

RESEARCH ARTICLE

Effect of acceptance and commitment therapy combined with compassion-focused therapy on behavioral problems and mother-child interactions in children with hearing impairment

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Abstract

Background and Aim: Hearing loss is an invisible disability that adversely affects the quality of life. This study aimed to investigate the effect of acceptance and commitment therapy (ACT) combined with compassion-focused therapy (CFT) on behavioral problems and mother-child interactions in children with hearing impairment.

Methods: This is a quasi-experimental study with pretest/posttest design using a control group. The study population consists of all mothers of children with hearing impairment in Yazd, Iran. A total of 30 mothers were selected using a purposive sampling method, and randomly assigned into control (n = 15) and intervention (n = 15) groups. The intervention group received ACT combined with CFT at eight sessions of 90 minutes, one session per week, while the control did not receive any treatment. Data collection tools were the Parent-Child Relationship Scale and the Child Behavior Checklist. Data were analyzed using descriptive and inferential statistics.

Results: The intervention had a significant effect on mother-child interaction and behavioral problems in children with hearing impairment.

Conclusion: ACT combined with CFT can be used for intervention of mothers of children with hearing loss to reduce the behavioral problems of

their children and improve their interactions with them.

Keywords: Acceptance and commitment therapy; compassion focused therapy; behavioral problems; parent-child interaction; children with hearing impairment

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Introduction

Hearing loss is either congenital or acquired in children. Studies have suggested that hearing loss is not necessarily associated with mental health problems; however, it can lead to anxiety, mood disorders or behavioral problems affected by physical and communication problems and adverse life events [1]. The term "hearing impaired" is used to refer to people who have lost their hearing or are hard of hearing and need to use sign language to communicate [2]. In fact, hearing impairment is an invisible disability with negative effects on the quality of life, causing communication and social/behavioral problems [3]. Behavioral problems usually refer to having behaviors that do not fit the age-appropriate

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norms and expectations of society. The severity or duration of these behaviors put the person and others at risk. Most studies have categorized behavioral problems into internalizing and externalizing behaviors [4]. Internalizing behavioral problems are controlled by feelings and include symptoms of withdrawal, depression, anxiety, and psychosomatic complaints. Externalizing behavioral problems refer to behaviors that are not controlled by feelings and include symptoms of antisocial, aggressive, hyperactive, and rule-breaking behaviors [5]. Studies have shown that students with hearing impairment have more behavioral problems than others due to cognitive, social, communicational, and emotional deficits. Amini et al. suggested that hearing-impaired children have more anxiety, depression, and aggression than normal peers; these problems were more in boys than girls [6].

Hearing impairment is one of the most stressful disabilities. The involved parental stress can lead to family problems and poor parenting [7]. Among family members, mother is the first person who has a direct and close relationship with the child. Among many factors related to relationships that affect the growth and development of a child, parent-child interaction is the most important one [8]. Behavioral problems in hearing-impaired children may be due to poor communication with their parents. If the parents of these children do not adopt new communication strategies, parent-child interaction problems may occur, which have a negative effect on both the child and the parents. Therefore, it is important for the parents of hearing-impaired children to be able to control their children's behavioral problems, communicate effectively with their children, and teach new communication strategies to them [9]. The results of Ariapooran's study showed that the close mother-child relationship was negatively related to anxiety disorders, and the mother-child conflict was positively related to anxiety disorders in children with hearing problems [10].

Acceptance and commitment therapy (ACT) is one of the important psychological interventions to improve the mental health and tolerance of mothers with hearing-impaired children. It is a

type of behavioral therapy that uses value-oriented and mindfulness-based strategies [11]. Since the first step in communicating with children with hearing impairment is their acceptance by parents, ACT can be a suitable treatment for them which emphasize the acceptance of unsolvable problems. Compassion-focused therapy (CFT) is another method in psychotherapy whose application has recently been increased. Compassion is an awareness of suffering, cognitive and emotional understanding of suffering and its causes, motivation to relieve that suffering, openness to suffering, and to aspire to its healing [11]. Self-compassion can greatly improve the mental health and quality of life of mothers with children suffering from exceptional problems. It can promote love, affection, and understanding of own suffering. It is a type of self-acceptance that reflects the degree of accepting negative aspects of self and life over time [12]. So far, several studies have been conducted to evaluate the effect of ACT on behavioral problems and parent-child interactions including Golpayegani et al.'s study on the effect of ACT on the quality of attachment in children with behavioral problems [13] and the studies conducted by Zarling et al. and Flujas-Contreras and Gómez on the effectiveness of ACT in reducing aggression in adolescents [14,15]. There are also studies that have been done in Iran. Hojjatkah et al. showed the effectiveness of ACT in improving the interaction of mentally retarded children with their parents [16]. Ardeshiri Lordejani et al. showed that ACT has an effect on the relationship of parents and their children with learning disabilities [17]. Regarding the effectiveness of psychological therapies on behavioral problems in children with hearing impairment, Pakzad's research showed that educating mothers improves behavioral problems in their deaf children [18]. No study was found to investigate the effectiveness of ACT combined with CFT on behavioral problems of children with hearing impairment and their interactions with their mothers. Therefore, due to the importance of parent-child relationships for these children and the existence of behavioral problems in them, this study aims to investigate the effect of ACT combined with

CFT on behavioral problems of children with hearing impairment and their interactions with their mothers.

Methods

Study design and participants

This is a quasi-experimental study with a pretest/posttest design using a control group. It has an ethical approval from Academic Center for Education, Culture and Research of Mashhad (Code: IR.ACECR.JDM.REC.1400.003). The study population consists of all mothers with hearing-impaired children studying in Sadrieh School, Yazd, Iran. Of these, 30 eligible mothers aged 25-40 years were selected using a purposive sampling method. Inclusion criteria for them were: Having children aged 8-12 years with hearing problems and high scores in the child behavioral checklist (CBCL). The exclusion criteria were: Having severe psychiatric disorders, use of psychiatric drugs such as anxiolytics, absence from more than two sessions of intervention, and returning incomplete questionnaires. They were randomly assigned into two groups of intervention ($n = 15$) and control ($n = 15$).

Assessment tools

The assessment tools were the CBCL and the parent-child relationship scale (PCRS). The CBCL is a parent-report questionnaire for children aged 6-18 and has six scales of anxiety problems, somatic problems, attention deficit/hyperactivity problems, oppositional defiant problems, and conduct problems. In a study, the internal consistency coefficients of the CBCL scales were reported in a range of 0.63 to 0.95. In Achenbach study, the test-retest reliability of the scales over a period of 5-8 weeks was obtained in range of 0.32 to 0.67 [19]. The PCRS is a 54-item tool for measuring the perceived quality of the relationship between children and parents (mother and father). In a study on 541 students, Cronbach's alpha coefficients of PCRS subscales was reported in a range of 0.87 to 0.74 for those related to father, and 0.61-0.74 for those related to mother, where the overall alpha coefficient was 0.76. It was also reported to have high

internal consistency [20].

Intervention

The pre-test assessments were first conducted in both groups. Then, the intervention group received ACT combined with CFT at 8 sessions of 90 minutes, one session per week, while the control group did not receive any treatment. After the end of intervention, post-test assessments were carried out in both groups. The intervention was presented by a student MSc. in Clinical Child and Adolescent Psychology with a certificate in ACT and CFT. The intervention was developed based on the ACT protocol presented by Hayes et al. [21], and the CFT protocol according to Goss and Allan [22]. Protocol of the used intervention is presented in Table 1.

Data analysis

The collected data were analyzed in SPSS v.24. We used the mean and standard deviation to describe the study variables, and ANCOVA test was used to examine the effect of the intervention on each dependent variables (behavioral problems and mother-child interactions) by eliminating the effect of pre-test score. Levene's test and Shapiro-Wilk test were used to evaluate the assumptions of ANCOVA, whose results showed the equality of variances and the normality of scores for both variables.

Results

The mean age of mothers was 33.4 ± 5.6 years in the experimental group and 35.6 ± 8.86 years in the control group. As shown in Table 2, the mean scores of CBCL in the intervention group decreased after treatment, and the results of ANCOVA showed a significant difference between the two groups after eliminating the effect of pretest score ($F_{(1,27)} = 36.28$, $p < 0.05$). Therefore, it can be said that the ACT combined with CFT reduced behavioral problems in the intervention group. The effect size indicated that 58% of the difference between the two groups was related to the intervention. Regarding the mother-child relationships, the mean scores of PCRS in the intervention group increased after treatment compared to the pretest scores (Table 2), and the

Table 1. Protocol of the acceptance and commitment therapy combined with compassion focused therapy

Session	ACT	CFT
Session 1: Communicating	Acquaintance, becoming familiar with the research objectives, answering the questionnaire, and concluding a contract for treatment, and emphasizing full-time participation.	Becoming familiar with the general principles of CFT, differentiating the concepts of compassion and regret, teaching how to express compassion for oneself and others.
Session 2: Admission	Training acceptance using an allegory of the annoying neighbor, creating creative helplessness using an allegory of the person who fell into the well, training the ability to control using the polar bear exercise, expressing dirty and clean pains	Explaining that the brain naturally review the past and future problems and events at resting state, teaching mindfulness and how to focus on a single thing like breathing to feel relaxed, being aware of current experiences and accepting them, assigning homework
Session 3: Self as a background	Conscious breathing, imagination of being a background in a white room on a chessboard, undermining self-conceptualization, focusing on and expressing the characteristics of the mind consciously, and reviewing key aspects of the previous session	Practicing kindness and compassion to build self-compassion and be able to discover the hidden fears and shame, healing pains with self-compassion, assigning homework, understanding that others have their own flaws and problem.
Session 4: Cognitive fault detection	Mindful breathing, review of previous sessions, cognitive fault detection, naming thoughts, expressing thoughts, controlling thoughts (bus exercise), detachment from thoughts (derealization)	Reviewing the previous session, practicing compassionate mind, learning to have compassionate language, searching compassion inside oneself, and practicing compassion (e.g. "you can do this", "be brave", etc.)
Session 5: Mindfulness	Conscious attention, conscious breathing, counting the breaths (soldiers on parade exercise), five senses exercise, attention to bodily sensations, conscious activities, introducing the concept of values (skiing down the mountain metaphor)	Reviewing the previous session, exploring core values, practicing self-kindness and self-values, compassionate mind training (forgiveness, acceptance without judgment, tolerance), teaching to accept incoming changes and endure age-related challenging conditions according to core values, having different challenges, assigning homework
Session 6: Specify values	Defining values in life and their importance that govern relationships in six areas (work, friends, family, parenting, relationship with spouse and social), attention to the present, and explanation of social skills and parenting	Reviewing the previous session, teaching different ways of showing compassion (verbally, practically, intermittently, and continuously) and applying these methods in daily life and on the people around (spouse, children, relatives, friends), teaching to develop valuable self-transcendent emotions, assigning homework
Session 7: Values, mindfulness	Explaining the concept of values, motivating to change and create better living conditions, practicing attention and concentration, receiving feedback, and assigning homework	Reviewing the previous session, practicing to express difficult emotions, practicing relaxation using mindfulness skills (not to be ashamed of), identifying the things that cause shame and trying to be calm, writing a compassionate letter to self and others
Session 8: Committed action	Commitment action, identifying behavioral actions in practice according to the values, commitment to behavior change according to the values, teaching how to turn values into goals and then into committed action, summarizing the key aspects of previous sessions, and end of the intervention	Reviewing the previous sessions, learning how to write compassionate letters to self and others, practicing how to take notes and record real life events compassionately, teaching how to face different challenges in life, summarizing the previous sessions

ACT; acceptance and commitment therapy, CFT; compassion-focused therapy

results of ANCOVA showed that the difference was statistically significant ($F_{(1,27)} = 13.83$, $p = 0.041$). Therefore, it can be claimed that the

ACT combined with CFT improved the mother-child interaction in the intervention group. The effect size indicated that 34% of the difference

Table 2. Descriptive characteristics of the research variable and result of ANCOVA test

Variable	Mean (SD)				p	Effect size
	Examination group		Control group			
	Pre-test	Post-test	Pre-test	Post-test		
Behavioral problems	57.20 (11.94)	52.13 (11.78)	59.00 (10.52)	57.80 (10.87)	0.049	36.28
Parent child relationships	126.27 (11.15)	130.13 (11.24)	125.67 (16.59)	126.93 (16.41)	0.041	13.83

between the two groups was related to the intervention.

Discussion

The aim of this study was to evaluate the effect of ACT combined with CFT on behavioral problems of hearing-impaired children and their interactions with their mothers. The first result of the present study was the effectiveness of the intervention in reducing the behavioral problems of children. Zarling et al. showed that ACT reduced aggression in adolescents [14]. Flujas-Contreras and Gómez also showed the effect of ACT-based parenting on children's aggression [15]. Tahmassian et al., in examining the effect of maternal characteristics on the behavioral problems of children aged 2-6 year, showed a significant relationship between mothers' and children's behaviors [23], which can be in line with the results of the present study. Madhi and Ghamarani in a study showed that self-compassion-based parenting had an effect on behavioral problems and self-concept in children with intellectual and developmental disabilities [24]. Molander et al. also showed the effect of ACT on psychological stress of people with hearing problems [25]. To adjust the results, it can be said that the ACT combined with CFT helped mothers determine the true values of their lives and their hearing-impaired children. It can help them take care of their children better by realizing that the negative feelings, thoughts, and self-blaming prevents the child from having appropriate behavior. The intervention caused mothers to accept their children's behavioral problems and act better while staying calm. Such reactions from mothers are associated

with reduced behavioral problems in children [18]. On the other hand, CFT reduced mothers' psychological problems by increasing their awareness, acceptance without judgment, empathy, constant attention to inner feelings, and the use of meditation and relaxation methods. As a result, it increased their problem-solving ability, self-control, belief in a favorable future, flexibility in facing obstacles, optimism and positive feelings, which led to a positive effect on mothers' relationships with their children. Mothers of children with hearing impairments often experience negative feelings such as sadness, depression, hopelessness and stress, which negatively affect their behaviors and cause them to have inappropriate reaction to their children's negative behaviors, exacerbate their behavioral problems [22]. ACT can reduce anxiety and depression in mothers of children with hearing impairment [26]. Lower anxiety and depression in mothers can lead to their better behavior with the children and, thus, reduce their children's behavioral problems. Since mothers of children with hearing impairments often feel guilty for their children's condition and blame themselves, it causes psychological stress, anxiety and depression, and physical illnesses in them. Problems affect the mother-child interaction of children and mothers and lead to behavioral problems in them. Thus, by learning self-compassion, they became able to avoid negative self-judgments and to self-care better in dealing with their children's behavioral problems and achieve psychological well-being. Moreover, by learning to be compassionate towards others and lower their tension with the children, CFT could have a positive effect on the

reduction of behavior problems in children [12]. If parents, especially mothers, have positive and effective relationship with their children, it will create a sense of security in children and reduce their behavioral problems, leading to increased self-confidence and positive self-esteem in them. In treatment with CFT, we gave mothers in the intervention group some tasks to perform at home to improve their current conditions and improve parenting skills which helped reduce behavioral problems in their children. In general, it can be claimed that ACT along with CFT, as a part of the third wave of cognitive-behavioral therapies, developed mindfulness in mothers and resulted in accepting the current conditions and paying attention to more important things in their lives which reduced some of the behavioral problems in their hearing-impaired children.

The second finding of this study was the effectiveness of ACT combined with CFT in improving mother-child interactions in children with hearing impairment. Golpayegani et al. also showed the effectiveness of ACT on the quality of attachment in children with externalizing behavioral problems [13]. The study by Hojjatkah et al. showed the effectiveness of ACT in improving mother-child interactions of mentally retarded children [16], and Ardeshiri Lordejani et al. reported that ACT had an effect on the parent-child relationship of children with learning disabilities [17]. The results of these studies are somehow consistent with our second finding. ACT emphasizes pursuit of valued life areas including interpersonal relationships, education, self-care, and mother-child relationships. The goal of this therapeutic approach is to engage people in activities that are important to them, but they avoid to involve in them. Identifying and clarifying valued issues for patients, informing them about their occurrence, and taking actions to engage are important components of this goal. Similarly, when mothers of hearing-impaired children are informed and educated about the characteristics of a good mother, parenting styles, family structure, positive mother-child interaction patterns, and barriers to expressing inner emotions, their attachment quality can be improved. Most attachment problems in

children are based on poor parent-child relationships. By informing parents about parenting tasks on one hand, and educating children to identify the values and behave properly to achieve them on the other hand, ACT improves parent-child interactions [20]. In this regard, Mohammadi-nejad and Niknejadi showed that ACT had an effect on psychological well-being and resilience of mothers with deaf children. According to them, enhanced psychological well-being and resilience improves mother-child interactions in these children [27]. Combining ACT with CFT emphasized strengthening the non-judgmental facet and self-compassion. Fear, misjudgment and reactivity can be reduced by CFT. It causes parents of children with hearing problems to have more self-compassion. Self-kindness and self-compassion is associated with expressing kindness and compassion towards others, which improves the interactions between mothers and children [11].

The limitations of the study included the use of a self-report tool and the lack of a follow-up phase; therefore, it is recommended that future studies should use a structured observation tools rather than self-report instruments and examine the effectiveness of ACT combined with CFT over time. It is also recommended that future studies should investigate the effect of this interventional method on other psychological problems of children with hearing impairments and their mothers.

Conclusion

Acceptance and commitment therapy combined with compassion-focused therapy can reduce behavioral problems and improve interactions of hearing-impaired children with their mothers. Therefore, the use of this interventional technique is recommended to the experts in this field.

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Conflict of interest

The authors declared no conflicts of interest.

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