



Effectiveness of Mindfulness-Based Intervention on Risky Behaviors, Resilience, and Distress Tolerance in Adolescents

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Abstract

Background: The adolescent faces rapid physical growth that is emotionally immature, in terms of limited experience, and fragile and vulnerable in cultural terms. The rate of change in this period is high that can cause various behavioral problems during this period.

Objectives: The aim of this research was to explore the effectiveness of Mindfulness-Based Intervention on risky behaviors, resilience and distress tolerance among adolescents in juvenile correction and rehabilitation center.

Patients and Methods: This research was a quasi-experimental study with pretest-posttest and control group. A random sampling method was used to select 30 people in the experimental and control groups at Tehran's Juvenile Correction and Rehabilitation Center in 2019. The control group did not receive any training and just were taken pre-test and post-test. The Iranian Adolescents Risk-Taking Scale, Distress Tolerance Scale and Connor-Davidson Resilience Scale were used in this research. Multivariate analysis of variance, multivariate covariance test were performed to analyze data by SPSS V. 22 software.

Results: The results showed that intervention in adolescents at the juvenile correction and rehabilitation center has an important impact on risky behavior, resilience, and distress tolerance.

Conclusions: Mindfulness can be used as an effective interventions for adolescents with risky behaviors.

Keywords: Adolescent, Mindfulness, Health Risk Behaviors, Resilience, Rehabilitation Center

1. Background

The adolescent faces rapid physical growth that is emotionally immature, in terms of limited experience, and fragile and vulnerable in cultural terms. The rate of change in this period is so high that the only infant stage surpasses it. Ineffective coping strategies will cause various behavioral problems during this period (1).

By providing empirical evidence, health professionals have proven that the main causes of mortality in adolescents and young people are cases where the most important underlying cause is harmful behaviors. This fact has led psychologists to study and then research the relationship between human behaviors and health because adolescence is a critical period of life with important behavior patterns that can affect the whole person's life. In adolescence, a person determines own position in the family, friends, and society. In adolescence years, people experience learning and therefore, face a variety of risks (2). Misleading decisions may lead to risky behaviors.

Juveniles are one of the most vulnerable individuals

in society against risky behaviors. According to Iran's medical statistics, the most common causes of infections among young people under the age of 25 in Iran are primarily alcohol injuries, drug abuse, and suicide. Obviously, any lesion and failure in the physical and psychological health of adolescents and, as a result, the reduction of the capabilities of this locomotive body will inevitably lead to a lack of progress in society and will not delay their physical and mental health. In the long time, it affects the health of society, so their issues and concerns need to be given more attention (3).

Another variable associated with risky behaviors is distress tolerance. Distress tolerance is an important factor in individual differences, which refers to the capacity for experiencing and tolerance of emotional distress (4). Those who are at a low level of distress tolerance describe emotional distress as unbearable, evaluating emotional disturbances as unacceptable, trying to relieve the negative emotional state and being able to focus their attention on a subject other than their emotional distress (5). These people struggle hard to avoid the experience of negative emo-

tions. If they are unlikely to avoid, they will resort to unhealthy ways to overcome the annoying emotional state. If this inappropriate strategy is not beneficial, it is likely that their entire energy will be concentrated on their excitements, which will ultimately disrupt their functions (6).

The study of Vujanovic et al. (7) showed that distress tolerance is a coping method as a mediator in the relationship between the severities of post-traumatic stress symptoms. The results of Burns et al. (8), which aimed to determine the mediating role of distress and impulsivity, showed that distress tolerance plays a role in mediating them, and individuals turn out to be risky behaviors would escape the stress and psychological distress. Therefore, owing to these problems, one should pay more attention to the psychological problems of adolescents, and they can be addressed by obtaining appropriate methods of emotional regulation and appropriate management practices, as well as teaching appropriate strategies for dealing with stressful issues for proper management. They are excited and have better resilience in dealing with the disadvantages of their lives.

One of the issues that have been studied in adolescents' resilient is that deficiencies in this field can have harmful consequences such as delinquency. Understanding of resilience can be effective in the field of clinical care (especially counseling), educational planning, teaching classes, and recognition of adolescent growth (9).

Resilient people are resistant to problems, and, if necessary, accept non-recoverable conditions. Some researchers believe that if therapists focus on building persuasive beliefs and behaviors, they will be more effective than those that focus on beliefs and behaviors that prevent resilience (10).

In this regard, third-generation therapies have surpassed training in improving the psychological status of chronic patients, and have been able to validate the need for alternative cognitive-behavioral therapies. In this way, more emphasis has been placed on textual and experimental features in psychological experiences. In this type of training, instead of changing cognition, individual's psychological relationship with thoughts and feelings would be increased. The purpose of this training is to help individuals to achieve a more valuable and satisfying life through increased psychological flexibility rather than focusing solely on cognitive rehabilitation. In the meantime, Mindfulness-Based Intervention training is a kind of psycho-educational training that helps adolescents to practice mental-physical mediation and aimed to reduce stress and improve mental health (11). The main mechanism of this training is to pay attention to self-control by focusing attention on the stimulus in the neutral triggers a suitable environment. In this therapeutic pattern, the

mindfulness deliberates focus of the adolescent towards the current experience by non-judgmental character with acceptance. Many studies have been conducted, especially in recent years that have addressed the effects of mindfulness in clinical areas, which indicate the positive effects of this training on depression, anxiety, and stress. According to Javedani et al. (12), mindfulness can be considered an effective training to increase resilience and reduce the rumination of women.

Considering that most studies have been devoted to children and adults and few studies have been conducted on adolescents in the Juvenile Correction and Rehabilitation Center; thus training is required to improve their psychological state.

2. Objectives

The present study focuses on Mindfulness-Based Intervention training among adolescents in order to investigate its effect on risky behaviors, resilience, and distress tolerance.

3. Patients and Methods

This research is a quasi-experimental study with pre-test, post-test, and control group that statistical population is all adolescents were aged 14 to 16 years old in Tehran's Juvenile Correction and Rehabilitation Center in 2019.

A list of all the adolescents at the Juvenile Correction and Rehabilitation Center was received from the authorities. Some adolescents did not have much time to finish their freedom so they were excluded from the general list. The rest of the subjects had equal shares for selection, so A random sampling method was used to select 30 people in experimental and control groups. After the pre-test, they were randomly assigned to the control and experimental groups (n = 15).

The experimental group was trained by a 90-minute Mindfulness-Based Intervention training of Bordick (13). This therapeutic package has been used in Hossein's research (14).

The inclusion criteria for research were ages 14 - 18, non-drug abuse and substance dependence, lack of psychosocial drugs, lack of grief experience in the past 6 months such as divorce and close relatives, participants at the same time should not participate in any psychological training course and should not suffer from acute and chronic physical illness (according to their health records and counselling). Also, the exclusion criteria were more than two absences from the sessions, dealing with severe stressful

events, or lack of corporation with the class assignments and reluctance to continue the research.

All participants were informed with consent to comply with ethical principles. The participants were assured that the method in which the results of the research report were to guarantee their rights.

Iranian Adolescents Risk-Taking Scale was used in this research. By reviewing valid and promising tools in the field of risk management such as the Risk Assessment Questionnaire for adolescents (15) and the Risk Management System for Young People (YRBSS), and considering the cultural conditions and social constraints of the Iranian society, it was adopted on 38 items by Zadeh Mohammadi et al. (16). It assesses 7 subscales of high-risk behaviors, including dangerous driving, violence, cigarette smoking, substance abuse, alcohol consumption, sexual behavior, and relationship with the opposite sex that in this research we used the total score of them. Cronbach's alpha of this instrument for total score was 0.94 (16).

Distress Tolerance Scale was developed by Simons and Gaher (4) that items of this scale measure distress tolerance based on individual abilities to tolerate emotional distress, distressed mental evaluation, attention to negative emotions in case of occurrence, and regulatory measures to relieve distress. This scale has 15 items and 4 subscales. Its sub-scales include emotional distress tolerance, absorption by negative emotions, estimation of mental distress and set efforts to relieve distress (4). The alpha coefficients for these subscales were 0.72, 0.88, and 0.87, respectively and 0.82 for the whole scale. Alavi et al. (17) also reported a high internal consistency for the whole scale (0.71) and a moderate validity for the subscales of tolerance, absorption, evaluation and regulation of 0.54, 0.42, 0.56, and 0.58, respectively.

Connor-Davidson Resilience Scale was developed by Conner and Davidson (18), it has 25 items. The higher the individual's score shows the greater the resonance. To use this test in Iran by Khoshouei (19), Cronbach's alpha method was used to calculate its reliability and to use for the factor analysis method to determine the validity of the test. The reliability of the scale was 93%. The validity of this questionnaire in domestic surveys was calculated using the correlation coefficient of each item with a total score of 0.41 to 0.64 and its validity was 0.89 by Cronbach's alpha.

The summary of Mindfulness-Based Intervention training's sessions is as follows:

The first-third sessions: Introducing adolescent-centered mindfulness training and its definition and explaining the reasons for the implementation of this training for the participants, explaining how to plan for mindfulness exercises and incorporate these exercises into daily life, notes about mindful exercises, training and

practice exercises on meditating mindfulness exercises (sitting, kneeling, full lute mode, hand position), and giving homework.

The fourth-sixth sessions: Talk about the participants' experience of mindfulness and repetition of conscious mindful breathing and body scan training. Teaching of being mindful at the present with by the help of a glass of water, perform basic breathing exercises, talk about the participants' experience of mind-boggling exercises and educating the mind-consciousness toward five senses (eating consciously, listening consciously, touching the conscious mind, smelling conscious, knowing) and giving homework.

The seventh-eighth sessions: Repetitive basal exercises exercise mindfulness of emotions and thoughts. Review exercises of previous sessions (mindful breathing and exercises). Performing a good memorial meditation, replicating basic breathing and body scans, notes about mindfulness experience and exercises.

4. Results

A total number of 30 boy adolescents were included in this study (15 persons in each group) that mean age subjects in the experimental and control groups were 13.69 ± 3.75 and 13.46 ± 3.41 , respectively. The education level was as; 10 persons were elementary, 11 persons were secondary and 9 persons were high school. Type of crime was as 10 people had rubbery crime, 6 people had drug crime and 14 people were involved in street fighting.

In Table 1, the mean and standard deviation of risky behaviors, resilience, and components of distress tolerance are presented.

According to Table 1, there was no significant difference between mean scores of risky behaviors, resilience, and components of distress tolerance in the experimental and control group in the pre-test phase. While the mean of total score of risky behaviors after intervention training in the experimental group was decreased from (118.11 ± 11.63) to (85.93 ± 6.25), the total score of distress tolerance after Mindfulness-Based Intervention training in the experimental group was increased from (47.56 ± 4.84) to (62.88 ± 7.96) and the mean score of resilience after the adolescent-centered mindfulness training in the experimental group was increased from (49.01 ± 6.53) to (68.6 ± 10.41).

For the homogeneity analysis of variances, the standard method is the Box's M Test, which shows the homogeneity of variance-covariance matrices between dependent variables among independent groups.

Based on the results of Table 2, there is a significant difference between the experimental group and the control group after the adolescent-centered mindfulness training

Table 1. Descriptive Statistics of Risky Behaviors, Resilience and Components of Distress Tolerance in the Pre-Test and Post-Test of the Experimental and Control Groups^a

Variable, Group	Number	Pre-Test	Post-Test
Risky behaviors			
Experimental	15	118.21 ± 11.63	85.93 ± 6.25
Control	15	115.47 ± 11.16	116.51 ± 11.84
Resilience			
Experimental	15	49.01 ± 6.53	68.6 ± 10.41
Control	15	49.74 ± 6.40	48.54 ± 6.98
Total score of distress tolerance			
Experimental	15	47.56 ± 4.58	62.84 ± 7.96
Control	15	47.12 ± 4.14	47.66 ± 4.35
Emotional distress tolerance			
Experimental	15	27.12 ± 5.57	39.18 ± 7.21
Control	15	27.56 ± 5.03	27.71 ± 5.46
Absorption by negative emotions			
Experimental	15	8.93 ± 2.53	10.40 ± 3.96
Control	15	8.58 ± 2.10	8.17 ± 2.44
Estimation of mental distress			
Experimental	15	9.89 ± 2.96	11.24 ± 3.76
Control	15	9.13 ± 2.69	9.97 ± 2.11
Set efforts to relieve distress			
Experimental	15	8.86 ± 2.74	11.38 ± 3.60
Control	15	8.15 ± 2.32	8.01 ± 2.18

^aValues are expressed as mean ± SD

($P = 0.001$) at least in one of the components of risky behaviors, resilience, and distress tolerance.

One of the assumptions of the use of covariance analysis is homogeneity of intragroup variance in pre-test data, which was used to examine the variance homogeneity within the group of Levene's test and, given that the F value of Levene's was not significant at $\alpha = 0.05$; therefore, the intra-group variance was homogeneous and the regression slope and the use of covariance analysis test were used to examine the hypothesis with the homogeneous assumption of the variance of the pre-test data valid.

As shown in Table 3, all F values are significant and showed that the scores in risky behaviors, resilience, and components of distress tolerance in the post-test step were significantly more than those in the control group. The amount of effect size showed that 31% of the changes in the risky behaviors, 39% of the changes in resilience, and 35% of the changes in the total score of distress tolerance were in the experimental group as a result of adolescent-centered mindfulness training.

5. Discussion

The purpose of this study was to investigate the effectiveness of Mindfulness-Based Intervention training on risky behaviors, resilience and distress tolerance among adolescents in juvenile correction and rehabilitation center. The results showed that Mindfulness-Based Intervention training was effective in them. This finding is consistent with the research of Yusainy and Lawrence (20), Bohlmeijer et al. (21), and Williams et al. (22). In explaining this finding it can be said that theoretically, mindfulness focuses more on emotions. Because one important aspect of mindfulness is that people learn to deal with emotions and negative thoughts and experience mental affairs positively. Also, mindfulness can be effective in controlling these disorders by increasing control over visual clues about alcohol and drug use. So, the practice of mindfulness increases the ability of users to tolerate negative emotional states and enables them to effectively counteract that a state can reduce risky behaviors.

It can be concluded that reducing stress relies on the basics and components that are directly related to emotion regulation so the reduction of risky behaviors. Also, impact of Mindfulness-Based Intervention training on juvenile correction and rehabilitation center, in a few studies have been investigated on the increasing distress tolerance, it was found that this training can be effective in maintaining resilience. Hoge et al. (23) reported in their study that mindfulness the ability to deal with psychological stress. Mindfulness has an effect on increasing the awareness of people about the present moment, through techniques such as attention to breathing and body and focusing awareness for existing conditions on the cognitive system and information processing by reducing stress and negative emotions in the individual and increasing coping skills. This would enhance the resilience and distress tolerance in challenges.

On the other hand, in explaining the effect on distress tolerance, it can be noted that the insight which mindfulness provides the consciousness within the presentation of human qualities and capabilities for growth has been related to tolerance of distress in dealing with tension issues that these representations are dreams and goals, the ultimate meaning of life, belief in one's unity, independence, hope and optimism, cognitive qualities (such as moral reasoning, insight, interpersonal awareness, self-esteem, ability to design, creativity), behavioral and social competence, emotional stability and emotion management, happiness, recognition of emotions and emotional skills, the ability to recognize negative emotions and appropriate training of issues, not only through the reduction of negative syndrome, but also effectively and directly, it can

Table 2. Results of Multivariate Analysis of Variance Analysis in Mean of Difference Scores (Pre-Test-Post-Test), Risky Behaviors, Resilience and Components of Distress Tolerance in the Experimental and Control Groups

Test	Value	df ₁	df ₂	F Value	P Value
Pillai's trace	0.648	1	28	28.548	0.001
Wilks' lambda	0.531	1	28	28.548	0.001
Hotelling's trace	1.78	1	28	28.548	0.001
Roy's largest root	1.78	1	28	28.548	0.001

Table 3. Results of Multivariate Covariance Analysis of Mean Post-Test Scores of Research Variables in the Experimental and Control Groups

	df	Mean of Score	F Value	P Value	Effect Size
Risky behaviors	1	1739.95	19.64	0.001	0.31
Resilience	1	2193.47	24.71	0.001	0.39
Total score of distress tolerance	1	7622.25	56.04	0.001	0.35
Emotional distress tolerance	1	2308.54	26.91	0.001	0.33
Absorption by negative emotions	1	2194.38	25.51	0.001	0.30
Estimation of mental distress	1	2256.21	21.14	0.001	0.29
Set efforts to relieve distress	1	2719.38	23.36	0.001	0.34

change the possibility of vulnerability to tolerate distress and more resilience by creation of positive emotions and the ability of meaning (24).

In the case of the Mindfulness-Based Intervention mechanism for distress tolerance of delinquency adolescents, it is necessary to state that by using the channel change technique can help adolescents to detect issues that were relaxing and pleasant for them, and whenever they became aware of their distress, they focused on the issues that were identified. Gradually by changing the channel from a stressful position to calm thoughts, the mind is re-wired and the person is less distress. Mindfulness-Based Intervention is the main element in raising awareness about empowerment and optimal responses in critical situations to avoid distress experience and always serves as a potentially persistent stimulant. Mindfulness-Based Intervention provides a different way of confronting inefficient thoughts and emotions associated with it, such as distress. This approach can help rid people of automatic thoughts, habits and unhealthy behavior patterns and thus play an important role in reducing distress (25).

Mindfulness-Based Intervention may protect a person against the bad functioning of the mood associated with distress tolerance, which is one of the factors of risky behaviors by increasing the cognitive confrontational processes, such as re-evaluating positively and enhancing emotional adjustment skills such as distress tolerance. Therefore, since tolerance of distress is correlated to resilience, it is expected that through regular exercises of Mindfulness-Based Intervention, positive changes can oc-

cur in some of the psychological functions such as reducing stress and emotional control, and ultimately leading to decrease risky behaviors of the juvenile delinquents.

This training can be used as the main approach to adolescent counseling. It should be noted that the present research was performed only on the boy's adolescents of juvenile correction and rehabilitation center, so the generalization of the results to other groups should be performed cautiously. Also, the impossibility of implementing the follow-up phase was one of the limitations of the present study. It is suggested for researchers that mindfulness can be trained to other groups, and should be as a follow-up as possible in order to investigate the stability of the effects of the training. It is suggested that various studies should be conducted in different populations (age, education, etc.). These components can also be studied alone or in combination with cognitive-behavioral and drug intervention. The strength of training is that the enforcement constraints do not have a high standard, and they provide timely detection, evaluation, and follow-up, and reveal causal relationships.

Therefore, in the case of controlling the interpersonal and interpersonal outcomes of risky behaviors by mindfulness can reduce the incidence of risky behaviors in delinquent adolescents. As a result, officials and practitioners of correctional centers can consider mindfulness program in their long-term planning in order to reduce the frequency of occurrence and reduce the function of risky behaviors in juvenile offenders and in order to prevent personal, familial and social consequences of this problem,

and to save money to the authorities and institutions at many human costs. In general, according to the findings of this study, the Mindfulness-Based Intervention can help therapists to provide appropriate techniques and exercises in delinquent adolescents by facilitating therapeutic interventions, and use it in the field of psychological training.

Footnotes

Authors' Contribution: Study design, data collection and analysis, and manuscript preparation: Roghieh Nooripour and Simin Hosseinian.

Conflict of Interests: Authors declare that they have no competing interests.

Ethical Approval: The current study protocol was approved by the Ethics Committee of Alzahra University (98/3/2058 D).

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