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Comparing the Effectiveness of Dialectical Behavior Therapy and Acceptance and Commitment Therapy on Psychological Flexibility in Mothers of LD Children

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ABSTRACT

Objective: The present study was carried out with the objective of examining the comparative efficacy of dialectical behavior therapy and acceptance and commitment therapy in enhancing psychological flexibility among mothers of children diagnosed with specific learning disabilities.

Methods: This study utilized a semi-experimental design comprising pre-test, post-test, and a follow-up assessment after three months. The target population consisted of mothers of children with learning disabilities enrolled in the fifth grade of elementary schools in Tehran in 2022. A purposive sample of 60 participants who met the specified criteria was randomly allocated into three groups of 20 individuals each. Data collection involved the utilization of the Dennis and Vanderwal cognitive flexibility questionnaire, while data analysis was conducted using mixed analysis of variance.

Results: The findings indicated a significant improvement in psychological flexibility scores following both dialectical behavior therapy and acceptance and commitment therapy ($P<0.001$). Furthermore, the results demonstrated a superior effectiveness of acceptance and commitment therapy compared to dialectical behavior therapy.

Conclusions: In light of these results, professionals in the fields of psychology and counseling are advised to consider implementing these educational and therapeutic approaches to enhance the psychological flexibility of mothers raising children with specific learning disabilities.

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Introduction

Learning disability represents a disruption in one or more fundamental psychological processes, resulting in challenges with comprehending speech and written language. This condition may manifest as a complete inability to engage in listening, thinking, speaking, writing, spelling, or executing mathematical computations (Mammarella et al., 2021). The complexity of this disorder is evident through variations in educational trends, the strengths and weaknesses in information processing, and the presence of academic difficulties in specific domains such as reading and writing (Louick & Muenks, 2022).

Parents of children with special needs encounter a range of issues that are frequently constraining, harmful, and widespread in nature. The challenges linked to caring for a distressed child can predispose parents, particularly mothers, to the development of mental health concerns (Browne et al., 2022). Mothers of children with specific learning disabilities endure heightened stress and are susceptible to various psychological harms compared to fathers due to their increased involvement in caregiving responsibilities. Through comparing their child to typically developing peers and witnessing their struggles to keep up, these mothers undergo a plethora of psychological responses like denial, anger, guilt, and anxiety, which impact the dynamics of their parent-child relationship. The significance of supportive parenting styles, fostering genuine connections, and their role in facilitating the successful integration of these children with their peers is highlighted (Al-Yagon, 2015).

One of the challenges encountered by these mothers pertains to cognitive flexibility, encompassing a broad spectrum of human cognitive capacities, such as the ability to discern and adjust to environmental requirements and modify behavioral tactics. When these tactics jeopardize an individual's personal and social functionality, cognitive flexibility aids in preserving equilibrium across various life domains, fostering environmental awareness and promoting behaviors congruent with personal principles. This alignment is crucial (Raeisi Nasehi et al., 2020). Individuals with heightened cognitive flexibility demonstrate greater accountability in personal and familial engagements compared to those with limited cognitive adaptability. Consequently, mothers exhibiting cognitive flexibility are anticipated to possess a greater inclination and capability to embrace their child's setbacks, individual distinctions, and confront challenging life

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circumstances suitably (Nikkhoo & Hosseini Ghomi, 2021). Recent endeavors have been made to ameliorate the emotional, behavioral, and psychological challenges faced by mothers of children with special needs through diverse intervention and educational schemes. These include assessing the efficacy of parental management programs and self-compassion in mitigating self-criticism levels among mothers of children with specific learning disorders, evaluating the impact of parent-child interaction therapy on the parenting stress and self-efficacy of these mothers (Hashemi & Eyni, 2021), scrutinizing the effectiveness of conscious parenting training utilizing the imago therapy approach on mother-child interactions (Matin et al., 2021), as well as investigating the efficacy of time perspective therapy on the psychological coherence and perceived stress experienced by these mothers (Jenaabadi & Jafarpour, 2019). Conversely, research lacunae are apparent concerning the influence of dialectical behavior therapy training and treatment grounded in acceptance and commitment on the psychological well-being of mothers of children with specific learning disabilities. Notwithstanding, a review of extant research indicates a burgeoning body of scientific evidence substantiating the efficacy of dialectical behavior therapy training on numerous psychological and emotional parameters in recent years (Harned et al., 2022; Hughes et al., 2022). Although the volume of studies specifically exploring the impact of dialectical behavior therapy training on the mental and behavioral status of mothers of children with specific learning disabilities is limited, investigations into the efficacy of this therapeutic modality in clinical and non-clinical cohorts have furnished requisite empirical validation for its therapeutic and educational utility (Williams & Kumar, 2023).

Dialectical behavior therapy serves as a non-pharmacological approach and a collection of strategies aimed at modifying cognition, behavior, and lifestyle (Poon et al., 2022). Grounded on enhancing the client's competencies through the acquisition of underutilized skills, elevating motivation by mitigating hindering factors like emotions, cognition, overt behavior, and environmental elements, this therapy ensures the integration of treatment into the surroundings through the establishment of supportive professional and social networks that validate and bolster the application of novel skills, concentration, and growth (Sheikhsajadieh & Atashpour, 2017). Conversely, recent studies indicate substantial scientific and empirical backing for acceptance and commitment therapy, showcasing its efficacy in ameliorating individuals' emotional and behavioral well-being (Reyes, 2022; Witlox et al., 2022). Comprising six core processes such as

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acceptance, diffusion, self as context, present moment awareness, values, and committed action, this therapy, a contextual intervention, urges clients to embrace their thoughts and emotions while staying dedicated to essential changes (Thompson et al., 2021). Notably, a key advantage of this approach over other psychotherapies lies in its incorporation of motivational elements alongside cognitive aspects to enhance treatment effectiveness and durability. The primary aim of acceptance and commitment therapy is not merely to induce indirect alterations in clients but to facilitate diverse ways of engaging with their experiences and pursuing a purposeful, value-driven life (Hayes et al., 2006).

Limited studies exist that compare the efficacy of these two interventions in improving psychological traits and alleviating pain symptoms among mothers of children with specific learning disorders, underscoring the urgency for further investigation in this domain. Validation of the efficacy of the aforementioned therapeutic modalities in the current research could broaden therapists' options to enhance the mental well-being of this demographic. Understanding the psychological and behavioral ramifications of this cohort of mothers stands out as a crucial research priority in society. Hence, the central inquiry of this study pertains to delineating potential disparities in the impact of dialectical behavior therapy-based training versus acceptance and commitment therapy on psychological adaptability in mothers of children with specific learning disabilities.

Materials and Methods

The current study utilized a semi-experimental approach, employing a pre-test-post-test design with a control group and a three-month follow-up period. The research focused on mothers of children with special learning disorders enrolled in fifth grade within primary schools in the 17th district of Tehran during the academic year 2022, comprising the statistical population. A sample of 40 individuals meeting the study criteria was purposefully selected and randomly allocated into two equal groups: an intervention group and a control group, each consisting of 20 participants. Inclusion criteria involved having a child with specific learning disorder in fifth grade, possessing minimum literacy levels for tool response, ability to engage in treatment sessions, and complete tool-related inquiries. Exclusion criteria encompassed concurrent or recent participation in

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psychotherapy programs, acute psychiatric disorders, narcotic use, chronic or incurable illnesses (e.g., cancer, diabetes, cardiovascular issues), and missing more than two treatment sessions. Data collection was facilitated through coordination with school authorities in the 17th district of Tehran, specifically those catering to children with special learning disorders in fifth grade. Invitations to participate were extended to mothers via telephone calls, providing assurances regarding study objectives, procedures, and confidentiality. Subsequently, a subset of 96 mothers from the schools completed self-report tools, leading to the selection of 40 participants based on tool scores and research criteria for randomization into intervention and control groups.

The participants were then instructed to attend one of the psychological service centers (Aftab Psychological Service Center) in the city, with expenses covered by the researcher, where the intervention program was administered to the experimental group on various days. Subsequent to the therapy sessions, a post-test was conducted using the same self-report measures for both groups. It is important to highlight that the individuals in the control group did not undergo any interventions and were instead put on a waiting list for treatment. Following this, a follow-up period was initiated three months later by dispatching research tools to the mothers' addresses and collecting responses from each group. To uphold the ethical standards of the study and safeguard the participants' rights, all subjects were provided with detailed explanations concerning the research objectives and procedures. The participants were explicitly informed about their voluntary involvement in the study, with the assurance of confidentiality for their personal information and the publication of de-identified data analyzed collectively while safeguarding individual identities. Subsequent to securing verbal and written consent, self-report questionnaires were disseminated among the participants and retrieved upon completion. Additionally, the control group members received intensive sessions post-intervention. Data collection involved the utilization of the following self-report instruments.

The Cognitive Flexibility Questionnaire: The Cognitive Flexibility Questionnaire (Dennis & Vander Wal, 2010) comprises 20 items categorized into three subscales: perception of controllability, perception of the justification of behavior, and perception of different options. Respondents rate each item on a 7-point Likert scale ranging from 1 (totally disagree) to 7 (totally agree). Scores on the cognitive flexibility scale range from 20 to 140, with higher scores indicating greater cognitive flexibility and lower scores indicating lesser cognitive flexibility. The developers

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have reported Cronbach's alpha coefficients for the entire instrument and its subscales in the range of 0.84 to 0.91. In Iran, the psychometric properties of this scale have been validated in multiple studies (Jaafari, 2019). Ahmadi and Ghorbani (2019) documented Cronbach's alpha coefficients for the instrument and its subscales ranging from 0.64 to 0.93, while Jafari (2019) reported a Cronbach's alpha coefficient of 0.88 for the entire instrument. The current investigation computed Cronbach's alpha coefficient for the entire instrument as 0.83. Moreover, the subscales yielded values of 0.71 for the perception of controllability, 0.68 for the perception of justification of behavior, and 0.72 for the perception of various options.

Table 1. Content of dialectic behavior therapy sessions

Session	Content
First session	Getting to know the people in the group, presenting positive sentences, presenting content with the theme of why we should learn this skill, recognizing emotions and accepting and controlling them, what are the correct views about emotions? An overview of primary emotions and naming them and presenting the assignment.
Second session	Reviewing the assignment of the previous session, presenting positive sentences, methods of describing feelings and emotions, interpretations that evoke emotions, describing and expressing emotions, examining the consequences of emotions and presenting the assignment.
Third session	Reviewing the assignment of the previous session, continuing to present positive sentences and methods of describing feelings, continuing the methods of interpreting feelings, experiencing sadness, describing and expressing it, examining its consequences, practicing the worksheet of internal persistence, the method of observing breathing for relaxation, prayer and prayer and presentation of homework.
Fourth session	Reviewing the assignment of the previous session, presenting positive sentences, methods of describing the feeling of fear, the cause of this feeling, interpretations that provoke the feeling of fear and anger, experiencing these feelings and expressing and applying them, the consequences of these feelings, practicing optimizing the present tense and imagining, presenting homework.
Fifth session	Reviewing the assignment of the previous session, presenting positive sentences, teaching distress tolerance, describing positive emotions such as happiness, identifying these emotions, expressing them and identifying and discussing their triggers, practicing destroying troublesome bridges, practicing observing breathing with mental imagery, Presentation of homework.
Sixth session	Review of the assignment of the previous session, discussion of self-regulation and its types, discussion of emotional self-regulation and types of positive and negative emotions, discussion of guilt and shame, recognition and description and expression of them, practice of thinking about the opposite and agree, presentation of the assignment.
The seventh session	Reviewing the assignment of the previous session, teaching how to manage negative emotions, identifying and expressing other positive emotions, practicing soothing and calming the five senses, practicing positive self-talk, presenting the assignment.
Eighth session	Review of past assignments, discussion of myths we live with (interpretations of events), the power of internal sentence construction and review of observation and description of feelings, instructions for accepting reality and breathing exercises, debriefing, completion of post-test.

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Table 2. Content of acceptance and commitment therapy sessions

Session	Content
First session	Providing opportunities for clients to introduce and get to know each other, stating the main rules of treatment including performing exercises on time, overview of treatment and goals of the treatment plan, expressing potential values and selecting and reviewing past treatments used.
Second session	Changing behavior and mindfulness with the priority of task review, practicing mindfulness of body scanning and paying attention to breathing and body parts, the relationship between pain, mood and performance and presenting the task
Third session	Examining the task, clarifying the values, allegory of the burial ceremony and the allegory of the long journey, discovering the life values of the participants, presenting the assignment
Fourth session	Reviewing the task, practicing mindfulness (floating leaves on the water), examining ranked values and obstacles to achieving them, examining goals to achieve values (values are like signs that bring us closer to values).
Fifth session	Task review, progress report: checking, planning and taking necessary action to achieve values (review client actions), mindfulness practice (assume your thoughts come and go like content on a screen), committed action to achieve Values, presentation of homework.
Sixth session	Reviewing the task, smoothing the movement, breaking away from language threats, practicing what are the numbers and the mental polarity of practicing the bus full of passengers, general mindfulness, the task of starting work related to committed action and allowing obstacles to arise and identifying them, as well as guiding the mind To be aware of its actions and consequences
The seventh session	Examining the task, examining the willingness of the participants to move along the path of values (metaphors), examining the obstacles and actions that each participant has to overcome, jumping practice, mindfulness and self-observation practice.
Eighth session	Commitment, farewell, negative consequences and prevention of non-commitment and treatment follow-up, identification of progress and movement towards values, identification of dangerous life situation

Results

The results of Table 3 show that the average score of psychological flexibility in the experimental groups (therapy based on acceptance and commitment and dialectical behavior therapy) increased from pre-test to post-test and follow-up, but the average score of this variable in the control group does not show a noticeable change from the pre-test stage to the post-test and follow-up stages.

Table 3. The mean and standard deviation of psychological flexibility in three groups by measurement stages

Variable	Group	N	Pretest	Posttest	Follow up
			Mean (SD)	Mean (SD)	Mean (SD)
Perception of controllability	ACT	20	16.35 (3.84)	19.10 (3.33)	19.35 (3.21)
	DBT	20	17.10 (2.19)	19.70 (2.63)	19.85 (2.51)
	Control	20	16.70 (3.24)	16.45 (3.11)	16.35 (2.81)
Understanding the justification of behavior	ACT	20	5.35 (2.36)	8.20 (2.66)	8.75 (2.35)
	DBT	20	6.30 (1.49)	7.25 (1.37)	7.10 (1.25)
	Control	20	7.05 (2.28)	6.65 (2.23)	6.55 (2.21)
Perception of different options	ACT	20	23.90 (5.92)	26.10 (4.50)	27.25 (3.69)
	DBT	20	21.05 (4.35)	23.85 (4.27)	23.95 (4.01)
	Control	20	19.90 (5.02)	19.35 (4.61)	19.20 (4.62)
Psychological flexibility	ACT	20	45.60 (12.12)	53.40 (10.49)	55.35 (9.25)
	DBT	20	44.45 (8.03)	50.80 (8.27)	50.90 (7.77)
	Control	20	43.65 (10.54)	42.45 (9.95)	42.10 (9.64)

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In this research, before performing the analysis of variance, in order to check the normality of the distribution of scores in the society, because the number of people in each group was less than 50 people, the Shapiro-Wilks test was used to check the normality of the distribution of scores. Since the significance level of the obtained values is greater than 0.5, the distribution of scores is normal. Also, M-box test was used to check the homogeneity of the variance-covariance matrix. Based on the data, the results of this test show that because the significance level obtained is greater than 0.05, therefore, the research data did not question the assumption of equality of variance-covariance matrices. Since the variance-covariance matrices have homogeneity, analysis of variance can be used in this research.

Table 4. The result of Mauchly's sphericity test of the dependent variable

Variable	Mauchly's sphericity	X^2	DF	P
Psychological flexibility	0.61	27.95	2	0.001

According to Table 4 of Mauchly's sphericity test, the significance level value for each of the variables of psychological flexibility is equal to 0.001; Therefore, the assumption of sphericity is rejected. As a result, the assumption of the homogeneity of the variances and, more precisely, the homogeneity condition of the covariance matrix was not ensured, and a violation of the F statistical model was made. As a result, alternative tests, i.e. Greenhouse-Geisser Correction, were used to investigate the effects of the treatment within the subject, the results of which are shown in Table 5.

Table 5. Within-subject and Between-subject results of mixed analysis of variance in dependent variable

Variable	Source	F	P	Effect size	Power
Psychological flexibility	Group	13.045	0.001	0.314	0.996
	Time	68.278	0.001	0.545	1
	Group * Time	31.160	0.001	0.522	1

The results of Table 5 show that the treatment based on acceptance and commitment and dialectical behavior therapy training have a significant effect on increasing psychological flexibility.

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Table 6. Post-hoc analysis of the dependent variables to check the validity of the results

Variable	Adjusted means		Test	Mean difference	P
Psychological flexibility	Pretest	44.56	Posttest – Pretest	-4.31*	0.001
	Posttest	48.88	Follow up – Pretest	-4.88*	0.001
	Follow up	49.45	Follow up – Posttest	-0.56	0.14

As Table 6 shows, the average difference between pre-test and post-test (intervention effect) and the average difference between pre-test and follow-up (time effect) is greater and more significant than the average difference between post-test and follow-up (intervention stability effect). This shows that the treatment based on acceptance and commitment and dialectical behavior therapy training have an effect on increasing psychological flexibility in the post-test phase and the continuation of this effect in the follow-up phase. Therefore, in order to investigate the difference between treatment based on acceptance and commitment and dialectical behavior therapy training on increasing psychological flexibility, Bonferroni's post hoc test has been used to compare the effectiveness of intervention groups.

Table 7. Pairwise comparison with Bonferroni's test in order to determine the effect of the more effective method

Variable	Base group and comparison group	Mean difference	P
Psychological flexibility	ACT -DBT	-2.73*	0.009
	ACT- Control	-8.71*	0.001
	DBT- Control	-5.93*	0.003

According to table 7, the results showed that the average difference between the treatment group based on acceptance and commitment and the control group is greater than the average difference between the dialectic behavior therapy training group and the control group, which indicates that the treatment group based on acceptance and commitment is more effective compared to the dialectical behavior therapy training group, it increases psychological flexibility. Therefore, the third hypothesis of the research was confirmed that the effectiveness of treatment based on acceptance and commitment and dialectical behavior therapy training on psychological flexibility in mothers with children with specific learning disorders is different.

Discussion

According to the disparity in mean scores between groups in the post-test and follow-up assessments, it is deduced that the impact of treatment rooted in acceptance and commitment on psychological adaptability was more pronounced. Given the lack of prior comparisons between

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these two interventions in studies on psychological flexibility, it is premature to draw parallels or distinctions with previous findings regarding the superior efficacy of acceptance and commitment therapy. It appears that this treatment modality facilitates clients in aligning their actions with human values through enhanced cognitive flexibility and consideration of their quality of life. The primary objective is to cultivate psychological flexibility, enabling individuals to select the most suitable course of action from various options, rather than acting to evade distressing thoughts, emotions, memories, or urges, ultimately enhancing well-being and psychological flexibility (Anuar et al., 2021).

Moreover, acceptance and commitment therapy aids individuals in recognizing life stressors, thereby diminishing mental and emotional disturbances, adjusting coping strategies for stressors, and fostering social support seeking and skill enhancement. Initially, efforts are made to enhance an individual's psychological receptiveness to mental phenomena, consequently reducing ineffective control attempts and elevating cognitive flexibility (Aro et al., 2022).

In essence, a comparative analysis of these therapeutic approaches indicates that acceptance and commitment therapy exhibit greater efficacy in enhancing psychological flexibility compared to dialectical behavior therapy. Both acceptance and commitment therapy and dialectical behavior therapy encompass potent therapeutic elements and strategies that address crucial issues for patients and clients, mitigating psychological distress while bolstering psychological flexibility and its constituents. The rationale behind the superiority of acceptance and commitment therapy over dialectical behavior therapy lies in its focus on functional processes underlying various maladaptive behavioral manifestations, as opposed to concentrating on the form or frequency of symptoms associated with a particular disorder or injury. The target of acceptance and commitment therapy is not a specific diagnostic category but rather behavioral patterns impeding a psychologically healthy life, which may account for its heightened impact on augmenting mental flexibility.

The findings of post hoc test indicated that, despite the efficacy of both intervention approaches on emotional self-regulation, there was no significant distinction between the two methods concerning the level of impact. Acceptance and commitment therapy aims to foster psychological flexibility through processes such as acceptance, self as context, articulation of values, and

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engagement in valued activities. Individuals experiencing psychological inflexibility due to entrenched patterns of experiential avoidance and cognitive fusion can benefit from strategies like mindfulness, enabling them to confront negative emotions more effectively amidst daily stressors. Within acceptance and commitment therapy, the concept of cognitive fusion is central in assessing the influence of thoughts on behavior, with individuals often struggling to differentiate between thoughts and reality. Scholars in the acceptance and commitment field suggest that the therapy fosters emotional well-being by assisting individuals in acknowledging and managing their emotions rather than eliminating traumatic triggers.

Dialectical behavior therapy, derived from cognitive behavior therapy, is utilized for individuals grappling with intense emotions and mood disturbances, requiring clinical expertise to address maladaptive behaviors effectively. By viewing disruptive behaviors as learned responses, therapists can equip themselves with innovative techniques to navigate challenging situations. This therapeutic approach has proven effective in regulating emotions and curtailing maladaptive strategies. Parents of children with learning disabilities may experience heightened feelings of hopelessness and self-blame due to struggles with emotional regulation and cognitive dissonance. Their difficulties extend to managing positive emotions, leading to impulsive and irrational behaviors. This cognitive distortion impedes their ability to engage in organized behavior and rational decision-making processes, contributing to their emotional distress.

Hence, it can be inferred that dialectical behavior therapy plays a moderating role in the challenges related to emotion regulation. Generally speaking, the findings of this study suggest that both acceptance and commitment therapy and dialectical behavior therapy share fundamental concepts, terminologies, and objectives. Both therapeutic approaches exhibited a noteworthy and positive impact on addressing issues related to emotional regulation. Essentially, they had a comparable influence on enhancing emotional regulation. Within these two therapeutic frameworks, the concept of acceptance is deemed a pivotal treatment goal, encompassing the active embrace and acknowledgment of emotional distress and discomfort rather than evading it, thereby hindering the transformation of distress into emotional suffering among individuals.

Moreover, the study indicated that both dialectical behavior therapy training and acceptance and commitment therapy interventions effectively enhanced coping strategies for stress; nonetheless, the latter demonstrated greater efficacy. Elaborating on the impact of acceptance and commitment

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therapy on stress management among the participants, it can be suggested that as levels of acceptance rise prior to a significant decrease in symptoms of mental and emotional disorders, the factor of acceptance, along with increased adherence to values and mindfulness in stress management, acts as a catalyst for change within the therapeutic approach of acceptance and commitment. Consequently, it is evident that the acceptance and commitment therapy leads to positive transformations in individuals, particularly by bolstering effective and proactive stress coping abilities through fostering acceptance, values clarification, and practice. Group therapy centered on acceptance and commitment principles has facilitated increased acceptance of stress and uncertainty among mothers of children with learning disabilities, aligning with Hayes' assertions regarding acceptance's pivotal role in psychological well-being. This outcome resonates with prior studies indicating that enhanced acceptance correlates with improved coping skills. To elucidate the effectiveness of acceptance and commitment therapy, it is essential to underscore the six therapeutic processes underpinning this model, namely acceptance, self as context, cognitive diffusion, present moment awareness, values, and committed action.

Therefore, within this intervention, behavioral engagement activities are integrated with strategies regarding setbacks and approval, in addition to more elaborate dialogues concerning values, personal objectives, and the necessity of delineating these values, resulting in enhanced utilization of problem-solving and strategizing to address stress. This stress is induced by parenthood and the regulation and mitigation of stress. Within the framework of acceptance and commitment therapy, the objective of underscoring individuals' inclination towards intrinsic pursuits is to aid individuals grappling with psychological and emotional turmoil to view intrusive thoughts and emotions simply as mental phenomena, and to engage in meaningful endeavors aligned with their principles. This process is succeeded by proactive and efficient coping mechanisms.

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Data availability statement

The original contributions presented in the study are included in the article/supplementary material, further inquiries can be directed to the corresponding author.

Ethics statement

The studies involving human participants were reviewed and approved by ethics committee of Islamic Azad University.

Author contributions

All authors contributed to the study conception and design, material preparation, data collection and analysis. The author contributed to the article and approved the submitted version.

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Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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