

The Effectiveness of Dialectical Behavior Therapy-Based Skills Training on Distress Tolerance, Cognitive Emotion Regulation, and Marital Quality of Life in Women with Recurrent Miscarriages

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ABSTRACT

Objective: The aim of this study was to examine the effectiveness of dialectical behavior therapy-based skills training on distress tolerance, cognitive emotion regulation, and marital quality of life in women with recurrent miscarriages.

Methods: The statistical population consisted of all women who visited infertility clinics in Tehran in 2019-2020. A sample of 30 women was selected using convenience and purposive sampling methods, based on inclusion and exclusion criteria, and was randomly assigned to experimental and control groups (15 women in each group). The questionnaires used in this study were the Distress Tolerance Questionnaire by Simons and Gaher (2005), the Cognitive Emotion Regulation Questionnaire by Garnefski, Kraaij, and Spinhoven (2006), and the Marital Quality of Life Questionnaire by Fletcher, Simpson, and Thomas (2000). The statistical method used was repeated measures, with a significance level of 0.05.

Findings: According to the results, the differences in means between the two groups in the pre-test, post-test, and follow-up stages were significant. There were significant differences in distress tolerance, cognitive emotion regulation, and marital quality of life between the two groups. The dialectical behavior therapy-based skills training had an impact on the variables of distress tolerance, cognitive emotion regulation, and marital quality of life, with effect sizes of 0.885, 0.910, and 0.983, respectively.

Conclusion: Given the confirmed effectiveness of this therapy, it is recommended that these women receive appropriate psychological treatments alongside medical treatments.

Keywords: women with recurrent miscarriages, distress tolerance, cognitive emotion regulation, marital quality of life, dialectical behavior therapy-based skills training.

1. Introduction

The desire to have a child is one of the most fundamental human drives, and if the efforts to conceive and have a child fail, it can turn into a devastating emotional experience (Sharifi et al., 2015). The birth of a child helps solidify a woman's identity to the extent that women often attribute their biological, psychological, and social success significantly to their ability to bear a child. If they lack this ability, they may feel inadequate (Bottomley & Bourne, 2009; Esnaasharan et al., 2018). This issue causes significant psychological stress for these couples and adversely affects their physical and psychological health (Khayata et al., 2003).

One of the most common and challenging complications during pregnancy is recurrent miscarriage (Basirat et al., 2016). Infertility is defined as the inability to achieve pregnancy within one year of regular unprotected intercourse, with a prevalence rate in Iran estimated at around 23% based on various studies (Mohebbi & Mohammadzadeh, 2016). Recurrent miscarriage is defined as three or more consecutive miscarriages occurring before the 20th week of pregnancy, which occurs in approximately 1% of all couples, and around 25% to 50% of women experience at least one miscarriage (Ata et al., 2011; Bottomley & Bourne, 2009). Recurrent miscarriages and infertility are considered negative, challenging, and debilitating events that can have devastating impacts on individuals' quality of life (Carter et al., 2011). These individuals show higher levels of depression, anxiety, and psychological problems, and lower quality of life compared to those without these issues and global standards (Adib-Rad et al., 2019; Sugiura-Ogasawara et al., 2013; Zamani et al., 2013).

Impulsive behaviors, scattered anger, stress, feelings of helplessness, worthlessness, anxiety, and distress, particularly in prolonged and unsuccessful medical treatments, negative self-beliefs, worries about sexual attractiveness, feelings of rejection, severe anxiety, and reduced self-esteem are some of the psychological problems reported by researchers (Van Den Akker, 2005). In contrast to these problems, 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 aversive physiological states (MacKillop & De Wit,

2013). Research findings indicate that distress tolerance affects the evaluation and outcomes of experiencing negative emotions, such that individuals with lower distress tolerance react more severely to stress. These individuals also show weaker coping abilities against distress and thus attempt to avoid such emotions by employing strategies aimed at reducing negative emotional states (Keough et al., 2010).

Individuals with low distress tolerance engage in maladaptive behaviors in an incorrect attempt to cope with their negative emotions (Aminalroaya et al., 2017). In the context of emotions, the concept of cognitive emotion regulation becomes important for adapting to stressful life events. Garnefski and Kraaij (2006) consider cognitive emotion regulation strategies as responses indicating how individuals cope with stressful conditions or unfortunate events (Garnefski & Kraaij, 2006). Garnefski and colleagues believe that individuals use a variety of cognitive strategies to maintain their mental and emotional health when facing stressful experiences and situations. Cognitive emotion regulation strategies are self-awareness mechanisms used by individuals to cope with adverse conditions (Garnefski & Kraaij, 2006; Garnefski et al., 2001).

Emotions can manifest through unconscious cognitive processes such as selective attention, memory distortions, and unconscious cognitive processes like projection, denial, and self-blame (Besharat & Bazzazian, 2014). Due to an inability to cognitively process emotional information, individuals may become emotionally distressed and express their problems through physical symptoms and interpersonal relationship issues (Garnefski, Kraaij & Spinhoven, 2002). The stress associated with the pregnancy process in these women increases emotional dysregulation (Teimourpour et al., 2015), and emotional dysregulation affects the quality of marital life, which is the most important and fundamental human relationship (Carter et al., 2011). Hawkins defines marital satisfaction as encompassing the subjective feelings of contentment, satisfaction, and pleasure experienced by a wife or husband in all aspects of marital life. Satisfaction is an attitudinal variable and a personal characteristic of the husband and wife (Emami Khotbesara et al., 2024; Fye et al., 2020).

According to the health model, optimal quality of life should encompass multiple dimensions including physical, emotional, psychological, social, spiritual, and occupational aspects (Monga et al., 2004). Infertility and recurrent miscarriages have devastating impacts on the quality of life, including marital life (Carter et al., 2011; González et al.,

2018; Pasha et al., 2017). The psychological pressure caused by infertility can undermine family foundations, increase conflicts, and even bring the relationship close to separation. Furthermore, after a while, a home without a child becomes monotonous for both the husband and wife, making the silence and loneliness of the home wearisome. In many cases, infertile couples become irritable, which affects their interactions. Overall, these issues can create a foundation for reduced commitment and marital dissatisfaction (Pasha et al., 2017; Schmid et al., 2004; Teimourpour et al., 2015).

Cognitive emotion dysregulation leads to the use of maladaptive strategies, resulting in decreased marital quality of life (Saadati & Parsakia, 2023; Volmer et al., 2017). Impulsive behaviors, scattered anger, distress, feelings of sadness, guilt, anger, stress, feelings of helplessness, worthlessness, anxiety, and distress, particularly in prolonged and unsuccessful treatments, negative self-beliefs, worries about sexual attractiveness, feelings of rejection, severe anxiety, and reduced self-esteem are some of the psychological problems (Akhteh et al., 2014; Carter et al., 2011; Katz, 2019). Studies have shown that supportive and psychological treatments aimed at adaptation and reducing negative emotional burden are effective and improve the psychological condition of these women. Those who receive necessary coping skills for managing anxiety and stress can control their anxious and worrying thoughts, resulting in a continuous reduction of stress, anxiety, and worry (Akhteh et al., 2014).

One prominent treatment is Dialectical Behavior Therapy (DBT). The rationale for using DBT in this research is that it combines many elements of Cognitive Behavioral Therapy (CBT), particularly skills training and behavioral chain analysis, which provide a detailed and comprehensive explanation of the affect, cognition, behavior, and desires that lead to undesirable behavior, with acceptance (Cain, 2009). DBT emphasizes that patients' maladaptive behaviors serve to regulate distressing emotional experiences. Following these maladaptive behaviors, a temporary reduction in emotional arousal occurs, resulting in the negative reinforcement of these maladaptive strategies. Therefore, the core focus of DBT is on learning, applying, and generalizing specific adaptive skills taught in this therapeutic approach, with the ultimate goal of helping the patient break and overcome this vicious cycle (Bomovalova & Daughters, 2007).

The impact of DBT on distress tolerance and emotion regulation has been investigated (Jamilian et al., 2014; Sepehri et al., 2016). Difficulty in recognizing emotions and

failure to establish emotional connections with others lead to marital conflicts and, consequently, affect the quality of life, including marital quality of life, marital adjustment, and marital conflicts. Studies show that DBT significantly improves the quality of life, including marital quality of life and marital adjustment (Mohammadi & Azizi, 2017). Despite the impact of DBT, no study was found investigating the effectiveness of DBT on distress tolerance, cognitive emotion regulation, and marital quality of life in women with a history of recurrent miscarriage. Therefore, this study aims to investigate the effectiveness of dialectical behavior therapy-based skills training on distress tolerance, cognitive emotion regulation, and marital quality of life in women with recurrent miscarriages.

2. Methods

2.1. Study Design and Participants

The research method in this study was quasi-experimental. The experimental group received dialectical behavior therapy-based skills training, while the control group did not receive any treatment. Initially, relevant information was collected by searching Iranian and foreign thesis databases, articles, and data sources. Next, a sample of 30 women visiting infertility clinics in Tehran in 2019-2020 was selected using convenience and purposive sampling based on inclusion and exclusion criteria. The inclusion criteria were: participants aged 25-40 years, no child in the past six months, at least two recurrent miscarriages, structured clinical interview (SCID) for concurrent mental illnesses, no physical diseases like MS or diabetes (as per the doctor's opinion), no personality disorders, psychosis, or substance abuse disorders (using SCID), no primary infertility, and medication usage for psychological issues if prescribed by a psychiatrist. The exclusion criteria included severe marital conflicts such as divorce or separation due to recurrent miscarriages, severe physical illness or weakness preventing participation, and no adopted children.

After selecting the sample, 15 participants were randomly assigned to experimental and control groups. Participants were evenly divided based on their characteristics outlined in the inclusion and exclusion criteria. Initially, informed consent forms for participation were obtained, and then a pre-test was conducted. Participants completed the Distress Tolerance Questionnaire, Cognitive Emotion Regulation Questionnaire, and Marital Quality of Life Questionnaire. The experimental group received dialectical behavior

therapy-based skills training and emotion-focused therapy, while the control group did not receive any treatment. The DBT skills training package included ten 2-hour sessions over ten weeks, covering mindfulness, emotional regulation, distress tolerance, and interpersonal skills. Data collection involved the Distress Tolerance Questionnaire, Cognitive Emotion Regulation Questionnaire, and Marital Quality of Life Questionnaire.

2.2. Measures

2.2.1. Distress Tolerance

This scale, introduced by Simons and Gaher (2005), consists of 16 items in the original form and 15 items in the Persian version. It includes four subscales: tolerance (emotional distress tolerance), absorption (getting absorbed by negative emotions), appraisal (subjective estimation of distress), and regulation (regulation efforts to soothe distress). Responses are on a five-point Likert scale ranging from strongly agree to strongly disagree, with higher scores indicating higher distress tolerance. This scale has demonstrated good initial criterion and convergent validity. Alavi et al. (2010) administered it to 48 students (31 women and 17 men) from Ferdowsi University and Mashhad University of Medical Sciences, reporting internal consistency and reliability through Cronbach's alpha of above 0.71, with subscale alphas ranging from 0.70 to 0.82. In this study, the alpha was 0.64 (Alavi et al., 2011).

2.2.2. Cognitive Emotion Regulation

The Cognitive Emotion Regulation Questionnaire is an 18-item tool assessing emotion regulation strategies in response to life stressors on a five-point scale from 1 (never) to 5 (always) across nine subscales: self-blame, other-blame, rumination, catastrophizing, putting into perspective, positive refocusing, positive reappraisal, acceptance, and planning. Higher scores indicate greater use of specific cognitive strategies. Adaptive strategies include putting into perspective, positive refocusing, positive reappraisal, acceptance, and planning. Maladaptive strategies include self-blame, other-blame, rumination, and catastrophizing. Content, convergent, and discriminant validity have been confirmed, with alpha coefficients between 0.85 and 0.93 (Besharat, 2017; Besharat & Bazzazian, 2014). In this study, the alpha was 0.89.

2.2.3. Marital Quality of Life

Developed by Fletcher, Simpson, and Thomas in 2000, this scale includes 18 items on a 7-point Likert scale (1 = not at all to 7 = completely) and six subscales: satisfaction, commitment, intimacy, trust, sexual excitement, and love. Cronbach's alpha for subscales ranged from 0.76 to 0.91, with an overall alpha of 0.85. Nilforoushan translated the scale in 2010, and its content validity was confirmed by psychology and counseling faculty members at the University of Isfahan. Cronbach's alpha for the total scale was 0.95, with 0.95 for women and 0.94 for men. In a study by Khajeh et al. (2011), internal consistency using Cronbach's alpha was 0.95, with subscale alphas ranging from 0.84 to 0.98. In this study, the alpha was 0.89 (Saadati & Parsakia, 2023).

2.3. Intervention

2.3.1. DBT

A dialectical behavior therapy-based skills training protocol, modified and approved by three experts, was used for the training (Yasfard et al., 2019).

Session 1:

The initial session includes a pre-test, establishing rapport and a positive relationship, and providing explanations about Dialectical Behavior Therapy (DBT). The session introduces the three states of mind: reasonable mind, emotional mind, and wise mind.

Session 2:

This session focuses on comprehensive mindfulness skills, emphasizing practicing and achieving the skills of observing, describing, and participating. Participants are taught the "what" and "how" skills essential for effective mindfulness practice.

Session 3:

Continuing with comprehensive mindfulness, this session introduces distraction skills using the ACCEPTS acronym (Activities, Contributing, Comparisons, Emotions, Pushing away, Thoughts, Sensations). Additionally, participants learn self-soothing using the five senses and the IMPROVE the moment skills, along with the pros and cons technique.

Session 4:

The focus of this session is distress tolerance, specifically enhancing the moment (IMPROVE the moment) techniques. These skills help participants better cope with difficult situations by improving their moment-to-moment experience.

Session 5:

Further distress tolerance skills are covered, including radical acceptance, turning the mind, and practicing satisfaction with the present moment. These techniques aim to reduce resistance to reality and enhance acceptance of difficult situations.

Session 6:

The session introduces emotional regulation skills through the PLEASE MASTER acronym, which focuses on maintaining a balanced lifestyle by addressing Physical Illness, Eating, Avoiding mood-Altering substances, Sleep, Exercise, and building mastery.

Session 7:

Emotional regulation skills continue with education about emotions, identifying emotions, and the components of emotional regulation. Participants learn how to recognize and label their emotions accurately.

Session 8:

This session shifts focus to interpersonal relationships, teaching components of effective interpersonal communication, assertiveness skills, and active listening. These skills are crucial for maintaining healthy relationships.

Session 9:

Further interpersonal skills are discussed, including components of effective communication and negotiation

skills, with an emphasis on mindfulness in interpersonal interactions. These skills help participants navigate complex social interactions mindfully.

Session 10:

The final session involves a review and consolidation of techniques from previous sessions. Participants complete a post-test to evaluate their progress and solidify their understanding and application of DBT skills.

2.4. Data analysis

Data were entered into SPSS version 21, and information was analyzed using the repeated measures analysis method.

3. Findings and Results

Descriptive statistics, including the mean and standard deviation of distress tolerance, cognitive emotion regulation, and marital quality of life, in the dialectical behavior therapy (DBT)-based skills training group and the control group in the pre-test, post-test, and follow-up stages are presented in Table 1. According to the data, the means in the experimental group increased in the post-test and follow-up stages compared to the pre-test.

Table 1

Means and Standard Deviations of Distress Tolerance, Cognitive Emotion Regulation, and Marital Quality of Life by Group and Assessment Stage

Assessment Stage	Variable	Group	N	M	SD
Pre-test	Distress Tolerance	DBT-based Skills Training	15	34.06	8.47
		Control	15	33.20	4.76
Pre-test	Cognitive Emotion Regulation	DBT-based Skills Training	15	47.46	5.93
		Control	15	48.13	4.05
Pre-test	Marital Quality of Life	DBT-based Skills Training	15	55.06	6.28
		Control	15	56.00	6.11
Post-test	Distress Tolerance	DBT-based Skills Training	15	68.66	1.29
		Control	15	34.40	4.51
Post-test	Cognitive Emotion Regulation	DBT-based Skills Training	15	79.66	1.91
		Control	15	50.20	4.53
Post-test	Marital Quality of Life	DBT-based Skills Training	15	107.73	3.26
		Control	15	57.13	5.99
Follow-up	Distress Tolerance	DBT-based Skills Training	15	68.06	1.79
		Control	15	33.33	4.48
Follow-up	Cognitive Emotion Regulation	DBT-based Skills Training	15	78.93	1.94
		Control	15	48.60	5.08
Follow-up	Marital Quality of Life	DBT-based Skills Training	15	106.40	2.64
		Control	15	55.66	6.22

The normality of the data was checked using the Kolmogorov-Smirnov test. The significance levels obtained

for each of the variables (distress tolerance, cognitive emotion regulation, and marital quality of life) were greater

than 0.05, confirming the null hypothesis that the data were normally distributed in both groups, allowing the use of parametric tests (Distress Tolerance: $D(30) = 0.130$, $p = 0.055$; Cognitive Emotion Regulation: $D(30) = 0.121$, $p = 0.095$; Marital Quality of Life: $D(30) = 0.118$, $p = 0.133$).

To examine significant differences between the means of the dependent variables in the two groups across the three testing stages, the assumptions of homogeneity of variances and sphericity were checked first. Another assumption of repeated measures is the homogeneity of covariances between groups. Box's M test is used to check this assumption. If the significance is less than 0.001, it indicates that the observed covariance matrices of the dependent variables are not equal across groups. Box's M test is very sensitive; if the significance level is less than 0.001 and the number of subjects in each group is equal, it can be ignored, but Wilks' Lambda statistic should be used for further

analysis. The assumption of equal variances was not met ($F(1,28) = 2.924$, $p = 0.001$), but the number of subjects in each group was equal. To examine significant differences between the means of distress tolerance, cognitive emotion regulation, and marital quality of life in the groups, the assumption of sphericity was checked. The sphericity assumption states that the variance of the differences between all possible pairs of groups should be equal. Mauchly's test of sphericity was used ($df = 6$, $W = 0.001$, Greenhouse-Geisser $\epsilon = 0.929$). Unfortunately, repeated measures ANOVA is sensitive to violations of sphericity. When data violate the sphericity assumption, several corrections can be applied. If epsilon is less than 0.75 or if nothing is known about sphericity, the Greenhouse-Geisser correction should be used, which in this study was not significant and was above 0.05.

Table 2

Between-Group Test for Dependent Variables

Variable	SS	df	MS	F	p	Effect Size
Distress Tolerance	5656.822	1.025	5520.726	214.790	0.001	0.885
Cognitive Emotion Regulation	4674.422	1.096	4264.708	284.255	0.001	0.910
Marital Quality of Life	13312.867	1.104	12058.105	1652.306	0.001	0.983

Interactive mean-adjusted scores of distress tolerance, cognitive emotion regulation, and marital quality of life in

the two groups at different stages (pre-test, post-test, and follow-up) are illustrated in the following charts.

Figure 1

Adjusted Mean Scores of Distress Tolerance in DBT-Based Skills Training and Control Groups at Pre-Test, Post-Test, and Follow-Up Stages

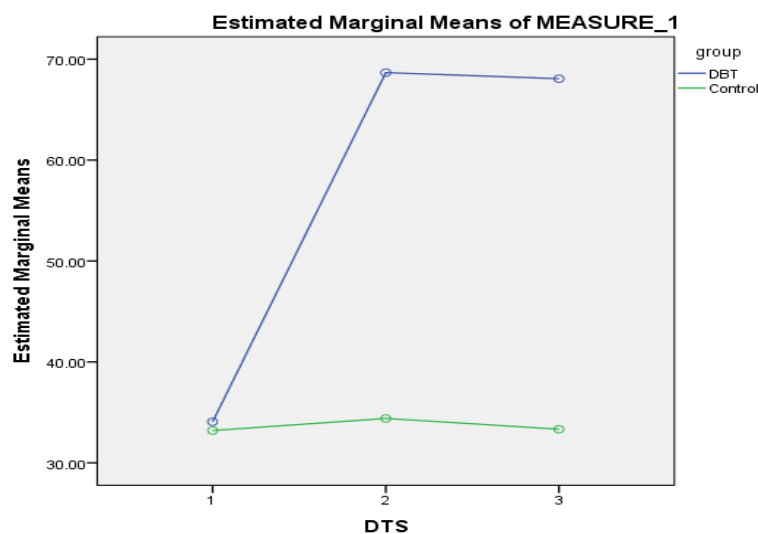


Figure 2

Adjusted Mean Scores of Cognitive Emotion Regulation in DBT-Based Skills Training and Control Groups at Pre-Test, Post-Test, and Follow-Up Stages

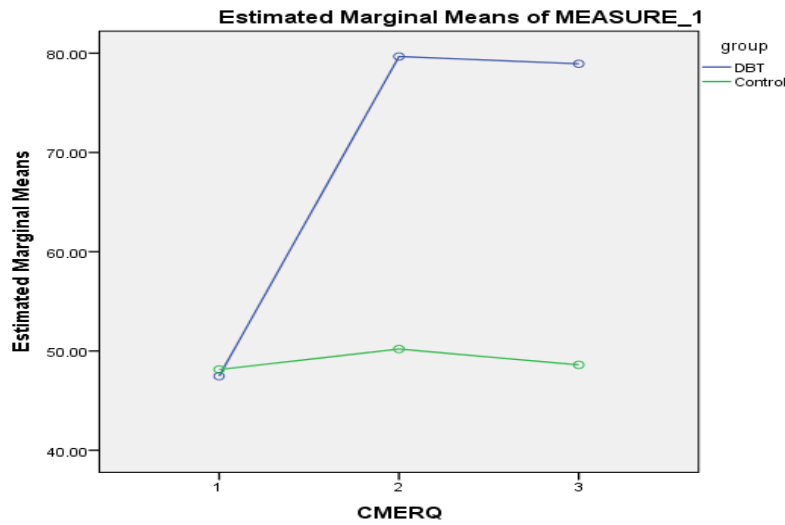
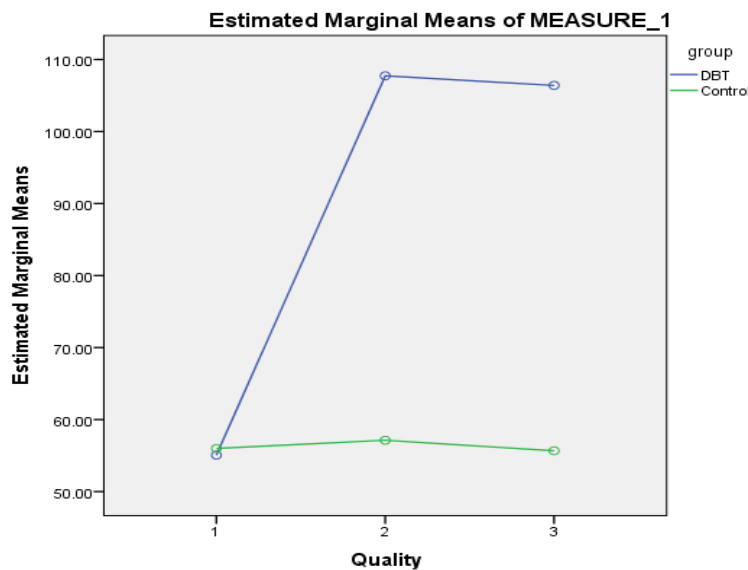


Figure 3

Adjusted Mean Scores of Marital Quality of Life in DBT-Based Skills Training and Control Groups at Pre-Test, Post-Test, and Follow-Up Stages



4. Discussion and Conclusion

The results confirm the effectiveness of DBT-based skills training on distress tolerance, cognitive emotion regulation, and marital quality of life in women with recurrent miscarriages. The findings show significant differences between pre-treatment, post-treatment, and follow-up results. Additionally, there was no significant difference

between post-test and follow-up results, indicating the stable and lasting therapeutic effects of DBT-based skills training on these variables. There are few studies on recurrent miscarriages, making it challenging to align the results with previous research easily. However, the findings are consistent with studies on emotion-focused therapy in other groups and similar variables, aligning with the 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; Sheykhkhadi 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), indicating the effectiveness of DBT-based skills training.

In explaining these findings, it can be stated that recurrent miscarriage has both physiological and psychological aspects that interact and influence each other. Women with a history of recurrent miscarriage experience pressure due to rapid menstrual cycle changes (pregnancy and miscarriage) and the effects of medications. Hormones and medications intertwine with the psychological aspect of the issue. Women with a history of recurrent miscarriage experience higher levels of distress tolerance and cognitive emotion dysregulation due to reproductive issues and their processes. These women report lower cognitive emotion regulation and marital quality of life compared to infertile and normal women, likely due to repeated pregnancy and loss cycles. When stress such as recurrent miscarriage occurs, cognitive emotion regulation is disrupted, intensifying unpleasant emotions like sadness, grief, and anger, which manifest as depression and anxiety. These individuals may react to these emotions with negative thoughts and behaviors, underlying vulnerability to various diseases (Sugiura-Ogasawara et al., 2013). Depression is an emotional state associated with feelings of hopelessness, incompetence, guilt, fear, worthlessness, and anxiety, accompanied by 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 and decreased quality of life (Sheykhkhadi et al., 2017).

In the early 1990s, Vincent Ray proposed post-miscarriage syndrome, a type of post-traumatic stress disorder. According to Speckhard and Ray, "the trauma of involvement and responsibility for the death of one's fetus can be emotionally overwhelming, causing a range of symptoms". Distress symptoms may lead to feelings of guilt, self-blame, anger towards oneself, grief, 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 pregnancy outcome exacerbates distress symptoms (Speckhard & Rue, 1993), and these negative emotions and dysregulation adversely affect cognition and thinking. Emotions and their

appropriate expression play a key role in couples' relationships. Research indicates that expressing emotions influences marital interactions, quality, and stability (Rathgeber et al., 2019; Welch et al., 2019).

Studies have shown that distress tolerance impacts the evaluation and outcomes of experiencing negative emotions, such that individuals with lower distress tolerance react more severely to stress. These individuals also exhibit weaker coping abilities against distress and therefore attempt to avoid such emotions by employing strategies aimed at reducing negative emotional states (Keough et al., 2010). Individuals with low distress tolerance engage in maladaptive behaviors in an incorrect attempt to cope with their negative emotions (Amani & Abolghasemi, 2017). Cognitive emotion dysregulation and ineffective cognitive emotion regulation lead to the use of maladaptive strategies, resulting in decreased quality of life (Volmer et al., 2017).

DBT-based skills training encompasses mindfulness and distress tolerance, acceptance-based skills, and facilitates emotional regulation and interpersonal effectiveness. Mindfulness skills focus on awareness of distressing emotions, distress tolerance skills on enduring distressing emotions, emotion regulation skills on altering distressing emotions, and interpersonal skills on changing invalidating social environments that reinforce emotional arousal (Van Dijk, 2013). In recent years, psychological treatments have been recommended to reduce psychological stress, reduce the need for medication, and thus, its side effects, and help individuals better adapt to their families and surroundings, ultimately improving their overall quality of life and marital quality of life (Adib-Rad et al., 2019; Katz, 2019).

5. Suggestions and Limitations

This study has several limitations that need to be considered. Firstly, the sample size was relatively small, which may limit the generalizability of the findings to a larger population. Additionally, the study relied on self-reported measures, which can be subject to social desirability bias and may not accurately reflect the participants' true experiences and behaviors. The short duration of the follow-up period may also not be sufficient to assess the long-term effectiveness and sustainability of the DBT-based skills training. Moreover, the study was conducted in a specific cultural context, which may influence the outcomes and limit the applicability of the findings to different cultural settings.

Future research should consider larger sample sizes to enhance the generalizability of the findings. Longitudinal studies with extended follow-up periods are recommended to evaluate the long-term impact and sustainability of DBT-based skills training. Additionally, incorporating objective measures alongside self-reported data could provide a more comprehensive understanding of the intervention's effectiveness. Future studies could also explore the impact of DBT-based skills training in diverse cultural contexts to determine its universal applicability. Investigating the mechanisms underlying the effectiveness of DBT in improving distress tolerance, cognitive emotion regulation, and marital quality of life would further contribute to the field.

The findings of this study suggest that DBT-based skills training can be an effective intervention for improving distress tolerance, cognitive emotion regulation, and marital quality of life in women with recurrent miscarriages. Mental health professionals should consider incorporating DBT-based skills training into therapeutic programs for this population to address the psychological and emotional challenges they face. Healthcare providers should also be aware of the psychological impacts of recurrent miscarriages and provide holistic care that includes psychological support alongside medical treatment. Implementing such integrated care approaches can potentially enhance the overall well-being and quality of life for women experiencing recurrent miscarriages.

Authors' Contributions

All authors have contributed significantly to the research process and the development of the manuscript. This article is derived from the first author's doctoral dissertation.

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. Post-tests were administered to all participants at the end of the sessions.

References

- Adib-Rad, H., Basirat, Z., Faramarzi, M., Mostafazadeh, A., & Bijani, A. (2019). Psychological distress in women with recurrent spontaneous abortion: A case-control study. *Turkish journal of obstetrics and gynecology*, *16*(3), 151. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6792057/>
- Afshari, B., Omidi, A., & Sehat, M. (2019). Effect of dialectical behavior therapy on emotion regulation and mindfulness in patients with bipolar disorder. *Feyz*, *23*(3), 293-300. <https://www.magiran.com/paper/2008779>
- Akhteh, M., Alipor, A., & Sarifi Saki, S. (2014). Effectiveness of Stress Management Training in Reducing Anxiety and Meta-worry of Women Who Had Abortion Several Times. *Journal of Health Psychology*, *3*(11), 119-129. <https://www.magiran.com/paper/1409226>
- Alavi, K., Modarres Gharavi, M., Amin-Yazdi, S. A., & SalehiFadardi, J. (2011). Effectiveness of group dialectical behavior therapy (based on core mindfulness, distress tolerance and emotion regulation components) on depressive symptoms in university students. *Journal of Fundamentals of Mental Health*, *13*(2), 35. <https://www.magiran.com/paper/926963>
- Amani, M., & Abolghasemi, A. (2017). The efficacy of Group Training of Dialectical Behavior Therapy Concepts on Improvement of Emotional Recognition Strategies and Decrease of Obsessive-Compulsive Disorder (OCD). *Biannual Peer Review Journal of Clinical Psychology & Personality*, *14*(2), 125-134. <https://www.magiran.com/paper/1796201>
- Aminalroaya, R., Kazemian, S., & Esmaeili, M. (2017). Forecasting Distress Tolerance on the Base of the Communication Components of Original Family among Divorces and Non-Divorced Women. *Journal of Woman & Society*, *7*(4), 91-106. <https://www.magiran.com/paper/1681184>
- Ata, B., Tan, S. L., Shehata, F., Holzer, H., & Buckett, W. (2011). A systematic review of intravenous immunoglobulin for treatment of unexplained recurrent miscarriage. *Fertility and sterility*, *95*(3), 1080-1085. <https://www.sciencedirect.com/science/article/pii/S0015028210029638>

- Basirat, Z., Rad, H. A., Esmailzadeh, S., Jorsaraei, S. G. A., Hajian-Tilaki, K., Pasha, H., & Ghofrani, F. (2016). Comparison of pregnancy rate between fresh embryo transfers and frozen-thawed embryo transfers following ICSI treatment. *International Journal of Reproductive BioMedicine*, 14(1), 39. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4837924/>
- Besharat, M. A. (2017). Cognitive Emotion Regulation Questionnaire: Instruction and Scoring. *Developmental Psychology*, 13(50), 221-223. <https://www.magiran.com/paper/1677513>
- Besharat, M. A., & Bazzazian, S. (2014). Psychometri properties of the Cognitive Emotion Regulation Questionnaire in a sample of Iranian population. *Advances in Nursing & Midwifery*, 24(84), 61. <https://www.magiran.com/paper/1332176>
- Bornovalova, M. A., & Daughters, S. B. (2007). How does dialectical behavior therapy facilitate treatment retention among individuals with comorbid borderline personality disorder and substance use disorders? *Clinical psychology review*, 27(8), 923-943. <https://www.sciencedirect.com/science/article/pii/S0272735807000347>
- Bottomley, C., & Bourne, T. (2009). Diagnosing miscarriage. *Best practice & research Clinical obstetrics & gynaecology*, 23(4), 463-477. <https://www.sciencedirect.com/science/article/pii/S1521693409000467>
- Cain, A. S. (2009). *Two brief treatments based on dialectical behavior therapy for binge eating across diagnoses and thresholds: Results from a preliminary randomized dismantling study* University of Missouri--Columbia]. <https://mospace.umsystem.edu/xmlui/handle/10355/9871>
- Carter, J., Applegarth, L., Josephs, L., Grill, E., Baser, R. E., & Rosenwaks, Z. (2011). A cross-sectional cohort study of infertile women awaiting oocyte donation: the emotional, sexual, and quality-of-life impact. *Fertility and sterility*, 95(2), 711-716. e711. <https://www.sciencedirect.com/science/article/pii/S0015028210026798>
- Emami Khotbesara, Z., Mahdian, H., & Bakhshpour, A. (2024). Comparing the Effectiveness of Academic Buoyancy and Psychological Capital Training on Academic Procrastination in Female High School Students [Research Article]. *Iranian Journal of Educational Sociology*, 7(3), 149-160. <https://doi.org/10.61838/kman.ijes.7.3.18>
- Eснаашаран, S., Yazdkhasti, F., & Oreyzi, H. (2018). Comparison of the Effectiveness of Psychodrama and Dialectical Behavioral Therapy in Emotion Regulation and Distress Tolerance among the Women under Abstinence. *Research on Addiction*, 12(45), 247-264. <https://www.magiran.com/paper/1857718>
- Fye, M. A., Chasek, C. T., Mims, G. A., Sandman, J., & Hinrichsen, A. (2020). Marital Satisfaction During Retirement. *The Family Journal*, 28(3), 313-318. <https://doi.org/10.1177/1066480720929689>
- Garnefski, N., & Kraaij, V. (2006). Relationships between cognitive emotion regulation strategies and depressive symptoms: A comparative study of five specific samples. *Personality and individual differences*, 40(8), 1659-1669. <https://www.sciencedirect.com/science/article/pii/S0191886906000377>
- Garnefski, N., Kraaij, V., & Spinhoven, P. (2001). Negative life events, cognitive emotion regulation and emotional problems. *Personality and individual differences*, 30(8), 1311-1327. [https://doi.org/10.1016/S0191-8869\(00\)00113-6](https://doi.org/10.1016/S0191-8869(00)00113-6)
- González, L., Jiménez-Martín, S., Nollenberger, N., & Vall-Castello, J. (2018). The effect of abortion legalization on fertility, marriage and long-term outcomes for women. *Working papers* 1035. <https://www.academia.edu/download/77925608/1035.pdf>
- Jamilian, H., Malekirad, A., Farhadi, M., Habibi, M., & Zamani, N. (2014). Effectiveness of group dialectical behavior therapy (based on core distress tolerance and emotion regulation components) on expulsive anger and impulsive behaviors. *Global journal of health science*, 6(7), 116. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4796400/>
- Katz, J. (2019). Supporting Women Coping with Emotional Distress after Abortion. *Professional Counselor*, 9(2), 100-108. <https://eric.ed.gov/?id=EJ1221518>
- Keough, M. E., Riccardi, C. J., Timpano, K. R., Mitchell, M. A., & Schmidt, N. B. (2010). Anxiety symptomatology: The association with distress tolerance and anxiety sensitivity. *Behavior therapy*, 41(4), 567-574. <https://www.sciencedirect.com/science/article/pii/S000578941000078X>
- Khayata, G., Rizk, D., Hasan, M., Ghazal-Aswad, S., & Asaad, M. (2003). Factors influencing the quality of life of infertile women in United Arab Emirates. *International Journal of Gynecology & Obstetrics*, 80(2), 183-188. <https://www.sciencedirect.com/science/article/pii/S0020729202003879>
- MacKillop, J., & De Wit, H. (2013). *The Wiley-Blackwell handbook of addiction psychopharmacology*. John Wiley & Sons. https://books.google.com/books?hl=en&lr=lang_en&id=BCmz19fxKEUC&oi=fnd&pg=PR11&dq=The+Wiley-Blackwell+Handbook+of+Addiction+Psychopharmacology.&ots=QMIW3r12oB&sig=88rMkwmhXwzUyzB56jCyeVWj aRY
- Mohammadi, J., & Azizi, A. (2017). Dialectical Behavior Therapy Group on the Perception of the Disease and Quality of Life of Patients with Irritable Bowel Syndrome. *Ilam University of Medical Science*, 25(2), 18-26. <https://www.magiran.com/paper/1710647>
- Mohebbi, S. F., & Mohammadzadeh, K. A. (2016). Systematic review of the etiology of the infertility on Iranian domestic published articles between 1999 and 2013. *Medical Science Journal of Islamic Azad Univesity Tehran Medical Branch*, 26(1), 1-15. <https://www.magiran.com/paper/1510125>
- Monga, M., Alexandrescu, B., Katz, S. E., Stein, M., & Ganiats, T. (2004). Impact of infertility on quality of life, marital adjustment, and sexual function. *Urology*, 63(1), 126-130. <https://www.sciencedirect.com/science/article/pii/S0090429503009993>
- Pasha, H., Basirat, Z., Esmailzadeh, S., Faramarzi, M., & Adibrad, H. (2017). Marital intimacy and predictive factors among infertile women in northern Iran. *Journal of clinical and diagnostic research: JCDR*, 11(5), QC13. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5483756/>
- Rabiee, N., Nazari, A. M., Keramat, A., Khosravi, A., & Bolbol-Haghighi, N. (2020). Effect of Dialectical Behavioral Therapy on the Postpartum Depression, Perceived Stress and Mental Coping Strategies in Traumatic Childbirth: A Randomized Controlled Trial: test. *International Journal of Health Studies*. <http://ijhs.shmu.ac.ir/index.php/ijhs/article/view/760>
- Rathgeber, M., Bürkner, P.-C., Schiller, E.-M., & Holling, H. (2019). The Efficacy of Emotionally Focused Couples Therapy and Behavioral Couples Therapy: A Meta-Analysis. *Journal of marital and family therapy*, 45(3), 447-463. <https://doi.org/10.1111/jmft.12336>
- Saadati, N., & Parsakia, K. (2023). The Predictive Role of Parents' Marital Relationship Quality on The Adolescents' Psychological Capital. *Journal of Adolescent and Youth*

- Psychological Studies (JAYPS)*, 4(8), 139-146. <https://doi.org/10.61838/kman.jayps.4.8.16>
- Sahranavard, S., & Miri, M. R. (2018). A comparative study of the effectiveness of group-based cognitive behavioral therapy and dialectical behavioral therapy in reducing depressive symptoms in Iranian women substance abusers. *Psicologia: Reflexão e Crítica*, 31, 15. <https://www.scielo.br/j/prc/a/p3DGNVh893sRvLHJWkbq8gS/?format=html&lang=en>
- Schmid, J., Kirchengast, S., Vytiska-Binstorfer, E., & Huber, J. (2004). Infertility caused by PCOS—health-related quality of life among Austrian and Moslem immigrant women in Austria. *Human Reproduction*, 19(10), 2251-2257. <https://academic.oup.com/humrep/article-abstract/19/10/2251/589039>
- Sepehri, S., Ghahari, S., & Zadeh, R. H. (2016). Efficacy of Dialectical Behavior Therapy (DBT) techniques on improving cognitive emotion regulation strategies in women with MS. *The Social Sciences*, 11(14), 3395-3400. https://www.researchgate.net/profile/Shahrbano-Ghahari/publication/309032756_Efficacy_of_Dialectical_Behavior_Therapy_DBT_Techniques_on_Improving_Cognitive_Emotion_Regulation_Strategies_in_Women_with_MS/links/57fe5d3a08ae727564015ff8/Efficacy-of-Dialectical-Behavior-Therapy-DBT-Techniques-on-Improving-Cognitive-Emotion-Regulation-Strategies-in-Women-with-MS.pdf
- Sharifi, S., Aakhte, M., Alipor, A., Fahimi, A., Taghadosi, M., Karimi, R., & Nadjafi, M. (2015). The effectiveness of mindfulness-based cognitive therapy in reducing anxiety and meta-worry in women with recurrent miscarriages. *Feyz*, 19(4), 334-340. <https://www.magiran.com/paper/1453154>
- Sheykhhadi, R., Madani, Y., & Gholamali Lavasani, M. (2017). Effectiveness of Dialectical Behavioral Therapy on Conflict Management Styles of High-Conflicted Couples. *Community Health Journal*, 11(3), 47-55. <https://www.magiran.com/paper/2151894>
- Simons, J. S., & Gaher, R. M. (2005). The Distress Tolerance Scale: Development and validation of a self-report measure. *Motivation and Emotion*, 29(2), 83-102. <https://link.springer.com/article/10.1007/S11031-005-7955-3>
- Speckhard, A., & Rue, V. (1993). Complicated mourning: Dynamics of impacted post abortion grief. *Pre and Perinatal Psychology Journal*, 8, 5-5. https://www.birthpsychology.com/wp-content/uploads/journal/published_paper/volume-8/issue-1/qd0NGy7G.pdf
- Sugiura-Ogasawara, M., Nakano, Y., Ozaki, Y., & Furukawa, T. (2013). Possible improvement of depression after systematic examination and explanation of live birth rates among women with recurrent miscarriage. *Journal of Obstetrics and Gynaecology*, 33(2), 171-174. <https://www.tandfonline.com/doi/abs/10.3109/01443615.2012.745490>
- Swales, M. A., & Heard, H. L. (2016). *Dialectical behaviour therapy: distinctive features*. Routledge. <https://www.taylorfrancis.com/books/mono/10.4324/9781315544540/dialectical-behaviour-therapy-michaela-swales-heidi-heard>
- Taghizadeh, M., Ghorbani, T., & Saffarinia, M. (2015). Effectiveness of Emotion Regulation Techniques of Dialectical Behavior Therapy on Emotion Regulation Strategies in Women with Borderline Personality Disorder and Substance Abuse Disorder: Multiple Baseline Design. *Journal of Research in Psychological Health*, 9(3), 66. <https://www.magiran.com/paper/1549054>
- Teimourpour, N., Besharat, M. A., Rahiminezhad, A., Rashidi, B. H., & Lavasani, M. G. (2015). The mediational role of cognitive emotion regulation strategies in the relationship of ego-strength and adjustment to infertility in women. *Journal of family & reproductive health*, 9(2), 45. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4500814/>
- Van Den Akker, O. B. (2005). Coping, quality of life and psychological symptoms in three groups of sub-fertile women. *Patient Education and Counseling*, 57(2), 183-189. <https://www.sciencedirect.com/science/article/pii/S0738399104001703>
- Van Dijk, S. (2013). *DBT made simple: A step-by-step guide to dialectical behavior therapy*. New Harbinger Publications. https://scholar.google.com/scholar?q=related:EdrVmbPxiQkJ:scholar.google.com/&scioq=DBT+made+simple+:+A+step+_+by+_step+Guide+to+Dialectical+Behavior+Therapy+.&hl=en&as_sdt=0,5
- Volmer, L., Rösner, S., Toth, B., Strowitzki, T., & Wischmann, T. (2017). Infertile Partners' coping strategies are interrelated—implications for targeted psychological counseling. *Geburtshilfe und Frauenheilkunde*, 77(01), 52-58. <https://www.thieme-connect.com/products/ejournals/html/10.1055/s-0042-119200>
- Welch, T. S., Lachmar, E. M., Leija, S. G., Easley, T., Blow, A. J., & Wittenborn, A. K. (2019). Establishing Safety in Emotionally Focused Couple Therapy: A Single-Case Process Study. *Journal of marital and family therapy*, 45(4), 621-634. <https://doi.org/10.1111/jmft.12398>
- Wilks, C. R., Valenstein-Mah, H., Tran, H., King, A. M., Lungu, A., & Linehan, M. M. (2017). Dialectical behavior therapy skills for families of individuals with behavioral disorders: Initial feasibility and outcomes. *Cognitive and Behavioral Practice*, 24(3), 288-295. <https://www.sciencedirect.com/science/article/pii/S1077722916300426>
- Yasfard, G., Abaspour Azar, Z., & Hosseini Almadani, S. A. (2019). Comparing the Effectiveness of group Dialectical Behavior Therapy and Solution-Focused Brief Therapy on Self-Esteem, Cognitive-Emotional Regulation and Non-Suicidal Self-Injury in daughters. *Journal of Health Education and Health Promotion*, 7(4), 343-358. <https://www.magiran.com/paper/2069722>
- Zamani, N., Farhadi, M., Jamilian, H., & Habibi, M. (2015). Effectiveness of group dialectical behavior therapy (based on core distress tolerance and emotion regulation components) on Expulsive Anger and Impulsive Behaviors. *Journal of Arak University of Medical Sciences*, 17(11), 53-61. <https://www.magiran.com/paper/1364649>
- Zamani, N., Ghasemi, M., Jokar, J., & Khazri Moghadam, N. (2013). Comparison of Depression and Life Quality of Fertile and Infertile Women and those with Frequent Abortions. *Journal of Babol University of Medical Sciences*, 15(6), 78-83. <https://www.magiran.com/paper/1185573>
- Zargar, F., Haghshenas, N., Rajabi, F., & Tarrahi, M. J. (2019). Effectiveness of dialectical behavioral therapy on executive function, emotional control and severity of symptoms in patients with bipolar I disorder. *Advanced Biomedical Research*, 8(1), 59. https://journals.lww.com/adbm/_layouts/15/oaks.journals/downloadpdf.aspx?an=01679891-201908000-00059