

**Adaptive Coping as moderator between body image and PCOS-related quality of life
in women with PCOS**

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ABSTRACT

The present study was aimed to examine whether adaptive coping strategies would moderate the relationship between body image and PCOS-related quality of life. The purposive sampling was used with 150 women aged 18 to 45 years with PCOS were enrolled from Rawalpindi and Islamabad in both public and private hospitals. Participants completed the Body Image Concern Inventory (BICI), PCOSQOL Scale and Brief COPE Scale. Data were analyzed by moderation analysis via Hayes Model 1 (PROCESS macro). Results demonstrated that there was a significant negative relation between body image and PCOS related quality of life. Whereas findings ($R^2 = .392$, $F = 95.37$, $p < .001$) highlights that adaptive coping moderates the relationship and reduce the negative affect of body image on quality of life. The findings include the importance of incorporating coping-oriented psychological interventions in PCOS treatment to improve quality of life in general.

Keywords: Polycystic ovary syndrome, Body Image, Quality of Life, Adaptive Coping

INTRODUCTION

Polycystic Ovary Syndrome (PCOS) is a common endocrine disease marked by hyperandrogenism, ovulatory dysfunction and polycystic ovarian morphology (Rotterdam, 2003). PCOS impacts 5 to 21 percent of the female population of reproductive age worldwide (Bozdag et al., 2016; Okoroh et al., 2012; Wolf et al., 2018) and leads to such long-term complications as diabetes type 2, cardiovascular diseases, endometrial cancer, and infertile pregnancies (Umland et al., 2011). Biologically, PCOS is associated with elevated androgens, luteinizing hormone, insulin resistance, and glucose intolerance that causes metabolic disruptions like obesity and dyslipidemia (Tasoula et al., 2004; Cai et al., 2014; Glintborg & Andersen, 2010).

Generally, PCOS symptoms can fall under three categories, including: reproductive (such as irregular menstruation and infertility), metabolic (such as obesity and insulin resistance), and psychological (such as anxiety and depression) (Poleshuck and Woods, 2014; Teede et al., 2010, 2018). Such symptoms as hirsutism, acne, and alopecia negatively affect body image and self-esteem, especially in adolescents (Emeksiz et al., 2018). Women with PCOS are reported to be at a higher risk of having depression, anxiety, and lower quality of life than women without the condition (Damone et al., 2018; Kogure et al., 2019; Yin et al., 2020; Pastore et al., 2011). The expressive character of the symptoms also leads to distorted feminine self-ideology, which contributes to the strengthening of psychological distress (Emeksiz et al., 2018).

Studies that are conducted in a variety of areas, such as Iran, the US, Spain, Sri Lanka, India, and Pakistan, depict high PCOS prevalence (Tehrani et al., 2011; Azhar et al., 2014; Asuncion, et al., 2000, Kumarapeli et al., 2008, Nidhi et al., 2011, Baqai et al., 2010, Nazir et al., 2011). Urbanization and western dietary changes have been cited as the major factors that lead to the increase in the prevalence of the disease in developing nations (Allahbadia & Merchant, 2008). As much as 75 percent of PCOS patients are afflicted with obesity, further complicating self-perception and health status is the need to implement early screenings as well as culturally proficient interventions (Allahbadia et al., 2008).

Body image is described as a composite phenomenon or impressions of emotion and ideologies in respect of physical appearance (Grogan, 2008; Jarry et al., 2019). It incorporates both evaluative aspect (the way one perceives his or her body) and the investment side (the emphasis someone has concerning the looks) (Thompson et al., 1999; Cash, 1990, 1994b). These attitudes are determined by internal factors (i.e., personality, psychological factors) as well as external forces (i.e., media, social norms). Theory on self concept also relates body image to other constructs such as femininity and attractiveness and social identity (Cash, 2012). It has been asserted that women (irrespective of age) have a more elevated degree of body dissatisfaction and deeply associated concerns than men (Haines & Neumark-Sztainer, 2006; Paxton, 2002; Quittkat et al., 2019).

The WHOQOL (1994) define quality of life (QoL) as the subjective conceptualization of an individual on their position in the life in comparison with cultural anticipation, personal aspirations, and system of values. It is logically multidimensional which implies physical health, mental condition, social connections, environment and spirituality. Body image, self-esteem, pain, energy level, and emotional well-being are the most crucial domains involved in the study of QoL. Fallowfield (1990) highlighted these dimensions (psychological, social, occupational, and physical) that, especially in chronic illnesses such as PCOS, have significant relevance (Colwell et al., 1998; Stracquadanio & Ciotta, 2015). When these QoL assessments are tied to chronic morbidity, they are frequently packaged within the holistic garment of health-related quality of life (HRQL) (Kaplan & Ries, 2007).

Lazarus and Folkman (1984) define coping as behavioral and psychological process by which people cope with stress. Coping is not fixed or rigid, but will vary depending on the level through which one is going through it and can be conscious or automatic in the long run. Gross and Thompson (2007) classified coping strategies into the functional ones: reactive (responding to a current stressor) and preventive (avoidance of a future stress). Proactive coping was proposed by Aspinwall and Taylor (1997), and means the accumulation of owned resources that one expects facing. Schwarzer and Knoll (2003) have also differentiated coping (anticipatory, preventive and proactive) depending on whether the stressor is imminent and dependable or not.

It is often proposed in the literature that problem-focused (e.g., problem-solving, planning) and emotion-focused (e.g., reframing, acceptance) coping prove to be different, with varying psychological effects each (Kheirabadi, 2010; Talepasand & Mahfar, 2018). Although problem focused coping directly deals with the ones involved in stress, other emotion focused coping methods are there to cope with the distress when stressors appear uncontrollable. Although both of them may be seen as a part of positive factors related to emotion regulation, resilience, and improved functioning in chronic illness environments when it is adaptive.

Body image dissatisfaction is a very important factor that reduces quality of life in PCOS, particularly in the areas of emotional functioning and self-worth (Bazarganipour et al., 2015). But studies indicate that adaptive coping may take an intermediate role in this relationship. Indicatively, Kaczmarek and

Trambacz-Oleszak (2021) concluded that pregnant women struggling with PCOS who employed acceptance and active coping methods registered higher quality of life and body image as compared to their counterparts who employed maladaptive coping strategies. On the same token, Mansson et al. (2011) demonstrated that the cognitive coping and emotional support reduced depression and improved social functioning. The moderating role of adaptive coping on the relationship between body image and psychological distress in women with PCOS confirmed by Nasiri-Amiri et al. (2016) alleviated the adverse impact of the latter on QoL. These results could imply that the development of psychological resilience with the implementation of adaptive coping serves as a way of protection against the emotional outcomes of PCOS-related body image burden.

Transactional Model of Stress and Coping by Lazarus and Folkman (1984) illustrates how persons have a dynamic relation in perceiving the stress factors and responding with it relative to the environment. Stress happens when the perceived demands outweigh coping resources and involves primary appraisal (gauging the threat), and secondary appraisal (gauging coping responses). Coping can be separated into problem-oriented (dealing with the stressors) and emotion-oriented (controlling emotional reaction) ones. Body image dissatisfaction, which arises out of symptoms such as obesity and hirsutism in women with Polycystic Ovary Syndrome (PCOS), is a major life stressful event binding quality of life (QoL). Quality of life is a product of body image concerns, which varies depending on the coping efforts: Coping with such complications in adaptive ways (problem-solving and cognitive reappraisal) have a positive relationship with quality of life and on the other hand maladaptive coping styles (avoidance and denial negatively influence the psychological distress). This model was also supported by empirical research on how adaptive coping decreases psychological distress and increases well-being within women living with PCOS (Khan & Bukhari, 2023; Srivastava and Sarraf, 2024; Qurat-Ul-Ain & Gul, 2023). The research then focuses on the transactional model to show the impact of coping on the interplay between body image and quality of life among women with PCOS.

While previous research has explored the relationship between body image and quality of life in PCOS, few studies have examined how coping styles influence this connection. Understanding the moderating role of coping can inform targeted interventions that promote adaptive coping, improve quality of life, and address body image issues in women with PCOS. This study aims to fill this gap, offering insights for healthcare providers and policymakers to support this population effectively.

Objective

The study aims to examine the moderating effect of adaptive coping among the relationship between body image and PCOS-related quality of life.

Hypothesis

Adaptive coping will moderate the relation between body image and PCOS-related quality of life, such that it reduces the effect of negative body image on quality of life.

Methods

Research Design

Cross Sectional survey method was used.

Sample

In various hospitals and clinics located in Rawalpindi and Islamabad, a sample of N = 150 women aged between 18 and 45 years was selected. The sample size was determined based on the objectives, availability of the participants, and adequacy for conducting statistical analysis for hypotheses testing. Purposive sampling technique was used.

Inclusion Criteria

Female with an established diagnosis of Polycystic Ovary Syndrome. Study participants were of reproductive age (18 to 45 years). Participants were required to have at least intermediate level education. Participants should sign an informed consent form to take part in the study. Capacity to comprehend and answer the study questionnaires using the administration language. Women living within the study's target geographical location.

Exclusion Criteria

Women with other chronic non-psychiatric medical conditions (e.g. diabetes, thyroid disease or serious mental illness) which can influence body image or quality of life in and of themselves. Person with no form of education or below the intermediate. Those women who have been diagnosed with mental illness that is considered severe (e.g., schizophrenia, bipolar disorder). Women are not going to give an informed consent due to mental impairments, either through a deficit in cognition or speech. Women's who are on hormonal medications on account of something other than PCOS.

Research Instruments

Demographic Questionnaire

A demographic information sheet will be constructed by the researcher. It will include information regarding the age, education, occupation, financial status.

Polycystic ovary syndrome quality of life (PCOSQOL)

Williams et al developed the PCOSQOL in 2018. It is a self-reported, 35-item questionnaire that contains four scales such as the effect of PCOS (16 items), infertility (7 items), hirsutism (6 items) and mood (6 items). All questions are gauged over a 7-point Likert sort of scale where 1 implies regularly and 7 means does not apply. The reliability of Cronbach's alpha 0.96 was excellent denoting that the scale had good validity and reliability.

Body Image Concern Inventory

Little developed the Body Image Concern Inventory in 2005 and it is a self reporting scale. The BICI comprises 19 items and the answers are rated on a 5 point Likert scale where never (1) and always (5) are regarded as the extreme frequencies. The BICI scale has obtained high internal consistency which is reflective of excellent reliability with a Cronbach's alpha score of 0.93. The term implies that what the items on the scale measure is the same construct (body image concerns). In the first research conducted by Little et al., (2005), BICI exhibited construct validity because it correlated well with the body dissatisfaction, self-esteem, and anxiety scales.

Brief COPE

A typical psychological tool is the Brief COPE which determines coping mechanisms. Originally named in the year 1997 by Carver, it was a shortened version of the initial COPE inventory with 28 items which were categorized into 14 sub scales which were each assessing different coping strategies. The pairs of sub scales include active coping, acceptance, positive re framing, and emotional support as the adaptive ones and self-blame, denial, and substance use as the maladaptive ones. The items comprise of a scale rating that ranges between 4 points of I have not been doing this at all, to I have been doing this a lot (Carver et al., 1989). An indication of the general internal consistency between Cronbach alpha coefficients of 0.60- 0.90 on different sub scales. The test-retest reliability also proves to be satisfactory and discovers temporal.

Ethical Consideration

The Institutional Review Board (IRB) of the National University of Medical Science (NUMS) granted ethical approval to the study, and all the actions followed ethical standards. The purpose of the study was well described to the participants, and only those who agreed to voluntarily took part in the study. They were guaranteed anonymity and confidentiality and right to withdraw without repercussion. All personal data was recorded anonymously and the only way data was to be used was during research with the ethical data protection benchmarks being followed. Since body image and the quality of life linked to PCOS is a sensitive issue, care was exercised to ensure psychological distress was avoided. To ensure accuracy and reliability of the study, ethics were observed according to institutional standards to maintain the dignity of the participants.

Procedure

Firstly, topic was cleared by Institutional Review Board (IRB) of National University of Medical Sciences (NUMS) Rawalpindi, Pakistan. The authors were asked to give written consent to use their scales in the present study. Permission were obtained from various hospitals was regarded as being with the aim of data collection. Patients were approached together with study questionnaires after being granted permission by the hospital and the clinic. The fact that people can participate because it is entirely their choice has been explained to patients. During research, the patients were treated with dignity and respect. Participants were told how they would respond to the questionnaire. In addition to the scale questionnaire, a sheet containing all the demographics was mentioned and a questionnaire was also attached to get the required demographics. This was when all the questions had been answered and they were advised to pose as much accuracy as possible. We ended by thanking the respondents on their cooperation.

Statistical Analysis

The IBM package for social sciences (SPSS 27) was used to analyze the study raw data. The study used moderation analysis to examined whether adaptive coping will moderate the relationship between body image and PCOS-related quality of life Hayes Process Macro (model 1) was used.

RESULTS

Table 1

Socio-Demographic Characteristics of Participants (N = 150)

	M	SD	f	%
Age	27.29	5.011	150	100

Note: M=Mean, SD=Standard, f=frequency, %=percentage

All participants were female (100%) aged 18 to 45 years.

Table 2

Frequency & Percentage of demographic Characteristics (N = 150)

Demographics	Description	f	%
Education	Intermediate	8	5.3
	Undergraduate	26	17.3
	Graduate	47	31.3
	Postgraduate	69	46.0
Occupation	Housewife	37	24.7
	Student	83	55.3
	Working women	30	20.0
Financial Status	Lower	4	2.7
	Middle	94	62.7
	Uper middle	40	26.7
	Upper	12	8.0
Family system	Joint	45	30.0
	Nuclear	105	70.0

Note: f= Frequency, % = Percentage

Table 02 illustrate that most participants had Post-graduate education (46.0%). Most belonged to middle socioeconomic backgrounds(62.7%). majority of participants lived in nuclear families (70.0%).

Table 3

Predictors	β	SE	t	p	LL	UL
Constant	124.43	18.64	6.67	.000	87.74	161.11
BICI	-1.05	0.28	-3.78	.0002	-1.60	-0.50
AC	0.27	0.54	0.51	.612	-0.78	1.33
BICI $\times$ AC	0.019	0.009	2.19	.029	0.002	0.037
R ²	.579					
F	135.87					
ΔR^2	.007					
ΔF	4.81					

Note: BICI=body image Note: BICI=body image concern inventory, AC= adaptive coping

Table 3 displays that adaptive coping has a significant moderating effect between body image concerns and quality of life in PCOS women ($\beta = 0.019$, $p = 0.029$). The model accounted to 57.9 percent of the variance in the quality of life and the interaction component demonstrated to have significant effect thereby showing adaptive coping reduces the negative effect of body image on PCOS-related quality of life

DISCUSSION

The proposed research was designed to investigate the moderating effect of adaptive coping on the connection between Body image dissatisfaction and PCOS-related quality of life (QoL) of women with Polycystic Ovary Syndrome. It supported the hypothesis that adaptive coping would moderate the negative effects of body dissatisfaction on Quality of life. Women using adaptive coping seemed to have higher quality of life who had expressed having a bigger issue concerning the body image. Whereas women with low adaptive coping , perceived a larger negative impact of body dissatisfaction on quality of life. The moderation effect was statistically significant at $p < 0.001$ and the appreciation is that the association between body image and quality of life moderated by the adaptive coping level was different.

The study findings correspond to Transactional Model of Stress and Coping (Lazarus and Folkman, 1984), which stresses the reciprocal relationship between environmental stressors and an individual coping response. Body image dissatisfaction becomes a stressors in this model whereas coping styles influence the internalization of that stress and the outcomes affect the well-being. The emotional consequences of

PCOS-related symptoms can be counteracted through the adaptive coping strategy to create psychological flexibility and strengthen resilience (Folkman & Moskowitz, 2004).

Studies have consistently demonstrated that PCOS patients develop higher rates of depression, self-consciousness and anxiety as a result of physical PCOS symptoms including acne, weight gain, hirsutism and menstrual irregularity (Brady et al., 2009; Kitzinger & Willmott, 2002). The symptoms go against the historic values of beauty and reproduction specifically pertaining to cultures in which women are closely identified with their appearance and fertility (Williams et al., 2015). Body dissatisfaction has thus been identified as the formation of poor QoL in women with PCOS (Bazarganipour et al., 2013; Trent et al., 2002). This study however brings out that, not all women are affected similarly since those who are armed with adaptive coping mechanisms are relatively cushioned.

With the help of adaptive coping mechanisms one can change stress in a more constructive manner, manage emotions and incorporate solution-oriented behavior (Carver, 1997). This would not only benefit emotional regulation, but it could also benefit further treatment compliance and lifestyle changes that are required in controlling PCOS (Hillman et al., 2012). The moderation of coping further proves the fact that body dissatisfaction is a long-term challenge that most women with PCOS have been facing, but its psychological effects can be drastically mitigated by cognitive and behavioral resilience.

Besides, such important psychological concepts as anxiety, depression, and self-esteem were not investigated in the study, as they might affect coping and the quality of life. The role of culture and social pressures such as expectations of marriage and norms of body image were also not considered in spite of the fact that it is likely to be of influence to different groups of people. Also, the model was not comprehensive because the variables of BMI, diet, physical activity and social support were not controlled. To receive a more comprehensive picture of psychological well-being among women with PCOS, such factors should be included in further studies.

Community health campaigns to counter the stigma of having PCOS and to treat women with PCOS with support rather than stigma. Since body image and quality of life are moderated by coping mechanisms, acquisition of adaptive coping strategies is the area that should take the centre stage in the current scenario. Some of the effective strategies are as follows: Problem-focused coping: promoting active problem solving (e.g. Seeking medical guidance, lifestyle modifications). The training of emotional regulation: education of stress-reduction strategies: journaling, mindfulness, and breathing exercises. Social support: the creation of social support: the development of social support encouragement to join in PCOS support groups and counseling programmes. Resilience and mental well-being of women can be advanced in large rates to a great extent by having better coping strategies.

LIMITATIONS

The relatively low sample size (N = 150) of the current study constrains the application of the findings to the rest of the PCOS population. Future research needs to focus on larger, more diverse samples to promote external validity. In addition, it has a weakness of causal interpretation and non-analysis on a dynamic level because of the cross-sectional structure. A longitudinal study would enable the better comprehension of the pattern of changes in body image issues, coping skills, and quality of life in women with PCOS. The use of self-report measures is liable to a possible bias, such as social desirability and subjective misjudgment. The next step in research should be the combination of clinical evaluations or empirical observations, which will support findings obtained by self-report.

RECOMMENDATIONS

Given that this study employed a cross-sectional study design, there is the indication that further research may utilize longitudinal study designs to trace the way body image concerns, coping mechanism and quality of life evolve over a period of time. By offering more direct cause-effect understanding, longitudinal studies will be able to situate interventions on a more timely manner. Because the factors that influence body image dissatisfaction are beauty ideals and cultural expectations. Interventions are recommended to address the following educational programs to question beauty norms that do not correspond to reality related to weight, hair growth, and skin problems. Encouraging body neutrality with the focus not on body positivity but on ensuring that women learn to look at their bodies instead of the constructs created by society.

CONCLUSION

The study highlights the central importance of adaptive coping in alleviating adverse influences of body images dissatisfaction on the quality of life of women with Polycystic Ovary Syndrome. Even though poor body image was closely associated with poor Quality of life, women who practiced adaptive coping could enjoy better maintenance of psychological well-being despite these challenges. The findings indicate that unlike a trait, psychological resilience is not an inborn attribute but a skill that could be reinforced with careful coping activity. Based on that it is important to involve mental health care and skills on coping mechanisms in the routine PCOS care. The integration of physical and emotional needs that is more effective, compassionate and empowering through healthcare are made by providing a broader approach to managing physical symptoms as well as emotional wellness to women who deal with this complex condition.

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