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RESEARCH PAPER

Disordered Eating, Psychological Distress and Subjective Happiness in Infertile Women: The Mediating Role of Meaning Based Coping

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ABSTRACT

The study aimed to examine the relationship between Disordered Eating, Distress, Coping, and Subjective happiness of infertile women. Disordered eating and infertility specific distress are complex behavioral and psychological conditions that has negative impact on subjective happiness. The 274 infertile women from Lahore and Faisalabad were included in the present study through the purposive sampling technique. The Disordered Eating Behavior Scale (DEBS; Muazzam & Khalid, 2011) Emotional and Social Distress Scale (ESDS; Naz et al., 2022), Infertility Specific Coping Scale (Schmidt et al., 2006) and Subjective Happiness Scale (Lyubomirsky & Lepper, 1999) were used to assess the responses of the participants. The results revealed a significant positive relationship of disordered eating with distress, and negative relationship with meaning based coping and subjective happiness. Moreover, the study revealed that disordered eating and distress were the predictors of meaning based coping and all three variables were predictors of subjective happiness. Furthermore, meaning based coping partially mediates the relationship between disordered eating, distress and subjective happiness. Findings revealed that there were significant mean differences on disordered eating, distress, coping and subjective happiness in terms of type of infertility. The findings of this study can have practical implications in the field of reproductive health and clinical psychology. Healthcare professionals and psychologists can use the insights to develop targeted interventions for infertile women, addressing disordered eating patterns, psychological distress and fostering coping strategies as well as subjective happiness.

Keywords: Infertility, Disordered Eating, Distress, Coping, Subjective Happiness

Introduction

Childlessness elucidate as failure to conceive after 12 months of regular unprotected coitus. Childlessness affects significant population worldwide. World Health Organization (2023) defined approximately one in six individuals worldwide experience infertility during their reproductive years. Findings revealed that in 2021 approximately 110 million women were living with infertility, indicated prevalence rate of 3.7%. East, south Asia and Eastern Europe, exhibited the highest sterility rates. Various factors have been associated to women related infertility such as age, medical conditions, psychological distress, life style issues and environmental factors. Comprehensive studies reported that emotional burden of infertility on women is profound. A meta-analysis reported that infertile women have a 1.4 times higher chance of experiencing distress compared to their fertile counterparts. Moreover, negative self-perception, societal pressure, avoidant coping styles and stigma associated with infertility can lead to heightened anxiety, depression and stress. Shock, sadness, anger, frustration, loss of self-esteem and self-confidence are common reactions to infertility (Borght et al., 2018). Researchers suggest that women experiencing infertility related distress often struggle with cultural and societal expectations that amplify the emotional burden of childlessness and bad eating patterns.

Disordered eating is notably prevalent among women experiencing infertility with research indicating higher rates compared to the general population. Studies report that between 0.5% and 16.7% of women seeking fertility treatment currently meet criteria for eating related problems. Disordered eating and infertility are two interrelated health concerns that significantly affect infertile individuals' physical and psychological health. Disordered eating encompasses a range of maladaptive eating behaviors, including restrictive eating, binge eating, purging and BMI issues. Disordered eating symptoms may not meet the criteria for an eating disordered but still pose significant mental and physical health risks (Fairburn & Harrison, 2003; American Psychiatric Association, 2022). In addition to that emerging researches suggest that individuals struggling with infertility may experience with body dissatisfaction, driven by perceived failures of their reproductive function, societal pressures and medical interventions such as hormone treatments that alter body weight and composition (Cousineaue & Domer, 2007). Moreover it is been previously shown that disordered eating and menstrual abnormalities can affect fertility and fetal wellbeing (Stewart et al., 1991). These factors can create a complex interplay between infertility related distress and disordered eating behaviors, potentially exacerbating psychological suffering and impacting overall well-being. Despite the growing evidence on mental health distress related to infertility, the relationship between distress and disordered eating in infertile population still need to explore that help develop targeted intervention to support individuals navigating these challenges and improve subjective happiness.

Subjective happiness encompassing both cognitive and emotional dimensions of well-being. It represents an individual global evaluation of their life satisfaction and positive affect. It reflects stable, enduring sense of contentment and joy by the individual's own experience. Researches consistently has proved the positive association of subjective happiness and a range of positive outcomes, including enhancing physical health, improved social relationships, and greater resilience in the face of adversity (Diener & Chan, 2011; Lyubomirsky et al., 2005). Psychological distress and disordered eating are often associated with lower levels of subjective happiness or wellbeing. Research on subjective happiness among infertile women highlights the significant influence of psychosocial factors on their wellbeing. Adapting coping strategies such as positive reframing, emotional support seeking were positively correlated with life satisfaction and happiness scores. Conversely, infertility-related stress and marital dissatisfaction emerged as key predictors of lower happiness levels (Argyle, 2009). Another study demonstrated that subjective happiness plays as intervening role in relation between marital relationship and mental wellbeing in infertile individuals (Forooshany et al., 2014). According to Asl et al. (2021) women with infertility showed low level of subjective happiness and only targeted intervention could improve the condition.

Literature Review

The available literature suggests that there is a link between infertility-related psychological distress, eating disorders, and diminished subjective happiness. The relationships also seem to focus on coping processes especially in the context of meaning-based coping. More empirical research on this mediating factor should be done to support culturally sensitive interventions that could be applied to improve psychological well-being of infertile women (Naz & Batool, 2024).

The research reported that disordered eating is significantly higher among infertile women. Particularly higher levels of weight concerns, disordered eating symptoms and emotional eating (Hecht etal., 2023; Freizinger etal., 2010).

Subjective happiness is one of the central elements of the psychological well-being and it is a cognitive and emotional assessment of life satisfaction. It has been demonstrated that infertility leads to negative influence on subjective happiness as a result of ongoing

stress, social comparison, and failure to get treatment. Research shows that increased infertility distress levels are connected with reduced subjective well-being and life satisfaction (Matkovic etal., 2023).The disordered eating also deepens a decrease in happiness by augmenting guilt, shame, and emotional self-control in general population. Frequently, the eating pathology is related to low subjective well-being, loneliness, and poor quality of life, specifically in women (Taebi etal., 2021). In this way, both psychological distress and maladaptive eating habits damage the happiness in infertile women, which explains the necessity to investigate the protective psychological processes.

Even though there is little infertility-specific research that has directly studied the meaning-based coping, findings in coping literature indicate that adaptive coping styles go a long way in buffering the impact of distress on maladaptive behaviors. The research proves coping style mediates the associations between depression, stress and disordered eating. Avoidant coping style has been observed to increase eating pathology in the context of infertility, but adaptive coping styles diminish psychological damage (Rodino et al., 2018). Another research highlights that Meaning-based coping can have a specifically important mediating effect by lessening the level of psychological distress, decreasing dependence, increasing subjective wellbeing and marital satisfaction (Naz & Batool, 2024).

Hypotheses

H_{01} There will be a significant association between disordered eating, psychological distress, meaning based coping and subjective happiness.

H_{02} Meaning based coping will mediates the relationship between disordered eating and subjective happiness.

H_{03} Meaning based coping will mediates the relationship between psychological distress and subjective happiness.

H_{04} There will be a significant difference on disordered eating, psychological distress, meaning based coping and subjective happiness in terms of type of infertility.

Theoretical Model

There are various theoretical models that can explain the disordered eating, distress, coping and life satisfaction such as biopsychosocial model (1977), disordered eating model, transactional model of Lazarus and Folkman and leptin dysfunction theory (Licinio, 2019). Among them transactional model of Lazarus and Folkman (1984) better explain and the impact of disordered eating and psychological distress on subjective happiness with meaning based coping serving as a pivotal mediators factor. Within this model, disordered eating and psychological distress are conceptualized as significant psychological stressors, triggering cognitive appraisal of threat and challenging an individual's sense of wellbeing. These stressors necessitate the activation of coping mechanisms, and in this case, meaning based coping emerges as an essential coping strategy. By engaging in meaning based coping, individuals' attempts to mitigate the negative emotional consequences associated with disordered eating and distress, thereby inculcating a sense of control and resilience. The outcome of this transactional and stress and coping process is reflected in subjective happiness, which serves as a measure of overall well-being and life satisfaction. According to this model meaning based coping are hypothesized to enhance subjective happiness even in the face of significant distress.

Material and Methods

A cross sectional research design was employed to conduct the current study. Participants were selected through purposive sampling from different hospitals of Lahore and Faisalabad, Pakistan. Total number of participants were 274 women having primary and secondary infertility.

Inclusion & exclusion Criteria

- The current study included married infertile women who had been married for more than 12 months with 21 to 40 years of age. The minimum education of the participants were matriculation resided both rural and urban areas. Patients were diagnosed with primary and secondary infertility.
- Only participants who have provided informed consent were included.
- Individuals experiencing severe mental and physical health conditions were excluded.

Measures

Demographic Form

The first section consisted of a self-created demographic form, including questions about age, education level, spouse's education, source of income, employment status, monthly income, residential area, family system, duration of marriage, diagnosis of infertility, and treatment method. The sample was also asked questions related to primary or secondary infertility.

Disordered Eating Behavior Scale (DEBS; Muazzam & Khalid, 2011)

Disordered Eating Behavior Scale (DEBS), a self-report measure comprising 26 items, developed for assessing Disordered Eating (DE) patterns and behaviors. This scale assessed individual differences in disordered eating patterns and behaviors. Participants used a five-point scale, ranging from 0 to 4, to express the extent to which each DEBS item described their behavior. The scale was targeted towards both adolescents and the general adult population. The DEBS demonstrated a high alpha coefficient of 0.86. It comprised four subscales: (a) Social Pressure, (b) Eating Choices and Habits, (c) Eating Withdrawal, and (d) Overeating. The alpha reliability on current sample is .85.

Emotional and Social Distress Scale (ESDS; Naz et al., 2022)

It is 34-items assessment tool, made by Naz etal. (2022) to gauge infertility specific psychosocial problems in four domains “Distress, Identity and wellbeing, Feeling of Insecurity and Sexual/Marital. This is a Likert scale ranging from 1-4 response rate. Cronbach’s alpha for the total scale is .92, for subscales it ranges from .70 (Sexual/Marital Issues) to .86 (Distress).

Infertility-Specific Coping Scale (Schmidt et al., 2006)

This 19 items Infertility-Specific Coping Scale (ICS) is a self-report measure developed by Schmidt et al. (2006) to assess coping strategies specific to infertility and it was adapted by Naz and Batool (2024) in Urdu language. The scale was developed to examine coping strategies faced by infertile individuals experiencing infertility. This scale assess four different coping strategies: active avoidance coping, active confronting coping, passive avoidance coping and meaning-based coping. Participants rate how often they use each coping strategy on a four-point scale, ranging from 1 (not used) to 4 (used a great deal). The Cronbach's alpha coefficients ranging from 0.67 to 0.90 for the five subscales (Schmidt et al., 2006)

Subjective Happiness Scale (Lyubomirsky & Lepper, 1999)

The Subjective Happiness Scale (SHS) is a self-report measure of subjective happiness (Lyubomirsky & Lepper, 1999). The SHS consists of four items that assess women global subjective happiness by asking them to rate the extent to which they agree or disagree

with statements about their overall level of happiness. The four items are: "In general, I consider myself: (1) not a very happy person; (2) a very happy person; (3) neither a happy nor an unhappy person; (4) mildly happy, but not as much as I would like to be." Responses are given on a seven-point Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree). The SHS has demonstrated good reliability (.89).

Procedure and Ethical Consideration

Formal approval was taken from the GPC and ethical committee of University of Central Punjab, Lahore, Pakistan. Permissions were taken from the Hospital heads and authors of the scale. Participants were initially informed about their voluntary participation, rationale and purpose of the study. After the consent of the participants, scales were given to them with instructions. They were assured that their data would remain private and be used solely for study purposes. Debriefing was provided after collected the questionnaire.

Results and Discussion

Following section describes the results of the study. The total sample comprised of 274 infertile women, in which 150 participans were diagnosed with primary infertility and 124 reported secondary infertility. participants age range was 22-31years. Majority participants 168 resides in urben and 106 belong to rural areas.

Table 1
Correlation and Psychometric Properties of Disordered Eating Behavior Scale, Emotional and Social Distress Scale, Infertility Specific Coping Scal, and Subjective Happiness

Variables	ESDS	MBC	SHS	k	M/SD	α
DEBS	.27**	-.43**	-.64**	26	48/17.1	0.85
ESDS		-.68**	-.59**	34	107/26.9	0.92
MBC			.61**	5	12/4.1	0.86
SHS				4	17.1/8.0	0.89

*Note: **Correlation is significant at the 0.01 level,* DEBS= Disordered Eating Behavior Scale, ESDS= Emotional and Social Distress Scale, MCS= Infertility Specific Meaning Based Coping Scale, SHS= Subjective Happiness Scale, k=number of items, M=Mean, SD= Standard Deviation, a= Cronbach alpha. Disordered Eating is positively correlated with distress (r = .27, p < 0.01), and negatively correlated with coping (r = -.43, p < 0.01), and subjective happiness (r = -.64, p < 0.01). Distress is negatively correlated with coping (r = -.68, p < 0.01) and subjective happiness (r = -.59, p < 0.01). Coping is positively correlated with subjective happiness (r = .61, p < 0.01). All the scales have good consistency of scores as indicated by the alpha values.

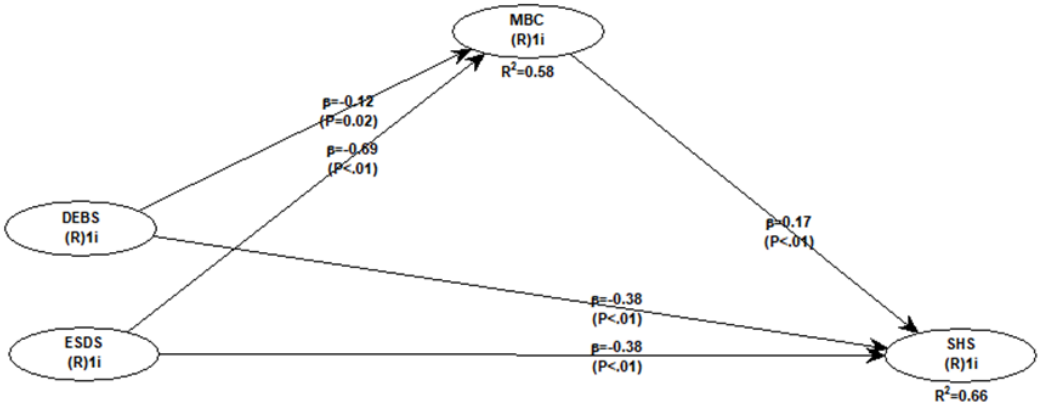

Figure 1. MBC mediates the relationship between DEBS, ESDS and SHS.

Table 2
Meaning Based Coping mediate the relationship between Disordered Eating, Distress and Life Satisfaction.

Variable's Relation	β	t	p
DEBS->MBC	-.12	-2.0	.00
DEBS->SHS	-.37	-6.6	.00
ESDS-> MBC	-.68	-12.7	.00
ESDS-> SHS	-.38	-6.76	.00
DEBS->ESDS-> MBC->SHS	.16	2.88	.00

Note. DEBS = Disordered Eating Behavior Scale, MBC= Meaning Based Coping, SHS= Subjective Happiness Scale, ESDS = Emotional and Social Distress Scale

Table reveals the results of mediation analysis. Meaning Based Coping has a partial mediating role between Disordered Eating, Distress and Subjective happiness (β = .16, t = 2.88, p < .000).

Table 3
Mean, standard deviation, and t values of Women with Primary and Secondary Infertility on study variables

Measures	Primary Infertility		Secondary Infertility		t (274)	p	Cohen's d
	M	SD	M	SD			
DEBS	52.29	16.87	42.98	16.08	4.63	.001	0.28
ESDS	122.74	20.25	88.23	21.33	13.70	.001	0.34
MCB	38.23	7.74	49.73	11.12	-9.52	.001	0.24
SHS	16.33	6.01	19.22	4.34	-4.47	.001	0.41

Note. N=274 DEBS= Disordered Eating Behavior Scale, ESDS= Emotional and Social Distress Scale, MCB= Infertility Specific Meaning based Coping, SHS= Subjective Happiness Scale

Table indicates significant difference in terms of study variables. Women with primary infertility exhibited significantly higher disordered eating behavior (M = 52.29, SD = 16.87) compared to those with secondary infertility (M = 42.98, SD = 16.08), t (274) = 4.63, p < .001. Similarly, the primary infertility group reported higher emotional and social distress (M = 122.74, SD = 20.25) than the secondary infertility group (M = 88.23, SD = 21.33), t (274) = 13.70, p < .001.

Furthermore, women with secondary infertility exhibited significantly higher coping scores specific to infertility (M = 49.73, SD = 11.12) compared to those with primary infertility (M = 38.23, SD = 7.74), t (274) = -9.52, p < .001.

Finally, women with primary infertility demonstrated lower subjective happiness (M = 16.33, SD = 6.01) compared to those with secondary infertility (M = 19.22, SD = 4.34), t (274) = -4.47, p < .001. Cohen's d values indicates small to medium effect size of the results.

Discussion

This section focuses on the discussion of the study results. Findings exhibited that there was a significant positive correlation between disordered eating and psychological distress in infertile women. This relationship indicated that infertile women suffer with unhealthy eating behaviors are more likely to report higher level of distress (depression, anxiety, sexual and relationship issues, poor wellbeing). Disordered eating can both exacerbate and be exacerbated by distress, create a complex bidirectional relationship. Researches shown that infertile individuals struggling with disordered eating experience elevated level of psychological distress with specific to infertility. Distress also has association with disordered eating as rate of disordered eating and distress are higher in this population (Hecht et al., 2022) on the other hand current findings indicated that infertile women suffer with disordered eating and psychological distress reported lower

level of subjective happiness. A study congruent with the finding that individuals with eating disordered, reported lower life satisfaction compared to the general population, a pattern that may be intensified in those dealing with infertility related psychological distress (Zullig, 2020). Jacobi et al. (2004) and Polviv & Herman (2002) identified that women engaging in disordered eating behaviors often experience heightened levels of anxiety and depression.

Another finding indicated that there was a significant correlation between disordered eating, distress and coping strategies among infertile women. It is evident from the findings of the correlation that there is a substantial negative relationship between disordered eating, distress and meaning based coping which is a troubling trend and indicated that infertile women with problematic eating behaviours are less prone to employ effective coping strategies and reporting decreased subjective happiness. The results are align with the previous studies that has consistently identified relationships between disordered eating, psychological distress and meaning based coping (Rodino et al., 2018) .

Coping, on the other hand, exhibits positive correlations with subjective happiness. This implies that women who employ effective meaning based coping mechanisms are more likely to experience higher life satisfaction. It highlights the importance of adaptive coping strategies in fostering resilience, overall subjective happiness and well-being. Additionally, the positive correlation between coping and subjective happiness aligns with research indicating that women with adaptive coping strategies tend to report higher levels of overall life satisfaction (Folkman & Moskowitz, 2000; Naz & Batool, 2024)

Moving onto the next significant findings that, meaning based coping mediate the relationship between disordered eating, distress, and subjective happiness among infertile women. The results of the mediation analysis shed light on the intricate buffering effect of meaning based coping between disordered eating, distress and subjective happiness. This implies that women engaging in meaning-based coping strategies experience a positive influence on the subjective happiness in the presence of eating disorder and distress. A study conducted by Yang et al. (2024) gave emphases on mindfulness and adaptive coping strategies to reduce the effects of emotional distress, which in turn decrease emotional eating and increase life satisfaction and happiness.

Next results indicated that there are significant mean difference found on disordered eating, distress, coping and subjective happiness in primary and secondary infertility. Women with primary infertility (inability to conceive ever) often face intense experience of disordered eating and emotional burden than those with secondary infertility (who have had at least one pregnancy prior). The elevated distress in primary infertility might be encompasses infertility-specific distress and general distress. Several factors may explain this difference. Women with secondary infertility may have prior experience of pregnancy and hope to conceive again as compare to women struggling to conceive first time. Notably, women with primary infertility exhibited more disordered eating symptoms because of social pressure, fear to not conceive, internalized pressure contribute to high distress and maladaptive coping behaviors (Patel & Sharma, 2024; Wong & Lim, 2022). Women with secondary infertility used meaning based coping, which involves finding personal meaning, purpose and growth in infertility experiences as compare with primary infertile women. Researches also suggest meaning based coping are more effective to reduce the infertility specific distress (Naz & Batool, 2024). Same as women with primary infertility experience better subjective happiness than secondary infertile women that might be due to coping strategies or future expectations to conceive. However, findings vary in literature, subjective happiness and quality of life tends to be lower overall in infertile women compare to fertile peers, highlighting the complexity of emotional response because of infertility (Boivin et al., 2021)

Conclusion

In conclusion, the current research encompasses that disordered eating and psychological distress increase vulnerability of infertile women and impact negatively on subjective happiness. On the other hand meaning based coping offer valuable buffer in between the problematic eating, distress and life satisfaction. Developing a sense of purpose beyond infertility struggles may be a key factor in promoting overall welling being of this sample.

Implications

The implication of the current research is multifaceted and critical for clinical practice, research and psychosocial support intervention. As findings of the current research reported higher level of suffering of women with primary infertility, therefore it is essential to conduct the routine and targeted screening in infertile clinics. Early screening on disordered eating, distress, coping and subjective happiness in this group can facilitate timely mental health referrals and interventions.

Recommendations

The results of the current study highlights some valuable recommendations for clinicians, healthcare system and further research. Psychologists dealing with women experiencing infertility-related distress ought to integrate meaning-based coping interventions to minimize psychological distress and disordered eating habits as well as promote subjective happiness levels. Infertility centers should incorporate routine screening of psychological distress, maladaptive eating patterns and maladptive coping styles so that they can be identified in time to be addressed. Moreover, the family and couple based interventions are suggested as the means to enhance social support, decrease the stigma, and improve the comprehension of the emotional issues related to infertility. Policymakers at the healthcare system should emphasize incorporating mental health services in fertility clinics. A longitudinal and intervention-based study is recommended in the future to identify causal relationships.

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