

# Effectiveness of Goal-Setting Intervention in Aggressive and Depressive Behavior among Adolescents in the Correction and Rehabilitation Center of Tehran

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Received 2022 August 6; Accepted 2023 May 25.

## Abstract

**Background:** The presence of both depression and aggression, or even one of these factors, can exert numerous negative effects on the education and skills of adolescents.

**Objectives:** This study aimed to assess the effectiveness of the goal-setting intervention in adolescents' aggressive and depressive behavior with a special focus on adolescents in Tehran Correction and Rehabilitation Center in the year 2021.

**Methods:** The quasi-experimental study was conducted based on a pre-test, post-test, and control group design with a one-month follow-up. A total of 30 adolescents living in the Correctional Center of Tehran Province present in the center before imprisonment were selected by the convenience sampling method. Teenagers in the experimental group received the goal-setting intervention (Locke & Latham, 2004) in 10 one-hour sessions twice a week, and adolescents in both groups responded to the Youth Self-Report Scale (YSR) (Ashnbach & Rescorla, 2001) in three stages. Data analysis was performed using analysis of covariance.

**Results:** The results of repeated measures analysis of variance test demonstrated that goal-setting intervention exerted a marked effect on aggression and depression in adolescents, and this effect remained stable in the follow-up phase ( $P < 0.01$ ).

**Conclusion:** As evidenced by research findings, goal-setting intervention can be used to reduce aggressive and depressive behavior.

*Keywords:* Adolescent, Aggression, Depression, Goal- setting, Intervention

## 1. Background

Addressing the issues of children and adolescents is one of the most important social measures in today's societies. In the meantime, it is of utmost importance to pay attention to children and adolescents whose optimal development is at risk. The prevention of delinquency in children and adolescents, as well as the reduction of the rate of return to crime in them, can be considered the focus of prevention programs of the United Nations and many developed countries. In this regard, for the first time in Iran, the Correctional Center was established in 1968 to care for children under 18 years of age in violation of the law (1). Child trial in this center is organized only with the aim of educating and ensuring the interests of children and adolescents, and the foundation of this system is based on growth-oriented prevention (2). Children who commit criminal offenses before reaching the legal age are sent to juvenile prisons in an attempt to prevent repetition and avoid possible harm caused by imprisonment and learn and acquire the necessary skills for a healthy and crime-free life. Nonetheless, the emergence of such behaviors as aggression makes this process difficult. Freud believed that aggression is a behavior that is rooted in human nature and, as a latent force, has a hydraulic state. If this energy is

discharged in a desirable and correct way, for example, in sports and games, it will have a constructive effect; otherwise, it will be released in a destructive way and may result in such acts as murder, beating, destruction, and the like (3).

All people strive for the ultimate goal of excellence or success (4). Adler, by defining the concept of striving with purpose, stated that the person actively builds him/herself and his/her surroundings. Children, like adults, strive for personal growth and development. If their growth, which is usually shown by feelings of usefulness and belonging, is disrupted, they are often drawn toward negative or less positive goals (5). On the other hand, cognitive changes during adolescence allow individuals to engage in purposeful behaviors at a higher level; however, they are also at risk of high-risk and delinquent behaviors (6).

Aggression is more prevalent in children and adolescents, especially children who are considered delinquent. The findings of a study demonstrated a significant relationship between the levels of delinquent behavior and aggression in the adolescents studied (7). The results of another study illustrated that aggressive behaviors act as a mediator in the relationship between aggressive tendencies and delinquent peer associations (8). Biological factors indicate that changes in

neurotransmitter levels, such as serotonin, norepinephrine, and dopamine, may possibly alter the tendency to engage in violent or anti-social behavior. For instance, decreased serotonin neurotransmitter function was found to inhibit behavioral disruption, including impulsive aggression, suicide, substance abuse, or other impulses related to impulse control, and decreased norepinephrine levels could improve the pattern of criminal or defensive aggression. (9).

Depression is another disorder that can make it difficult for children to learn skills. It is one of the most common mental health problems in the world, and depressive symptoms are one of the most common complaints among adolescents (10). Mood disorders are among the most recurring psychological and emotional problems in childhood and adolescence, and the occurrence of such problems in this period affects most cognitive and emotional actions (11). The prevalence of depression and its symptoms in childhood and adolescence is such that even among delinquent children and adolescents, this disorder has been frequently reported, and many researchers have interpreted delinquency as a form of self-medication of children and adolescents against depression (12). Another study found that early depressive symptoms predict age-related changes in delinquent behavior significantly better than early delinquent changes in depressive symptoms (13).

There was also evidence that insults (especially theft and serious violence) were associated with a subsequent increase in anxiety and, to some extent, depression (14). In another study entitled "Systematic review and meta-analysis: depressive symptoms and high-risk behaviors among adolescents in low- and middle-income countries," conducted on 35,918 adolescents from four continents, it was found that adolescents with depressive symptoms compared with non-depressed adolescents were more involved in high-risk sexual behaviors and substance use. Moreover, in this study, the rate of delinquency, self-harm, and suicidal behavior among adolescents with depression showed higher statistics compared to healthy adolescents (15). Studies have demonstrated that the use of HT-5 regrowth capacity can prevent depression and cognitive impairment (16).

The presence of both depression and aggression, or even one of these factors, can have multiple negative effects on the education and skills of children and adolescents living in correctional centers. This disorder in upbringing and retraining increases the rate of return to crime in the coming years among children and adolescents. The results of a study on male adolescents in Ahvaz suggested that drug dependence in adolescents can be predicted based on the variables of depression, excitement, aggression, attachment styles, and socio-economic

status (17). In examining the cognitive factors of aggression, it was stated that aggressive children usually believe that hostile behaviors are more beneficial, less costly, and more rewarding (9). Nonetheless, as mentioned, the targeted intervention reduces the tendency to delinquent behaviors and stimulates the brain's reward system based on a sense of satisfaction in pursuing and achieving goals (18).

The behavioral model also argues that depression occurs for such reasons as a lack of positive reinforcement or loss of positive reinforcement (19). In Bandura's theory (1925), aggressive behavior occurs under the influence of two main factors: imitation and effective source (20). Bandura also highlights the impact of adult behavior on children in imitating adult aggressive behavior (21). Akers, on the other hand, considers criminal behavior as the result of learning motivations, rationalizations, and attitudes (22). Balbi's theory of attachment also states that human beings need to establish strong and long-term emotional relationships with other people, and vulnerability to depression arises from early experiences in which the caregiver fails to meet the child's need for care, security, and comfort (23).

In another study entitled "Evaluation of the effectiveness of the attachment-based intervention on reducing aggressive behavior and breaking the law in adolescent girls," after the attachment-based intervention, a significant rate of reduction of aggression in adolescent girls in the intervention was observed compared to the control group. (24). Psychosocial interventions to reduce violence and aggression in adults using a horizon-finding approach, including appreciation, emotion recognition training, motivational / interview programs, art psychotherapy, and shared trauma narratives, are potential innovation indicators for reducing psychological aggression (such as humiliation) (25).

Focusing on personal goals and priorities, beyond the sense of being a victim, can create social and psychological well-being for individuals (26). A person's conscious goals are the primary determinant of behavior. According to Locke and Latham (2005) theory of goal setting (27), goal specificity, commitment to the goal, a challenging goal, and its significance are the main components of goal setting. Individuals can actively create themselves and their environment and are not passive recipients of natural (biological) traits or involuntary responses to the external environment since in addition to the natural and environmental dimensions, a third element also affects human behavior (5). Alfred Adler (1935) considers this third element as life expectancy, which is a combination of individual choice and the level of human purpose, and daily human behavior can be analyzed according to its purpose (27).

The concept of goal-setting intervention is especially useful in educational psychology. Rudolf Dickers (1948) identified four goals of child abuse, including attention, gaining power and control, revenge, as well as despair and discouragement. To compensate for their feelings of inadequacy, he/she engages in maladaptive behaviors that can lead to child delinquency (5). According to Adler, daily human behavior can be analyzed according to its purpose, and when the therapist notices inappropriate behaviors, he must find out what the purpose of these behaviors is. Children, like all human beings, strive and work for personal growth and development. If their sense of growth, which is usually expressed by a sense of usefulness and belonging, is lost, they are often drawn towards negative or less positive goals (5). Seligman (1942) states in the concept of learned helplessness that people, based on past experiences, such as continuous and long and continuous failures, come to the conclusion that they do not associate effort with progress. They are learners who think that whatever they do, they will not succeed, and when children ask their parents and parents for help with the challenges ahead, they are overlooked. If this behavior is repeated, the belief in disability will accompany them into adolescence and youth (28). Targeting intervention tries to change harmful attitudes by re-framing. This intervention can play a key role in systematizing adolescents' thinking systems, thereby leading them to useful and delinquent activities (29).

Cognitive developments, such as hypothetical reasoning, abstraction, metacognition, and the third-person perspective talking, in adolescence (30) allow adolescents to engage in purposeful behaviors at a higher level. At this stage of adolescence, adolescents are at risk for dangerous behaviors, such as drug use, unprotected sexual activity, and delinquent behavior, that can have devastating effects on their lives. Adolescents' brains have a very strong reward center that increases sensitivity to social pressures despite potential negative consequences (6). Erik Erikson (1966) believes that the psychosocial crisis of this stage of development, as an identity versus role confusion, leads to dysfunctional behaviors in adolescence and negative socialization and impairs healthy development (31).

In goal-setting intervention, setting a goal, pursuing it, and ultimately achieving success can play an important role in the development and guidance of adolescents (32). Correction, rehabilitation, and professional education of juvenile delinquents are vital for their future development and reduction of harm to society (33). According to the studies and theoretical foundations mentioned, the problem of the present

study is whether the targeted intervention is effective on the aggressive and depressive behavior of adolescents in the correctional center.

## 2. Objectives

The present study aimed to assess the effectiveness of the goal-setting intervention on adolescents' aggressive and depressive behavior with a special focus on adolescents in Tehran Correction and Rehabilitation Center in 2021.

## 3. Methods

The present study was a quasi-experimental research with a pre-test, post-test, and control group design with a follow-up. One month after the end of the sessions, a follow-up test was performed. Using the convenience sampling method, 30 people who were in the clinical range of anxiety and depression based on the Youth self-report scale form (T score greater than 69) were selected, 15 of whom were randomly assigned to the experimental group and 15 to the control group. The sample size was calculated at 15 cases in each group based on similar studies considering the effect size of 0.40, confidence level of 0.95, test power of 0.80, and attrition rate of 10%. Subjects in the experimental group received the intervention during 10 one-hour solo sessions scheduled twice a week, and the control group did not receive any intervention. The inclusion criteria entailed the discretion of the psychologist of the Correctional Center (adolescent self-assessment form in the clinical range of aggression and depression (T score greater than 69), conscious desire and satisfaction to participate in the study, ensuring more than three months in center, and age range between 11 to 18 years. On the other hand, the exclusion criteria were the individual's dissatisfaction with continuing the sessions, receiving other psychological interventions, and absence due to the individual's early release from the correctional center. Out of 15 participants in the experimental group, eight were in the girls' group, and seven were in the boys' group. There were also seven boys and eight girls in the control group. Based on the level of education in the experimental group, six subjects were in primary school, 6 cases were in secondary school, and three participants were out of school. In the control group, six cases were in primary school, eight participants were in secondary school, and one subject was out of school.

The consort diagram of the study shows as follows.

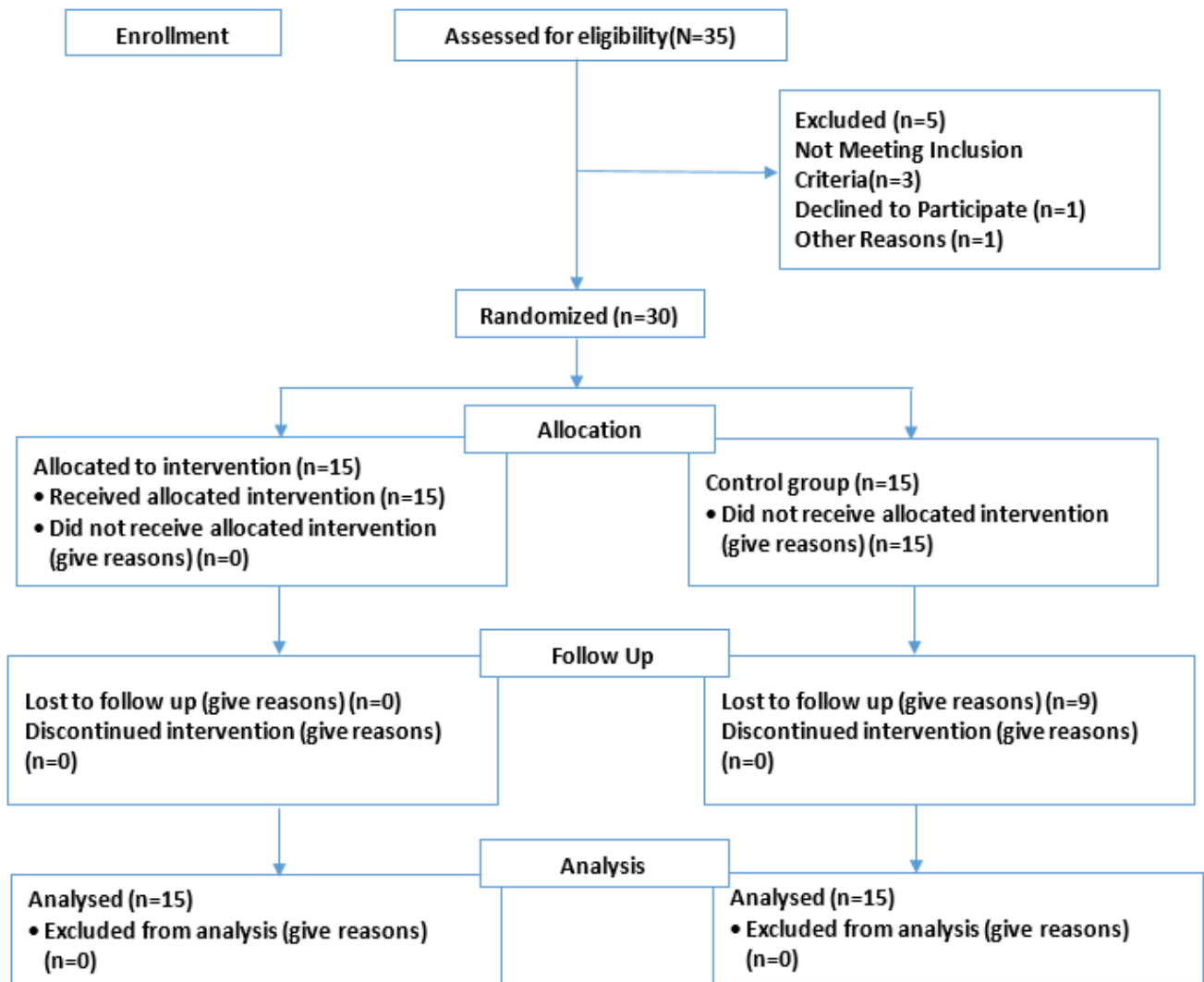


Figure 1. Consort diagram of the study

### Youth Self-Report Scale (YSR)

has satisfactory validity and validity. This tool is a self-assessment scale for adolescents aged 11-18 years. In the study by Ashnbach (34), Cronbach's alpha coefficient for the subscales of emotional-behavioral syndromes ranged from 0.59-0.86 (aggressive behavior-anxiety / depression) (34). The correlation between the total score of the list of behavioral problems and the Conners Comprehensive Behaviour Rating Scale was 0.82, and between the subscales of internalizing behavioral problems with the subscales of psychosomatic and anxiety were 0.56 and 0.62, respectively (34). In a study on a sample of adolescents, retest validity coefficients were calculated to be 0.92 for the whole test, 0.90 for the internalization scale, and 0.89 for the

externalization scale. Internal consistency coefficients in this study were calculated to be 0.94 for the general scale, 0.82 for the externalization scale, and 0.91 for the internalization scale (35). In another study, in order to determine the validity of the adolescent self-assessment form to match the response in different assessments of a subject, the correlation coefficient between this form and the child's behavioral checklist for competency scales ranged from 0.38-0.44 (36). In this study, the reliability of the YSR was obtained using Cronbach's alpha coefficient of 0.74 for aggression and 0.71 for depression.

The following is a brief summary of the sessions, which is based on the Locke and Latham (37) approach and the Shilts and Townsend (38) curriculum approach (Table 1)

**Table 1. Summary of goal-setting intervention sessions**

Sessions	Techniques	Definition
1	<b>Provide information about the individual's goal setting and worldview</b>	General information training about goal setting intervention this activity is to achieve goals related to adolescent interests
2	<b>Provide instruction</b>	Tell the person how to perform a behavior and/or preparatory behaviors.
3	<b>Model or demonstrate behavior</b>	Show the person how to correctly perform a behavior.
4	<b>Prompt self-monitoring of behavior</b>	Keep a record of specified behaviors.
5	<b>Prompt specific goal setting</b>	Facilitate the development of a detailed plan, including a definition of the behavior specifying frequency, intensity, or duration and specification of at least one context, that is, where, when, how, or with whom.
6	<b>Agree on behavioral contract.</b>	Specify the behavior to be performed so that there is a written record of the person's resolutions witnessed by another.
7	<b>Provide feedback on performance.</b>	Provide data about recorded behavior or evaluate performance in relation to a set standard or others' performance.
8	<b>Provide contingent rewards</b>	Praise, encouragement, or material rewards that are explicitly linked to the achievement of specified behaviors.
9	<b>Prompt review of behavioral goals</b>	Review and/or reconsideration of previously set goals or intentions.
10	<b>Prompt barrier identification</b>	Identify barriers to performing the behavior and plan ways of overcoming them.

Data analysis was performed in SPSS software (version 24) in two descriptive and inferential sections (analysis of covariance with repeated measures

#### 4.Result

Table 2 displays the mean and standard deviation of aggression and depression in the three stages of pre-test, post-test, and follow-up for the experimental and control groups.

**Table 2. Mean and standard deviation of research variables**

Variable	Phase	Statistical index		Mean	SD	Number
		Group				
Aggression	pre-test	Control group		6.0	2.3	15
		Examination Group		6.1	2.6	15
	post-test	Control group		6.2	2.5	15
		Examination Group		5.2	2.4	15
	follow-up	Control group		6.2	2.9	15
		Examination Group		5.4	2.3	15
Depression	pre-test	Control group		6.8	2.4	15
		Examination Group		7.4	2.2	15
	post-test	Control group		6.5	2.2	15
		Examination Group		5.4	2.0	15
	follow-up	Control group		6.9	2.2	15
		Examination Group		5.7	2.5	15

As illustrated in Table 2, the mean score of aggression and depression in the experimental group compared to the control group, from the pre-test to post-test and follow-up stages, was associated with a

decrease. In order to evaluate the normality of research variables and select the appropriate statistical test, the Shapiro-Wilk test was used.

**Table 3. Shapiro-Wilk test**

Variable	Statistic	Sig (2-tailed)	Normal state
Aggression	0.92	0.39	Normal
Depression	0.34	0.47	Normal

According to the data of the Shapiro-Wilk test depicted in Table 3, the value of the significance level is greater than the error level of 0.05; therefore, it can be stated with 95% confidence that the research variables have a normal distribution. Therefore, parametric tests can be used to examine the research variables. Levin test is used to test the default homogeneity of variances in the experimental group and the control group. The results of the Levin test

demonstrated that the assumption of homogeneity of variances was observed ( $P > 0.05$ ). In addition, the results of Mauchly's test sphericity for both aggression and depression variables on the homogeneity of variances emphasize the non-significance of the correlation values of the factor levels within the subject. Therefore, to use a simple mixed design, the significance of the F statistic is tested by assuming the assumption of Mauchly's test sphericity.

**Table 4. Results of repeated measures analysis of variance**

Variable	Source	SS	MS	F	P	Eta
Aggression	Time effect	166.42	83.55	9.69	0.001	0.46
	The effect of time and group interaction	136.51	68.70	8.02	0.002	0.41
	Error	239.98	8.56			
Depression	Time effect	378.90	188.32	11.38	0.001	0.42
	The effect of time and group interaction	256.49	127.21	7.78	0.002	0.32
	Error	479.30	18.06			

According to Table 4, the effect of time and group interaction is significant ( $P < 0.001$ ). Therefore, it can be stated that the difference between the mean scores of aggression and depression at different times varies according to the variable levels of the group. Consequently, it can be concluded that regardless of the time of measurement, there is a significant

difference between the mean aggression scores of the experimental groups. To evaluate the sustainability of the effect of goal setting intervention in reducing adolescent aggression, it is necessary to consider a follow-up test. Therefore, the Bonferroni test was used to compare the means in pre-test, post-test, and follow-up tests.

**Table 5. Bonferroni test to compare means**

Variable	Measurement time	Examination Group		Control group	
		MD	SD	MD	SD
Aggression	Pre-test/post-test	2.25**	0.08	0.24	0.09
	Pre-test/follow-up	2.13**	0.07	0.22	0.11
	Post-test/follow-up	0.45	0.12	0.38	0.08
Depression	Pre-test/post-test	2.11**	0.10	0.26	0.13
	Pre-test/follow-up	1.98**	0.15	0.30	0.12
	Post-test/follow-up	0.58	0.12	0.32	0.14

\* $p \leq 0.05$  \*\* $p \leq 0.01$

As presented in Table 5, in the experimental group, the difference between the mean scores of aggression and depression in the pre-test-post-test and pre-test-follow-up stages was significant, and in the post-test-follow-up stages, it was non-significant. Nonetheless, in the control group, none of the pairwise comparisons were statistically significant.

## 5. Discussion

The results pointed out that targeting intervention is effective in the reduction of adolescent aggression. In the experimental group, the difference between the mean aggression scores in the pre-test-post-test and pre-test-follow-up stages was significant, and in the post-test-follow-up stages, it was non-significant. However, in the control group, none of the pairwise comparisons were statistically significant, indicating that the effect of the intervention in the follow-up phase remained stable. These results are consistent with the findings of these studies (7-8-14-16-20-21-22). Differential reinforcement and patterns are introduced as factors in learning deviant behavior and play a role in aggression.

In explaining these findings, it can be argued that according to the statistical findings of this study, it was found that targeting intervention can affect the aggressive and depressive behavior of adolescents. The main goal of the researcher from the beginning was to find a way to reduce the number of juvenile delinquency and prevent them from going to adult prisons and committing more harmful crimes in the next years of their lives. Therefore, in order to achieve these goals, direct activities in the correctional Center of Tehran province were put on the agenda. In line with the researcher's goals, an intervention should be selected that can have a high impact according to the current conditions of the society, the general conditions of the selected statistical community, having a valid research background, and up-to-date global valid studies.

Cognitive changes in adolescence allow a person to engage in purposeful behaviors at a higher level; however, he/she is also at risk of high-risk and delinquent behaviors (6). In goal-setting intervention, it is believed that setting a goal, pursuing it, and ultimately achieving success can play a major role in the development and guidance of adolescents (32). Therefore, in all sessions of this intervention, setting

positive and appropriate goals with the personality traits of each adolescent was on the agenda and was followed up continuously.

According to Locke and Latham (37) theory of goal setting, specific goals, commitment to the goal, as well as challenging and meaningful goals, are among the main components of goal setting. According to this theory, if a goal is set for each person, they will be motivated to achieve those goals. Therefore, regardless of human needs and beliefs, the "environment" plays an important role in targeting and guiding human performance. In fact, goal-setting theory emphasizes the fact that "targeted people work better than people without goals" and "people with challenging goals do better than people with easy goals" (37).

Biological factors indicate that changes in neurotransmitter levels, such as serotonin, norepinephrine, and dopamine, may possibly alter the tendency to engage in violent or anti-social behavior (9). In this regard, it is worth mentioning that goal-setting intervention, in many cases, focuses on the adolescent's interest, identifying his strengths and weaknesses, helping the person to find appropriate goals, and also helping him to achieve these goals and examining the results step by step. Finally, it reduces the tendency to delinquent and delinquent behaviors and stimulate the brain's reward system based on a sense of satisfaction that is similar to the function of serotonin and results from pursuing and achieving constructive goals. According to the result of a study, serotonin can reduce the rate of aggression and depression. As the results showed, the rate of depression and aggression in adolescents in the study was significantly reduced after the intervention (18).

In examining the cognitive factors of aggression, it was argued that aggressive children usually believe that hostile behaviors are more beneficial to them, less costly, and have a significant reward for them (9). Nonetheless, as mentioned, an targeting intervention reduces the tendency to engage in delinquent behaviors and stimulates the brain's reward system based on a sense of satisfaction in pursuing and achieving goals (18). The behavioral model also argues that depression occurs for such reasons as a lack of positive reinforcement or loss of positive reinforcement (19). In goal-setting intervention, special attention has been paid to reward and positive reinforcement. During conducting the study, an attempt was made to form positive reinforcement in the form of effective reinforcement during several consecutive sessions. The adolescents present in the intervention received this positive reinforcement not only from material gifts but also in accordance with the conditions prevailing in the correctional center from various factors. For example, a teenage boy who was addicted and was previously among the champions of

wrestling, after two years, was able to step on the wrestling mat again, and as a result of this situation, his mental and physical condition improved gradually.

In social learning theory, it is stated that aggressive behavior is learned by two methods of instrumental and observational learning. In Bandura's theory (20), aggressive behavior occurs under the influence of two main factors: imitation and effective source (20). Bandura also highlights the impact of adult behavior on children in imitating adult aggressive behavior (21). This intervention can play an essential role in systematizing the thinking system of adolescents, thereby leading them to useful activities and avoidance of crime (29).

Attachment among peers reduces the levels of aggression and depression in vulnerable children and also highlights the therapeutic aspect of attachment among adolescent peers. Targeting intervention also refers to communication with peers on agreement on a common goal (38). This study also tried to help adolescents to participate in each other's goals and the way to achieve them; for example, forming a volleyball class and other sports classes, attending training classes, forming a doll workshop, and planning for entrepreneurship are planned and performed by teenagers themselves as a group.

The results demonstrated that targeting intervention is effective in the reduction of adolescent depression. In the experimental group, the difference between the mean aggression scores in the pre-test-post-test and pre-test-follow-up stages was significant, and in the post-test-follow-up stages, it was non-significant. Nevertheless, in the control group, none of the pairwise comparisons were statistically significant, indicating that the effect of the intervention in the follow-up phase remained stable. These results are consistent with the findings of these studies (10-11-12-13-14-15-16-17-24-25). The result of one study concluded that as responsibility and the acquisition of independence, rational expectations, avoidance of parental punishment, and affection increase, children's depression decreases (25).

According to the cognitive model of depression, one of the causes of learned depression was the global attribution of problems. Dominant thinking believes that one's life situation is stable over time and unchanged (28). People prone to depression attributed negative events to persistent and global internal factors and considered their success to be unstable and dependent on external factors. Nonetheless, a goal-setting intervention believes that people can change in order to achieve their goals, as in meetings, the goal-setting guideline is implemented by getting feedback for this implementation (38); consequently, one's worldview changes dramatically. Following that, In the final sessions, it is expected that the process of change will

remain permanent by identifying the obstacles presented to the implementation of the behavior and planning to overcome them. In the correctional center, in the initial sessions, the teenagers often believed that nothing would change and the difficult situation would always be stable. During the sessions, according to Adler's intervention mechanisms, goal-setting, and targeted efforts, as well as observing and following up on the positive results that were predicted in the intervention, it was gradually believed that many negative and harmful events are caused by external circumstances.

In goal-setting intervention, efforts are made to ensure that adolescents' self-control is reasonable and in line with achieving their selected goals. Accordingly, during the meetings, there is always a process of monitoring the individual's goals. For instance, in the techniques of the fourth session, the self-monitoring guideline for behavior is mentioned. Individuals are even asked to monitor their behaviors more closely to see if they adapt to personalized goals, and this process continues with feedback in later sessions (38). As illustrated by the statistical results of the pre-test, many adolescents in the study had harmful control patterns that arose from a harmful family and an unsafe environment for growth. Nevertheless, during several sessions of intervention, the intensity and purpose of this self-control gradually changed and one of the teenagers, who had been addicted for years, expressed his remorse for reusing drugs after a few sessions, which was normal for him before.

The present study has many limitations, including communication with adolescents due to the security space of the center. Moreover, this study was performed on adolescents based in the Correctional Center of Tehran Province, which limited the range of variance; accordingly, caution should be exercised in extending the results to other communities. It is suggested that due to the small size of the statistical sample and the generalizability of the results, the spatial adaptation be evaluated at a wider level and scope. Furthermore, another limitation is the use of convenience sampling methods due to limited facilities and the difficulty of research implementation in the Correctional Center of Tehran Province with a completely random sampling method concerning the subject of this study, which causes unwanted bias in the obtained results. Furthermore, the data were obtained by self-report questionnaires, which may result in response biases. According to the obtained results, it is suggested that more training workshops be held on the effect of the goal-oriented intervention on the reduction of depression and aggression in correctional centers.

## 6. Conclusion

It can be concluded that goal-setting intervention

is effective in the reduction of adolescent aggression and depression. As mentioned, in goal-setting intervention, specific goals are selected according to the individual's circumstances and interests. Given the special circumstances of the adolescents in this study, efforts were made to put such goals as entrepreneurship to address the difficult economic conditions facing these adolescents and also prevent the continuation of the harmful process due to financial problems outside the prison. For example, the girl teenagers in the center, who used to attend doll-making classes only for training and leisure, were able to make money after setting up a booth outside the center and selling the products.

## Ethical Considerations

Before starting the study, the participants were informed. This research has the code of ethics (IR.IAU.CTB.REC.1400.102) from Islamic Azad University, Central Tehran branch.

## Acknowledgments

All of the participants who assisted us in this study are deeply appreciated by the authors.

## Conflicts of interest

The authors declare that they have no conflict of interest.

## References

1. Khademi M. What is going on behind the high walls of Tehran Correctional Center?! Online business. 88631; 2008.
2. Mir Kamali A, Hosseini A. Center for correction and education from the point of view of growth-oriented prevention. *Crim Law Res.* 2011; **13**(4): 71-93.
3. Akbari A. Problems of teenagers and young people. Tehran: Savalan Publishing; 2002.
4. Schultz D, Schultz SY. Personality theories. 2013. Translated by Tehran SM: Edition Publications; 2019.
5. Flanagan SJ, Flanagan R. Clinical interview. 1953. Translated by F. Barati Sadeh N. Gahan H, Avadicians H. Tehran: Rushd publishing house; 2016.
6. Malekoff A. Group work with adolescents: Principles and practice. Guilford Publications; 2015 Nov 17.
7. Jurczyk M, Lalak D. Aggressive and delinquent behavior among youth: an empirical study in Poland. *Violence Gender.* 2020; **7**(4):188-99. doi: [10.1089/vio.2019.0065](https://doi.org/10.1089/vio.2019.0065).
8. Cho S, Lacey B, Kim Y. Developmental Trajectories of Delinquent Peer Association among Korean Adolescents: A Latent Class Growth Analysis Approach to Assessing Peer Selection and Socialization Effects on Online and Offline Crimes. *Journal of Contemporary Criminal Justice.* 2021; **37**(3): 379-405. doi:[10.1177/10439862211001617](https://doi.org/10.1177/10439862211001617).
9. Prochaska J, Norcross J. Theories of psychotherapy. 2018. Translated by of Tehran SF: Rovnan Publishing House; 2019.
10. Howren MB, Lamkin DM, Suls J. Associations of depression with creative protein, IL-1, and IL-6: A meta-analysis. *Psychosom Med.* 2009; **71**(2):171-186. doi: [10.1097/PSY.0b013e3181907c1b](https://doi.org/10.1097/PSY.0b013e3181907c1b). [PubMed:19188531].
11. Revicki DA, Chen WH, Frank L, Feltner D, Morlock R. Development and analysis of item response theory-based short-form depression severity scales based on the HDRS and



- MADRS. *Health Outcom Res Med*. 2010;**1**(2):e111-22.
12. Cheng TC. Factors related to adolescents' seeking help from social workers in mental health settings. *Children and Youth Services Review*. 2009;**31**:807-801. doi: [10.1016/j.childyouth.2009.03.002](https://doi.org/10.1016/j.childyouth.2009.03.002).
  13. Kofler MJ, McCart MR, Zajac K, Ruggiero KJ, Saunders BE, Kilpatrick DJ. Depression and Delinquency Covariation in an Accelerated Longitudinal Sample of Adolescents. *J Consult Clin Psychol*. 2011; **79**(4):458-69. doi: [10.1037/a0024108](https://doi.org/10.1037/a0024108). [PubMed:21787049].
  14. Jolliffe D, Farrington DF, Brunton-Smith I, Loeber R, Ahonen L, Palacios AP. Depression, anxiety and delinquency: Results from the Pittsburgh Youth Study. *J Crim Justice*. 2019;**62**:42-49. doi: [10.1016/j.jcrimjus.2018.08.004](https://doi.org/10.1016/j.jcrimjus.2018.08.004).
  15. Pozuelo JR, Desborough L, Stein A, Cipriani A. Systematic review and meta-analysis: depressive symptoms and risky behaviors among adolescents in low- and middle-income countries. *J Am Acad Child Adolesc Psychiatry*. 2021; **61**(2): 255-76. doi: [10.1016/j.jaac.2021.05.005](https://doi.org/10.1016/j.jaac.2021.05.005). [PubMed: 34015483].
  16. Vahid-Ansari F, Alberta PR. Rewiring of the serotonin system in major depression. *Front Psychiatry*. 2021;**12**:802581. doi: [10.3389/fpsy.2021.802581](https://doi.org/10.3389/fpsy.2021.802581). [PubMed: 34975594].
  17. Fathi K, Mehrabzadeh Artman M, Shahni Yialeq M. Investigating depression, sensation seeking, aggression, attachment styles and socio-economic status as predictors of drug dependence in male adolescents in Ahvaz city. *J Educ Sci Psychol Shahid Chamran Uni Ahvaz*. 2008;**15**(1):153-78.
  18. Wasserman GA. Risk and protective factors of child delinquency. US Department of Justice, Office of Justice Programs, Office of Juvenile Justice and Delinquency Prevention; 2003.
  19. Costello CG. Depression: loss of reinforcers or loss of reinforcer effectiveness?. *Behav Ther*. 1972;**3**(2):240-7. doi: [10.1016/S0005-7894\(72\)80084-4](https://doi.org/10.1016/S0005-7894(72)80084-4).
  20. Bandura A, Walters RH. Social Learning and Personality Development.
  21. Bossan B, Jann O, Hammerstein P. The evolution of social learning and its economic consequences. *J Economic Behav Organization*. 2015;**112**:266-288. doi: [10.1016/j.jebo.2015.01.010](https://doi.org/10.1016/j.jebo.2015.01.010).
  22. Akers RL. Social Learning and Social Structure: A General Theory of Crime and Deviance. Transaction Publishers; 2011.
  23. Bernaras E, Jaureguizar J, Garaigordobil M. Child and Adolescent Depression: A Review of Theories, Evaluation Instruments, Prevention Programs, and Treatments. *Front Psychol*. 2019;**10**:543. doi: [10.3389/fpsyg.2019.00543](https://doi.org/10.3389/fpsyg.2019.00543). [PubMed: 30949092].
  24. Rezaei Farahabadi S, Mazaheri MA, Amiri, SH, Talebi H. Investigating the effectiveness of attachment-based intervention on reducing aggressive and law-breaking behavior in adolescent girls. *QJFR*. 2014;**11**(3):97-113.
  25. Wigham S, McGovern R, Kaner E, Hackett SS. A review of recent innovation in psychosocial interventions for reducing violence and aggression in adults using a horizon scanning approach. *Aggress Violent Behav*. 2022;**62**:101685. doi: [10.1016/j.avb.2021.101685](https://doi.org/10.1016/j.avb.2021.101685).
  26. Iverson KM, Danitz SB, Shayani DR, Vogt D, Stirman SW, Hamilton AB, et al. Recovering From Intimate Partner Violence through Strengths and Empowerment: Findings from a Randomized Clinical Trial. *J Clin Psychiatry*. 2021;**83**(1): 38188. doi: [10.4088/JCP.21m14041](https://doi.org/10.4088/JCP.21m14041). [PubMed:34813687].
  27. Locke EA, Latham GP. Goal- setting Theory. The process of theory development, 128-150. Oxford University Press; 2005.
  28. Abramson LY, Seligman ME, Teasdale JD. Learned helplessness in humans: critique and reformulation. *J Abnorm Psychol*. 1978;**87**(1):49-74. doi: [10.1037/0021-843X.87.1.49](https://doi.org/10.1037/0021-843X.87.1.49).
  29. Girmsley PD. The Effects of a Goal-Setting Intervention on Delinquent Adolescent Group Treatment Outcomes. 2017.
  30. Piaget J. Intellectual evolution from adolescence to adulthood. *Hum Develop J*. 1972;**15**:1-2. doi: [10.1159/000271225](https://doi.org/10.1159/000271225).
  31. Hoag MJ, Burlingame GM. Evaluating the effectiveness of child and adolescent group treatment: A meta-analytic review. *J Clin Child Psychol*. 1997;**26**(3):234-46. doi: [10.1207/s15374424jccp2603\\_2](https://doi.org/10.1207/s15374424jccp2603_2). [PubMed: 9292381].
  32. Nurmi JE. Adolescent development in an age-graded context: The role of personal Beliefs, goals, and strategies in the tackling of developmental tasks and standards. *Int J Behav Develop*. 1993;**16**(2):169-89. doi: [10.1177/016502549301600205](https://doi.org/10.1177/016502549301600205).
  33. Azam SB, Bakar SH, Yusoff JZ, Rauf SH. A case study on academic and vocational training for child offenders undergoing a multisystemic therapy-based rehabilitation order in Malaysia. *Children and Youth Services Review*. 2021;**122**:105911. doi: [10.1016/j.childyouth.2020.105911](https://doi.org/10.1016/j.childyouth.2020.105911).
  34. Achenbach TM. Manual for the Child Behavior Checklist/ 4-18 and 1991 Profile. 1991.
  35. Salari R, Shamli S, Homan H, Porschebaz A. Comparison of family functioning in depressed and normal adolescents. The first national psychology congress of Iran, Tarbiat Modares University, Tehran; 2002.
  36. Minaee A. Adaptation and standardization of child behavior checklist, youth self-report, and teacher's report forms. *J Except child*. 2006;**6**(1):529-58.
  37. Locke EA, Latham GP. Goal- setting Theory. The process of theory development, 128-150. Oxford University Press; 2005.
  38. Shilts MK, Townsend MS. A Goal Setting Intervention Positively Impacts Adolescents' Dietary Behaviors and Physical Activity Self-Efficacy. *J Youth Develop*. 2012;**7**(4):92-108.