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# Emotion Efficacy Therapy for Affect Balance, Impulsive Behaviors, and Negative Automatic Thoughts in Women with Premenstrual Dysphoric Disorder

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## ABSTRACT

**Objective:** This study evaluated the effectiveness of Emotion Efficacy Therapy on affect balance, impulsive behaviors, and negative automatic thoughts in women with premenstrual dysphoric disorder.

**Methods and Materials:** This quasi-experimental study used a pretest–posttest control-group design with a two-month follow-up. Participants were 30 single women aged 20–40 years with premenstrual dysphoric disorder in Isfahan, Iran, during 2024–2025. They were selected through convenience sampling and randomly assigned to an experimental group (n = 15) and a control group (n = 15). The experimental group received eight weekly 90-minute group sessions of Emotion Efficacy Therapy, while the control group received no intervention. Data were collected using the Premenstrual Symptoms Screening Tool, DSM-5-based diagnostic interview, Affect Balance Scale, Barratt Impulsiveness Scale, and Automatic Thoughts Questionnaire. Data were analyzed using repeated-measures ANOVA in SPSS-27.

**Findings:** Emotion Efficacy Therapy significantly reduced negative automatic thoughts (time × group:  $F = 100.624$ ,  $p < 0.001$ ,  $\eta^2 = 0.782$ ) and impulsive behaviors ( $F = 105.476$ ,  $p < 0.001$ ,  $\eta^2 = 0.790$ ), and significantly improved affect balance ( $F = 116.662$ ,  $p < 0.001$ ,  $\eta^2 = 0.806$ ). Positive affect increased significantly ( $F = 75.190$ ,  $p < 0.001$ ,  $\eta^2 = 0.729$ ), while negative affect decreased significantly ( $F = 39.528$ ,  $p < 0.001$ ,  $\eta^2 = 0.585$ ). Effects remained stable at follow-up.

**Conclusion:** Emotion Efficacy Therapy improved emotional balance and reduced impulsivity and negative automatic thoughts in women with premenstrual dysphoric disorder.

**Keywords:** Premenstrual Dysphoric Disorder, Affect, Impulsive Behavior, Cognition, Women.

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## Introduction

Premenstrual Dysphoric Disorder (PMDD) is a severe, cyclic, and clinically significant mood disorder associated with the menstrual cycle. It is characterized by affective, cognitive, behavioral, and somatic symptoms that typically emerge during the late luteal phase, improve shortly after the onset of menstruation, and remit during the postmenstrual phase. According to the *Diagnostic and Statistical Manual of Mental Disorders*, PMDD requires the presence of at least five symptoms in most menstrual cycles during the previous year, including at least one core affective symptom such as marked mood lability, irritability, depressed mood, hopelessness, anxiety, or tension (Association, 2022). Although many women experience mild premenstrual symptoms, PMDD represents a more disabling condition that can substantially impair interpersonal relationships, occupational functioning, academic performance, and quality of life (Epperson et al., 2012; Halbreich et al., 2003).

The clinical importance of PMDD lies not only in the severity of its symptoms but also in its recurrent and predictable pattern. Women with PMDD may experience repeated cycles of emotional instability, irritability, anxiety, cognitive difficulty, fatigue, sleep disturbance, and interpersonal conflict. These symptoms can interfere with daily functioning and may contribute to broader psychological vulnerability. The uploaded thesis also emphasizes that PMDD can negatively affect women's personal and social quality of life and identifies emotional, behavioral, and cognitive symptoms as central concerns in this population. This recurrent pattern suggests that PMDD should be understood not merely as a physical or hormonal condition, but as a biopsychosocial disorder involving interactions among endocrine sensitivity, emotion regulation processes, cognitive appraisals, and behavioral responses (Hantsoo & Epperson, 2015; Rapkin & Winer, 2009).

One of the important psychological domains affected in PMDD is affect balance. Affect balance generally refers to the relative predominance of positive affect over negative affect and has long been considered an important indicator of psychological well-being (Bradburn, 2019). Positive affect includes states such as energy, enthusiasm, interest, and pleasure, whereas negative affect includes distressing emotions such as anger, fear, sadness, guilt, and irritability (Watson &

Tellegen, 1985). In women with PMDD, the late luteal phase is commonly associated with increased negative affect and reduced emotional stability. The thesis identifies weakness in affect balance as one of the main problems associated with PMDD and notes its relationship with negative emotions, anger, and impulsive behaviors. Therefore, increasing affect balance may be a clinically meaningful target in interventions for women with PMDD.

Affect imbalance in PMDD may be explained through both biological and psychological mechanisms. Biologically, PMDD has been linked to abnormal sensitivity to normal hormonal fluctuations rather than abnormal levels of ovarian hormones themselves. In particular, changes in ovarian steroids, serotonergic functioning, and neuroactive steroid modulation of GABAergic systems have been implicated in the pathophysiology of PMDD (Hantsoo & Epperson, 2015; Rapkin & Winer, 2009). Psychologically, women with PMDD may experience increased emotional reactivity, reduced distress tolerance, and difficulty regulating negative affect during the premenstrual phase. When negative affect becomes dominant, individuals may be more vulnerable to maladaptive coping strategies, interpersonal conflict, and cognitive distortions. Thus, treatment approaches that strengthen adaptive emotional processing may help reduce the psychological burden of PMDD.

Another important variable in the present study is impulsive behavior. Impulsivity is generally defined as a predisposition toward rapid, unplanned reactions to internal or external stimuli without adequate consideration of negative consequences (Moeller et al., 2001). Barratt's model conceptualizes impulsivity as a multidimensional construct including attentional impulsiveness, motor impulsiveness, and non-planning impulsiveness (Patton et al., 1995). In PMDD, impulsive behaviors may increase during periods of emotional distress, irritability, and reduced inhibitory control. The thesis explains that impulsive behaviors are central to many psychological and mood disorders and may involve acting without adequate analysis of consequences, thereby increasing the risk of physical, psychological, or interpersonal harm.

The relationship between PMDD and impulsivity is clinically important because emotional dysregulation may reduce an individual's capacity to pause, reflect, and act in accordance with long-term values. During the premenstrual phase, increased anger, tension, and negative affect may contribute to hasty decision-making, verbal aggression, self-blame, and interpersonal difficulties. Some studies have indicated that premenstrual distress is associated with increased risk of aggression, self-harm, and mood-related behavioral dyscontrol (Halbreich & Endicott, 1985; Yonkers et al., 2008). Therefore, reducing impulsive behaviors in women with PMDD may improve both psychological health and interpersonal functioning.

Negative automatic thoughts are another major psychological factor associated with PMDD. Automatic thoughts are rapid, involuntary cognitions that arise in response to internal or external events and often influence emotional and behavioral reactions. In cognitive theory, negative automatic thoughts are central to depressive and anxiety-related experiences because they reflect maladaptive interpretations of the self, the world, and the future (Beck, 1991; Hollon & Kendall, 1980). In PMDD, the recurrence of negative mood states may activate negative automatic thoughts such as hopelessness, self-criticism, guilt, helplessness, and pessimistic interpretations of interpersonal events. The thesis states that negative automatic thoughts are among the symptoms related to dysphoric mood and depression and that controlling and reducing these thoughts is important in individuals with PMDD.

The interaction between negative affect, impulsive behavior, and negative automatic thoughts may create a self-reinforcing cycle in PMDD. For example, increased negative affect may trigger automatic thoughts such as "I cannot control myself" or "something is wrong with me," which may intensify emotional distress. This distress may then increase impulsive responses, such as angry reactions, avoidance, or self-defeating behaviors. Afterward, these behaviors may lead to guilt and further negative thinking, thereby maintaining the cycle. From this perspective, effective treatment should not focus only on symptom reduction, but should also strengthen emotional awareness, acceptance, cognitive flexibility, distress tolerance, and values-based behavior.

Emotion Efficacy Therapy (EET) is a transdiagnostic intervention developed to improve individuals' ability to

experience, tolerate, regulate, and respond effectively to emotions. EET integrates core components of Acceptance and Commitment Therapy, Dialectical Behavior Therapy, and exposure-based approaches, with the goal of increasing emotion efficacy, that is, the capacity to experience difficult emotions while acting in accordance with personal values (McKay & West, 2016). The thesis also describes Emotion Efficacy Therapy as a transdiagnostic approach that combines components of acceptance and commitment therapy, dialectical behavior therapy, and cognitive-behavioral therapy, with emphasis on improving emotion regulation, healthy behavior, and self-care.

EET may be especially relevant for PMDD because many symptoms of this disorder involve emotional dysregulation and maladaptive responses to emotional pain. Rather than attempting to eliminate negative emotions, EET helps individuals develop a more flexible and effective relationship with emotional experience. Through skills such as emotional awareness, mindful acceptance, values-based action, mindful coping, and exposure to difficult emotional states, clients learn to respond to distress without avoidance, suppression, or impulsive action (McKay & West, 2016). In the context of PMDD, these skills may help women recognize premenstrual emotional changes, reduce the fear and avoidance of distressing affect, decrease impulsive reactions, and challenge the dominance of negative automatic thoughts.

Although several psychological interventions, including cognitive-behavioral therapy, acceptance-based approaches, and emotion regulation interventions, have been used for mood and premenstrual-related difficulties, limited research has examined EET specifically in women with PMDD. The thesis explicitly identifies a research gap, stating that despite the importance of affect balance, impulsive behaviors, and negative automatic thoughts in PMDD, few studies have addressed these dimensions together, and no previous study had examined the effectiveness of Emotion Efficacy Therapy in this population. This gap highlights the necessity of investigating whether an emotion-focused, transdiagnostic intervention can improve emotional, behavioral, and cognitive outcomes in individuals with PMDD.

Accordingly, the present study aimed to examine the effectiveness of Emotion Efficacy Therapy on affect

balance, impulsive behaviors, and negative automatic thoughts in individuals with Premenstrual Dysphoric Disorder. Based on the theoretical foundations of EET and the emotional, behavioral, and cognitive features of PMDD, it was expected that EET would increase affect balance and reduce impulsive behaviors and negative automatic thoughts. By targeting emotional awareness, acceptance, distress tolerance, and values-based action, EET may provide a clinically useful intervention for improving psychological functioning and quality of life in women experiencing PMDD.

## Methods and Materials

### *Study Design*

The present study employed a quasi-experimental design with a pretest–posttest control group and a two-month follow-up assessment. The study was conducted to examine the effectiveness of Emotion Efficacy Therapy on affect balance, impulsive behaviors, and negative automatic thoughts in individuals with Premenstrual Dysphoric Disorder. The independent variable was Emotion Efficacy Therapy, and the dependent variables were affect balance, impulsive behaviors, and negative automatic thoughts. Measurements were conducted at three stages: pretest, posttest, and follow-up. This design was selected because the study was conducted in a clinical and community-based context in which random sampling from the entire population was not feasible; however, participants who met the inclusion criteria were randomly assigned to the intervention and control groups to increase internal validity.

### *Participants*

The statistical population consisted of single women aged 20 to 40 years with Premenstrual Dysphoric Disorder in Isfahan, Iran, during 2024–2025. Sampling was conducted using a convenience sampling method. At the first stage, announcements inviting participation in the study were distributed through social media, psychology clinics, and gynecology offices in Isfahan. Thirty-eight women initially contacted the researcher and completed the Premenstrual Symptoms Screening Tool. After screening, those who obtained the required score range on the screening questionnaire were assessed through a semi-structured clinical interview based on DSM-5 criteria to confirm the diagnosis of Premenstrual Dysphoric Disorder. Finally, 30 women

received a definite diagnosis of PMDD and entered the study. They were randomly assigned to two equal groups: an intervention group and a control group, each consisting of 15 participants.

The inclusion criteria were being single, being between 20 and 40 years of age, not receiving any concurrent psychological intervention during the study, obtaining a score between 19 and 57 on the Premenstrual Symptoms Screening Tool, confirmation of no other psychiatric disorder after the semi-structured clinical interview based on DSM-5, and willingness to participate in the study with informed consent. The control group received no intervention during the study period, while the intervention group participated in the therapeutic program. To observe ethical fairness, after completion of the posttest and follow-up assessments, Emotion Efficacy Therapy was also offered to participants in the control group.

### *Intervention*

The intervention consisted of eight weekly group sessions of Emotion Efficacy Therapy, each lasting approximately 90 minutes. The therapeutic protocol was based on the Emotion Efficacy Therapy model developed by McKay & West (2016). This treatment is a short-term transdiagnostic intervention that integrates elements of Acceptance and Commitment Therapy, Dialectical Behavior Therapy, and exposure-based approaches. It is designed to increase individuals' capacity to experience emotions, accept emotional distress mindfully, act in accordance with personal values, use mindful coping strategies, and practice exposure to difficult emotional states.

In the first session, participants were welcomed, pre-intervention measures were reviewed, group members and the group leader were introduced, and the structure of Emotion Efficacy Therapy was explained. Psychoeducation about emotions was provided, and participants were introduced to the skill of observing emotions and recording the outcomes of skill practice. In the second session, the emotional functioning of the brain was explained, mindful acceptance was introduced, emotional avoidance was discussed, and participants practiced “riding the emotional wave” through exposure-related exercises. In the third session, mindful acceptance was reviewed, the “choice point” was introduced, and participants practiced values-based

action through exercises focused on values and emotional barriers.

Across the remaining sessions, the therapy continued to focus on strengthening emotional awareness, mindful acceptance, values-based behavior, mindful coping, and exposure to distressing emotional experiences. Participants were encouraged to identify maladaptive emotional responses, recognize avoidance patterns, tolerate emotional discomfort, and respond to emotional pain in ways consistent with their personal values. The intervention emphasized direct and imaginal exposure to emotional experiences, helping participants activate difficult emotions in a controlled therapeutic context and then practice adaptive responses. This process was intended to reduce emotional avoidance, increase distress tolerance, and expand adaptive behavioral options during emotionally challenging situations.

#### *Measures*

##### *Diagnostic Interview Based on DSM-5*

A semi-structured clinical interview based on the diagnostic criteria of the *Diagnostic and Statistical Manual of Mental Disorders* was used to confirm the diagnosis of Premenstrual Dysphoric Disorder. According to DSM-5, the diagnosis of PMDD requires the presence of at least five symptoms in most menstrual cycles during the previous year, with symptoms appearing in the final week before menstruation, improving within a few days after the onset of menstruation, and becoming minimal or absent after menstruation (American Psychiatric Association & American Psychiatric Association, 2013). In the present study, participants who met the screening criteria for PMDD were interviewed by a clinical psychologist to confirm the diagnosis.

##### *Premenstrual Symptoms Screening Tool*

The Premenstrual Symptoms Screening Tool was used to screen symptoms of Premenstrual Dysphoric Disorder. This instrument was developed by Steiner et al., (2003) as a clinical screening tool for identifying premenstrual symptoms and functional impairment. The questionnaire consists of 19 items rated on a four-point scale ranging from "not at all" to "severe." In the present study, the Persian version of the questionnaire was used. Previous Iranian psychometric evidence has supported the reliability and validity of this tool for screening premenstrual symptoms among Iranian women.

##### *Affect Balance Scale*

Affect balance was measured using the Affect Balance Scale developed by Bradburn (2019). This scale includes 10 items and assesses two dimensions of affective experience: positive affect and negative affect. The total affect balance score is obtained by subtracting negative affect from positive affect, with higher scores indicating a more favorable affective balance. In the present study, this scale was used to assess participants' affective balance across pretest, posttest, and follow-up.

##### *Barratt Impulsiveness Scale*

Impulsive behaviors were measured using the Barratt Impulsiveness Scale. The revised version of this scale was developed by Patton et al., (1995) and is widely used to assess impulsivity as a multidimensional construct. The scale includes 30 items and evaluates three components of impulsivity: attentional or cognitive impulsivity, motor impulsivity, and non-planning impulsivity. Higher scores indicate higher levels of impulsive behavior.

##### *Automatic Thoughts Questionnaire*

Negative automatic thoughts were assessed using the Automatic Thoughts Questionnaire developed by Hollon & Kendall (1980). This questionnaire was designed to measure the frequency of negative automatic self-statements associated with depressive cognition. It consists of 30 items rated on a five-point Likert scale, with higher scores indicating a greater frequency of negative automatic thoughts. In the present study, this questionnaire was used to assess negative automatic thoughts in participants with PMDD.

##### *Procedure*

After obtaining ethical approval from the Islamic Azad University, Najafabad Branch, participants were recruited through announcements in social media, psychology clinics, and gynecology offices in Isfahan. Interested individuals contacted the researcher and first completed the Premenstrual Symptoms Screening Tool. Thirty-eight women entered the initial screening stage. Those who scored within the required range were invited to participate in a semi-structured clinical interview based on DSM-5 criteria. After diagnostic confirmation, 30 eligible participants entered the study and were randomly assigned to the intervention and control groups.

At the pretest stage, all participants completed the Affect Balance Scale, Barratt Impulsiveness Scale, and

Automatic Thoughts Questionnaire. The intervention group then received eight weekly sessions of Emotion Efficacy Therapy over two months, with each session lasting 90 minutes. The control group did not receive any psychological intervention during this period. Immediately after completion of the intervention, both groups completed the posttest measures. A follow-up assessment was conducted two months after the end of the intervention to examine the stability of treatment effects.

#### *Ethical Considerations*

The study was conducted after approval by the Ethics Committee of Islamic Azad University, Najafabad Branch, under the ethics code IR.IAU.NAJAFABAD.REC.1403.234. Participation was voluntary, and informed consent was obtained from all participants. Participants were informed about the purpose of the study, confidentiality of their information, and their right to withdraw from the study at any time. To maintain confidentiality, participants' identities were not disclosed in data files or reports. Because the control group received no intervention during the main study period, Emotion Efficacy Therapy was offered to them after completion of the posttest and follow-up assessments.

#### *Data Analysis*

Data were analyzed using SPSS version 27. Descriptive statistics, including mean and standard deviation, were used to describe the study variables at pretest, posttest, and follow-up. Before conducting inferential analyses, the assumptions of repeated-measures analysis of variance were examined. These

assumptions included normality of residuals using the Shapiro–Wilk test, homogeneity of variance using Levene's test, homogeneity of variance–covariance matrices, and equality of covariance matrices across repeated measurements. The main hypotheses were tested using repeated-measures analysis of variance to evaluate the effects of group, time, and the interaction between time and group on affect balance, impulsive behaviors, and negative automatic thoughts. Follow-up comparisons were conducted using LSD post hoc tests. The level of significance was set at  $p < .05$ . The thesis reports that SPSS version 27 and repeated-measures ANOVA were used for data analysis.

#### **Findings and Results**

Before testing the research hypotheses, the assumptions of repeated-measures analysis of variance were examined. The normality of residuals for negative automatic thoughts, affect balance, and impulsive behaviors was evaluated using the Shapiro–Wilk test. Although in a few cases the significance level was below .05, skewness and kurtosis values were within the acceptable range of  $-3$  to  $+3$ ; therefore, the normality assumption was considered acceptable. The Box's M test also showed that the homogeneity of variance–covariance matrices was met for the main model, Box's  $M = 90.876$ ,  $F = 1.306$ ,  $p = .084$ . Levene's test indicated that the homogeneity of variances was generally acceptable across the three measurement stages for the study variables.

**Table 1**

*Descriptive Statistics for Negative Automatic Thoughts, Affect Balance, Positive Affect, Negative Affect, Impulsive Behaviors, and Its Components*

Variable	Group	Pretest M ± SD	Posttest M ± SD	Follow-up M ± SD
Negative automatic thoughts	Experimental	116.47 ± 14.41	82.93 ± 16.13	82.73 ± 15.84
	Control	118.60 ± 18.46	118.93 ± 19.00	119.13 ± 19.51
Affect balance	Experimental	-3.67 ± 0.98	1.53 ± 1.25	1.80 ± 1.52
	Control	-2.20 ± 2.08	-2.60 ± 1.40	-3.13 ± 1.36
Positive affect	Experimental	0.87 ± 0.83	3.60 ± 0.83	3.87 ± 0.83
	Control	1.67 ± 1.05	1.60 ± 0.91	1.13 ± 0.99
Negative affect	Experimental	4.53 ± 0.64	2.07 ± 1.39	2.07 ± 1.28
	Control	3.87 ± 1.30	4.20 ± 0.94	4.27 ± 0.80
Impulsive behaviors	Experimental	88.27 ± 9.00	70.53 ± 6.02	69.07 ± 6.12
	Control	87.13 ± 10.17	88.00 ± 10.97	90.33 ± 9.51
Non-planning impulsivity	Experimental	30.87 ± 3.87	26.47 ± 2.00	26.20 ± 2.14
	Control	30.80 ± 3.99	30.73 ± 3.41	31.67 ± 3.22
Motor impulsivity	Experimental	39.87 ± 3.87	29.60 ± 4.32	29.20 ± 4.18
	Control	38.47 ± 5.76	39.07 ± 6.85	39.80 ± 5.72
Cognitive impulsivity	Experimental	17.67 ± 2.35	14.47 ± 2.13	13.67 ± 2.53
	Control	17.87 ± 2.50	18.20 ± 2.21	18.87 ± 1.73

*Note.* M = mean; SD = standard deviation.

As shown in Table 1, negative automatic thoughts decreased markedly in the experimental group from pretest to posttest and remained stable at follow-up. In contrast, the control group showed almost no reduction in negative automatic thoughts across the three measurement stages. Affect balance increased in the experimental group from pretest to posttest and remained stable at follow-up, whereas the control group

showed no improvement. Positive affect increased and negative affect decreased in the experimental group, while the control group showed no favorable change. In addition, impulsive behaviors and all three components of impulsivity decreased in the experimental group from pretest to posttest and follow-up, whereas the control group showed little change or a slight increase over time.

**Table 2**

*Multivariate Test Results for Negative Automatic Thoughts, Affect Balance, and Impulsive Behaviors*

Effect	Pillai's Trace	F	Hypothesis df	Error df	p	Partial $\eta^2$
Group	.629	14.700	3	26	<.001	.629
Time	.919	43.239	6	23	<.001	.919
Time $\times$ Group	.932	52.684	6	23	<.001	.932

The multivariate results showed a significant main effect of group,  $F(3, 26) = 14.700$ ,  $p < .001$ , partial  $\eta^2 = .629$ . This indicates that, regardless of time, the experimental and control groups differed significantly in at least one of the dependent variables. The main effect of time was also significant,  $F(6, 23) = 43.239$ ,  $p < .001$ ,

partial  $\eta^2 = .919$ , indicating significant changes across pretest, posttest, and follow-up. More importantly, the time  $\times$  group interaction was significant,  $F(6, 23) = 52.684$ ,  $p < .001$ , partial  $\eta^2 = .932$ , showing that the pattern of change across time differed significantly between the experimental and control groups.

**Table 3**

*Univariate Repeated-Measures ANOVA Results for Main Study Variables*

Dependent Variable	Effect	SS	df	MS	F	p	Partial $\eta^2$
Negative automatic thoughts	Group	4629.348	1	4629.348	16.479	<.001	.370
	Time	5511.200	1.286	4284.794	95.559	<.001	.773
	Time $\times$ Group	5803.289	1.286	4511.884	100.624	<.001	.782
Affect balance	Group	48.133	1	48.133	29.422	<.001	.512
	Time	109.156	1.493	73.096	69.815	<.001	.714
	Time $\times$ Group	182.400	1.493	122.144	116.662	<.001	.806
Impulsive behaviors	Group	1178.133	1	1178.133	16.520	<.001	.371
	Time	1353.089	1.792	755.232	66.215	<.001	.703
	Time $\times$ Group	2155.400	1.792	1203.045	105.476	<.001	.790

The univariate results showed that the effect of group on negative automatic thoughts was significant,  $F(1, 28) = 16.479$ ,  $p < .001$ , partial  $\eta^2 = .370$ . The effect of time was also significant,  $F(1.286, 36.008) = 95.559$ ,  $p < .001$ , partial  $\eta^2 = .773$ . More importantly, the interaction between time and group was significant,  $F(1.286, 36.008) = 100.624$ ,  $p < .001$ , partial  $\eta^2 = .782$ . These findings indicate that the reduction in negative automatic thoughts over time was significantly greater in the experimental group than in the control group.

For affect balance, the main effect of group was significant,  $F(1, 28) = 29.422$ ,  $p < .001$ , partial  $\eta^2 = .512$ .

The main effect of time was significant,  $F(1.493, 41.804) = 69.815$ ,  $p < .001$ , partial  $\eta^2 = .714$ . The time  $\times$  group interaction was also significant,  $F(1.493, 41.804) = 116.662$ ,  $p < .001$ , partial  $\eta^2 = .806$ . This result indicates that affect balance improved significantly more in the experimental group than in the control group.

For impulsive behaviors, the effect of group was significant,  $F(1, 28) = 16.520$ ,  $p < .001$ , partial  $\eta^2 = .371$ . The effect of time was also significant,  $F(1.792, 50.176) = 66.215$ ,  $p < .001$ , partial  $\eta^2 = .703$ . In addition, the time  $\times$  group interaction was significant,  $F(1.792, 50.176) = 105.476$ ,  $p < .001$ , partial  $\eta^2 = .790$ . Therefore, Emotion

Efficacy Therapy significantly reduced impulsive behaviors in the experimental group compared with the control group. Additional analyses were conducted to

examine the components of affect balance, namely positive affect and negative affect.

**Table 4**

*Repeated-Measures ANOVA Results for Positive and Negative Affect*

Dependent Variable	Effect	SS	df	MS	F	p	Partial $\eta^2$
Positive affect	Group	12.893	1	12.893	21.526	< .001	.435
	Time	33.089	2	16.544	47.703	< .001	.630
	Time $\times$ Group	52.156	2	26.078	75.190	< .001	.729
Negative affect	Group	11.204	1	11.204	13.031	.001	.318
	Time	22.067	1.624	13.586	21.722	< .001	.437
	Time $\times$ Group	40.156	1.624	24.723	39.528	< .001	.585

The results showed that the group, time, and time  $\times$  group effects were significant for positive affect. The significant interaction effect,  $F(2, 56) = 75.190$ ,  $p < .001$ , partial  $\eta^2 = .729$ , indicated that positive affect increased significantly in the experimental group compared with the control group. For negative affect, the group, time, and time  $\times$  group effects were also significant. The

significant interaction effect,  $F(1.624, 45.472) = 39.528$ ,  $p < .001$ , partial  $\eta^2 = .585$ , showed that negative affect decreased significantly in the experimental group compared with the control group. LSD post hoc comparisons were used to identify differences between measurement stages.

**Table 5**

*LSD Pairwise Comparisons for Main Study Variables Across Time*

Variable	Comparison	Mean Difference	SE	p
Negative automatic thoughts	Pretest-Posttest	16.600	1.609	< .001
	Pretest-Follow-up	16.600	1.639	< .001
	Posttest-Follow-up	0.000	0.701	1.000
Affect balance	Pretest-Posttest	-2.400	0.234	< .001
	Pretest-Follow-up	-2.267	0.277	< .001
	Posttest-Follow-up	0.133	0.157	.403
Impulsive behaviors	Pretest-Posttest	8.433	0.820	< .001
	Pretest-Follow-up	8.000	0.942	< .001
	Posttest-Follow-up	-0.433	0.696	.539

The post hoc results showed significant reductions in negative automatic thoughts from pretest to posttest and from pretest to follow-up, while the difference between posttest and follow-up was not significant. Affect balance significantly increased from pretest to posttest and from pretest to follow-up, with no significant difference

between posttest and follow-up. Similarly, impulsive behaviors significantly decreased from pretest to posttest and from pretest to follow-up, while the posttest-follow-up difference was not significant. These findings indicate that the therapeutic effects were maintained during the two-month follow-up period.

**Table 6**

*LSD Pairwise Comparisons by Group for Main Study Variables*

Variable	Group	Comparison	Mean Difference	SE	p
Negative automatic thoughts	Experimental	Pretest-Posttest	33.533	2.276	< .001
		Pretest-Follow-up	33.733	2.318	< .001
		Posttest-Follow-up	0.200	0.991	.842
	Control	Pretest-Posttest	-0.333	2.276	.885
		Pretest-Follow-up	-0.533	2.318	.820
		Posttest-Follow-up	-0.200	0.991	.842

<b>Affect balance</b>	Experimental	Pretest-Posttest	-5.200	0.331	<.001
		Pretest-Follow-up	-5.467	0.392	<.001
		Posttest-Follow-up	-0.267	0.222	.239
	Control	Pretest-Posttest	0.400	0.331	.237
		Pretest-Follow-up	0.933	0.392	.024
		Posttest-Follow-up	0.533	0.222	.023
<b>Impulsive behaviors</b>	Experimental	Pretest-Posttest	17.733	1.160	<.001
		Pretest-Follow-up	19.200	1.332	<.001
		Posttest-Follow-up	1.467	0.984	.147
	Control	Pretest-Posttest	-0.867	1.160	.461
		Pretest-Follow-up	-3.200	1.332	.023
		Posttest-Follow-up	-2.333	0.984	.025

In the experimental group, negative automatic thoughts decreased significantly from pretest to posttest and from pretest to follow-up, while no significant change was observed between posttest and follow-up. In the control group, changes in negative automatic thoughts were not significant. Affect balance increased significantly in the experimental group from pretest to posttest and from pretest to follow-up, and this improvement remained stable at follow-up. Impulsive behaviors also decreased significantly in the experimental group from pretest to posttest and from pretest to follow-up, with no significant difference between posttest and follow-up. These results confirm the stability of treatment effects in the experimental group.

Overall, the findings showed that Emotion Efficacy Therapy had a significant effect on affect balance, impulsive behaviors, and negative automatic thoughts in individuals with Premenstrual Dysphoric Disorder. Participants in the experimental group showed a significant increase in affect balance and positive affect, as well as significant reductions in negative affect, impulsive behaviors, and negative automatic thoughts. These changes were maintained at the two-month follow-up. In contrast, the control group did not show comparable therapeutic improvement. Therefore, the findings support the effectiveness of Emotion Efficacy Therapy as a psychological intervention for improving emotional, behavioral, and cognitive outcomes in women with PMDD.

## Discussion and Conclusion

The present study aimed to examine the effectiveness of Emotion Efficacy Therapy on affect balance, impulsive behaviors, and negative automatic thoughts in individuals with Premenstrual Dysphoric Disorder. The findings showed that Emotion Efficacy Therapy

significantly increased affect balance and significantly reduced impulsive behaviors and negative automatic thoughts in the experimental group compared with the control group. In addition, the results indicated that these therapeutic effects remained stable at the two-month follow-up. These findings suggest that Emotion Efficacy Therapy can be considered an effective psychological intervention for improving emotional, behavioral, and cognitive functioning in women with PMDD. The thesis findings also confirmed that the intervention produced significant improvement in affect balance and significant reductions in impulsive behaviors and negative automatic thoughts, with stability of effects at follow-up.

The significant improvement in affect balance is consistent with the theoretical foundations of Emotion Efficacy Therapy. Affect balance refers to the predominance of positive affect over negative affect and has been considered an important indicator of psychological well-being [Bradburn \(2019\)](#). Women with PMDD often experience increased negative affect, irritability, emotional instability, anxiety, and dysphoric mood during the late luteal phase of the menstrual cycle ([Association, 2022](#); [Epperson et al., 2012](#)). Therefore, increasing affect balance is clinically meaningful in this population. Emotion Efficacy Therapy focuses on increasing emotional awareness, mindful acceptance, values-based action, mindful coping, and exposure to difficult emotional experiences [McKay & West \(2016\)](#). These components may help individuals with PMDD experience emotions with less avoidance and respond to emotional distress in a more adaptive manner.

The improvement in affect balance can also be explained by the role of emotional awareness and mindful acceptance in reducing emotional avoidance. Individuals with PMDD may experience premenstrual emotional changes as overwhelming, threatening, or uncontrollable. When emotional distress is avoided or

suppressed, negative affect may become more intense and persistent. Emotion Efficacy Therapy teaches individuals to observe emotional experiences without judgment and to accept emotions as temporary internal states rather than as threats that must be eliminated (McKay & West, 2016). The uploaded thesis also explains that mindful acceptance helps clients tolerate unpleasant emotions and replace avoidant responses with more effective ways of relating to emotional experience. This mechanism may explain why participants in the experimental group showed increased affect balance after the intervention.

The reduction in negative affect and increase in positive affect are also compatible with biopsychosocial models of PMDD. PMDD is not caused simply by abnormal hormone levels; rather, many findings suggest that women with PMDD may show increased sensitivity to normal fluctuations in ovarian hormones, especially through serotonergic and GABAergic mechanisms (Hantsoo & Epperson, 2015; Rapkin & Winer, 2009). At the psychological level, this biological sensitivity may interact with emotional reactivity, cognitive appraisal, and maladaptive coping responses. The thesis similarly emphasizes that PMDD can impair daily functioning in social, occupational, educational, and family domains and reduce women's quality of life. Therefore, an intervention that directly targets emotional functioning may be particularly suitable for women experiencing PMDD-related affective instability.

The findings also showed that Emotion Efficacy Therapy significantly reduced impulsive behaviors. This result is theoretically important because impulsivity is commonly defined as a tendency toward rapid, unplanned reactions to internal or external stimuli without adequate consideration of negative consequences (Moeller et al., 2001). Barratt's model conceptualizes impulsivity as a multidimensional construct consisting of attentional or cognitive impulsivity, motor impulsivity, and non-planning impulsivity (Patton et al., 1995). In the present study, impulsive behaviors and their components decreased in the experimental group after treatment. This result suggests that Emotion Efficacy Therapy may improve the individual's ability to pause, identify emotional triggers, tolerate emotional arousal, and choose behavior based on values rather than immediate emotional impulses.

This reduction in impulsivity may be explained by the "choice point" and values-based action components of Emotion Efficacy Therapy. During emotional arousal, especially in the premenstrual phase, individuals may respond automatically through anger, avoidance, verbal aggression, or hasty decision-making. Emotion Efficacy Therapy helps clients identify whether their behavioral responses move them toward or away from valued living (McKay & West, 2016). The thesis also states that when individuals are highly emotionally aroused and cannot reach the choice point, the treatment uses coping skills along with mindful acceptance to help control impulses during decision-making. Therefore, by increasing awareness of emotional triggers and strengthening values-based behavior, EET may reduce impulsive responses in women with PMDD.

Another possible explanation for the reduction in impulsive behaviors is the exposure-based component of Emotion Efficacy Therapy. Exposure to difficult emotional experiences allows clients to activate distressing emotions in a controlled therapeutic context and practice adaptive responses instead of avoidance or impulsive action. Over time, this process may increase distress tolerance and reduce the urgency to act immediately on emotional impulses (McKay & West, 2016). The thesis also indicates that exposure exercises were practiced through imaginal exposure in the therapy room and that this deeper emotional learning may explain the stability of therapeutic effects at follow-up.

The significant reduction in negative automatic thoughts is also consistent with cognitive theories of emotional disorders. Negative automatic thoughts are rapid, involuntary, and often self-critical cognitions that influence emotional and behavioral reactions (Beck, 1991; Hollon & Kendall, 1980). These thoughts may include themes of helplessness, hopelessness, guilt, self-blame, and pessimistic interpretations of events. In women with PMDD, negative mood states during the premenstrual phase may activate negative automatic thoughts, which can intensify dysphoric mood and contribute to maladaptive behavior. The thesis also notes that negative automatic thoughts are related to dysphoric mood and depression and that reducing these thoughts is important in individuals with PMDD.

Emotion Efficacy Therapy may reduce negative automatic thoughts by changing the individual's relationship with internal experiences. Although EET is

not a purely cognitive restructuring intervention, it helps clients observe thoughts as part of emotional experience rather than treating them as absolute truths. Through mindful awareness, participants can notice negative thoughts, recognize the emotions and bodily sensations associated with them, and choose responses based on values rather than cognitive fusion or emotional reactivity. This process is consistent with acceptance-based approaches, in which thoughts are not necessarily challenged directly but are defused from behavior so that individuals can act more flexibly (Hayes et al., 2011; McKay & West, 2016).

The findings of the present study are also consistent with previous research showing the effectiveness of psychological interventions that target emotion regulation, acceptance, and cognitive flexibility in premenstrual and mood-related difficulties. PMDD involves clinically significant affective symptoms and impairment, and psychological interventions may be useful alongside medical and pharmacological approaches (Hantsoo & Epperson, 2015; Yonkers et al., 2008). The thesis also reviews evidence suggesting that cognitive-behavioral therapy, acceptance and commitment therapy, and dialectical behavior therapy can improve emotional regulation, impulsivity, and negative automatic thoughts in related populations. The present study extends this literature by showing that Emotion Efficacy Therapy, as a transdiagnostic intervention integrating ACT, DBT, and exposure-based methods, can simultaneously improve affective, behavioral, and cognitive outcomes in women with PMDD.

The maintenance of therapeutic effects at the two-month follow-up is another important finding. The absence of significant decline from posttest to follow-up indicates that participants were able to maintain the skills learned during treatment. This may be because Emotion Efficacy Therapy does not merely focus on symptom reduction; rather, it teaches transferable emotional skills such as awareness, acceptance, coping, exposure, and values-based action (McKay & West, 2016). These skills may be especially useful for PMDD because symptoms recur cyclically. If individuals learn to respond more effectively to emotional distress during one premenstrual phase, they may be better able to use the same strategies in later cycles.

The clinical implications of these findings are noteworthy. PMDD can interfere with interpersonal relationships, occupational functioning, social activities, and quality of life (Epperson et al., 2012; Halbreich et al., 2003). Therefore, interventions for this disorder should address not only biological symptoms but also emotional, cognitive, and behavioral processes. The present findings suggest that Emotion Efficacy Therapy may be a useful complementary intervention for women with PMDD, particularly those who experience emotional instability, impulsive reactions, and negative automatic thoughts. The thesis also recommends this approach as a complementary intervention for women with PMDD who experience severe impulsive behaviors and negative automatic thoughts.

Despite its contributions, the present study has several limitations. First, the sample size was relatively small and included only 30 single women aged 20 to 40 years in Isfahan; therefore, the generalizability of the findings may be limited. Second, the sampling method was convenience sampling, which may reduce the representativeness of the sample. Third, the study relied on self-report questionnaires, which may be influenced by response bias, social desirability, or participants' subjective interpretations of questionnaire items. Fourth, although the two-month follow-up provided evidence for short-term maintenance of treatment effects, longer follow-up periods are needed to determine the long-term stability of the intervention.

Future studies should use larger and more diverse samples, including married women, women from different age groups, and participants from different cultural and clinical contexts. Future research should also compare Emotion Efficacy Therapy with other evidence-based interventions, such as cognitive-behavioral therapy, acceptance and commitment therapy, dialectical behavior therapy, and pharmacological treatments. In addition, future studies could examine mediating variables such as emotional awareness, distress tolerance, experiential avoidance, cognitive fusion, emotion regulation, and values-based action to clarify the mechanisms through which EET produces change in women with PMDD. The thesis also recommends longitudinal research with follow-up periods of at least six to twelve months to evaluate the durability of treatment effects.

The present study provides evidence that Emotion Efficacy Therapy is effective in increasing affect balance and reducing impulsive behaviors and negative automatic thoughts in individuals with Premenstrual Dysphoric Disorder. Participants who received the intervention showed significant improvement from pretest to posttest, and these changes remained stable at the two-month follow-up. In contrast, participants in the control group did not show comparable improvement. Overall, the findings suggest that Emotion Efficacy Therapy can be considered a useful psychological intervention for women with PMDD, especially for those who experience emotional instability, impulsive reactions, and negative automatic thoughts. By strengthening emotional awareness, mindful acceptance, values-based behavior, coping skills, and exposure to emotional distress, this intervention may help individuals respond more effectively to premenstrual emotional and cognitive changes. Therefore, Emotion Efficacy Therapy may be recommended as a complementary approach in psychological and health-related interventions for PMDD, with potential benefits for improving mental health, emotional functioning, and quality of life.

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#### Declaration of Interest

The authors of this article declared no conflict of interest.

#### Ethical Considerations

The study protocol adhered to the principles outlined in the Helsinki Declaration, which provides guidelines for ethical research involving human participants. Ethical considerations in this study were that participation was entirely optional.

#### Transparency of Data

In accordance with the principles of transparency and open research, we declare that all data and materials used in this study are available upon request.

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#### Authors' Contributions

All authors equally contribute to this study.

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