

STRESS APPRAISAL, COGNITIVE EMOTION REGULATION AND FUNCTIONAL IMPACT ON WOMEN WITH PREMENSTRUAL SYNDROME

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Abstract

The present study was conducted to examine the relationship between stress appraisal, cognitive emotion regulation strategies, and the functional impact of premenstrual syndrome (PMS) in women. Another aim was to investigate the mediating role of cognitive emotion regulation strategies in the association between stress appraisal and functional impact among women experiencing PMS. A correlational research design was employed. Purposive sampling was used to collect data from 150 participants ($M = 24.13$, $SD = 3.29$). Screening measures included the Premenstrual Syndrome Scale (PMSS; Gencdogan, 2006), which was used to identify women meeting PMS criteria. The study measures comprised the Stress Appraisal Measure (Peacock & Wong, 1990), the Cognitive Emotion Regulation Questionnaire (CERQ; Garnefski et al., 2002), and the Premenstrual Symptoms Impact Survey (PMSIS; Wallenstein et al., 2008). Descriptive statistics were used to analyze demographic variables. Inferential statistics included Pearson correlation analysis and mediation analysis. The results of the study revealed a significant correlation between various dimensions of stress appraisal and both adaptive and maladaptive cognitive emotion regulation strategies. Moreover, adaptive and maladaptive strategies were found to play a mediating role in the relationship between stress appraisal and functional impact. Mediation analysis confirmed the indirect effects of stress appraisal on functional impairment through cognitive emotion regulation. The research adds to the existing body of knowledge by highlighting cognitive and emotional processes that underlie PMS-related difficulties. The findings have important implications for clinical psychologists and professionals in women reproductive mental health, supporting the development of targeted interventions that enhance emotion regulation to reduce PMS-related impact.

INTRODUCTION

Premenstrual Syndrome (PMS) is often seen as a regular and expected part of a womanhood. However, it involves a complex combination of psychological and physical changes that silently affects millions of women worldwide. these

experiences are often misunderstood, minimized, or labeled as overreactions. While continuing with their daily responsibilities, relationships, and routines, many women silently go through emotional sensitivity, physical discomfort, and a

sense of inner imbalance. This emotional distress often includes mood swings, sadness, anger, and mental exhaustion all triggered by the body's natural hormonal changes in preparation for menstruation. While the physical symptoms are more visible, it's the emotional and psychological side remains less spoken about. Understanding these hidden emotional and psychological struggles is essential, not only to validate women's experiences but also to build a more compassionate and psychologically informed perspective. By acknowledging the deeper emotional impact, we move closer to creating awareness, compassion, and more supportive psychological frameworks for the countless women who silently carry this burden every month.

Premenstrual syndrome (PMS) is frequently regarded as a normal part of women's lived experiences, yet it reflects a complex interaction of psychological, emotional, and physical changes that affect millions of women globally. Despite its prevalence, women's experiences are frequently minimized or misunderstood. Many continue their routine responsibilities while silently coping with irritability, emotional sensitivity, mood fluctuations, fatigue, and physical discomfort triggered by hormonal variations across the menstrual cycle. Although physical symptoms are widely recognized, the emotional and psychological dimensions of PMS remain less acknowledged, despite their significant influence on daily functioning and interpersonal relationships. Recognizing these hidden challenges is essential for validating women's experiences and developing supportive, psychologically informed frameworks.

PMS is a cyclic disorder occurring during the luteal phase of the menstrual cycle and involves a pattern of recurring emotional and physical symptoms (Itriyeva, 2022; Modzelewski et al., 2024). Studies estimate that up to 90% of women of reproductive age experience distressing premenstrual symptoms (MGH Center for Women's Health, 2025). with global prevalence estimated at 47.8%, and 3–8% experiencing severe symptoms that impair functioning (Modzelewski et al., 2024). In Pakistan, Parveen et al. (2022) found that 69.6%

of women reported one or more PMS symptoms, indicating high clinical relevance. Symptoms typically emerge one to two weeks before menstruation and resolve with the onset of menstrual bleeding (Farahmand et al., 2017).

Women with PMS typically experience a range of affective symptoms including mood swings, irritability, anxiety, sadness or depressed mood, and loss of confidence, often accompanied by difficulties in concentration and social withdrawal. In addition to these psychological changes, PMS frequently causes somatic symptoms such as abdominal bloating, breast tenderness and swelling, headaches, dizziness, and fatigue. Other physical manifestations can include hot flushes, generalized aches, and gastrointestinal discomfort. Although the number and severity of symptoms vary among individuals, these recurring emotional and physical complaints significantly impact well-being and quality of life in many affected women (Dilbaz & Aksan, 2021).

These diverse symptoms reflect underlying hormonal and neurobiological changes within the menstrual cycle. Genetic predisposition further shapes vulnerability, with heritability estimates around 40%, indicating that familial also contribute (Jahanfar et al., 2011). These diverse symptoms reflect underlying hormonal and neurobiological changes within the menstrual cycle. Genetic predisposition further shapes vulnerability, with recent evidence showing that symptoms of premenstrual disorders are associated with genetic liability for major psychiatric disorders (Jaholkowski et al., 2023)

Theoretical Frameworks

Lazarus and Folkman's (1984) Transactional Model of Stress and Coping explains that stress arises not directly from external events but from how individuals interpret those events. In the primary appraisal, individuals judge whether a situation is threatening, challenging, or personally significant, incorporating dimensions such as threat, centrality, and stressfulness. The secondary appraisal involves evaluating one's internal and external resources for managing the situation, including whether the stressor is controllable by oneself, controllable by others, or uncontrollable

(Peacock & Wong, 1990). Appraisals are highly individualized and shaped by prior experiences, cultural context, and personality (Chen & Wang, 2020).

Within the context of PMS, stress appraisal plays a significant role in shaping emotional, cognitive, and somatic experiences. Women with PMS often interpret daily stressors as more threatening and less manageable during the luteal phase, reflecting heightened stress sensitivity and altered appraisal patterns (Nayman et al., 2023). Studies consistently show that PMS is associated with stronger negative appraisals and reduced perceived controllability of stressors, contributing to emotional distress, mood fluctuations, and impaired coping (Bencker et al., 2025).

Literature Review

Women with PMS were found to experience higher levels of anxiety, more negative emotional experiences, and greater emotional distress compared to those without PMS (Ahmad et al., 2024; Bukhari et al., 2022). PMS was also associated with lower mindfulness, more recurrent negative thinking, and reduced use of adaptive emotion regulation strategies, which in turn worsened mood across the menstrual cycle (Nayman et al., 2023). Among working women, PMS significantly impacted daily functioning, including emotional, social, and physical well-being, leading to fatigue and reduced quality of life (Mahmood et al., 2022). Similarly, among female students, PMS was linked to a decline in overall quality of life and functional outcomes, affecting both emotional and social domains (Irshad et al., 2022). Job performance in women nurses was inversely related to PMS severity, with more pronounced PMS symptoms predicting lower work efficiency (Iqbal et al., 2024). Moreover, social support and mental health were found to be negatively affected by menstrual issues, highlighting the interplay of PMS, stress, and psychosocial functioning (Rauf et al., 2023). Studies on premenstrual syndrome (PMS) emphasize its significant impact on women's psychological well-being, emotional regulation, and daily functioning. Women with PMS are found to employ more maladaptive emotion

regulation strategies, such as rumination, catastrophizing, and self-blame, compared to women without PMS, regardless of the menstrual phase (Eggert et al., 2017). Research also shows that women with PMS exhibit greater negative affect, reduced positive affect, increased alpha activity, and slower respiration rates during stressful conditions, highlighting heightened stress reactivity (Liu et al., 2017). Cyclical hormonal fluctuations are further associated with changes in mood, cognition, and perceptual processing, with increased irritability, fatigue, anxiety, and depression being more frequent during the premenstrual state (Farage et al., 2008). Although cognitive function may not reliably fluctuate across the menstrual cycle, emotional processing and regulation are consistently affected, with heightened emotional sensitivity and recall, particularly during the luteal phase (Poromaa et al., 2014). Women experiencing difficulties with emotion regulation also show altered perceptions of control over anxiety-provoking events, with greater psychological vulnerability and emotional distress during menstrual phases (Manikandan et al., 2016). Systematic reviews indicate that women with PMS have more trouble regulating emotions, especially in controlling impulsivity and recognizing feelings, and report higher stress, emotional instability, and lower social connectivity (Lambert et al., 2025). Premenstrual symptoms significantly affect quality of life, daily functioning, and social activities. Women with moderate-to-severe PMS report worse mental and physical quality of life, with interference in hobbies, social interactions, and relationships (Heinemann et al., 2019). PMS symptoms are strongly associated with social and work functioning impairment, symptom severity, and health service utilization predict treatment-seeking behavior (Khan et al., 2019). Adolescents also experience functional impairments, with mood swings, anxiety, and irritability affecting home and family life (Ahmed and Farooq, 2021). Quality of life is particularly impacted in domains of mental health, with social ties remaining relatively less affected (Nowak et al., 2022). Large-scale studies indicate that psychological and somatic symptoms of PMS substantially disrupt everyday activities,

with up to 35% of women experiencing moderate-to-severe impairment (Lewis et al., 2023).

Hypotheses

H1a: strategies among women with PMS. There is likely to be a positive relationship between threat, uncontrollability, controllable by others appraisals and maladaptive cognitive emotion regulation

H1b: There is likely to be a positive relationship between challenge and controllability by self appraisals and adaptive cognitive emotion regulation strategies among women with PMS.

H1c: There is likely to be a positive relationship between stressfulness and centrality appraisals and both maladaptive and adaptive cognitive emotion regulation strategies among women with PMS.

H2: There is likely to be a positive relationship between maladaptive cognitive emotion regulation strategies and functional impact on women with PMS.

H3: There is likely to be a negative relationship between adaptive cognitive emotion regulation strategies and functional impact on women with PMS.

H4: Adaptive and maladaptive cognitive emotion regulation strategies are likely to mediate the relationship between stress appraisals and functional impact.

Methods

The present study employed a correlational research design to examine the relationships among stress appraisal, cognitive emotion regulation strategies, and functional impact in women experiencing premenstrual syndrome (PMS). Purposive sampling was used to recruit participants aged 18 to 30 years who had regular menstrual cycles and scored above the cutoff 40 on the Premenstrual Syndrome Scale (PMSS), resulting in a final sample of 150 women after exclusions. Data were collected from community, educational, and occupational settings in Lahore, Pakistan. Participants provided voluntary informed consent and. Individuals with diagnosed psychological disorders, polycystic ovary syndrome (PCOS), or irregular menstrual cycles were excluded to ensure a homogenous sample for studying PMS-related stress and emotional regulation.

The present study was conducted following ethical guidelines, Approval was obtained from the departmental doctoral program committee (DDPC) before data collection. Each participant was provided with an information sheet detailing the purpose, nature, duration of the study, and their rights as participants. Written informed consent was obtained to ensure voluntary participation, and participants were assured of the anonymity and confidentiality of their responses throughout the study.

Table 1
Sociodemographic Characteristics of Participants. (N= 150)

Sample Characteristics	f	%	M	SD
Age (years)				
18-21	44	29.3		
22-25	76	50.7		
26-30	30	20.0		
Education (years)			15.36	2.55
Marital Status				
Married	90	60.0		
Unmarried	59	39.3		
Occupation				
Student	47	31.3		
Housewife	72	48.0		
Job holder	24	16.0		
Business	5	3.3		
Unemployed	2	1.3		

Family System		
Nuclear	94	62.7
Joint	55	36.7
Sleep (hours/night)		
<4	19	12.7
4-6	60	40.0
7-9	58	38.7
10+	13	8.7
Dietary Habits		
Normal	79	52.7
Fast food	52	34.7
High sugar/processed	19	12.7
Exercise		
None	45	30.0
Low	56	37.3
Moderate	29	19.3
High	20	13.3
Social Support		
High	81	54.0
Moderate	46	30.7
Low	23	15.3
Primary Support Source		
Parents	70	46.7
Siblings	27	18.0
Friends	26	17.3
Partner	13	8.7
None	14	9.3

Note. f = frequency; % = percentage; M = mean; SD = standard deviation.

Research Instruments

The Premenstrual Syndrome Scale (PMSS; Gencdogan, 2006) was used as a screening tool to identify women experiencing PMS, with scores above 44 indicating clinically relevant symptoms. The scale comprises 44 items rated on a 5-point Likert scale ranging from (1 = Never to 5 = Continually). The PMSS has strong reliability ($r = 0.87$) and factor analysis explaining 71% of the variance. Stress appraisal was assessed using the Stress Appraisal Measure (SAM; Peacock & Wong, 1989), a 28-item scale measuring primary appraisal (threat, challenge, centrality), secondary appraisal (controllable by self, controllable by others, uncontrollable), and overall perceived stressfulness, rated on a 5-point scale ranging from (1 = Not at all to 5 = Extremely), with good reliability ($\alpha = 0.78$). Cognitive emotion regulation

strategies were measured using the Cognitive Emotion Regulation Questionnaire - Short Form (CERQ-SF; Garnefski et al., 2002), comprising 18 items across nine subscales, rated from (1=Almost never to 5=Almost always), with Cronbach's alpha between 0.70-0.80. The Premenstrual Symptoms Impact Survey (PMSIS; Wallenstein et al., 2008), a 6-item tool, evaluated the functional impact of PMS on daily life, including mood, concentration, energy, emotional regulation, and social functioning, rated from (1=None of the time to 5=All of the time), with higher scores reflecting greater functional impairment, having a reliability of ($\alpha = 0.90$).

Results

The aim of the presence research was to find out the relationship between stress appraisal cognitive emotion regulation and functional impact on women with PMS. The study also aimed at finding

the mediating role of cognitive emotion regulation in women with Premenstrual syndrome. The Statistical Package for the Social Sciences (SPSS) version 27.0 was used to analyze research data.

Reliability Analysis

Table 2.1

Psychometric Properties of Questionnaires Used in Study (N=150)

Scales/Subscales	M	SD	Range	α
Premenstrual Syndrome Scale	133.59	31.16	65-197	.96
Stress Appraisal Measure	83.22	20.79	28-138	.94
Threat Subscale	11.56	3.79	4-20	.75
Challenge Subscale	11.92	3.55	4-20	.72
Centrality Subscale	12.15	3.58	4-20	.71
Controllable-by-Self Subscale	12.28	3.52	4-20	.73
Controllable-by-Others Subscale	11.29	3.56	4-20	.72
Uncontrollable Subscale	11.78	3.32	4-20	.63
Stressfulness Subscale	12.24	3.45	4-20	.75
Cognitive Emotion Regulation Questionnaire	53.42	12.38	18-83	.87
Adaptive CER Strategies	33.96	8.24	11-52	.83
Maladaptive CER Strategies	19.46	5.86	7-35	.81
Functional Impact	19.25	5.61	20 - 100	.88

Note. M = mean; SD = standard deviation; α = Cronbach's alpha reliability coefficient.

The reliability analysis shows that all scales and subscales demonstrated good to excellent internal consistency, indicating that the measures were reliable for assessing PMS, stress appraisal, cognitive emotion regulation, and functional impact in the sample.

Correlational Analysis

A bivariate correlational analysis, using Pearson product-moment correlation was employed for the study.

Table 2.2

Interrelation Between Stress Appraisal dimensions, Adaptive Cognitive Emotion Regulation, Maladaptive Cognitive Emotion Regulation, and Functional Impact

Variable	M	SD	1	2	3	4	5	6	7	8	9	10
1. Threat	2.89	0.95	1									
2. Chall	2.98	0.89	.69**	1								
3. Central	3.04	0.89	.62**	.77**	1							
4. Ctrl-S	3.07	0.88	.58**	.66**	.73**	1						
5. Ctrl-O	2.86	1.00	.60**	.68**	.65**	.56**	1					
6. Unctrl	2.95	0.83	.60**	.59**	.64**	.60**	.51**	1				
7. Stress	3.06	0.86	.57**	.71**	.75**	.66**	.58**	.57**	1			
8. A-CER	33.81	7.61	.42**	.59**	.60**	.57**	.41**	.41**	.51**	1		
9. M-CER	19.46	5.86	.57**	.54**	.47**	.41**	.46**	.35**	.49**	.63**	1	
10. FI	19.25	5.61	.58**	.46**	.52**	.46**	.38**	.46**	.49**	.38**	.48**	1

Note. Chall = Challenge; Central = Centrality; Ctrl-S = Controllable by Self; Ctrl-O = Controllable by Others; Unctrl = Uncontrollable; Stress = Overall Stressfulness; A-CER = Adaptive Cognitive Emotion Regulation; M-CER = Maladaptive Cognitive Emotion Regulation; FI = Functional Impairment. * $p < .05$, ** $p < .01$

Correlation analysis showed that Premenstrual Syndrome Severity had a significant positive relationship with stress appraisal, indicating that higher PMS symptoms were linked with greater perception of threat, centrality, and stress. Stress appraisal also had a significant positive relationship with both maladaptive and adaptive cognitive emotion regulation strategies suggesting that as stress perceptions increase, both adaptive and maladaptive coping strategies are used more.

Maladaptive strategies were positively associated with functional impact, implying that unhelpful ways of coping worsen daily functioning. Adaptive strategies also showed a weak positive relationship with functional impact, which may suggest that they are not sufficient alone to reduce impairment. Overall, stress appraisal and both types of emotion regulation had significant associations with functional difficulties.

Mediation Analysis

Mediation analysis through PROCESS. Model 4 was used to run mediation as there were two parallel mediators. Results of mediation analysis having Stress Appraisal dimensions as IVs, adaptive and maladaptive strategies as mediators, and Functional Impact as an outcome are presented in the following tables.

Table 2.3.1

Mediation Analysis Showing Adaptive Cognitive Emotion Regulation Strategies and Maladaptive Cognitive Emotion Regulation Strategies as mediators between Threat and Functional Impact.

Consequent		ACER			MCER			FI		
Antecedent	β	SE	p		β	SE	p	β	SE	p
Threat	a_1 3.36	0.60	< .001		a_2 3.50	0.42	< .001	c' 2.66	0.47	< .001
ACER	-	-	-		-	-	-	b_1 0.06	0.06	0.32
MCER	-	-	-		-	-	-	b_2 0.16	0.09	0.06
Constant	i_{m1} 24.09	1.82	< .001		i_{m2} 9.35	1.27	< .001	i_y 6.28	1.74	.0004
	$R^2 = 0.18$				$R^2 = 0.32$			$R^2 = 0.37$		
			$F(1, 148) = 31.66, p < .001$				$F(1, 148) = 70.04, p < .001$			
								$F(3, 146) = 29.38, p < .001$		

Note. ACER = Adaptive Cognitive Emotion Regulation (Mediator), MCER = Maladaptive Cognitive Emotion Regulation (Mediator), FI = Functional Impact (Outcome), β = Regression Coefficient, SE = Standard Error, p = Significance Value, c' = direct effect

The mediation analysis indicated that there was no significant indirect effect of threat on functional impact through adaptive cognitive emotion regulation strategies. Direct association between threat and functional impact remained significant.

Maladaptive strategies showed a marginally significant indirect effect, suggesting partial mediation. Overall, maladaptive strategies partially explained the pathway, while adaptive strategies did not.

Table 2.3.2

Mediation Analysis Showing Adaptive Cognitive Emotion Regulation Strategies and Maladaptive Cognitive Emotion Regulation Strategies as mediators between Challenge and Functional Impact.

Consequent		ACER			MCER			FI				
Antecedent		β	SE	p		β	SE	p		β	SE	p
Challenge	a_1	5.10	0.57	< .001	a_2	3.60	0.46	< .001	c'	1.79	0.57	.002
ACER		-	-	-		-	-	-	b_1	0.01	0.07	0.89
MCER		-	-	-		-	-	-	b_2	0.30	0.09	<.001
Constant	i_{m1}	18.61	1.76	<.001	i_{m2}	8.74	1.42	< .001	i_γ	7.68	1.83	<.001
		R ² = 0.35				R ² = 0.30				R ² = 0.28		
		F(1, 148) =80.89, p < .001				F(1, 148) = 62.36, p < .001				F(3, 146) = 19.65, p < .001		

Note. ACER = Adaptive Cognitive Emotion Regulation (Mediator), MCER = Maladaptive Cognitive Emotion Regulation (Mediator), FI = Functional Impact (Outcome), β = Regression Coefficient, SE = Standard Error, p = Significance Value, c' = direct effect

The mediation analysis indicated that maladaptive cognitive emotion regulation strategies partially mediated the relationship between challenge and functional impact, showing a significant indirect effect. Adaptive strategies did not mediate this relationship. Direct effect of challenge on

functional impact remained significant, indicating that challenge influences functional impact both directly and indirectly through maladaptive strategies.

Table 2.3.3

Mediation Analysis Showing Adaptive Cognitive Emotion Regulation Strategies and Maladaptive Cognitive Emotion Regulation Strategies as mediators between Centrality and Functional Impact.

Consequent		ACER			MCER			FI				
Antecedent		β	SE	p		β	SE	p		β	SE	p
Centrality	a_1	5.14	0.56	< .001	a_2	3.07	0.48	< .001	c'	2.58	0.53	<.001
ACER		-	-	-		-	-	-	b_1	-0.06	0.07	.418
MCER		-	-	-		-	-	-	b_2	0.32	0.08	<.001
Constant	i_{m1}	18.20	1.76	<.001	i_{m2}	10.13	1.51	< .001	i_y	7.12	1.76	.0001
		R ² = 0.36				R ² = 0.22				R ² = 0.34		
		F(1, 148) =85.03, p < .001			F(1, 148) = 41.76, p < .001			F(3, 146) = 25.64, p < .001				

Note. ACER = Adaptive Cognitive Emotion Regulation (Mediator), MCER = Maladaptive Cognitive Emotion Regulation (Mediator), FI = Functional Impact (Outcome), β = Regression Coefficient, SE = Standard Error, p = Significance Value, c' = direct effect

The mediation analysis showed that maladaptive cognitive emotion regulation strategies partially mediated the relationship between centrality and

functional impact, with a significant indirect effect. Adaptive strategies did not mediate this relationship. Centrality also had a significant

direct effect on functional impact, indicating both direct and indirect influence through maladaptive strategies.

Table 2.3.4

Mediation Analysis Showing Adaptive Cognitive Emotion Regulation Strategies and Maladaptive Cognitive Emotion Regulation Strategies as mediators between Challenge and Functional Impact.

Consequent												
		ACER			MCER			FI				
Antecedent		β	SE	p		β	SE	p		β	SE	p
Ctrl by self	a ₁	4.94	0.58	< .001	a ₂	2.73	0.50	< .001	c'	2.09	0.54	<.001
ACER		-	-	-		-	-	-	b ₁	-0.03	0.07	.696
MCER		-	-	-		-	-	-	b ₂	0.35	0.08	<.001
Constant	i _{m1}			<.001	i _{m2}			< .001	i _γ			<.001
		R ² = 0.33				R ² = 0.17				R ² = 0.31		
		F(1, 148) =71.99, p < .001				F(1, 148) = 29.95, p < .001				F(1, 146) = 40.41, p < .001		

Note. Ctrl by self = Controllable by self, ACER = Adaptive Cognitive Emotion Regulation (Mediator), MCER = Maladaptive Cognitive Emotion Regulation (Mediator), FI = Functional Impact (Outcome), β = Regression Coefficient, SE = Standard Error, p = Significance Value, c' = direct effect.

The mediation analysis indicated that maladaptive cognitive emotion regulation strategies partially mediated the relationship between controllable-by-self appraisal and functional impact. Adaptive strategies did not show a mediating effect. Controllable-by-self also had a significant direct effect on functional impact, highlighting both direct and indirect influence through maladaptive strategies.

Table 2.3.5

Mediation Analysis Showing Adaptive Cognitive Emotion Regulation Strategies and Maladaptive Cognitive Emotion Regulation Strategies as mediators between Challenge and Functional Impact.

Consequent		ACER			MCER			FI				
Antecedent		β	SE	p		β	SE	p		β	SE	p
Ctrl by O	a_1	3.11	0.57	< .001	a_2	2.68	0.43	< .001	c'	1.03	0.45	.02
ACER		-	-	-		-	-	-	b_1	0.07	0.07	.31
MCER		-	-	-		-	-	-	b_2	0.32	0.09	<.001
Constant	i_{m1}			<.001	i_{m2}			< .001	i_γ			<.001
		R ² = 0.17				R ² = 0.21				R ² = 0.26		
		F(1, 148) =29.89, p < .001				F(1, 148) = 39.50, p < .001				F(3, 146) = 17.62, p < .001		

Note. ACER = Adaptive Cognitive Emotion Regulation (Mediator), MCER = Maladaptive Cognitive Emotion Regulation (Mediator), FI = Functional Impact (Outcome), β = Regression Coefficient, SE = Standard Error, p = Significance Value, c' = direct effect.

The mediation analysis revealed that maladaptive cognitive emotion regulation strategies partially mediated the relationship between controllable-by-others appraisal and functional impact. Adaptive strategies did not mediate this relationship.

Controllable-by-others also had a significant direct effect on functional impact, indicating both direct and indirect influences primarily through maladaptive strategies.

Table 2.3.6

Mediation Analysis Showing Adaptive Cognitive Emotion Regulation Strategies and Maladaptive Cognitive Emotion Regulation Strategies as mediators between Challenge and Functional Impact.

Consequent		ACER			MCER			FI				
Antecedent	β	SE	p		β	SE	p	β	SE	p		
Unctrl	a_1	3.73	0.69	< .001	a_2	2.44	0.54	< .001	c'	1.03	0.45	.02
ACER	-	-	-		-	-	-	b_1	0.02	0.07	.31	
MCER	-	-	-		-	-	-	b_2	0.32	0.09	<.001	
Constant	i_{m1}			<.001	i_{m2}		<.001	i_γ			<.001	
		$R^2= 0.17$				$R^2= 0.21$				$R^2= 0.33$		
		$F(1, 148) = 29.43, p < .001$				$F(1, 148) = 20.00, p < .001$				$F(3, 146) = 23.96, p < .001$		

Note. Unctrl = Uncontrollable, ACER = Adaptive Cognitive Emotion Regulation (Mediator), MCER = Maladaptive Cognitive Emotion Regulation (Mediator), FI = Functional Impact (Outcome), β = Regression Coefficient, SE = Standard Error, p = Significance Value, c' = direct effect.

The mediation analysis revealed that maladaptive cognitive emotion regulation strategies partially mediated the relationship between Uncontrolled appraisal and functional impact. Adaptive strategies did not mediate this association.

Uncontrolled appraisal also showed a significant direct effect on functional impact, indicating both direct and indirect influences, primarily through maladaptive strategies.

Table 2.3.7

Mediation Analysis Showing Adaptive Cognitive Emotion Regulation Strategies and Maladaptive Cognitive Emotion Regulation Strategies as mediators between Challenge and Functional Impact

Consequent												
		ACER			MCER			FI				
Antecedent		β	SE	p		β	SE	p		β	SE	p
Stress	a_1	4.47	0.62	< .001	a_2	3.29	0.49	< .001	c'	2.16	0.53	< .001
ACER		-	-	-		-	-	-	b_1	0.02	0.07	.82
MCER		-	-	-		-	-	-	b_2	0.29	0.09	.001
Constant	i_{m1}			<.001	i_{m2}			< .001	i_γ			<.001
		R ² = 0.26				R ² = 0.23				R ² = 0.32		
		F(1, 148) =51.06, p < .001				F(1, 148) = 45.49, p < .001				F(3, 146) = 22.59, p < .001		

Note. Stress = Stressfulness, ACER = Adaptive Cognitive Emotion Regulation (Mediator), MCER = Maladaptive Cognitive Emotion Regulation (Mediator), FI = Functional Impact (Outcome), β = Regression Coefficient, SE = Standard Error, p = Significance Value, c' = direct effect

The mediation analysis showed that maladaptive cognitive emotion regulation strategies partially mediated the relationship between stressfulness and functional impact. Adaptive strategies did not mediate this relationship. Stress also

demonstrated a significant direct effect on functional impact, indicating both direct and indirect influences mainly operating through maladaptive strategies.

Emerged Mediation Model

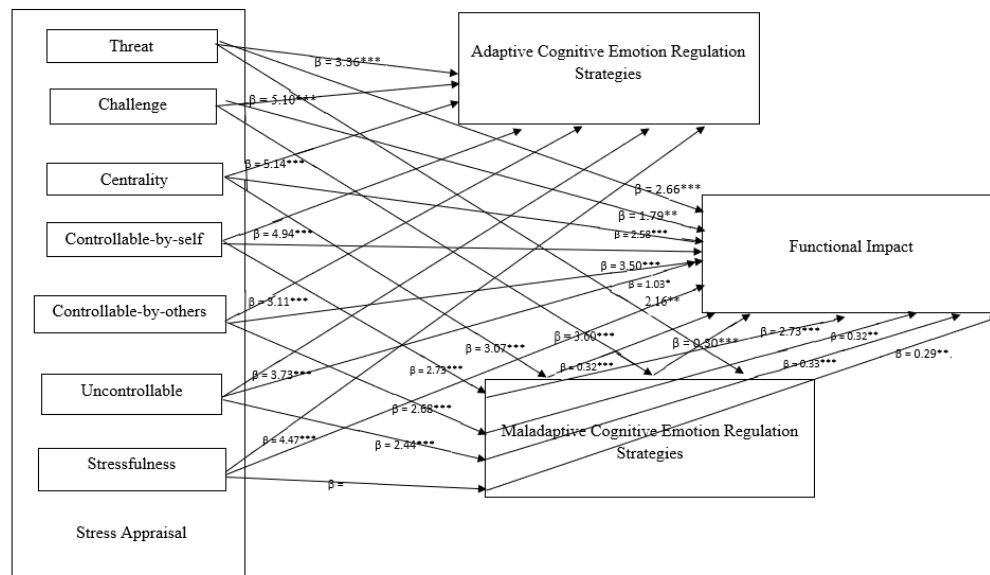


Figure showing Maladaptive Cognitive Emotion Regulation strategies as mediator between Stress appraisal dimensions and Functional impact on women with PMS

Discussion

Psychological health in women experiencing Premenstrual Syndrome (PMS) remains a critical area of exploration, particularly in how subjective perceptions of stress influence emotional processing and daily functioning. This study aimed to investigate the predictive role of stress appraisal on functional impairment among women with PMS, with a focus on the mediating impact of adaptive and maladaptive cognitive emotion regulation strategies. The findings provide valuable insights into the interaction between cognitive appraisal of stress responses that

may either buffer or exacerbate PMS-related impairment.

It was hypothesized (H1a) that threat, uncontrollability, and controllability by others would positively relate to maladaptive cognitive emotion regulation strategies. The results confirmed this hypothesis, as all three dimensions significantly predicted higher use of maladaptive strategies such as rumination, catastrophizing, and self-blame. These findings align with Lazarus and Folkman's transactional model, which states that appraising a situation as threatening or uncontrollable leads to emotion-focused and maladaptive coping responses (Lazarus & Folkman, 1984). Recent empirical work in premenstrual samples similarly links higher

perceived stress and threat appraisals with greater rumination and other maladaptive cognitive responses. For example, large-sample and ambulatory assessment studies have shown that women with more severe premenstrual symptoms report higher trait and momentary rumination and perceived stress (Kappen et al., 2022; Nayman et al., 2023).

In line with H1b, challenge and controllability by self were significantly associated with adaptive strategies like positive reappraisal and acceptance. This is supported by the broaden-and-build theory, which posits that positive appraisals enhance the use of constructive coping mechanisms (Fredrickson, 2004). Recent PMS-focused intervention and observational studies demonstrate that women who adopt more acceptance- and mindfulness-oriented perspectives or who appraise symptoms as manageable show greater use of adaptive strategies and reduced interference, for example, mindfulness-based interventions and trait mindfulness have been associated with lower functional impairment and symptom reduction in PMS samples.

H1c suggested that stressfulness and centrality would relate positively to both adaptive and maladaptive strategies. This was supported. These dual pathways indicate that when PMS-related stress is perceived as highly significant (central) and stressful, individuals may simultaneously activate helpful and unhelpful strategies, reflecting cognitive overload or ambivalence in regulation. Recent ambulatory/daily-diary work reports within-person increases in rumination and perceived stress during the late-luteal phase, while also finding that trait-level resources (e.g., present-moment awareness, acceptance) sometimes co-occur with attempts at reappraisal producing mixed/regulatory patterns across the cycle.

However, a noteworthy finding was that all dimensions of stress appraisals, including both positive (challenge, controllability) and negative (threat, uncontrollability) were significantly associated with both adaptive and maladaptive strategies. This suggests that women with PMS may respond to stress using a mix of helpful and unhelpful strategies at the same time, which reflects a learned regulatory pattern developed

over time, possibly due to fluctuating emotional states and hormonal shifts. Recent PMS neurobiological and daily-life studies indicate higher emotional reactivity and switching between regulation strategies in the premenstrual/late-luteal phase, and altered emotion-processing brain responses that may underlie such instability (Nayman et al., 2023). As a result, they may attempt to use adaptive strategies to maintain composure while also defaulting to maladaptive ones under emotional fatigue. This pattern is consistent with evidence that emotion-regulation processes vary across menstrual phases and that hormonal sensitivity can create instability in regulation and mood.

Maladaptive strategies significantly mediated the relationship between stress appraisals and functional impact, while adaptive strategies did not. This aligns with contemporary PMS-focused findings indicating that habitual or momentary maladaptive strategies (especially rumination and related perseverative thinking) are strongly linked to symptom severity and functional impairment in premenstrual samples (Kappen et al., 2022; Nayman et al., 2023). Despite mediation, direct effects remained significant, indicating that stress appraisals alone especially threat, uncontrollability, and centrality can directly impact functioning, likely due to physical and emotional symptoms associated with PMS. Recent reviews and empirical work also confirm that perceived stress and symptom centrality predict greater premenstrual impairment and lower quality of life.

Conclusion

The findings of the study confirmed previously established relationships between stress appraisal dimensions and cognitive emotion regulation strategies. Threat, uncontrollability, and controllability by others were significantly associated with maladaptive strategies, while challenge and controllability by self significantly predicted adaptive strategies. The study also revealed both adaptive and maladaptive strategies were positively associated with all stress appraisal dimensions. Moreover, maladaptive cognitive emotion regulation significantly mediated the

relationship between stress appraisal and functional impairment, whereas adaptive strategies did not, underscoring the stronger influence of maladaptive regulation in contributing to daily functional challenges experienced during PMS.

Limitations and Suggestions

The sample was restricted to participants from Lahore, which reduces the regional and cultural representation of Pakistani women. Future studies should consider including participants from various cities and rural areas to enhance the generalizability of the findings and the current study did not account for individual differences in personality traits which are known to significantly influence both stress appraisal and emotion regulation processes. Future researchers should also consider using standardized tools to measure personality traits that influence stress appraisal and cognitive emotion regulation.

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