

Developing a Yoga-based Mindfulness Training Package and Evaluating Its Effectiveness on the Symptoms of Emotional Behavioral Disorders in Children

Goli Mehralian¹, *Mahdieh Salehi², Noorali Farrokhi³, Fariborz Dortaj⁴

¹ PhD student in Psychology, Department of Psychology, Central Tehran Branch, Islamic Azad University, Tehran, Iran.

² Associate Professor, Department of Psychology, Central Tehran Branch, Islamic Azad University, Tehran, Iran.

³ Associate professor, Assessment and measurement department, Psychology & Education Faculty, Allameh Tabataba'i University, Tehran, Iran.

⁴ Professor, Department of Educational Psychology, Psychology & Education Faculty, Allameh Tabataba'i University, Tehran, Iran.

Abstract

Background: Behavioral disorders in children and adolescents are common and debilitating problems, which are usually seen for the first time in the early years of elementary school. Therefore, the present study aimed to develop a yoga-based educational package and determine its effectiveness on behavioral and emotional disorders in children.

Methods: The first phase was to develop a training package with a qualitative method and the second phase was to evaluate its effectiveness through a quasi-experimental design (pre-test-post-test with a control group). The statistical population of the study in the first phase included all professors and experts in the field of child psychology and mindfulness, physical education, and yoga in 1398-1397 that 7 of these experts were selected by judgment and the content validity of the educational package was confirmed. The statistical population of the research in the second phase was the 7-10-year-old female children of the Welfare Organization of Tehran in 1398-1397. Welfare girl children aged 7-10 years were selected by available sampling based on entry and exit criteria. Ackenbach (1991) questionnaire was used to collect information and a yoga-based mindfulness training package (researcher-made) was used for teaching. Data was analyzed by multivariate analysis of covariance.

Results: The mindfulness training package had a significant effect on three dependent variables of anxiety, depression, and aggression ($p < 0.001$). The coefficient of effectiveness in reducing anxiety was 83%, depression was 42.3%, and aggression was 82.7%.

Conclusion: The results of the present study support the hypothesis that a yoga-based mindfulness training package is effective in reducing the symptoms of emotional behavioral disorders in children.

Key Words: Aggression, Anxiety, Depression, Pediatric Emotional Behavioral Syndrome, Yoga-based mindfulness training package.

* Please cite this article as: Mehralian G, Salehi M, Farrokhi N, Dortaj F. Developing a Yoga-based Mindfulness Training Package and Evaluating Its Effectiveness on the Symptoms of Emotional Behavioral Disorders in Children. Int J Pediatr 2022; 10 (1):15165-15178. DOI: **10.22038/IJP.2021.57308.4495**

* Corresponding Author:

Mahdieh Salehi, Associate Professor, Department of Psychology, Central Tehran Branch, Islamic Azad University, Tehran, Iran. Email: mah.salehi@iauctb.ac.ir

Received date: Apr.250,2021; Accepted date:May.20,2021

1- INTRODUCTION

Emotional and behavioral disorders are usually first seen in childhood (preschool and elementary). These disorders significantly affect children's academic, social, and career performance, increasing the likelihood of developing mental illness and other problems in adulthood (1; 2, 3). Children with a lack of family are deprived of many useful experiences and healthy learning. This vacuum can cause changes in children's behavior and pave the way for problems such as depression, isolation and anxiety or severe mental disorders (4). They usually suffer from attention problems, anxiety / depression, isolation / depression, social problems, thinking problems, aggressive behavior, physical complaints, and law-breaking behavior (5). People with behavioral and emotional problems such as aggression, anxiety, and depression not only have physical symptoms such as headaches and gastrointestinal pain, but also live in isolation and loneliness; and do not pay much attention to the social needs of others (6). Anxiety manifests itself as an experience of distress, and cognitive difficulty (7). Sarason and Sarason describe it as an emotion or symptom associated with stressful situations (3, 8). Some studies show that there is a positive relationship between the presence of children in orphanages and their mental disorder because 86% of these institutions do not meet the psychological needs of children, which contributes to the emergence of many behavioral problems and these institutions cannot be a good alternative for the family (9; 10). Lack of social skills alienates people from society and leads them to isolation, predisposing them to emotional disorders, isolation, and consequently depression. Training in social, cognitive, emotional and interpersonal skills can prepare people to face daily challenges effectively (5). Therefore, early identification and

treatment of emotional and behavioral disorders is important.

One of the educational and therapeutic methods, in this regard, is children's mindfulness. Mindfulness was first introduced by Kabatzin and he defined it as paying moment by moment attention to internal and external stimuli, without judgment (11); Saltzman defines it as paying attention to here and now, with kindness and curiosity and then choosing the appropriate behavior for responding rather than reacting to the environmental stimuli

(12). The main goal of mindfulness is the ability to be conscious and to constantly observe changes in internal and external stimuli (13). In the field of the effects of educational mindfulness intervention on reducing test anxiety, various research studies have been conducted on children and adolescents (14, 15, 16, 17, 18). It seems that this method is more suitable for children than adults, because children experience many things in life for the first time (14; 19). Mindfulness by the use of meditation exercises that are integrated into daily life, helps people become familiar with the dual states of the mind and use them as a cohesive mind. People learn to experience all of life in the here and now moment, and by increasing their focus and attention to the present, they gain peace of mind that, in turn, helps them control their moods and thoughts (20). Mindfulness exercises can cause more happiness, positive thinking, and self-confidence, improve problem-solving skills, acceptance and increased flexibility (23), by increasing emotional resilience and conscious increase in attention (21) along with the ability to observe thoughts and emotions without judgment (13) through physical and memory exercises (22). These exercises are taught to children and adolescents to help reduce the negative emotional reactions that result from aggravated mental problems and exposure to stressors (24). During therapy sessions,

children learn to describe events without using judgment in describing them. They also learn to express inner cognitive and emotional states and physical experiences. The program gives children the ability to experience an event, object, or person without automatic evaluation or judgment (25).

Yoga, on the other hand, is a combination of physical and mental exercises that are related to physiological and psychological processes. Yoga emphasizes relaxation and its exercises are done statically and dynamically, which is different from regular sports. Yoga regularly causes continuous contraction and expansion of muscles in performing movements, changing breathing patterns, cultivating attention and mental alertness, strengthening the heart muscle, improving blood circulation, relaxing muscle tension, relieving the mind from stress, and negative emotions during exercise (26). Researchers have confirmed the effectiveness of yoga in reducing anxiety (27), depression, (28) self-concept and physical self-esteem (29), drug abuse, the use of intelligence capacities and actions, prevention of violent behaviors, strengthening self-reliance, strengthening self-concept, and adaptation as well as the improvement of interpersonal relationships and mental health (30). It is reported that one yoga session has a significant effect on improving executive functions (response inhibition, ringing, impulsive control and position change (31; 32). Studies on other personal injuries and social adjustments (33) also confirm its effects on improving social interactions (34). Studies have also asserted the increased mental health, quality of life, higher adaptation, and children's mindfulness due to traditional yoga methods, as compared to other methods, including cognitive-behavioral therapy (23; 35, 36). It seems that by combining these two methods (mindfulness with emphasis on yoga),

mindfulness therapy can be made more attractive, energetic, and effective for children; because behaviors and movements usually are helpful in children's learning and retention. It can, then, be expected to have a more lasting effect in this way. In his book, *Yoga and Mindfulness*, Pradhan proposed a model for treatment that combines traditional yoga with mindfulness, named as 'yoga-based mindfulness'. Its effectiveness has been shown in reducing aggression, anxiety, depression, post-traumatic stress symptoms, as well as increasing mental health and improving quality of life and self-efficacy (37). Previous studies have introduced protocols of yoga-based mindfulness for adults and adolescents (37) but not for children. In view of the above, this study intends to use the Yoga Protocol (36) on the adjustment and interpersonal relationships of delinquent children and adolescents, along with the Child Mindfulness Protocol (26), using the Prada model; and attempts are made to develop a mindfulness training package based on children's yoga considering the viewpoints of various professors and experts.

An accordingly, this study also aimed at evaluating the effectiveness of yoga-based mindfulness training on children's emotional behavioral disorders syndrome (aggression, anxiety, depression) among 7-10-year-old children in the welfare centers.

2- MATERIALS AND METHODS

2-1. Study design and population

This study followed a two-fold purpose; first to develop a training package with a qualitative method in which the content validity is examined, and next to evaluate its effectiveness by a quasi-experimental pretest-posttest research design with a control group. The statistical population of the research in the first phase included all professors and experts in the field of child psychology and mindfulness,

physical education and yoga in 1398-1397, among whom 7 (38) individuals were randomly selected. The statistical population in the second phase included all 7-10 year old girls of the Welfare Organizations of Tehran in 1398-1399 who were present in welfare centers and were selected through non-random available sampling (The welfare organization chose the centers). From the two introduced centers, 30 children aged 7-10 years were selected through convenience sampling, and based on the entry and exit criteria (39).

2-2. Method and Intervention

The training method was randomly assigned to the centers. Based on the entry and exit criteria, the samples were selected in the second step. *Inclusion criteria:* the subject should be in the age range of 7-10 years, not suffering from severe and chronic mental illnesses such as severe depression, severe anxiety, drug abuse and/or chronic physical illnesses that

prevent participation in skills training. *Exclusion criteria:* absence from more than two of the training sessions. In the data collection section, the required data were collected in two steps. In the first step of this study, a yoga mindfulness training package was set up, using a variety of resources. According to the package of children's mindfulness and children yoga, according to each stage of children's consciousness, the steps and movements of children's yoga were selected and finally a training package was prepared. Experts were then asked to comment on the package.

The comments were collected and modifications were made. Finally, the final training package was prepared and its face and content validity were confirmed. **Table 1**, below, shows the content of all training sessions. In the next step, the effectiveness of yoga-based mindfulness in children was examined.

Table-1: Mindfulness sessions with emphasis on yoga

Meeting	Purpose and process of the meetings in the welfare organization (60 minutes each, once a week)
First	<ul style="list-style-type: none"> - Creating a safe and reliable environment for the group to increase mindfulness Abdominal and deep breathing, related explanations and its importance - Teaching the concept of mindfulness and the difference between conscious attention and normal attention to the child - Motivating the children to do homework <p>In this session, children are introduced to each other. After that, the concept of mindfulness and why they are in this group is discussed. In addition, children become more familiar with the benefits of this educational-therapeutic method with the help of exercises such as discovery of consciousness, and yoga movements. It should be noted that after each exercise, that exercise is examined and children share their experiences with each other during the study. Each session ends with a summary of the session and the delivery of the worksheets to the children. Activities at home: Doing yoga exercises. Visualizing a safe place, finding examples of being in the moment.</p>
Second	<p>Raising awareness of the challenges prior to practicing mindfulness exercises and discovering reasons for "being in the world."</p> <p>Deep breathing, lotus position and stretching movements also prepare the body for the onset of asanas with a focus on inhaling and exhaling, archery and bridge movements. Introducing the concepts of mindfulness of breathing, mindfulness of senses as well as mindfulness of body movements.</p>

	<p>Mentioning the benefits of mindfulness exercises as well as mindfulness of body movements to children. Activities at home: In this session, children become more familiar with the concept and benefits of mindfulness by performing exercises such as meditation and mindfulness of body movements. Children are also informed that daily practice of these exercises is necessary for the progress of treatment.</p>
Third	<p>In this session, children become more familiar with their thoughts, feelings, and body senses through exercises such as mindfulness; better understand the difference between them, and become more aware of the effects of these three components on their life experiences. Homework: doing yoga exercises, remembering and drawing the thought and feeling and bodily sensations that they had at that moment.</p>
Fourth	<ul style="list-style-type: none"> -Raising their awareness about the fact that we all have thoughts, feelings and physical senses, but these are not always true. - Deep breathing, lotus position and stretching movements to prepare the body to start asanas with focus on inhaling and exhaling, type I warrior mode, cat-cow movement. -Explaining that many of a person's thoughts, feelings, and physical senses affect the realities of their lives, so as people become more aware of their thoughts, feelings, and physical senses, their life experiences change. - Practice observing the fact that humans tend to judge what they smell or taste. And raising awareness that these judgments affect children's experiences. - Familiarizing them with the possibility and right to choose to respond differently to experiences and also that increasing mindfulness may help children have more and more diverse choices. Homework: doing yoga exercises, writing a memoir about a taste and a smell, and what was the result of that thought, feeling and body feeling.
Fifth	<ul style="list-style-type: none"> - Introducing conscious mind listening and increasing awareness of the natural complexity of sounds. - Deep breathing in the lotus position and stretching movements to prepare the body to start asanas with focus on inhaling and exhaling, hearing the sound of your inhaling and exhaling, lying in the butterfly position. - Familiarity with the fact that different sounds evoke different thoughts, feelings, and body senses in another child, and the observation that the same sounds may evoke different responses in different children. Homework: Performing yoga movements, recording two sounds around the child and reporting their effect on him and his feelings towards them.
sixth	<ul style="list-style-type: none"> - Introducing the conscious expression of sounds; practicing the use of sounds in expressing emotions. - Deep breathing, lotus position and stretching movements to prepare the body to start asanas with a focus on inhaling and exhaling, hearing the sound of inhaling and exhaling, swinging with music, moving locusts. - Explaining that thoughts can affect emotions and bodily senses and are affected by them. Homework: doing yoga exercises. The child is asked to state the same sentence in different emotional states of sadness, joy, and fear, and examine its effect on his feelings and become more familiar with the difference between emotion and sound.
Seventh	<ul style="list-style-type: none"> - Observing the conscious mind to increase attention and focus - Deep breathing of lotus position and stretching movements to prepare the body to start asanas with a focus on inhaling and exhaling - Learning how to distinguish between judging and describing - Explaining that children's experiences are shaped by a combination of what they see and the cognitive interpretations that are made about them; and Humans judge people automatically without looking at the reality of what is in front of them.

	Homework: doing yoga exercises, Writing a case in which a judgment has been done based on seeing. How does it feel to judge it?
Eighth	<ul style="list-style-type: none"> - Awareness of the conscious mind, practicing conscious attention to the sense of touch, observing that all people often classify and label their experiences. - Increasing the participants' awareness of judgments and how these judgments affect children's perceptions of their touch. - Deep breathing, lotus position and stretching movements are also used to prepare the body to start asanas with a focus on inhaling and exhaling, downward dog, baby, and chair position. Deepening the understanding that judging may prevent children from seeing the choices they can make. Homework: doing Yoga Exercises – doing concentration Exercises which involve a technique called trataka. In this technique the child should focus on a word or shape, then close their eyes and draw its picture on a piece of paper.
ninth	<ul style="list-style-type: none"> - Cultivate mindfulness by continuing to practice, Explaining that thoughts and emotions are not real; they are only thinking. Emotions are just excitement and are not real. - Stretching movements are used to prepare the body to start asanas, along with focusing on inhaling and exhaling, cobra mode, kicking mode from the side, and type II warrior. - Delivering a story sheet to the child, in which the child identifies and distinguishes the thoughts, feelings, and physical senses mentioned in it. <p>Homework: Writing a memoir in which the child identifies thoughts, feelings, and physical senses.</p>
tenth	<ul style="list-style-type: none"> - Supporting the children in order to continue the growth of mindfulness and bring more mindfulness into daily life. - Stretching exercises to prepare the body to start asanas with a focus on inhaling and exhaling, flying eagle mode, type III warrior. Mountain state - Teaching children to be kind to themselves and others in the world. - Talking about the children's personal experiences of the program

The researcher, after receiving a letter from the university, referred to the Welfare Organization and received permission for conducting the study in the welfare centers. The centers were selected by the organization itself and two centers, named Taha and Narges, with children aged 7-10 years were introduced. From these two centers, 30 children aged 7-10 years were selected by available sampling based on entry and exit criteria. The training was held in two separate centers to prevent the transmission effect. In the experimental group, a child yoga-based mindfulness training package was presented and in the control group, no training was given. In order to collect the required data, the Achenbach Child Behavior Questionnaire

was filled out by the children's educators (40). Children who scored in the areas of depression, anxiety, and aggression were selected as subjects. The Questionnaire was first used for screening and subject selection, and for the subjects selected, it served as a pre-test. The experiment consisted of 10 one-hour training sessions, in the last session of which the post-tests were administered for both groups. The data of the present study was analyzed using SPSS software.

2-3. Research instruments

2-3.1. Child Behavior Checklist (CBCL)

This tool was developed by Akhenbach in 1991 (40). It is a tool that is completed by a parent or other person who is well

acquainted with the child's behavioral competencies and problems. This tool can be implemented as a self-report or as an interview. This list can also be used to measure changes in children's behavior over time or after training and education (41). This questionnaire has 113 questions

related to different types of children's behaviors. The responses to the questions are in the form of 3 options from 0 to 2. It measures 8 emotional-behavioral problems or syndromes, shown in the table below (**Table 2**).

Table-2: CBCL components and their relevant items

Component	Questions
Anxiety / Depression	12, 14, 29, 30, 31, 32, 33, 35, 45, 50, 52, 71, 91 and 112
Isolation / Depression	5, 42, 65, 69, 75, 102, 103 and 111
Physical complaints	47, 49, 51, 54, 56a, 56b, 56c, 56d, 56e, 56f, 56g, 56h
social problems	11, 12, 25, 27, 34, 36, 38, 48, 62, 64, 79
Thinking problems	9, 18, 40, 46, 58, 59, 60, 66, 70, 76, 80, 83, 84, 85, 92, 100
Attention problems (related to attention deficit / hyperactivity disorder)	1, 4, 8, 10, 13, 17, 41, 61, 78, 80
Law-breaking behavior	2, 26, 28, 39, 43, 63, 67, 72, 73, 81, 82, 90, 96, 99, 101, 105, 106
Aggressive behavior	3, 16, 19, 20, 21, 22, 23, 27, 37, 57, 68, 86, 87, 88, 89, 94, 95, 97, 104

If the overall score is less than 65, the individual is in the normal or non-clinical range; if it is between 65-69, in the borderline-clinical range; and if greater than 69, in the clinical range. The total Cronbach's alpha reliability coefficient has been reported as 0.97 and the verification validity as 0.94. Content validity (logic of item selection and class one analysis of questions), criterion validity (using psychiatric interview with the child) as well as the predictive correlation and construct validity (internal relations of scales and group differentiation) have been reported to be desirable (41). This tool has been translated and standardized for the first time in Iran by Tehrani Doust et al. (2002) (42). Minayee (42, 43) has stated that the range of internal consistency coefficients of the scales using Cronbach's alpha formula is from 0.63 to 0.95 and it can be used with confidence to measure emotional-behavioral disorders in children and adolescents aged 6-18 years.

2-3.2. Mindfulness training package with emphasis on yoga

This package is a combination of children's mindfulness and children's yoga sessions based on interviews with experts in yoga and children's mindfulness. After compiling a mindfulness training package with emphasis on yoga in ten one-hour sessions, its face validity was confirmed by experts. This training package was then provided to 7 professors and experts in the field of child psychology and mindfulness, physical education and yoga, and they were asked to review it and provide the necessary feedback based on the criteria for using child yoga techniques (suitable for reducing depression, anxiety and aggression) and children's mindfulness strategies and the appropriateness of the sessions. To determine the content validity ratio (CVR) index, the same experts were asked to judge the content of each session as being necessary, useful or unnecessary.

Expert opinion was calculated using the following formula as the content validity ratio:

$$CVR = \frac{ne-(n/2)}{(n/2)} = \frac{7-(3.5)}{(3.5)} = 1$$

ne: Number of experts who deemed the question necessary

n: the total number of judges

CVR values of 0.99 were accepted based on Lawshe table (**Table 3**).

Table-3: Minimum CVR values provided in Lawshe validity review

Number of panel members	5	6	7	8	9	10	11	12	13	14	15	20
Minimum acceptable CVR values	99	99	99	78	75	62	59	56	54	51	49	42

CVR becomes negative when less than half of people choose the "necessary" option.

The CVR is zero when half of the people select the "necessary" option and the other half select the other options.

The CVR is set to 1 when everyone selects the "Necessary" option (adjusted to 0.99 for easier conversion).

CVR between zero and 0.99 is obtained when the number of people who select the "necessary" option is more than half, but does not include the whole population (44).

2-4. Ethical consideration

This article is an excerpt from Dr. Goli Mehr Alian's dissertation. This research has the approved code of ethics IR.IAU.TMU.REC.1399.062 from the research ethics committee of Tehran University of Medical Sciences. Informed consent was obtained from the participants; and the principles of confidentiality of information and the intervention's not being harmful were observed. All the people who contributed to this research as well as the welfare children participating in this research are appreciated and thanked.

2-5. Data Analyses

Before performing the statistical calculation, the assumptions of the independence of individuals' scores, the normality of the distribution of variables using the Kolmogorov-Smirnov test, linearity using the test of linear relationship at the significance level of <0.05, and also, the careful measurement of the dependent variable was observed in completely controlled conditions. The assumptions of homogeneity of variance and homogeneity of variance-covariance matrices were also examined.

3- RESULTS

The participants in this study were 30 children who were assigned into the experimental (yoga-based mindfulness therapy) and control groups (15 people in each group). In each group, there were 8 people aged 7 to 8 years and 7 people aged 9 to 10 years. The mean and standard deviations of pretest and posttest scores in different groups are presented in **Table 4**.

As shown in **Table 4**, there is not much difference between the pretest scores of the research groups. But there is a difference between the groups' mean scores in the post-test. The significance of this difference is examined below (**Table 5**).

Table-4: Descriptive indicators of research variables

group		Number	Pre-test		Post-test	
			mean	SD	mean	SD
Anxiety	Yoga-based mindfulness	15	20.40	2.746	12.33	1.988
	Control	15	21.13	2.133	21.06	2.08
Depression	Yoga-based mindfulness	15	11.13	1.505	8.06	2.0160
	Control	15	11.60	2.323	10.86	2.231
aggression	Yoga-based mindfulness	15	31.80	3.687	16.86	2.748
	Control	15	30.33	3.265	29.26	3.918

Table-5: Results of multivariate analysis of covariance

Test	Value	F	Degree of freedom of effect	Error degree of freedom	Significance level	Effect size	Test power
Pilay effect	0.935	109.588	3	23	0.0001	0.935	1
Wilks Lambda	0.065	109.588	3	23	0.0001	0.935	1
Hoteling effect	14.294	109.588	3	23	0.0001	0.935	1
The largest root on	14.294	109.588	3	23	0.0001	0.935	1

Since the significance of the differences is confirmed in all four multivariate tests, it should be examined whether each of the dependent variables is affected separately by the different levels of the independent

variable or not (**Table 5**). The effect of the independent variable on each of the dependent variables is presented below (**Table 6**).

Table-6: Univariate test results on the post-test mean scores of the dependent variables

Dependent variable	Total squares	Degrees of freedom	Mean squares	F	Significance level	Effect size	Test power
Anxiety	524.827	1	524.827	121.833	0.0001	0.830	1.000
Depression	46.376	1	46.376	18.330	0.0001	0.423	0.984
aggression	1151.851	1	1151.851	119.776	0.0001	0.827	1.000

As can be seen in **Table 6**, the univariate test result is significant for each of the dependent variables ($P < 0.01$) and the mindfulness training package is confirmed to have a significant effect on the three dependent variables of anxiety, depression and aggression.

4- DISCUSSION

The aim of this study was to evaluate the effectiveness of a yoga-based mindfulness training package on children with emotional behavioral disorders

(depression, anxiety and aggression) and the findings showed that the training package has an effect on these children. The training package is effective in reducing anxiety by 83%, in reducing depression by 42.3%, and in reducing aggression by 82.7%.

Although no study was found examining the effect of mindfulness with an emphasis on yoga, reviewing the literature on mindfulness training and yoga training showed that the results of the present study are in line with those of Nigla et al. (45),

Singh et al. (46), Campbell and Martin (47), Chou and Hong (33), City et al. (48), Velasquez et al. (49), Butzer et al. (50), Galigo et al. (15), Carlsi et al. (51), Brighton et al. (52), Winnie et al. (53), Tils et al. (54), Vesali Mahmoud et al. 20 (20), Sattari and Kafash zadeh (19), Faramarzi et al. (55), and Golpour et al. (17).

Numerous studies have shown the effect of yoga on various aspects of the health of the human body. Yoga is a combination of physical-mental exercises related to both physiological and psychological processes. Yoga emphasizes relaxation and its exercises are done statically and dynamically, which is different from regular sports. Yoga causes continuous contraction and expansion of muscles in performing movements, changing breathing patterns, cultivating attention and mental alertness, strengthening heart muscle, improving blood circulation, relaxing muscle tension, as well as relieving stress and negative emotions (depression, anxiety and aggression) (27). For this reason, yoga improves general health, nervous function and physical activity, and has a great effect on the students' attention, concentration and problem-solving (58), on reducing depression, anxiety and aggression, along with improving social-emotional competencies in children (49, 54) and on stress and behavior management (50).

On the other hand, mindfulness is effective in reducing stress, anxiety, depression and aggression. Mindfulness exercises and some relaxing exercises including physical practices can help reduce the symptoms of stress, depression, aggression and anxiety (15). This method is effective on the emotional and cognitive components of anxiety; and leads to improved mindfulness and assertiveness by increasing the child's skills and can, thus, reduce his anxiety and aggression (19, 20, 55, 56).

Due to the effectiveness of both mindfulness and yoga, combining these training methods in a training package made it attractive and effective for children. Yet, some suggestions are made to improve future research. It is suggested that a yoga-based mindfulness training package be implemented in two groups of girls and boys, so that gender-related differences can also be examined. The effectiveness of this package should be compared to other treatment methods such as mindfulness, at the same age group. To evaluate the continuation of the effectiveness of this training package, follow-up studies should be performed.

Finally, according to the results of this research and the effectiveness of the yoga-based mindfulness training package, the use of this training package in the centers of the Welfare Organization is recommended. The training courses of this package can also be used in centers that deal with mentally injured and working children.

5- STUDY LIMITATIONS

The training package has been implemented for children aged 7-10 years, and the generalization of the results (according to the specific community and age group) should be done with caution. Furthermore, this study has been conducted in Tehran and the results cannot be easily generalized to the other places.

6- CONCLUSION

The effectiveness of the yoga-based mindfulness training was confirmed; and anxiety and aggression were reduced in the experimental group. According to the results, using a yoga-based mindfulness training package is recommended.

7- REFERENCES

1. Afework T. A comparative study of psychological wellbeing between orphan and non-orphan children in Addis Ababa:

The case of three selected schools in yeka sub-city. Thesis publication; 2013.

2. Pandina GJ, Bilder R, Harvey PD, Keefe RS, Aman MG, Gharabawi G. Risperidone and cognitive function in children with disruptive behavior disorders. *Biological psychiatry*. 2007; 62(3): 226-34.

3. Sadock BJ, Sadock VA, Ruiz P. Kaplan and Sadock's Synopsis of psychiatry based on DSM-5. Ganji M. (Persian translator), Savalan Publications; 2015.

4. Rajabi M, Bagiyani MJ, Bakhti M, Kariminejad K. Comparison of mental health indicators in orphaned children held centers with children deposited to relatives in Lorestan province. *JPEN*. 2017; 4 (1): 36-42.

5. Shalchi B, Vahidnia B, Dadkhah M, Alipouri Niaz M, Moghimifam P. Comparison of affective-behavioral disorders and social skills among normal adolescents and institutional children of social welfare bureau. *Refahj*. 2017; 17 (67): 173-201.

6. Kim YH, Kim DJ, Wachter K. A study of mobile user engagement (MoEN): Engagement motivations, perceived value, satisfaction, and continued engagement intention. *Decision support systems*. 2013; 56:361-70.

7. Robinson DH. Evaluation (test) anxiety. In: Anderman EM. *Psychology of Classroom Learning: An Encyclopedia*. 1th ed. Detroit: GALE. 2008:387-90.

8. Sarason IG, Sarason BB. Test anxiety. In: Leitenberg H. *Handbook of Social and Evaluative Anxiety*. New York: Plenum Press; 2009.

9. George A. State of orphans in the earthly paradise. *Economic and Political Weekly*. 2011:19-22.

10. Dillon S. The missing link: a social orphan protocol to the United Nations Convention on the Rights of the Child.

Hum. Rts. & Globalization L. Rev. 2007; 1:39.

11. Kabat-Zinn J. Mindfulness-based interventions in context: past, present, and future. *Clinical psychology: Science and practice*. 2003; 10(2):144-56.

12. Saltzman A. A still quiet place: A mindfulness program for teaching children and adolescents to ease stress and difficult emotions. New Harbinger Publications; 2014.

13. Baer RA. Mindfulness training as a clinical intervention: A conceptual and empirical review. *Clinical psychology: Science and practice*. 2003; 10(2):125-43.

14. Hooker KE, Fodor IE. Teaching mindfulness to children. *Gestalt review*. 2008; 12(1):75-91.

15. Gallego J, Aguilar-Parra JM, Cangas AJ, Langer ÁI, Mañas I. Effect of a mindfulness program on stress, anxiety and depression in university students. *The Spanish journal of psychology*. 2014; 17.

16. Napoli M, Krech PR, Holley LC. Mindfulness training for elementary school students: The attention academy. *Journal of applied school psychology*. 2005; 21(1):99-125.

17. Golpourchamarkohi R, Mohammadamini Z. The efficacy of mindfulness based stress reduction on mindfulness and assertiveness of students with test anxiety. *Journal of School Psychology*. 2012; 1(3): 82-100.

18. Birami M, Abdi R. The effectiveness of teaching mindfulness-based techniques in reducing anxiety, students' exam. *Journal of Educational Sciences*. 2009; 6: 35-54.

19. Sattari Y, Kafashzadeh M. The effect of mindfulness method on test anxiety of female middle school students in Saveh. *Journal of Education and Evaluation*. 2015; 8 (31): 25-36.

20. Vesali M, Ahadi R, Kajbaf H, Bagher M, Neshatdoost T. The effect of mindfulness-based intervention with children on test anxiety, MEJDS. 2017; 7:1-9.
21. Williams M, Penman D. Mindfulness: a practical guide to finding peace in a frantic world. Hachette UK; 2011.
22. Semple RJ, Lee J, Rosa D, Miller LF. A randomized trial of mindfulness-based cognitive therapy for children: Promoting mindful attention to enhance social-emotional resilience in children. *Journal of child and family studies*. 2010; 19(2):218-29.
23. Hopkins ME, Bucci DJ. BDNF expression in the perirhinal cortex is associated with exercise-induced improvement in object recognition memory. *Neurobiology of learning and memory*. 2010; 94(2):278-84.
24. Valipour M. The effectiveness of cognitive therapy based on mindfulness on the behavioral problems of girls. Thesis for M.Sc. in Al-Zahra University. Tehran, Iran: 2016.
25. Perry-Parrish C, Copeland-Linder N, Webb L, Shields AH, Sibinga EM. Improving self-regulation in adolescents: current evidence for the role of mindfulness-based cognitive therapy. *Adolescent health, medicine and therapeutics*. 2016; 7:101.
26. Semple RJ, Lee J. (2011). *Mindfulness-Based-Cognitive therapy for anxious children*. New York: New Harbinger Publications, Inc.
27. Varma C, Raju P. Yoga Therapy in Pediatrics. *Education in Medicine Journal*. 2012; 3(6):1-4
28. Smith C, Hancock H, Blake-Mortimer J, Eckert K. A randomized comparative trial of yoga and relaxation to reduce stress and anxiety. *Complementary therapies in medicine*. 2007; 15(2):77-83.
29. Adlparvar A, Movahedi A, Rafei M. Effect of yoga on anxiety of parents and children with attention deficit/hyperactivity disorders. *Motor Behavior*. 2017; 9(27): 139-152.
30. Kalogiannis P. The role of sport and physical education in self-concept development of children and adolescents. *Inquiries in sport & physical education*. 2006; 4(2):292-310.
31. Posadzki P, parekh Sh, glass N. Yoga and qigong in the psychological prevention of mental health disorders. *Journal of the chin j integr med*. 2008. 62:737-745.
32. Bek M, Nazakat Al-Husseini M, Almond F, Abedi A. The effect of a yoga exercise course on executive functions in children with attention deficit hyperactivity disorder. *Exceptional Children Quarterly*, 2014, 2 (52): 17-32.
33. Chou CC, Huang CJ. Effects of an 8-week yoga program on sustained attention and discrimination function in children with attention deficit hyperactivity disorder. *PeerJ*. 2017; 5:e2883.
34. Shim SS, Ryan AM, Anderson CJ. Achievement goals and achievement during early adolescence: Examining time-varying predictor and outcome variables in growth-curve analysis. *Journal of Educational Psychology*. 2008; 100(3):655.
35. Ghanbari H, Saadat BM. The effect of rhythmic yoga movements on social interactions of mentally retarded primary school boys in Sangan-Khaf, *Educational and Psychological Studies*. 2010; 11 (1):171 -188.
36. Esmailian, N, Tahmasian K, Deghani M, Mootabi F. Effectiveness of mindfulness-based cognitive therapy on depression symptoms in children with divorced parents. *Journal of Clinical Psychology*. 2013; 5(3): 47-57.

37. Khezri, Z. The effectiveness of yoga exercises on the level of adaptation and interpersonal relationships of adolescents in Bushehr Correctional Center, Master Thesis, Counseling, 2012.
38. Pradhan B. Yoga and mindfulness based cognitive therapy: a clinical guide. Springer; 2014.
39. Gall MD, Borg WR, Gall JP. Quantitative and qualitative research methods in educational sciences and psychology (Organization for the study and development of the center for research and development of humanities). Nasr AR (Persian translator). Tehran: Samt Publications; 1991.
40. Achenbach TM, Rescorla LA. Manual for the ASEBA school-age forms & profiles. Burlington, VT: University of Vermont Research Centre for Children, Youth and Families. 2001.
41. Achenbach, T.M. Integrative guide for the 1991 CBCL/4-18, YSR, and TRF Profiles. Burlington, VT: University of Vermont, Department of Psychiatry. 1999.
42. Delavar, Ali. Research Methods in Psychology and Educational Sciences, Tehran, Edited, 2017.
43. Minaei A. Adaptation and standardization of Akhenbach's child's behavioral checklist. Self-assessment questionnaire and teacher report form, research in the field of exceptional children. 2006; 19 (1): 529-558.
44. Minaei, A. Investigating factor structure of child behavioral checklist syndrome using confirmatory factor analysis. Journal of Educational Psychology. 2008; 2 (7): 93-114.
45. Yazdkhasti F, Oreyzi H. Standardization of child, parent and teacher's forms of child behavior checklist in the city of Isfahan. IJPCP. 2011; 17 (1): 60-70.
46. Razavi, M, Akbari, M, Jafarzadeh M, Zali M.R. Review of mixed research method research. Second edition. University of Tehran Press; 2013.
47. Ahemaitijiang N, Hu X, Yang X, Han ZR. Effects of meditation on the soles of the feet on the aggressive and destructive behaviors of Chinese adolescents with autism spectrum disorders. Mindfulness. 2020; 11(1):230-40.
48. Singh NN, Lancioni GE, Myers RE, Karazsia BT, Courtney TM, Nugent K. A mindfulness-based intervention for self-management of verbal and physical aggression by adolescents with Prader-Willi syndrome. Developmental neurorehabilitation. 2017; 20(5):253-60.
49. Campbel M, Martin S. Exploring yoga as a sensory based intervention for children with sensory processing difficulties: A systematic literature review. MOJ Yoga and Physical Therapy. 2017; 2:1-8.
50. AG GS, Subramanya P, Mahadevan B. Effect of yoga on adolescents' beliefs about aggression and alternatives. International Journal of Medicine and Public Health. 2017; 7(3).
51. Velásquez AM, López MA, Quiñonez N, Paba DP. Yoga for the prevention of depression, anxiety, and aggression and the promotion of socio-emotional competencies in school-aged children. Educational Research and Evaluation. 2015; 21(5-6):407-21.
52. Butzer B, Day D, Potts A, Ryan C, Coulombe S, Davies B, Weidknecht K, Ebert M, Flynn L, Khalsa SB. Effects of a classroom-based yoga intervention on cortisol and behavior in second-and third-grade students: A pilot study. Journal of evidence-based complementary & alternative medicine. 2015; 20(1):41-9.
53. Carsley D, Heath NL, Fajnerova S. Effectiveness of a classroom mindfulness coloring activity for test anxiety in

children. *Journal of Applied School Psychology*. 2015; 31(3):239-55.

54. Britton WB, Lepp NE, Niles HF, Rocha T, Fisher NE, Gold JS. A randomized controlled pilot trial of classroom-based mindfulness meditation compared to an active control condition in sixth-grade children. *Journal of School Psychology*. 2014; 52(3):263-78.

55. Jain D, Jain V, Pahuja YP, Joshi V, Parekh N, Jain V. A pilot study on the effects of yoga practices on aggressive behavior and academic performance of school children. Project report submitted to department of education. South Delhi Municipal Corporation, New Delhi. 2014.

56. Telles S, Singh N, Bhardwaj AK, Kumar A, Balkrishna A. Effect of yoga or physical exercise on physical, cognitive and emotional measures in children: a randomized controlled trial. *Child and Adolescent Psychiatry and Mental Health*. 2013; 7(1):1-6.

57. Faramarzi, S; Rajabi, S; Valdebeigi, P. The effectiveness of mindfulness-based cognitive therapy on reducing students' aggression. *Kermanshah University of Medical Sciences*. 2014; 18 (8): 462-452.

58. Sharma M. Kumar S. Chavan BS. Effect of adaptive yoga therapy in increasing hand steadiness among children with intellectual disability. *The International Journal of Indian Psychology*. 2016; 4(1):11-17.