

Comparing the Effectiveness of Cognitive Rehabilitation and Cognitive Therapy based on Mindfulness on the Quality of Life and Guilt of Mothers with Cerebral Palsy

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Abstract

Background and Purpose: Caring for a child with cerebral palsy affects the general health of parents, especially mothers. Therefore, the aim of this research was to compare the effectiveness of rehabilitation and cognitive therapy on mindfulness, quality of life and guilt of mothers with cerebral palsy.

Research method : This research was an experimental type with a pre-test-post-test design with a control group. The statistical population of the present study included mothers with children with cerebral palsy in Mashhad and the statistical sample included 45 mothers who were randomly divided into three groups of 15 people (2 experimental groups and one control group). The mental state of mothers as a condition for entering the research, a "short mental state test" was performed. Then, two questionnaires "World Health Organization Quality of Life" and "Kugler's Guilt Questionnaire" were administered as pre-test and post-test to measure between these two groups, before and after the intervention. Mothers' therapeutic intervention was carried out through cognitive rehabilitation protocols by Captain Log cognitive rehabilitation software in 20 one-hour sessions and cognitive therapy training based on mindfulness in 8 go-minute sessions. Also, their children with cerebral palsy were evaluated and treated by the therapist by performing the children's disability assessment list test, pre-test and post-test. The raw

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data of the questionnaires have been analyzed in two descriptive and inferential stages using SPSS-24 software.

Findings: The results showed that cognitive rehabilitation and cognitive therapy based on mindfulness have a positive and significant effect on the quality of life and guilt of mothers with cerebral palsy.

Conclusion: Based on the results of the present study, cognitive rehabilitation and cognitive therapy based on mindfulness can be used to improve the quality of life and guilt of mothers with cerebral palsy.

Keywords: Cognitive rehabilitation, cognitive therapy based on mindfulness, quality of life, cerebral palsy

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Introduction :

Cerebral palsy is the most common chronic motor disability and neurological disorder in children that occurs as a result of a non-progressive lesion in the developing brain.

This lesion may occur before, during or after birth, which is often associated with sensory, cognitive, cognitive, communication and behavioral disorders, as well as epilepsy and musculoskeletal problems, and causes limitations in activities and reduced participation in social activities. Prudent et al. (1994)

Children with cerebral palsy have major limitations in daily life activities such as eating, dressing, bathing and mobility.

These limitations result in a need for long-term care that exceeds the needs of normally developing children during their formative years. Caring for a child is one of the duties of a child's parents, but this role becomes very different in children with long-term dependent functional limitations. Altemdog et al. (2007)

General health is affected in all four areas (physical symptoms, anxiety, sleep disorder, social functioning disorder and depression) in parents of children with cerebral palsy. All aspects of these parents' lives (physical, social, economic, family, sleep and freedom and independence) are affected. Parents of these children say that taking care of their children takes a lot of time considering the daily needs of children, especially those with severe injuries. As they spend most of their time taking care of their children, their responsibilities have changed and some of them have become less, which ultimately reduces their life satisfaction. So that in addition to the difficulty in taking care of the child, they also have difficulty in doing their personal and daily tasks and do not have enough time to spend their free time and cannot engage in other activities and are deprived of their social life. Mothers with children with cerebral palsy face more and significant pressures compared to mothers of healthy children. These mothers play an essential role in providing care and

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treatment for children with cerebral palsy. They devote more hours to physical care of their child. They spend less time on active hobbies and cooperative-social activities than mothers of healthy children. Sometimes they can't take the necessary time for things they like, such as having fun or participating in outdoor activities or participating in sports classes, and they are less satisfied with the use of time. Therefore, different aspects of the quality of life of these mothers are affected. Quality of life is one of the terms that doesn't have a clear and uniform definition. Although people instinctively understand its meaning easily, the concept is not the same for all of them. Since its measurement, like other variables, requires a comprehensive and specific definition of it, efforts have always been made to provide a suitable definition for it.

Many research do not provide a definition of quality of life. This is either because they define it too simply or they avoid defining it because of the complexity of this concept, while due to the lack of consensus in the definition of this term, this concept and dimensions are expected in related cases. Considered. Research is clearly defined for it. Today, issues related to the quality of life have been widely discussed in various scientific fields, for this reason, despite the many definitions of this concept, none of the existing definitions have been widely accepted. Sasnin and Jurkauskas.(2009) On the other hand, the quality of life is related to diseases and conditions that endanger health, and parents of disabled children are exposed to a multitude of stressful factors for a long time. Khayat-zadeh Mahani(2018)

Children with disabilities pose special challenges for their parents. The results obtained from the study of the quality of life of these parents may help rehabilitation professionals to better understand the problems of disabled children and their parents, on the other hand, these children need more care and their parents experience the most stress to care for them. Yuen and Li Tsang (2021)

Caring for a child with cerebral palsy requires intensive and long-term care activities, and this chronic condition causes the parents of these children to face more physical and mental problems. Ahmadizadeh et al. (2013)

Another emotional damage that is seen in mothers with children with cerebral palsy and has a high prevalence is guilt. Guilt and shame are usually considered similar emotions and have the same meaning. But for all the similarities, the two are undeniably different. Researchers disagree about this difference. Currently, there are two models regarding the difference between guilt and shame: the self-behavior distinction model and the public-private distinction model. Cohen, Wolff, Penter, and Insko(2011) That is, personal and private mistakes can evoke feelings of guilt, while mistakes or failures that occur in public are likely to evoke feelings of shame. Cohen(2011)

Empirical evidence, which assesses the behavioral tendencies of people who experience shame or guilt, shows that guilt promotes constructive and innovative activities, but shame promotes defensiveness, interpersonal avoidance, and coldness in relationships. These studies show that shame is associated with denial, hiding, or

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escaping from the situation that caused shame, but guilt is associated with compensatory behaviors such as confession, apology, and neutralizing the consequences of that behavior (Tangeni, 2007). In this regard, cognitive change and development is the process of thinking, including remembering, problem solving, and decision-making from childhood to adolescence and adulthood. Cognitive rehabilitation is a therapeutic approach designed to improve cognitive function after central nervous system weakness, which is a set of treatment and retraining methods or reducing problems caused by deficits in attention, image processing, language, memory, reasoning, problem solving, and executive function. includes. Cognitive rehabilitation includes tasks that are designed to strengthen or stabilize behavioral patterns or create new compensatory mechanisms for the failure of neurological systems. Improving the quality of life or the ability to improve performance in life at home and in the community is one of the desirable results of this treatment. Cognitive rehabilitation may be performed by a physician, psychologist, or a physical therapist, occupational therapist, or speech therapist. Wilson (2002). In cognitive rehabilitation or cognitive rehabilitation, there are two major approaches: the compensation or compromise approach and the cognitive therapy approach. It should be noted that in practice, the separation of these two approaches never happens, and the overlap of the two in treatment is inevitable. The first approach: the approach is compensation or adaptation. In this approach, the goal is to remove the person's limitations by making changes in the environment, habits and methods of doing things, as well as implementation solutions. These three treatment goals are reminiscent of the concept of cognitive ergonomics, which is based on the principles of information processing and reduces the involvement of working memory. The second approach: the approach is cognitive therapy. This approach is an attempt to restore lost cognitive capacities through exercises and providing targeted stimuli, and its purpose is to improve a person's performance in performing activities. (ma and trombley)

Another effective intervention is cognitive therapy based on mindfulness, mindfulness is complete flexibility, paying attention to the experiences of the present with an accepting state and without applying any judgment. These experiences include human thoughts and feelings, which are only accepted as transient phenomena of the mind and unlike behavioral cognitive methods without any need to analyze or change them. Therefore, to live free from negative thoughts and feelings and live in the present, we need a correct understanding of our experiences, thoughts and feelings. The research of Segal and his colleagues shows that the method of cognitive therapy based on mindfulness is the main element of raising self-awareness necessary for empowerment and optimal response in critical situations to prevent the experience of anxiety and always acts as a strong permanent pre-receptor stimulus. Cognitive therapy based on mindfulness offers a different way of dealing with dysfunctional thoughts and related emotions such as anxiety, distress and depression. Razmjoo (1394)

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This approach can help free people from automatic thoughts, habits, and unhealthy behavior patterns, and thus plays an important role in reducing stress and regulating behavior. In mindfulness, one learns to become aware of the mental way in the moment and learns the skills to identify more useful ways. Researchers have shown that the use of mindfulness therapy is associated with a variety of health outcomes such as reduced pain, anxiety, and dysfunctional attitudes. Increasing research indicates the usefulness of mindfulness in cases such as post-traumatic stress, improving behavioral abnormalities such as aggression and substance abuse, reducing impulsive behavior, stress, anxiety and depression.

According to the mentioned materials and considering the high prevalence of cerebral palsy and mental retardation and severe disability caused by these disabilities, as well as the long-term effects of the child's disability on the family life of these children and especially their mothers, in terms of the quality of life of this group of mothers until now In Iran, no research has been conducted on the effectiveness of cognitive rehabilitation and cognitive therapy based on mindfulness on the quality of life and guilt of mothers with cerebral palsy, and such research is necessary to determine the extent of damage and possible damaged areas, considering The obtained information can be used to plan appropriately for this group of people; Therefore, the main question of the current research is whether cognitive rehabilitation and cognitive therapy based on mindfulness is effective on the quality of life and guilt of mothers with cerebral palsy?

Research method :

This research was an experimental type with a pre-test-post-test design with a control group. The statistical population of the present study included mothers with children with cerebral palsy in Mashhad, and the statistical sample included 45 mothers who were randomly divided into three groups of 15 (2 experimental groups and a control group). "Short mental state test" was conducted to measure the mental state of mothers as a condition for entering the research. The short mental state test is used to measure the mental state of mothers, and getting a score of 27 in this test is a condition for entering the research. After completing the questionnaires, the mothers were randomly divided into three experimental and control groups of 15 people. Simultaneously with the tests that were taken from the mothers, their children with cerebral palsy were also evaluated and treated by the therapist by performing the children's disability evaluation list test as a pre-test and post-test. The mothers of the experimental groups were also treated with cognitive rehabilitation protocols by Captain Log¹⁶ cognitive rehabilitation software and cognitive therapy training based on mindfulness. After the therapeutic intervention, the questionnaires were again taken from the mothers as a post-test, and compared to the pre-test and post-test, the children's disability evaluation list was measured until there was a significant difference between the mothers of the test groups and the control group

before and after the test regarding the quality of life and feeling. Their guilt should be measured.

Research tool :

World Health Organization Quality of Life Questionnaire: To measure this variable, the World Health Organization Quality of Life Questionnaire, which is based on a 5-point Likert scale and includes 26 questions, is used. The World Health Organization's general quality of life measurement tools are 100WHOQOL and WHOQOL-BREF. The World Health Organization quality of life questionnaire was created after merging some areas and removing a number of WHOQOL-100 questions and has 26 questions. The results of these two questionnaires show a satisfactory agreement in different studies. In this study, the quality of life of the World Health Organization was chosen due to the small number of questions and, as a result, ease of use. This tool has been designed in more than 15 countries at the same time and translated into different languages. Therefore, the concepts of questions are the same in different cultures. Regarding the validity of this variable, considering that the measurement of this variable was used in the research of Khayat-zadeh Mahani (2018), it has validity. According to Cronbach's alpha, which is above 0.7 (0.768), the quality of life questionnaire indicates that this variable has the necessary reliability.

Guilt Questionnaire: To measure guilt, we use the Kugler and Jones guilt questionnaire, which was developed by Kugler and Jones between 1988 and 1992 and has 45 items and 2 subscale. In Iran, the content and form validity of the questionnaire has been confirmed by Naziri (1374) and the retest reliability of the test in an interval of 10 weeks is 81% for the moral criterion subscale, 72% for the trait of guilt, and 56% for the state of guilt.

Children's Disability Assessment list:

Cerebral palsy is one of the most common disorders in children that leads to functional impairment. Therefore, we need a valid assessment tool to provide an appropriate treatment plan to improve the functioning of these children. "Children's disability assessment list" is designed with the aim of evaluating the performance of disabled children in three areas: self-care, mobility and social functioning. In Iran, a reliability study of the Persian version of the Children's Disability Assessment Inventory was conducted on cerebral palsy children aged 3 to 9 years. The results showed that the Persian version of the children's disability assessment list has internal consistency and test-retest reliability in order to investigate the performance of Persian-speaking children with cerebral palsy. Therefore, this version can be used in a research and clinical way to evaluate children with cerebral palsy in Iran.

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The most important step in the rehabilitation process of children with developmental and learning disabilities is evaluation. In the perspective of traditional rehabilitation, the evaluation of the desired and expected growth of the child was emphasized, and the treatment program was also focused on the child reaching the normal growth pattern. But over time, therapists realized that disabled children never acquire the developmental skills they want, but they can acquire important and basic functional skills and improve their quality of life. Therefore, achieving high levels of independence in basic functional skills became the main goal of rehabilitation interventions in children with disabilities. Functional characteristic is defined as a systematic explanation and description of a person's (or child's) ability to perform activities required in life. Functional characteristic is actually a part of the concept of quality of life related to health and it means a person's performance in daily functional activities. In addition, performance assessment in children requires special attention to developmental expectations and changes. From this point of view, it is important to choose the evaluation tool and method to better understand the functional skill changes. The Children's Disability Assessment Inventory test has three scales: functional skills, caregiver assistance, and modification. Each of the three scales of the children's disability assessment list test is responsible for functional assessment in the three domains of self-care, mobility and social functioning. Each of these domains consists of a number of subscales. The Children's Disability Assessment Inventory test is a clinical and research outcome measure instrument and provides extensive information on functional performance with 217 items. The scoring form of this test and the measurement scale of this test are also easy to understand and evaluate the performance.

Data analysis:

In this research, the raw data of the questionnaires were analyzed using SPSS software after being collected at two descriptive and inferential levels. First, at the descriptive level, the descriptive indices of the variables such as the mean, standard deviation of the research were calculated, and then at the inferential stage, the research hypotheses were examined with multivariate and univariate covariance analysis tests.

Table No. 1 – Cognitive therapy training based on mindfulness.

| Session number | The purpose of the meeting |
|-----------------------|--|
| First session | Recognition of automatic guidance and exit from it, presence of mind from daily activities, physical examination |
| Second session | Dealing with obstacles, reacting to daily stimuli, schedule of enjoyable activities, 13-minute sitting meditation. |

| | |
|----------------------------|---|
| third session | Mindfulness or awareness of breathing, maintaining awareness, 43-minute sitting meditation of breath and body, bodily sensations. |
| fourth Session | Staying in the present, attachment, aversion and boredom. |
| fifth session | Allowing and permission to be present, accepting individual experiences |
| The sixth session | Thoughts are not facts, thoughts are just thoughts. |
| The seventh session | How can we take care of ourselves in the best way, a list of enjoyable and skillful activities, a list of symptoms and signs of depression, preparing an activity plan to deal with depression and preparing an activity plan for saying goodbye. |
| The eighth session | Applying what we have learned to deal with future moods |

Findings

The average and standard deviation of quality of life variables and guilt of mothers with cerebral palsy in two groups of cognitive rehabilitation and cognitive therapy based on mindfulness and the control group are shown in table (2) separately, pre-test and post-test.

Table (2): Mean and standard deviation of quality of life and guilt variables

| Variable | Group | Average | | The standard deviation | |
|-----------------|--|-----------|----------|------------------------|----------|
| | | Pre-exam. | After us | Pre-exam. | After us |
| Quality of Life | Cognitiverehabilitation | 60/76 | .53/59 | 72/12 | .62/6 |
| | Cognitive therapy based on mindfulness | 45/73 | .78/58 | 38/11 | 45/6 |
| | Control | 58/66. | 60/46 | 6/76. | 7/21 |

| | | | | | |
|--------------------|--|---------|---------|--------|--------|
| Feel guilty | Cognitive rehabilitation | 85/90 | .70/100 | 75/15 | .27/18 |
| | Cognitive therapy based on mindfulness | 75/87 | .55/96 | 48/14 | .79/15 |
| | Control | 103/85. | 101/55 | 16/95. | 15/40 |

As can be seen in Table 2, changes in pre- The test, post-test in the quality of life and guilt variables occurred in both cognitive rehabilitation and mindfulness-based cognitive therapy groups. In cognitive rehabilitation and cognitive therapy based on mindfulness, the mean and standard deviation of the quality of life scores increased and the guilt scores in the post-test compared to the pre-test decreased significantly. In this research, the statistical test of covariance was used due to its suitability and compatibility with the research hypothesis.

Table (3): Comparison of post-test and pre-test scores of quality of life and guilt in three groups of cognitive rehabilitation and cognitive therapy based on mindfulness and control

| Source | The dependent variable | SS | DF | Ms | F | P |
|----------------|------------------------|----------|----|---------|--------|-------|
| Group | Quality of Life | 906/1416 | 2 | 453/708 | 70/23 | 001/0 |
| | feel guilty | 635/114 | 2 | 317/557 | 41/903 | 0/001 |
| Mistake | Quality of Life | 892/1727 | 43 | 183/40 | | |
| | feel guilty | 560/797 | 43 | 13/041 | | |
| Total | Quality of Life | 798/3144 | 45 | | | |
| | feel guilty | 1195/911 | 45 | | | |

According to the results of Table 3, after adjusting the pre-test scores, the difference between the groups is significant at the alpha level of 0.001; Therefore, the research hypothesis based on the effectiveness of cognitive rehabilitation and cognitive therapy based on mindfulness on the quality of life and guilt of mothers with cerebral palsy and the difference between the groups in the post-test is confirmed. Tukey's post hoc test was used to accurately check the mean of the groups. According to Tukey's test, the average difference between the pre-test and post-test quality of life scores in the cognitive rehabilitation group was lower than the control group, and the average score difference of the mindfulness-based cognitive therapy group was lower than the control group ($p < 0.001$, in other words, cognitive rehabilitation and cognitive therapy based on mindfulness have been effective on the quality of life compared to the control group. However, there was no significant difference between the average pre-test and post-test scores of the cognitive rehabilitation group and cognitive therapy based on mindfulness. Also, based on the results of Tukey's post hoc test, it can be said that there is no significant difference between cognitive

Discussion and conclusion:

The purpose of this research was to compare the effectiveness of cognitive rehabilitation and cognitive therapy based on mindfulness on the quality of life and guilt of mothers with cerebral palsy. The results showed that cognitive rehabilitation has a positive and significant effect on the quality of life and guilt of mothers with cerebral palsy. The result of this test with the research results of Shariat et al (2014), Dulg, Shaker.Narimani, Afrooz, Hasani, Baghdasarians, (2013), Jalili et al(2014) is consistent. In explaining this result, it can be said that the quality of life of mothers has a significant relationship with the severity of the child's disability, considering all the physical dimensions. This means that with the severity of the child's disability, the physical health and quality of life of mothers decreases. A child with cerebral palsy often needs special and long-term care, this is the reason why families with disabled children have less physical and mental health than families with healthy children and have a lower quality of life. Since the parents of these children spend a lot of time to do their children's tasks and special needs, such as bathing, transporting, feeding, etc, Most of them suffer from chronic pains and physical diseases; Therefore, the severe needs of children's disabilities have a negative impact on the physical health of parents. Also, mothers of children with cerebral palsy have poorer general health and it is strongly related to the severity of the child's disability. In the psychological dimension, there will be a correlation between the psychological dimension and the child's motor performance level. This means that with the increase in the severity of the child's disability, the mental health of mothers is more at risk. Due to the long-term problems of children with cerebral palsy and the need for their constant care, mothers of children with cerebral palsy experience high levels of stress and guilt, and often suffer from depression and frustration with their child's progress. Also, due to conflicts and changes in the daily activities of family members and disruptions in couples' relationships, it can be effective in changing mental health, and in general, these daily problems can have a negative effect on the vitality and emotional health of mothers.

The results also showed that cognitive therapy based on mindfulness has a positive and significant effect on the quality of life and guilt of mothers with cerebral palsy. The result of this test is in line with the research results of Aghdasi, Suleimani and Asadi Gandmani (2018), Yonsi et al (2019) and Sharifi Saki (2014). In explaining this hypothesis, it can be said that the feeling of guilt affects the functional aspects of mothers, such as reduced cognitive ability, rumination, marital conflicts, social isolation, and negative emotional reactions. On the other hand, it reduces the long-term consequences of guilt, such as the effect of guilt on a limited lifestyle, lack of adaptation skills, lack of social skills, low self-

esteem, feelings of helplessness, and complex family relationships. Regarding the effectiveness of awareness-based therapy in reducing the guilt of mothers, it can be said that this therapy has a cognitive restructuring method, based on which, the person replaces logical thinking patterns, including the threatening nature of the environment, with logical and positive thoughts and reduces anxiety in them. In other words, cognitive therapy based on awareness causes the identification of thoughts of guilt, challenge and fight with these thoughts, confronting and replacing them with non-threatening thoughts in mothers, and this is effective in reducing anxiety symptoms in them.

Ethical Considerations: After the necessary approvals and obtaining permission from the university, in order to complete the questionnaires, the goals and working methods were explained to all the people participating in the study, and their consent was obtained and they were assured that the results of the research would be available to them if they wished. Also, people were assured that they are free to participate or not to participate in the research, and in case of non-participation and cooperation, their treatment or care will not be effective and will be followed up as usual. The people were assured that they can decide to withdraw from the research at any stage of the research and that this will not have any negative consequences for them.

Conflict of interest: The authors hereby declare that this work is the result of an independent research and has no conflict of interest with other organizations and individuals.

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