# Research Paper: A Comparison between the Efficacy of Dialectical Behavior Therapy and Cognitive Behavioral Therapy on the Mental Health of Mothers of Children with Special Needs

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## ABSTRACT

**Background:** This research aimed to compare the effectiveness of dialectical behavior therapy and cognitive-behavioral therapy on the mental health of mothers of children with special needs (i.e. cerebral palsy, intellectual disability, and autism).

**Methods:** This quasi-experimental study was a pre-test, post-test design with a control group. Study populations were the mothers of children admitted to the rehabilitation center of persons with physical and mental disabilities in Hamedan city who were diagnosed with depression, anxiety, and stress. A sample of 24 patients was selected randomly by acquiring one standard deviation above the mean in Lovibond and Lovibond's (1995) Depression Anxiety Stress Scale. Then, the participants were assigned into three groups; the dialectical therapy group, the cognitive behavioral therapy group, and the control group. Intervention groups were trained in eight 90 minutes' sessions, while the control group received no training. The participants of intervention groups were assessed by Depression Anxiety Stress Scale (1988) in pre-test and post-test. The data were analyzed with one-way ANOVA.

**Results:** Findings revealed that dialectical therapy was more effective in decreasing emotional disorders of mothers compared to cognitive behavior therapy. As well, both intervention groups were significantly more successful in decreasing emotional disorders than the control group.

**Conclusion:** It could be concluded that both interventions (dialectical and cognitive-behavioral therapies) are beneficial for mothers whose children's disabilities, special needs, or disorders affect their mental health. Thus, the mentioned therapies are recommended for these mothers.

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## Introduction

People, in general, have different stress tolerance thresholds. When the tension is more than the tolerance level, mental and emotional disorders will be inevitable [1]. One of the significant stressors is having children with disabilities. This may have long-tern effects on the family and can endanger the bases of the family [2].

When a child is added to the family, drastic changes happen in the couple's life that can affect their mental health. In the process of compatibility with changes, parents face with high levels of stress. Sometimes couples experience heightened stress, negative changes in self-esteem and communication, and more conflicts. But, the addition of a child does not necessarily damage the family [3]. Although having children brings the feelings of joy, pride, and personal growth to the mother, it is accompanied by certain challenges and therefore it can be considered as a stressor [3]. Such challenges can lead to negative consequences, as unadjusted parents experience higher levels of anxiety and depression, compared to childless couples [4]. The mothers of children with physical and mental disabilities also suffer from greater stress and anxiety. Some studies have found a positive relationship between the level of parenting stress and the intensity of the disability, as well as the type of the problem [5]. In our society, mothers are more involved in their children's affair than fathers; so they communicate more with their children. Moreover, stressful mothers, compared to low-stress mothers, encourage less social skills in their children regarding their interactions with their peers [6]. Stress also makes parents more critical, more reproaching, and more irritable. This in turn increases the symptoms of conduct disorders [7], oppositional defiant disorder, antisocial behavior, and attention deficit hyperactivity disorder [8] among children. Women are exposed to two categories of considerable stressors; the biological identity related stress and the professional responsibility related stress. Reproduction itself is a trigger for stress symptoms [9], while occupational and housework responsibilities including taking care of the elderly, children, and children with special needs, are the other sources of stress in women [10]. Therefore, the mothers of disabled children face with higher levels of stress than mothers with healthy children and their stress affects their parenting abilities which may have negative consequences for the children [11].

A main question is whether mothers' mental health and existence of issues such as depression, anxiety, and stress is related to the intensity of the problems in the children. Considering that some disabilities are more intense than others, some researches take measures in accordance with the development level [12] or the frequency of the disorders and behavioral problems [13] among children. Other researches were focused on the parents' understanding of their child's circumstances, regardless of the parenting stress that is involved to show that the level of parenting stress has a significant relationship with the intensity of the child's disability [14]. Some researches focused on behavior disorders, developmental disorders, and particular disorders such as the fragile X syndrome. By comparing the level of stress in parents of children with attention deficiency hyperactivity disorder, cerebral palsy, developmental disabilities, HIV, and asthma, Gupta [15] we can conclude that parents with children whose disability is accompanied by more behavioral symptoms, experience higher levels of stress. As a result, one can infer that by studying and comparing the stress level in parents of children with special needs, the priorities of the interventions will be determined. Besides, by carrying out stress-management interventions, numerous parenting issues can be prevented.

Anxiety is another factor that emerges as a result of high levels of stress [16]. The presence of a child with special needs causes physical and mental tension and stress for the family, especially for the mother. Parents who have children with developmental disabilities suffer from high level of stress [17] and experience mental disorders, low levels of self-esteem, feeling of guilt, physical dysfunction, and exhaustion [18]. The mothers of children with disabilities report higher levels of anxiety and stress compared to fathers of such children that's since mothers are more involved with their children's issues and undergo more pressure [19]. Mothers, who have children with intense physical disabilities, also reported physical problems [16].

Moreover, depression is one of the most common mental disorders and its prevalence among women has been estimated between 7-21% [20]. Researches have shown a positive relationship between negative stress and the emergence of the depression. Between 20-50% of people who experience high levels of stress eventually develop depression as well [21]. The prevalence of depression in mothers who have children with developmental disorders is higher than that among mothers with non-disabled children [22]. Behavior disorders in children are a greater source of stress for mothers compared with the child's disability [23]. Depression usually begins when drastic changes occur in people life and obliges them to leave behind important people or matters in life, such as working or living place [24].

About 15% of people suffering from major depression commit suicide [25]. The long-term effects of children's disabilities on the family life, increases the probability of suicidal thoughts and actions. To our knowledge previously no study was carried out on the life quality of these mothers in Iran. Therefore, this research seems necessary to determine the damage and probable damaged areas for taking appropriate measures for this group of people. Therefore, this study was carried out to compare the effectiveness of dialectical behavior therapy and cognitive behavioral therapy on the mental health, i.e. subscales of depression, anxiety, and stress, in mothers of children with disabilities such as cerebral palsy, autism, and intellectual disability.

## Methods

This semi-experimental study was a pre-test post-test design with a control group. The study population was consisted of mothers of children with cerebral palsy, autism, and intellectual disability admitted to the Rehabilitation Center for Persons with Physical and Mental Disabilities in Hamedan. Children were between 4-9 years old and were categorized in three groups based on a physician's diagnosis. They received occupational therapy, physiotherapy, and speech-therapy according to their needs. A group meeting was held with the mothers to evaluate the objectives, and a test was given to the mothers who were willing to participate in the current research. Qualified mothers (those acquiring 1 standard deviation above the mean score), were chosen as the sample of the study.

A sample of 24 mothers whom children were suffering from cerebral palsy, autism, and intellectual disability was selected. Seven mothers of children with cerebral palsy, six mothers of children with autism, and 6 mothers of children with intellectual disability left the study. 19 mothers were assigned to three groups of dialectical behavior therapy (consisting of 7 members: 3 mothers of children with cerebral palsy, 2 mothers of children with autism and 2 mothers of children with intellectual disability), cognitive behavioral therapy (consisting of 6 members: 2 mothers of children with cerebral palsy, 2 mothers of children with autism, and 2 mothers of children with intellectual disability), and the control group (consisting of 6 members: 2 mothers of children with cerebral palsy, 2 mothers of children with autism, and 2 mothers of children with intellectual disability).

Inclusion criteria were: 1) Diagnosis of cerebral palsy, autism, and intellectual disability in the children; 2) Education level of at least primary school; 3) age range of 17-38; 4) Not receiving any simultaneous cognitive therapy aimed at depression, anxiety, and stress disorders; 5) Mothers having (other) healthy children; 6) Families being under protection of State Welfare Organization of Iran; 7) Having children between 4-9 years diagnosed with cerebral palsy, autism, and intellectual disability by a physician.

By the participants' consent, mothers with the above mentioned conditions were evaluated by the Depression Anxiety Stress Scales (DASS).

Exclusion criteria were: 1) Mothers having more than one child with special needs; 2) widowed or divorced mothers; 3) Out-of-home working mothers; 4) Mothers receiving therapy; 5) Mothers as the head of households; 6) Mothers with no other children.

Procedure include the pre-test scores were collected two weeks after the New Year holidays and the intervention included8 sessions (during two months) for therapy groups as dialectical behavior therapy or cognitive behavioral therapy groups. Sessions were held once a week, each lasting from 2 to 2.30 hours. In the case of absence, participants were trained in private. The post-test results were collected after finishing the intervention sessions.

The dialectical behavior therapy design was based on McKay, Wood, and Brantley's work that is scheduled according to Linehan's skill-training book [26]. For each skill, two group sessions were held by a trained psychologist.

Dialectical behavior therapy was invented based on a humanistic and sympathetic attitude, by Marsha Linehan. Linehan's compassionate and "motherly" position in dialectical behavior therapy is too similar to Jeffrey Young's person centered and humanistic approach in schema therapy. As a matter of fact, dialectical behavior therapy is a modification of cognitive behavioral therapy. One of the main conveying messages the dialectical behavior therapy to the clients is the stressful life events which is the source of their suffering, not the distortion of the usual stressful events [27]. The participants in dialectical group therapy were allowed to make telephone contacts with the therapist until the end of the sessions in the case of crisis and the therapist would help them use the learned skills in a limited time (between 1 to 10 minutes).

Since this therapeutic method was used for mothers with mood disorders and emotional pain who facing with difficult and bothersome emotions as the negative result of children damages and neglect, the therapy be-

gan by training acceptance strategies, i.e. distress tolerance and core mindfulness skills, which are the heart of dialectical behavior therapy [28]. The participants also were taught change strategies i.e. emotion regulation and interpersonal effectiveness skills.

The cognitive behavioral therapy was based on Greenberger and Padesky's work [29] which has always proved to be effective in treating depression, stress, phobias, anxiety, anger, and interpersonal issues.

Each session consisted of two parts: Skill training and homework. The contents of each session are displayed in Table 1.

**Table 1** Therapeutic efforts during the Sessions

| Sessions Timing | Dialectical behavior Therapy | Cognitive Behavioral Therapy | Control Group |
|---|---|---|---|
| Week One and Two (Sessions 1 and 2) | Basic Distress Tolerance Skills (Distraction Strategies) Advanced Distress Tolerance Skills (Use of the Present Time, Self-Verbalization, Development of New Coping Strategies) | Identification of the Cognitive Behavioral Chain | Group Meeting |
| Week Three and Four (Sessions 3 and 4) | Basic Core Mindfulness Skills ( Nonjudgmentally) Advanced Core Mindfulness Skills (Logical Mind and Intuition) Development of Core Mindfulness Skills | Resisting Stress and Negative Thoughts | Group Meeting |
| Week Five and Six (Sessions 5 and 6) | Basic Emotion Regulation Skills (Identification of the distressing emotions) Advanced Emotion Regulation skills (Problem-Solving ) | Resisting Anxiety and Depression | Group Meeting |
| Week Seven and Eight (Sessions 7 and 8) | Basic Interpersonal Effectiveness Skills (Balancing Wants and "Must's) Advanced Interpersonal Effectiveness Skills (Negotiation Skills and Interpersonal Problem Analysis) | Anger Management and Negative Mood Regulation | Group Meeting |

### Measures

The Depression Anxiety Stress Scales (DASS, Lovibon & Lovibond) is made up of 3 self-report scales for measuring negative emotional symptoms in depression, anxiety, and stress [30]. Antony et al [31] performed a factor analysis on the abovementioned scale and their results showed that the alpha coefficient for depression, anxiety, and stress were relatively 92.97, 0.0, and 0.95. Correlation calculations in Antony et al study [31] revealed that the correlation coefficient of 0.48 between depression and stress, 0.53 between anxiety and stress, and 0.28 between anxiety and depression exists. The questionnaire's validity and reliability were examined by Samani and Jokar [32] in Iran, and the test-retest reliability for measures of depression, anxiety, and stress were respectively 0.80, 0.76, and 0.77. Besides, the Cronbach's alpha for the measures of depression, anxiety, and stress was reported 74.81, 0.0, and 0.78 respectively. Each subscale of the test consisted of 7 items, the final score of which was calculated from the sum of the relevant items.

As each participant had one pre-test and one post-test score, data was analyzed by using the multivariate analysis of covariance (MANCOVA) with one independent variable (for experimental and control groups), the auxiliary variable of the pre-test, and the dependent variable of the post-test in subscales of depression, anxiety, and stress.

## Results

Descriptive statistics methods such as the chi-squared test and one-way ANOVA were used to compare the demographic data of the groups which are presented in Tables 2 and 3.

Table 2 reveals that the highest frequency in education level, i.e. 26.31, belonged to primary school education which is higher for dialectical behavior therapy group. The lowest frequency also belongs to above-diploma groups as the same as the dialectical behavior therapy and control groups. In the case of occupation, housewife mothers had the highest frequency (52.63) and were more in number for the cognitive behavioral therapy group and in regards to fathers' occupation, the highest frequency, which was 52.63, belonged to self-employed fathers.

According to this Table, one can infer that there were no significant differences between experimental groups, concerning education level and parents' occupation and therefore, the groups were matched.

**Table 2.** The frequency comparison of the three groups, divided by experimental group, education level, and occupation

| Experimental Group Variable | | Dialectical Behavior Therapy | | Cognitive Behavioral Therapy | | Control | | Chi-Squared Comparison | |
|---|---|---|---|---|---|---|---|---|---|
| | | Frequency | Percentage | Frequency | Percentage | Frequency | Percentage | $X^2$ | P |
| Experimental Group | Cerebral Palsy | 3 | 42.85 | 2 | 28.57 | 2 | 28.57 | 1.02 | 0.44 |
| | Autism | 2 | 28.57 | 2 | 28.57 | 2 | 28.57 | | |
| | Intellectual Disability | 2 | 28.57 | 2 | 28.57 | 2 | 28.57 | | |
| Education Level | Primary School | 3 | 42.85 | 1 | 16.66 | 2 | 33.34 | 4.57 | 0.60 |
| | Junior High School | 2 | 28.57 | 0 | 0 | 2 | 33.34 | | |
| | High School Diploma | 1 | 14.24 | 2 | 33.34 | 1 | 16.66 | | |
| | Associated Degree | 1 | 14.24 | 1 | 16.66 | 1 | 16.66 | | |
| | Bachelor's Degree | 0 | 0 | 2 | 33.34 | 0 | 0 | | |
| Mother's Occupation | Carpet-Weaver | 4 | 57.15 | 2 | 33.33 | 3 | 50 | 3.76 | 0.26 |
| | Housewife | 3 | 42.85 | 4 | 66.67 | 3 | 50 | | |
| Father's Occupation | Government Employee | 1 | 14.24 | 2 | 33.34 | 1 | 16.66 | 3.17 | 0.76 |
| | Self-Employed | 4 | 57.15 | 3 | 50 | 3 | 50 | | |
| | Unemployed | 2 | 28.57 | 1 | 16.66 | 2 | 33.34 | | |

**Table 3** The comparison of age means in the three groups

| Group | Age range | Mean | Standard deviation | F | P |
|---|---|---|---|---|---|
| Dialectical Behavior Therapy | 19-36 | 26.29 | 6.237 | 0.51 | 0.78 |
| Cognitive Behavioral Therapy | 17-38 | 26.83 | 6.047 | | |
| Control Group | 18-38 | 24.17 | 7.223 | | |

The highest and the lowest mean of age belonged to the dialectical behavior therapy and the control groups; respectively 26.86 and 24.17. Thus, there were no significant differences between the participants and they can be considered as matched.

To assess the homogeneity of the intervention and control groups, the multivariate analysis of covariance (MANOVA) was used for random sampling as well as the assignment of the two groups in pre-test, regarding the mental health variable. Findings showed no significant difference between the two groups in regards to stress (p=0.39, F (16,2)=0.99), anxiety (p=0.13, F(16,2)=2.3), and depression (p=0.09, F(16,2)=2.85). As a result, the homogeneity of the two groups of intervention and control was evident in pre-test.

**Table 4** Descriptive statistics in Mental Health Scale in Pre-test and Post-test

| Group | Subscale | Pretest Mean | Standard Deviation | Posttest Mean | Standard Deviation | Adjusted Mean | Standard Error |
|---|---|---|---|---|---|---|---|
| DBT Group | Stress | 25.28 | 1.11 | 14.71 | 1.70 | 14.66 | 0.72 |
| | Anxiety | 24.14 | 1.67 | 17.42 | 2.63 | 14.98 | 0.81 |
| | Depression | 27.57 | 0.78 | 13.85 | 1.46 | 23.90 | 0.76 |
| CBT Group | Stress | 25.66 | 0.81 | 14.83 | 1.32 | 17.45 | 0.77 |
| | Anxiety | 25.33 | 1.21 | 11.66 | 1.03 | 12.17 | 0.86 |
| | Depression | 26.33 | 1.86 | 18.66 | 1.03 | 22.62 | 0.82 |
| Control Group | Stress | 24.33 | 2.65 | 24.00 | 1.67 | 13.72 | 0.53 |
| | Anxiety | 25.66 | 1.03 | 23.16 | 1.16 | 18.73 | 0.60 |
| | Depression | 27.83 | 0.40 | 16.00 | 0.89 | 26.08 | 0.56 |

The analysis of covariance test was used to compare the mental health of mothers in intervention and control groups for the subscales of stress, anxiety, and depression. The Box's M results approved the homogeneity of variance-covariance matrix (F (1168,12.48)=0.69, p>0.05). Levene's homogeneity test showed variance homogeneity for the intervention and control groups in all three subscales of stress (p=0.63, F(16,2)=0.16), anxiety (p=0.08, F(16,2)=1.98), and depression (p=0.47, F(16,2)=0.79).

**Table 5** MANCOVA results for experimental and control groups in mental health subscales.

| Subscale | Degrees of Freedom | F | Significance Level | Eta Squared |
|---|---|---|---|---|
| Stress | 2-13 | 45.29 | 0.001 | 0.87 |
| Anxiety | 2-13 | 34.97 | 0.001 | 0.84 |
| Depression | 2-13 | 121.29 | 0.001 | 0.95 |

The covariance analysis, by the control of the pre-test effect on the post-test showed that regarding the mental health of mothers in the experimental group, there was a significant reduction in the subscales of stress, anxiety, and depression after the dialectical behavior therapy and cognitive behavioral therapy interventions (Table 4).

Bonferroni post-hoc test results revealed that:

- There was no significant difference in the stress variable with dialectical behavior therapy and cognitive behavioral therapy, while both groups showed a significant reduction compared to the control group (p<0.01)

- There was no significant difference in the anxiety variable with dialectical behavior therapy and cognitive behavioral therapy, while both groups showed a significant reduction compared to the control group (p<0.01)

- There was no significant difference in the depression variable with dialectical behavior therapy and cognitive behavioral therapy, while both groups showed a significant reduction compared to the control group (p<0.01)

## Discussion

The comparison between pre-test and post-test score showed a drastic reduction in the score of the subscales of stress (pre-test: 25.28, post-test: 14.71), anxiety (pre-test: 24.14, post-test: 17.42), and depression (pre-test: 27.57, post-test: 13.85) after the intervention of dialectical behavior therapy, compared to the control group scores in stress (pre-test: 24.33, post-test: 24.00), anxiety (pre-test: 25.66, post-test: 23.16), and depression (pre-test: 27.83, post-test: 26.00). It demonstrates the effectiveness of the dialectical behavior therapy, which assumes that people lack the required skills for creating a life worth living. As a matter of fact, dialectical behavior therapy is a modified form of cognitive behavioral therapy which is designed to help people suffering from out-of-control emotions and mood and affective disorders such as depression, anxiety, anger, emotional instability, and irritability to change their patterns of behavior. The therapist helps the clients to identify the ineffective behavior and teaches them the acquired problem solving behavior, as the assumption suggests that the clients lack the required skills to react in a creative way. This shows the effectiveness of dialectical behavior therapists' work in reducing mood and affective disorders such as depression, anxiety, and stress. Katz et al. [33], Koons et al. [34], Bohus et al [35], McQuillan et al. [36] and Mazaheri, Borjali, Ahadi, and Golshani [37] who studied the effectiveness of dialectical behavior therapy on reducing impulsive behavior and self-harm, emotion regulation and improvement of mood and affective disorders such as depression, anger, emotional instability, irritability, uncontrollable patterns and inappropriate emotions that lead to depression, anxiety, and stress in patients with intense disorders also support these results. The above-mentioned studies were differed because they were carried out on patients with borderline personality disorder and other intense disorders in which emotion and mood issues are typical features and are among the symptoms of the existing disorders.

According to the studies in this field, it could be concluded that dialectical behavior therapy has been successful due to its role in easing the suffering of those with emotional problems by dialectical behavior therapy skills which reduce unpleasant emotions. The current study studied the effectiveness of dialectical behavior therapy in people whose inability in emotion regulation and mood disorders was not as severe as those with borderline personality disorder, while their emotional pain was higher than the emotional suffering patients in borderline. In absence of emotion regulation skills, depression, anxiety and stress increase. Behavior therapy was effective on non-borderline patients in this study because its core mindfulness, interpersonal effectiveness, and distress tolerance training which

alienated the clients from the past inappropriate emotions to the present time. It should be kept in mind that these people have been violent, aggressive and hostile inside. They were only viewed as pleasant and sociable people because they have aimed their negative feelings towards themselves in a self-destructive manner. Living under a social mask has shaped an underlying anger in these people that exposes itself in the form of unexpected episodes of rage.

It should be noted that the population and the type of the current study brings about limitations in generalizability of the findings, interpretations and etiological attributions of the study variables. To assess the effectiveness of dialectical behavior therapy and cognitive behavioral therapy on depression, anxiety and stress in mothers of children with cerebral palsy, autism, and intellectual disability, further studies are suggested as follows:

1- Studying or following up the effectiveness of dialectical behavior therapy and cognitive behavioral therapy on anxiety, stress, and depression in future studies.

2- Carrying out the mentioned studies by considering the limitations of the current study, and in accordance with the applied executive instructions among other families with disabled members.

## Conclusion

From all effective treatments on depression, cognitive behavioral therapy, as introduced by Beck and his colleagues has been one of the most popular and successful approaches. Pharmacology studies showed that a potential need exists for supportive psychotherapy and behavioral interventions in depression after illness (stroke) which is more effective than pharmacotherapy [20]. Initial studies carried out by Taylor and Marshal and also Rush, Beck, and Khatami's single case studies have used cognitive behavioral approaches for treating depression in a controlled way and proved the effectiveness of this treatment. Moreover, Bellini, Wiseman, Lattimore, Ellis, and Tisdale revealed that cognitive behavioral therapy has an immediate and beneficial effect on the mood and emotion [38]. Mental health (lack of anxiety, depression, and stress) is a fundamental concept including all factors applicable for prevention, emergence, or the development of the cognitive, emotional, and behavioral disorders [10]. Among the evaluated psychosocial approaches in treating emotional and behavioral disorders and the improvement of mental health, the cognitive behavioral therapy is highly validated. Studies by Ghodse and Maxwell [39] and Otto, Powers, and Fischmann [40] proved that group cognitive behavioral therapy is effective on treating depression, anxiety, and stress. Therefore, the current study was carried out with the aim of comparing the effectiveness of this approach and dialectical behavior therapy on the mental health of mothers having children with special needs. The results showed that cognitive behavioral therapy was more effective than dialectical behavior therapy in anxiety reduction.

## Ethical Considerations

### Compliance with ethical guidelines

This research received ethical approval (IR.IAU.HAMEDAN.REC.1396.016).

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### Authors' contributions

Study design: Narges Zamani; Data collection and analysis: Narges Zamani, Mojtaba Habibi; Manuscript preparation: Narges Zamani, Saeed Zamani.

### Conflict of interest

The authors declared no conflict of interest.

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