has a significant positive association with happiness in marriage and support, but a significant negative relationship with infertility-related stress. Marital satisfaction has a significant positive association with satisfaction with support and a significant negative relationship with stress due to infertility. Satisfaction with support had a negative correlation with infertility stress.

Table 1: Correlations among Study variables

Variable	1	2	3	4	5
Employment status	-	.20*	.21*	.21*	-.22*
Perceived Control		-	.96***	.89***	-.95***
Marital Satisfaction			-	.95***	-.90***
Social support				-	-.84***
Infertility related stress					-

Note: * $p < .05$; ** $p < .01$; *** $p < .001$

Table 01 presents the correlations among employment status, perceived control, marital satisfaction, social support, and infertility-related stress. These correlations indicate a pattern in which perceived control, marital satisfaction, and social support are positively related to each other, while each of these variables is negatively related to infertility-related stress. This suggests that individuals who report higher levels of perceived control, marital satisfaction, and social support tend to experience lower levels of stress related to infertility.

Table 2: Multiple Linear Regression Predicting Infertility related stress (N=110)

Variable	B	SE	t	p	95% CI
Constant	69.78	.62	112.30	<.001	[68.54,71.00]
Perceived Control	-1.39	.13	-10.94	<.001	[-1.64,-1.14]
Marital Satisfaction	-1.35	.22	-11.8	<.01	[-1.03,-1.83]
Social Support	-1.12	.16	-17.3	<.01	[-1.43,-1.20]
F	353.64***				
R ²	.95				

Note: * $p < .05$; ** $p < .01$; *** $p < .001$

Results indicated that the overall model was significant ($p < .001$). Examination of beta ($\beta = -1.39$ ***) value indicated that perceived control is a negative predictor of infertility stress. Examination of beta ($\beta = -1.35$ ***) value indicated that marital satisfaction is a negative predictor of infertility stress. The beta ($\beta = -1.12$ **) result shows that social support is a negative predictor of infertility stress. The model explained 95% of the variation in infertility-related stress

($F=379.8$; $p<.001$). The p -value for perceived control is extremely significant, and the substantial beta value explains how well it predicts infertility-related stress in infertile women seeking reproductive therapy.

In table 3, model 1 reveals 92.03% variance in the outcome variable (KMSS). The F value is 1246.89***, which indicates model fitness. The study found that perceived control had a significant impact on marital satisfaction ($\beta=-.77$ ***). In model 02, R^2 reveals 92% variance in the outcome variable (IDS). The F value is 308.73 with $p <.01$, indicating model fitness. Model 02 depicts the interaction impact between marital satisfaction and social support. The study found a significant correlation ($\beta=-.81$ ***) between perceived control and infertility-

Table 3: Moderated Mediation Through Process Macro

Model	<i>B</i>	<i>SE</i>	<i>t</i>	<i>P</i>
Model :01 (Outcome Variable;Marital Satisfaction)				
Constant	-9.32	.30	-31.10	<.001
Perceived Control	.77	.02	35.31	<.001
Model :02				
(Outcome: Infertility relatedstress)				
Constant	68.04	1.84	36.99	<.001
Perceived Control	-.81	.18	-4.41	<.001
Marital Satisfaction	-.10	.24	-.43	.67
Social support	-.001	.15	-.006	.995
MS*SS	-.10	.03	-4.09	<.001
Conditional effects of focalpredictor at values of moderator				
Low level of social support	.37	.20	-.04	.77
Average level of social support	-.10	.24	-.57	.37
High level of social support	-.57	.31	-1.20	.05
Index of moderated mediation	-.08	.02	-.12	-.06

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

related stress. The interaction (int_1) between these factors is similarly significant ($\beta=-.10$ ***). Nonetheless, none of the conditional effects were significant. Interaction (MS*SS) was significant but at all levels of social support, marital satisfaction did not predict social support. Further, indirect effects at all three levels of social support were also nonsignificant.

Discussion

This study investigated the association between perceived control, marital satisfaction, social support, and infertility-related stress in women seeking fertility treatment. The findings revealed that perceived control was positively connected to marital satisfaction, whereas perceived control, marital satisfaction, and social support were negatively related to infertility-related stress. Additionally, the association between marital satisfaction and social support (MS*SS) is significant. These findings were consistent with earlier investigations.

The positive association between perceived control and marital satisfaction aligns with previous research showing that a strong sense of personal control contributes to relationship satisfaction, often by enhancing communication and reducing relationship conflict (Karney & Bradbury, 1995). In the context of infertility, perceived control may provide women with a

sense of agency, promoting emotional stability that positively impacts marital dynamics (Benyamini et al., 2005).

In line with cognitive appraisal theory, individuals who perceive themselves as having control are better equipped to handle stressors, which can prevent the negative spillover of stress into marital relationships (Lazarus & Folkman, 1984). This finding is significant as it underscores the role of perceived control in promoting both individual and relational well-being for women facing the uncertainties and challenges associated with infertility.

The inverse relationships between perceived control, marital satisfaction, social support, and infertility-related stress are consistent with findings from previous studies, which show that higher perceived control and strong social support are linked to lower levels of psychological distress (Lopes et al., 2014). Social support has been widely documented as a buffer against stress, particularly among women undergoing fertility treatments, by fostering emotional resilience and reinforcing coping strategies (Greil et al., 2011).

Marital satisfaction's relationship with reduced infertility stress supports the view that a supportive, high-quality relationship can act as a protective factor against stress (Cousineau & Domar, 2007). When couples share a strong bond, they are more likely to face infertility-related challenges as a unified front, fostering a sense of stability and mutual understanding that mitigates stress.

Significance of Marital Satisfaction and Social Support Interaction (MS*SS)

The significant interaction effect between marital satisfaction and social support (MS*SS) suggests a synergistic role in reducing stress. This aligns with research indicating that a supportive partner can amplify the effects of broader social support networks, enhancing the individual's ability to cope with infertility stress (Rini et al., 2006). A strong marital foundation might encourage the effective utilization of external social resources, reinforcing resilience.

This interactive effect may also suggest that women who experience higher levels of marital satisfaction are more likely to seek and benefit from social support. The combination of both high marital satisfaction and social support could contribute to a sense of holistic support, further buffering against the psychological impact of infertility stress (Fekkes et al., 2003).

Another hypothesis stated that Social support is likely to moderate through indirect effect of perceived control on infertility related stress through marital satisfaction. The results indicate that neither marital satisfaction mediate nor social support moderate the relationship between these variables. One of the reason of this finding is that control is everything for the women seeking fertility treatment. Control has direct relationship with marital satisfaction and infertility related stress. This means that control over their treatment procedures, control over their behavior increase their marital satisfaction and decrease their stress. Individuals perceived he/she managed the stress by control on their self, on their treatment procedure and on their behavior. These findings do not align with prior research.

Previous researches indicate that the more the partner seeks social support, the more the spouse perceives them as possessing higher self-control, which results in spousal satisfaction; at the same time, how the partner seeking support perceives the spouse in terms of self-control becomes unimportant. It was hypothesized that "Perceived control, Marital satisfaction, social support and infertility related stress is likely to have significant difference across demographics". Results showed that there were significant employment status differences in the scores of perceived control, marital satisfaction and infertility related stress. It showed that unemployed women scored more on perceived control and marital satisfaction. There are no employment status differences on scale of social support which means that employed and unemployed women both received same level of support with facing with stress related to infertility.

A cross-sectional study was undertaken at three infertility places in Tehran, Iran. The results revealed that there was no significant link between demographic characteristics such as age, occupation of each spouse, spousal education, job status, and site of living and IDS (Sohbati et al., 2021).

Conclusion

By concluding, it is worth noting that the current study shed light on the literature, revealing the relationship between perceived control and infertility-related stress, as well as how marital satisfaction mediates the association between perceived control and marital satisfaction, and how social support strengthens the relationship between marital satisfaction and infertility related stress. The significant association between marital satisfaction and social support emphasizes the value of a holistic support system for psychological well-being, which could inform future interventions aimed at reducing infertility stress and promoting mental health. This study can assist couples, psychologists, and couple therapists increase marital satisfaction among married individuals.

Theoretical Implications

These findings support transactional models of stress and coping by highlighting the role of individual agency (perceived control), relational quality (marital satisfaction), and external resources (social support) in managing infertility-related stress (Lazarus & Folkman, 1984). The mediated and moderated pathways between these variables suggest that multifaceted support systems are crucial for coping with complex stressors like infertility.

Practical Implications

These findings suggest that interventions should emphasize strategies to increase perceived control, foster marital satisfaction, and enhance social support for women undergoing fertility treatments. For instance, couples' therapy could improve relationship quality, encouraging spouses to support one another and utilize external social support effectively (Domar et al., 2000). Fertility clinics might also consider offering group therapy or social support programs, where women can connect with others undergoing similar experiences, thereby fostering social connections that can alleviate stress.

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