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Effectiveness of Dialectical Behavior Therapy-based Skill Training on Distress Tolerance, Emotional Cognitive Regulation, and Marital Quality of Life in Women with Recurrent Miscarriages

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A B S T R A C T

Objective: This study aimed to investigate the effectiveness of Dialectical Behavior Therapy (DBT)-based skill training on distress tolerance, emotional cognitive regulation, and marital quality of life in women with recurrent miscarriages.

Methods: The population consisted of all women attending infertility clinics in Tehran during 2019-2020. A sample of 30 women was selected through convenience and purposive sampling based on inclusion and exclusion criteria, and randomly assigned to experimental and control groups (15 in each group). The instruments used in this study included: the Distress Tolerance Scale by Simons and Gaher (2005), Cognitive and Emotional Regulation Scale by Garnefski, Kraaij, and Spinhoven (2006), and Marital Quality of Life Scale by Fletcher, Simpson, and Thomas (2000). Repeated measures and a significance level of .05 were used for statistical analysis.

Findings: The results showed significant differences in means between the two groups at pre-test, post-test, and follow-up stages, with significant improvements in distress tolerance, emotional cognitive regulation, and marital quality of life. The effect sizes of this treatment were 0.885, 0.910, and 0.983, respectively.

Conclusion: Given the confirmed effectiveness of the treatment, it is recommended that these women receive psychological treatments in conjunction with medical treatments.

Keywords: *Women with recurrent miscarriages, distress tolerance, emotional cognitive regulation, marital quality of life, Dialectical Behavior Therapy-based skill training.*

1. Introduction

Having children is one of the most fundamental human drives, and failure in attempting to conceive can turn into a devastating emotional experience (Rabiee et al., 2020; Speckhard & Rue, 1993; Sugiura-Ogasawara et al., 2013). The birth of a child helps solidify women's identities to the extent that women measure their biological, psychological, and social success largely by their ability to bear children, and feel incompetent if they are unable to do so. This issue creates significant psychological stress for these couples and adversely affects their physical and psychological health (Khayata et al., 2003). Recurrent miscarriage is one of the most common and challenging complications during pregnancy (Ata et al., 2011; Bottomley & Bourne, 2009). Infertility is defined as the absence of pregnancy within one year of intercourse without using contraception, with an estimated prevalence of about 23% in Iran based on various studies (Mohebbi & Mohammadzadeh, 2016). Recurrent miscarriage, defined as three or more consecutive losses before the 20th week of gestation, occurs in about 1% of all couples, with about 25 to 50% of women experiencing at least one miscarriage (Ata et al., 2011; Bottomley & Bourne, 2009). Recurrent miscarriages and infertility are considered negative, challenging, and debilitating events (Schmid et al., 2004) that can have severe impacts on the quality of life (Carter et al., 2011). These individuals exhibit higher levels of depression, anxiety, and psychological problems, and a lower quality of life compared to those without these issues and to the global standard (Adib-Rad et al., 2019; Sugiura-Ogasawara et al., 2013; Zamani et al., 2013).

Impulsive behaviors and diffuse anger, stress, feelings of helplessness, worthlessness, and incompetence, anxiety, and distress, particularly in the context of prolonged and unsuccessful medical treatments, are among the psychological issues reported by researchers (Van Den Akker, 2005). In contrast, tolerance is often defined as an individual's perceived self-reported ability to experience and endure negative emotional states or the behavioral ability to persist in goal-directed behavior during emotional distress (Simons & Gaher, 2005). The physical and behavioral dimension of distress tolerance is defined as the ability to endure disturbing physiological states (Jamilian et al., 2014; Zamani et al., 2015). Research indicates that distress tolerance significantly influences the assessment and outcomes of experiencing negative emotions, such that individuals with lower distress tolerance exhibit a more intense response to stress. Furthermore, these individuals display weaker coping abilities in the face of distress and consequently employ strategies aimed at reducing negative emotional states to avoid such emotions (Keough et al., 2010). Those with low distress tolerance often engage in disordered behaviors in an inappropriate attempt to cope with their negative emotions (Aminalroaya et al., 2017). In emotions, the discussion of emotional cognitive regulation becomes important in adapting to stressful life events. Garnefski and Kraaij (2006) consider emotional cognitive regulation strategies as reactions that indicate how individuals cope with stressful situations or adverse events (Garnefski & Kraaij, 2006). Garnefski and colleagues believe that people use a variety of cognitive strategies to maintain their mental and emotional health in the face of stressful experiences and situations (Garnefski et al., 2001). Emotions can be manifested through unconscious cognitive processes such as selective attention, memory distortions, and unconscious cognitive processes like projection, denial, and self-blame (Bolvin & Lancastle, 2010; Carter et al., 2011; Esnaasharan et al., 2018). An individual's inability to process emotional cognitive information leads to emotional distress and manifests problems through physical symptoms and maladaptation in interpersonal relationships (Garnefski & Kraaij, 2006; Garnefski et al., 2001).

The stress associated with the pregnancy process in women leads to increased emotional dysregulation (Teimourpour et al., 2015) and emotional dysregulation significantly affects the quality of marital life, considered one of the most fundamental human relationships (Carter et al., 2011). Hawkins defines marital satisfaction as encompassing objective feelings of satisfaction, pleasure, and contentment experienced by either spouse across all aspects of marital life. Satisfaction is an attitudinal variable and considered a personal attribute of both spouses. According to the health model, optimal quality of life should encompass physical, emotional, social, spiritual, and occupational dimensions (Saadati & Parsakia, 2023). Infertility or recurrent miscarriage has detrimental effects on quality of life, including marital life (Adib-Rad et al., 2019; Carter et al., 2011; Pasha et al., 2017). The psychological pressure from infertility can weaken the foundation of a family, increase disputes, or even push the relationship towards separation. Furthermore, over time, the home environment without the presence of a child becomes monotonous for both spouses, and the silence and solitude make the home environment tiresome. Often, infertile couples experience impatience, which affects their interactions. Overall, these issues can pave the way for

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reduced commitment and the emergence of boredom within marital relationships. Emotional cognitive dysregulation leads to the use of maladaptive strategies, subsequently reducing marital life quality (Volmer et al., 2017). Impulsive behaviors, diffuse anger, distress, feelings of grief and guilt, irritation, stress, feelings of helplessness, worthlessness, incompetence, anxiety, distress, negative self-beliefs, concerns about sexual attractiveness, feelings of rejection, severe worry, and low self-esteem are among the psychological problems reported (Akhteh et al., 2014; Carter et al., 2011; Katz, 2019).

Studies have shown that supportive and psychological therapies are effective in adapting and reducing the emotional burden on these individuals, improving their psychological state. Individuals who acquire necessary coping skills to manage anxiety and stress can control their anxious and worrisome thoughts, thereby continually reducing stress and anxiety (Akhteh et al., 2014). One of the highlighted treatments is Dialectical Behavior Therapy (DBT). The rationale for using DBT in this research is that it integrates many elements of CBT (especially skills training and chain analysis of behavior, detailed and elaborate descriptions of affect, cognition, behavior, and desires that lead to maladaptive behavior) with acceptance (Katz, 2019). DBT emphasizes that patients' maladaptive behaviors serve to regulate distressing emotional experiences. Following these maladaptive behaviors, a temporary reduction in emotional arousal occurs, and thus the use of these maladaptive strategies is negatively reinforced. Therefore, the primary focus of DBT revolves around learning, applying, and generalizing specific adaptive skills taught in this therapeutic method, with the ultimate goal of helping the patient break and overcome this defective cycle (Bornovalova & Daughters, 2007). The impact of effective DBT treatment on distress tolerance and emotional regulation has been explored (Jamilian et al., 2014; Sepehri et al., 2016). Difficulty in recognizing emotions and failures in establishing emotional relationships with others lead to marital conflicts and thus affect the quality of life, including marital quality, marital adaptation, and marital conflicts. Reviews indicate that DBT treatment significantly improves the quality of life, including marital quality and marital adaptation (Bornovalova & Daughters, 2007; Mohammadi & Azizi, 2017; Sepehri et al., 2016; Swales & Heard, 2016; Wilks et al., 2017). Despite the impact of DBT treatment, no study was found concerning the effectiveness of DBT in relation to distress tolerance, emotional cognitive regulation, and marital quality of life in women with a history of recurrent miscarriages, thus this research addresses the effectiveness of Dialectical Behavior Therapy-based skill training on distress tolerance, emotional cognitive regulation, and marital quality of life in women with recurrent miscarriages.

2. Methods

2.1. Study design and Participant

This study employed a quasi-experimental design. The experimental group received Dialectical Behavior Therapy (DBT)-based skills training, while the control group did not receive any intervention. Initially, a literature review was conducted using theses, articles, and databases both Iranian and international to gather the necessary data. Subsequently, a sample of 30 women attending infertility clinics in Tehran during 2019-2020 was selected through convenience sampling and purposively based on specific inclusion and exclusion criteria. Inclusion criteria included: participants aged between 25-40, not having had a child in the past six months, having at least two recurrent miscarriages, not concurrently suffering from any physical illnesses such as MS or diabetes (per physician's assessment), not having personality disorders, psychosis or substance abuse issues (evaluated using the Structured Clinical Interview for DSM Disorders, SCID), and not having primary infertility. Participants were allowed to take psychiatric medication as prescribed by their psychiatrists. Exclusion criteria included: participants undergoing severe marital conflicts or divorce processes due to recurrent miscarriages, suffering from severe illness or physical weakness that prevented participation in the study, and having adopted children. After selection, 15 participants were randomly assigned to each of the experimental and control groups. Initially, informed consent was obtained from all participants, followed by the administration of pre-tests. The participants completed questionnaires on distress tolerance, cognitive emotional regulation, and marital quality of life. The experimental group received DBT-based skills training and Emotion-Focused Therapy, while the control group received no treatment. The therapeutic package for DBT-based skills training consisted of 10 two-hour therapy sessions scheduled over 10 weeks, covering mindfulness, emotional regulation, distress tolerance, and interpersonal effectiveness skills. For data collection, participants filled out questionnaires on distress tolerance, cognitive emotional regulation, and marital quality of life. A follow-up test was conducted three months later.

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2.2. Measures

2.2.1. Distress Tolerance

Introduced by Simons and Gaher (2005), this scale originally consists of 16 items, and in its Persian form, it includes 15 items. It comprises four subscales: tolerance (emotional distress tolerance), absorption (being absorbed by negative emotions), appraisal (mental assessment of distress), and regulation (efforts to alleviate distress). Items are rated on a 5-point Likert scale from strongly agree to strongly disagree, where 'strongly agree' scores 1 and 'strongly disagree' scores 5, with item 6 reverse-scored. A higher score indicates greater distress tolerance. This scale has good criterion and convergent validity initially. It was administered by Alavi et al. (2011) to 48 students at Ferdowsi University and the Medical Sciences of Mashhad (31 women and 17 men). Internal consistency reliability was calculated through Cronbach's alpha, indicating high internal consistency reliability of .71, with subscale alphas ranging from .70 to .82 (Alavi et al., 2011). In this study, alpha reliability was .64.

2.2.2. Cognitive Emotional Regulation

The Cognitive Emotional Regulation Questionnaire (Garnefski & Kraaij, 2006) consists of 18 items measuring emotional regulation strategies in response to threatening and stressful life events, rated on a 5-point scale from 1 (never) to 5 (always) across 9 subscales: self-blame, blaming others, focus on thought/rumination, catastrophizing, putting into perspective, positive refocusing, positive reappraisal, acceptance, and refocus on planning. Strategies are divided into adaptive (such as perspective-taking, positive refocusing, positive reappraisal, acceptance, and planning) and non-adaptive (self-blame, blaming others, rumination, and catastrophizing). The content, convergent, and discriminant validity of the questionnaire have been confirmed, with reported alpha values ranging from .85 to .93 (Besharat, 2017; Besharat & Bazzazian, 2014). In this study, the alpha value was .89.

2.2.3. Marital Quality of Life

Developed by Fletcher, Simpson, and Thomas (2000), this scale consists of 18 questions on a 7-point Likert scale (from 1 'not at all' to 7 'completely') across six subscales: satisfaction, commitment, intimacy, trust, sexual passion, and love. In this research, Cronbach's alpha for the subscales was reported as .91, .86, .76, .86, and .89, with an overall alpha of .85. The scale was translated into Persian by Nilforoushan (2010), and its content validity was confirmed by several professors from the Psychology and Counseling Department at the University of Isfahan. Nilforoushan reported an overall Cronbach's alpha of .95, with the alpha for women at .95 and for men at .94. In a study by Khajeh, Bahrami, Fatehizadeh, and Abedi (2012), internal consistency was determined through Cronbach's alpha at .95, with subscale alphas for satisfaction, commitment, intimacy, trust, sexual passion, and love ranging from .92 to .98 (Saadati & Parsakia, 2023). In this study, the alpha for the questionnaire was .89.

2.3. Intervention

2.3.1. DBT

The training was based on the DBT skills training protocol adapted from prior research (Afshari et al., 2019; Alavi et al., 2011; Amani & Abolghasemi, 2017; Bornovalova & Daughters, 2007; Cain, 2009; Esnaasharan et al., 2018; Jamilian et al., 2014; Mohammadi & Azizi, 2017; Rabiee et al., 2020; Sahranavard & Miri, 2018; Sepehri et al., 2016; Sheykhhadi et al., 2017; Swales & Heard, 2016; Taghizadeh et al., 2015; Van Dijk, 2013; Wilks et al., 2017; Yasfard et al., 2019; Zamani et al., 2015; Zargar et al., 2019), which was modified and approved by three experts.

Session 1: Introduction and Pre-test

The first session focuses on administering the pre-test, establishing rapport, and providing an introduction to Dialectical Behavior Therapy (DBT). It explains the foundational concepts of DBT, including the three states of mind: reasonable mind, emotional mind, and wise mind. This session sets the stage for the skills training and introduces participants to the therapeutic process.

Session 2: Mindfulness (Core Practice)

The second session introduces the concept of 'What skills' of mindfulness, which help participants focus on observing, describing, and participating in their thoughts, feelings, and sensations nonjudgmentally and in the moment. This session is foundational, emphasizing the practice of staying present and engaged.

Session 3: Mindfulness (Distraction and Self-Soothing)

This session continues to build on mindfulness skills, focusing on 'How skills' which include non-judgmental stance, one-mindfulness, and effectiveness. It introduces specific techniques like ACCEPTS (Activities, Contributing, Comparisons, Emotions, Pushing away,

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Thoughts, and Sensations) for distraction, and self-soothing with the five senses to manage acute stress.

Session 4: Distress Tolerance (Improving the Moment)

The fourth session deals with distress tolerance, particularly using the IMPROVE the moment skills. These techniques include Imagery, Meaning, Prayer, Relaxation, One thing at a time, Vacation, and Encouragement, which are essential for handling immediate distress effectively.

Session 5: Distress Tolerance (Radical Acceptance and Turning the Mind)

Furthering the distress tolerance theme, this session introduces radical acceptance and the skill of turning the mind toward acceptance. It teaches participants how to fully accept reality as it is, a key component in managing overwhelming emotions and distress.

Session 6: Emotional Regulation (PLEASE Master)

The sixth session shifts focus to emotional regulation, introducing the PLEASE MASTER skill, which stands for treating Physical iLlness, balanced Eating, avoiding mood-Altering drugs, balanced Sleep, and getting Exercise, along with mastering your emotions. This skill helps stabilize emotions by building a healthier lifestyle.

Session 7: Emotional Regulation (Understanding and Labeling Emotions)

Continuing with emotional regulation, this session educates participants about different emotions, how to identify them, and the components of emotional regulation. It aids in developing a nuanced understanding of personal emotional experiences and triggers.

Session 8: Interpersonal Effectiveness (Assertiveness and Listening Skills)

This session introduces interpersonal effectiveness, focusing on teaching components of effective communication, assertiveness skills, and active listening. These skills are crucial for building and maintaining healthy relationships and advocating for personal needs effectively.

Session 9: Interpersonal Effectiveness (Negotiation Skills)

Building on the previous session, session nine continues with interpersonal effectiveness, emphasizing negotiation skills reinforced by mindfulness. It helps participants practice how to negotiate and resolve conflicts while remaining present and attentive.

Session 10: Review and Post-test

The final session reviews all the skills covered in previous sessions and administers the post-test to evaluate the participants' learning and growth through the program. This session reinforces the techniques learned and ensures participants are equipped to apply these skills in their daily lives effectively.

2.4. Data Analysis

The data were entered into SPSS version 21 and analyzed using repeated measures analysis.

3. Findings and Results

Descriptive statistics, including means and standard deviations for distress tolerance, cognitive emotional regulation, and marital quality of life, are presented in Table 1 for both the experimental group, which received Dialectical Behavior Therapy (DBT)-based skills training, and the control group, across pre-test, post-test, and follow-up stages. It was observed that the means in the experimental group increased from the pre-test to the post-test and follow-up stages.

Table 1

Means and Standard Deviations for the Experimental and Control Groups Across Evaluation Stages

Test Type	Variable	Group	N	Mean	Standard Deviation
Pre-test	Distress Tolerance	DBT	15	34.06	8.47
		Control	15	33.20	4.76
Pre-test	Cognitive Emotional Reg	DBT	15	47.46	5.93
		Control	15	48.13	4.05
Pre-test	Marital Quality of Life	DBT	15	55.06	6.28
		Control	15	56.00	6.11
Post-test	Distress Tolerance	DBT	15	68.66	1.29
		Control	15	34.40	4.51
Post-test	Cognitive Emotional Reg	DBT	15	79.66	1.91
		Control	15	50.20	4.53
Post-test	Marital Quality of Life	DBT	15	107.73	3.26
		Control	15	57.13	5.99
Follow-up	Distress Tolerance	DBT	15	68.06	1.79

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		Control	15	33.33	4.48
Follow-up	Cognitive Emotional Reg	DBT	15	78.93	1.94
		Control	15	48.60	5.08
Follow-up	Marital Quality of Life	DBT	15	106.40	2.64
		Control	15	55.66	6.22

The normality of the data was assessed using the Kolmogorov-Smirnov test. The significance levels for each variable—distress tolerance, cognitive emotional regulation, and marital quality of life—were greater than .05, confirming the null hypothesis. This indicates that the data for the variables were normally distributed in both groups, allowing for the use of parametric tests (Distress Tolerance: statistic = .130, sig = .055; Cognitive Emotional Reg: statistic = .121, sig = .095; Marital Quality of Life: statistic = .118, sig = .133).

Continuing the analysis to assess significant differences between the means of distress tolerance, cognitive emotional regulation, and marital quality of life across groups, the assumption of sphericity was evaluated. The variance of the difference between all combinations related to groups (sphericity) should be equal. This assumption was tested using Mauchly's sphericity test (df = 6, Mauchly's W = .001, Greenhouse-Geisser = .929). Unfortunately, the repeated measures ANOVA is sensitive to violations of the sphericity assumption, and when data deviate from this assumption, several corrections exist. If the epsilon value is less than .75 or nothing is known about sphericity, the Greenhouse-Geisser correction should be used. In this study, the Greenhouse-Geisser was not significant and above .05, indicating no violations.

To assess significant differences between the means of the dependent variables across the three test phases in the two groups, assumptions of homogeneity of variances and sphericity were first examined. Among the assumptions of repeated measures, homogeneity of covariances between groups is assessed using Box's M test. A significance level below .001 indicates that the covariance matrices of the dependent variables are not equal across all groups. Box's test is highly sensitive; if the significance value is less than .001 and the number of subjects in groups is equal, it can be disregarded, but further analysis should employ Wilks' Lambda. The assumption of equal variances was not met (F = 2.924, p = .001), but as the number of subjects in groups is equal, Wilks' Lambda is used moving forward.

Table 2

Tests of Within-Subjects Effects

Effect	Test	Statistic Value	F	df1	df2	Sig.	Eta Squared
Within Subjects	Pillai's Trace	.999	2963.952	9	20	.001	0.433
	Wilks' Lambda	.001	2963.952	9	20	.001	0.433
	Hotelling's Trace	1333.779	2963.952	9	20	.001	0.433
	Greatest Root	1333.779	2963.952	9	20	.001	0.433

Bonferroni post-hoc tests were conducted to further analyze the effects of the intervention on all variables assessed in the study. The results indicated that the intervention had a significant effect on distress tolerance, cognitive emotional regulation, and marital quality of life. Specifically, these effects were found to be statistically significant across different stages of the study, including pre-test and post-test ($p<0.01$). Notably, the positive impacts of the intervention remained stable and significant in the follow-up stage, underscoring the lasting effectiveness of the treatment ($p>0.05$).

4. Discussion and Conclusion

The findings confirm the effectiveness of Dialectical Behavior Therapy (DBT)-based skills training on distress tolerance, cognitive emotional regulation, and marital quality of life in women with recurrent miscarriages. The results indicate significant differences between pre-treatment, post-treatment, and follow-up assessments. Additionally, there was no significant difference between post-test and follow-up results, suggesting the enduring and lasting effect of the DBT-based skills training on distress tolerance, cognitive emotional regulation, and marital quality of life in women with recurrent miscarriages. Few studies exist on recurrent miscarriages, thus aligning results

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with previous research is not straightforward. This research aligns with previous studies which use emotion-focused therapy in different groups and similar variables. The results are consistent with those from various studies (Afshari et al., 2019; Alavi et al., 2011; Amani & Abolghasemi, 2017; Bornovalova & Daughters, 2007; Cain, 2009; Esnaasharan et al., 2018; Jamilian et al., 2014; Mohammadi & Azizi, 2017; Rabiee et al., 2020; Sahranavard & Miri, 2018; Sepehri et al., 2016; Sheykhhadi et al., 2017; Swales & Heard, 2016; Taghizadeh et al., 2015; Van Dijk, 2013; Wilks et al., 2017; Yasfard et al., 2019; Zamani et al., 2015; Zargar et al., 2019).

These findings suggest that recurrent miscarriage has both physiological and psychological aspects that interact and impact each other. Women with a history of recurrent miscarriages face pressure due to rapid changes in their menstrual cycles (pregnancy and miscarriage) and the effects of the medications they take. Hormones and drugs on one side and the psychological aspect of the issue on the other are intertwined. Women with a history of recurrent miscarriages, due to problems in reproduction and its process, experience greater distress tolerance and cognitive emotional dysregulation. Due to repeated pregnancy and its termination, these women go through cycles of pregnancy and loss, possibly leading to lower cognitive emotional regulation and marital quality of life compared to infertile and normal groups when facing stress like recurrent miscarriages, where cognitive emotional regulation breaks down, enhancing unpleasant emotions like sadness, sorrow, and anger, manifesting as depression and anxiety. Negative thoughts and behaviors in response to these emotions may lay the groundwork for vulnerability to various diseases (Sheykhhadi et al., 2017). Depression is an emotional state accompanied by feelings of hopelessness, incompetence, guilt, fear, worthlessness, and anxiety with automatic negative thoughts and distortions in interpreting stimuli and events. These negative emotions adversely affect cognition and thinking, leading to frequent use of maladaptive strategies, resulting in reduced quality of life (Yasfard et al., 2019). In the early 1990s, Vincent Rey proposed the concept of post-miscarriage syndrome, a type of post-traumatic stress disorder. According to Speckhard and Rey, "The emotional toll of dealing with the death of a fetus can be overwhelming, causing a wide range of symptoms" (p. 5). Symptoms of distress may cause feelings of guilt, self-blame, and anger toward oneself, sorrow, intrusive thoughts about the fetus's death, and problematic family relationships. They noted that in some cases, distress may fluctuate with the menstrual cycle. Lack of control over the termination of pregnancy exacerbates distress symptoms (Van Dijk, 2013), and these negative emotions and emotional dysregulation adversely affect cognition and thinking. Emotions and their appropriate expression play a key role in the interactions between couples. Research shows that expressing emotions in couple interactions affects the quality and stability of marriage (Esnaasharan et al., 2018). Studies have shown that distress tolerance significantly affects the evaluation and outcomes of experiencing negative emotions, such that individuals with lower distress tolerance show a stronger reaction to stress. Moreover, these individuals exhibit weaker coping abilities in the face of distress and consequently strive to use strategies aimed at reducing negative emotional states to avoid such emotions (Keough et al., 2010). Individuals with low distress tolerance tend to engage in disordered behaviors in an improper attempt to cope with their negative emotions (Aminalroaya et al., 2017). Cognitive emotional dysregulation, ineffective emotional cognitive regulation leads to the use of maladaptive strategies, consequently reducing an individual's quality of life (Volmer et al., 2017). DBT-based skills training includes mindfulness and distress tolerance, skills based on acceptance, and enables emotional regulation and interpersonal effectiveness (Wilks et al., 2017). Mindfulness skills in this treatment focus on awareness of disturbing emotions, distress tolerance skills on tolerating disturbing emotions, emotional regulation skills on changing disturbing emotions, and interpersonal skills on changing the invalidating social environment that enhances emotional arousal (Van Dijk, 2013). In recent years, it has been recommended to use psychological therapies to reduce the burden of psychological stress, which reduces the individual's need for medication and consequently its side effects, helping them to better adapt to their family and environment, thus overall improving their quality of life, including marital quality of life (Adib-Rad et al., 2019; Katz, 2019). Future research is suggested to identify psychological factors effective in this field and to become acquainted with its various aspects, using variables such as psychological distress, emotional regulation, and coping strategies, and also to include a control group (fertile women).

5. Suggestions and Limitations

This study has several limitations that may affect the generalizability of the findings. First, the small sample size and the specific demographic of women with recurrent

miscarriages limit the ability to generalize these results to a broader population. Additionally, the use of self-report measures may introduce bias, as participants might provide responses they perceive as socially desirable rather than their true feelings or behaviors. Furthermore, the study's design does not account for potential confounding variables such as individual differences in baseline psychological status, social support systems, or concurrent medical treatments, which might influence the outcomes.

The implications of this study are significant for clinical practice, particularly in the fields of psychology and reproductive health. The findings suggest that Dialectical Behavior Therapy (DBT)-based skills training can effectively improve distress tolerance, cognitive emotional regulation, and marital quality of life among women experiencing recurrent miscarriages. Therefore, healthcare providers, especially psychologists and counselors working with this population, should consider incorporating DBT techniques into their therapeutic interventions. Additionally, integrating mental health support with obstetric care can help address the psychological impacts of miscarriage, potentially improving overall treatment outcomes for affected women.

Future research should aim to address the limitations noted in this study by including a larger, more diverse sample to enhance the generalizability of the findings. Longitudinal studies could provide more insights into the long-term effects of DBT on emotional and marital outcomes after recurrent miscarriages. It would also be beneficial to include objective measures such as physiological indicators of stress and anxiety to complement self-reported data, thereby reducing bias. Furthermore, examining the impact of other therapeutic approaches like cognitive-behavioral therapy or support groups compared to DBT could provide valuable information about the most effective strategies for supporting this population. Finally, exploring the role of partners and family in the recovery and adaptation process could add depth to our understanding of how best to support women coping with recurrent miscarriages.

Authors' Contributions

All authors have contributed significantly to the research process and the development of the manuscript.

Declaration

In order to correct and improve the academic writing of our paper, we have used the language model ChatGPT.

Transparency Statement

Data are available for research purposes upon reasonable request to the corresponding author.

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Declaration of Interest

The authors report no conflict of interest.

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Ethical Considerations

The study protocol adhered to the principles outlined in the Helsinki Declaration, which provides guidelines for ethical research involving human participants. The ethical code for this research is IR.IAU.TMU.REC.1399.064. At the end of the sessions, a post-test was administered to all participants.

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