



An Investigation of Family Therapy-based Training on an Adolescent's Self-Harm and Character Strengths

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Abstract

Background: The prevalence of non-suicidal self-injury has increased in adolescents. This study aimed to assess the effectiveness of family therapy compared with treatment as usual in improving character strengths and reducing self-harm repetition in adolescents.

Methods: The research was designed as semi-experimental with a pre-test, post-test, and control group. The statistical population was all students of Tehran's middle schools with self-injury from October to September 2022. 53 eligible adolescents were selected purposefully. The participants were randomly divided into two groups: A family therapy counseling (n=27 people) and a control group (n=26 people). The experimental group received sixteen 75-min counseling sessions held weekly, while the control group underwent no interventions. Both groups received post-test evaluations following these sessions. Then, the deliberate self-harm inventory and values in action inventory of strengths scale (VIA-Youth) pre- and post-intervention were implemented. SPSS 24 used a multivariate analysis of the covariance (MANCOVA) version.

Results: The effect of family therapy on the self-injury variable was significant ($F=32.61$; $Pvalue<0.001$). Also, the effect of family therapy on character strengths ($F=24.81$; $Pvalue<0.001$) was confirmed. In addition, it related the largest effect size to the self-injury variable (0.648), which shows that 64% of the total variances of the experimental and control groups result from a family therapy approach.

Conclusions: The results showed that family therapy could effectively improve character strengths and reduce self-injurious behaviors in adolescents aged 13-16.

Keywords: Family therapy, Adolescent, Self-harm, Character strengths.

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Introduction

Recently, the prevalence of non-suicidal self-injury (NSSI) has increased.¹ In community samples from around the world, NSSI prevalence rates range from 18 to 22%.² Based on a systematic review of international empirical studies, 18% of adolescents reported NSSI and 16.1% reported deliberate self-harm (DSH).³ The act of self-injury involves intentionally injuring the body without the intention of committing suicide. Although this behavior is not fatal, it is very dangerous.^{4,5}

In adolescents, self-harm results from a highly complex interplay between genetic, biological, psychological, social, and cultural factors.^{6,7} The common set of risk factors and psycho-social mechanisms for self-harm within low-income and middle-income countries include being female, experiencing interpersonal conflict, suffering from abuse (including domestic/family/gender-based violence), hopelessness, and having a diagnosed psychiatric disorder.⁸

Physical, psychological, and especially emotional changes, which challenge the family system as well, characterized the adolescent years. Self-injurers have significantly lower social support, particularly from family members.⁹ From the perspective of parents, having a self-harming adolescent is often associated with extreme stress, worries, guilt, shame, and feelings of helplessness. Parental criticism, blame, and emotional over-involvement might emerge or increase because of the distress caused by adolescent self-harm behavior.³ Character strength refers to a group of positive traits that are reflected in thoughts, feelings, and behaviors that are valued in their own right and contribute to fulfillment.¹⁰ Despite the relative paucity of literature on developmental trends in character strengths among youth, preliminary cross-sectional findings indicate that character strengths begin to manifest in differentiated patterns throughout adolescence, as character strengths begin to manifest in differentiated patterns.¹¹ Also, available studies demonstrate the effectiveness of character strengths in preventing negative psychological outcomes in adolescents and adults.^{12,13} In their study, Shoshani & Schwartz (2018) found that interpersonal and temperance character strengths were negatively related to mental health difficulties and pro-social behavior difficulties among 2061 students aged.^{7-12 14}

It differs from talent and skills, which are innate and valued for their tangible results (such as recognition or success), character strengths can be developed through both life experiences and different activities. Thus, family, school, and society can influence the development of positive characteristics.¹⁵ It has recently been found that adolescents' perceptions of family functioning are associated with their character strengths.¹⁶ Some trials have shown that some treatments have the potential to reduce self-harm in adolescents. Research suggests that adolescent self-harm is strongly correlated with family factors and character strengths

that are, themselves, strongly correlated to the family environment.^{17,13} Family factors (interaction between parent and child, support perception, expression of emotion, abuse experience, conflict between parents, and parental mental health) are important risk factors associated with self-harm in adolescents. Family therapy proposes to draw on and mobilize the existing strengths and resources of the adolescents and family and is therefore an appropriate intervention after self-harm.¹⁸ Family Therapy provides numerous strategies for clinicians to use when working with adolescents struggling with NSSI, including (a) improving the parent-child relationship in the therapy, not just on symptom reduction; (b) assisting family members in resolving past/current impasses in their relationships, rebuilding trust and increasing parental involvement; (c) separate sessions for parents and teenagers, followed by joint sessions for all salient family members later. During family therapy sessions, the therapist helps the family uncover and discuss problems (e.g., conflict, ruptured relationships) that make the teen reluctant to seek parental help.¹⁹

Studies were done on the effectiveness of a school-based self-injury prevention program in reducing interpersonal cognitive distortion (ICD) and fear of negative evaluation (FNE) in adolescent girls showed the student's self-injury prevention program effectively reduced the ICD and FNE of female adolescents. Additionally, these two variables have high levels in adolescents struggling with self-injury.²⁰ This observation suggests that interventions addressing multiple risk domains should be considered when helping self-harming adolescents to adjust to adult life. Sueki (2021) studied the effectiveness of protective factors of character strengths on suicidal ideation. Among the various character strengths, it has been recommended that the ability to build relationships with people is the protective factor against suicide. On the other hand, the risk-taking tendency (e.g., substance and alcohol abuse, intentional self-injury) was related to the intensity of suicidal ideation.²¹ We aim to assess the effectiveness of family therapy compared to treatment as usual in improving character strengths and reducing self-harm repetition in adolescents.

Materials and Methods

The research was designed as semi-experimental with a pre-test, post-test, and control group. The statistical population was all female students with self-injury at district eight of Tehran's middle schools, of which 53 eligible adolescents were selected purposefully from October to September 2022.

Calculating the sample size required was based on G*Power software with an alpha error of 0.05 and a beta error of 0.2.²² Furthermore, the effect size was 0.25. The participants were randomly (tossing) divided into two groups: A family therapy counseling group (n=27 people) and a control group (n=26 people). During the study, three people in the family therapy group and four people in the control group missed out due to non-participation. Inclusion criteria were having been aged 13–16, having repetitive self-harm behavior within the past 1 year, and living in a parental family. Exclusion criteria were reluctance to participate in research, reported severe psychiatric disorders or developmental disabilities, and a serious risk of suicide. (Figure 1).

The implementation of the approach was carried out with permission from the schools' principals. Then, the counsel of schools cooperated with researchers to identify students with self-harm. The adolescents voluntarily participated in the present study, and the subjects gave written informed consent. As a pre-test, they were asked to fill out a questionnaire about the deliberate self-harm inventory and values in action inventory of strengths scale (VIA-Youth). An educational program focused on family therapy was administered to the experimental group in the clinical center of Hese Khoub in district eight of Tehran, and was conducted by a family therapy trainer, while the control group did not undergo any interventions. The experimental group received sixteen 75 min counseling sessions, which were held weekly. Wherever possible and permission was provided, sessions were video recorded; as this is part of good family therapy practice and simplifies supervision. Both groups received post-test evaluations following these sessions. The summary of general instructions for the self-injury prevention training program is reported in table 1.²⁰ This study adhered to all standards of ethical conduct in research. The Ethics Committee of the Islamic Azad university of Tehran approved the study (IR.IAU.IKH.REC.1401.212). To determine the significance of the difference between the test scores and the evidence in the dependent variables self-injury and character strengths of the adolescents, the multivariate analysis of the covariance (MANCOVA) method was used by SPSS ver24. The linear significance level of the relationship between the pre-test and the post-test of the self-injury of the adolescents was $r=0.61$ and character strengths $r=0.65$ (both correlation coefficients are significant at the $P\text{value}<0.05$).

Deliberate self-harm inventory: Self-harm was determined by a nine-item version of the deliberate self-harm inventory (DSHI-9r), adapted for adolescents by Lundh and colleagues. Nine items describe common self-injury types, such as cutting, burning, scratching, and banging the head.^{23,24} The respondents are asked if they have intentionally engaged in any of nine different forms of self-harm during the past 6 months, and asked to rate how often they have engaged in each of these behaviors on a scale from zero to six, with zero meaning “never” and six meaning “more than five times”. The DSHI-9r has shown good test–retest reliability.²⁴ Gratz calculates the Cronbach α coefficient of the questionnaire as 0.82 and its reliability coefficient after two weeks (test-retest) as 0.68. The Cronbach α coefficient on the Iranian sample is 0.71, which indicates acceptable reliability and validity. The content of the test is obtained through a survey of psychologists and educational scientists.²⁵ The DSHI-9r in our study had good internal consistency ($\alpha=.87$).

Values in action inventory of strengths scale (VIA-Youth): Inventory of 96 items of the summary form of the 198 scales of Park and Peterson (2006), suitable for the age group of 10 to 18 years. The scale contains 4 items for each strength and on the Likert scale, 5 options are scored from very similar to me (5 points) to not at all like me (1 point). The scale has 24 strengths and six virtues. The internal consistency of the adolescent strengths scale in the positive psychology site is between 0.69 and 0.95. Park and Peterson reported the adolescent strengths scale after 6 months using the retest method from 0.46 to

0.71.²⁶ In the research of Khosrojerdi, Heidari, Ghanbari, and Pakdaman (2020) the scale was translated into Persian and re-translated. After confirming the accuracy of the translation was verified by an expert and the concept of scale materials was

prepared for implementation.²⁷ In this study Cronbach’s alpha obtained 0.60 to 0.97.
In the present study, Cronbach’s alpha for 24 strengths is 0.92.

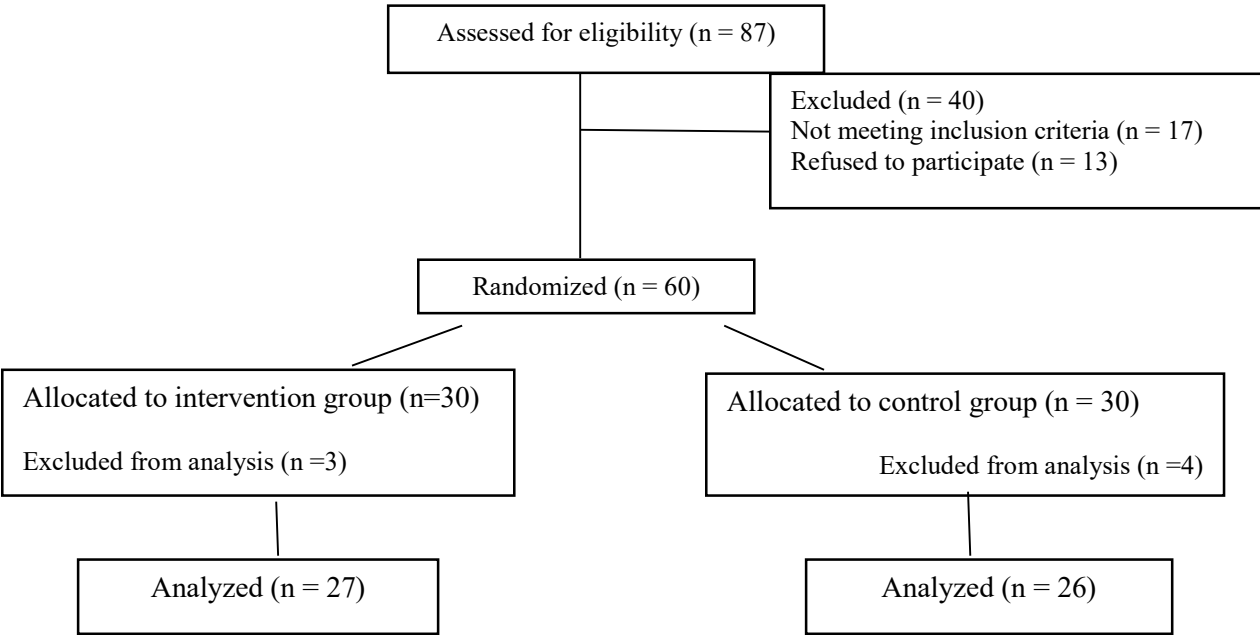


Figure1. Consort model

Table 1. General instructions for the self-injury prevention training program	
Sessions	Activities
1	The thinking-feeling-behavior cycle and its formation, as well as defective cycles and their removal method, were explained and practiced in the session. Homework for the next week was provided to recognize this defective cycle in real life, making attempts to modify it.
2	Assigning beliefs and influencing behavior and feelings until the next meeting was part of the assignment.
3	We identified and replaced harmful thoughts with more helpful ones, and we reviewed their effects on members' feelings and behavior. The “stop thinking” technique was taught to prevent harmful thoughts.
4	In the session, participants were taught how to resolve conflict in conflict situations and practiced the method.
5	The training was provided on anger management techniques and effective evacuation methods.
6	In unpleasant and critical situations, members learned how to seek help from family, friends, and school officials.
7	The members discussed their strengths with each other. The individuals explained the impact of their strengths in their daily relationships and tried to bridge the gap between their talents and the constraints they imposed on themselves.
8	Appropriate targeting was taught using Adler’s approach.
9	Relaxation was fully trained and practiced in the session.
10	The technique of positive mental imagery was taught. Its effect on relaxation and how to use it in stressful situations were explained.
11	In practice, problem definition, problem-solving steps, and adopting a problem-solving approach were taught.
12	A list of different solutions was prepared; the best solution was selected, and the implementation of the selected solution was trained and practiced.
13	Following the previous session, members were introduced to the role of emotion and feeling in life. Types of emotion were introduced, and how emotion becomes a disease was explained.
14	Members became acquainted with different types of personalities. The role of genetics in emotion, environmental factors affecting emotion, and barriers to emotion expression were explained.
15	Emotional avoidance and its consequences on feelings and behavior were explained. The true ways of expressing emotion and the need for emotional awareness were explained.
16	In the final session, a general review of training sessions and answering members’ questions was conducted, and a pre-test was performed.

Results

The samples were 30 adolescents with self-injury disorder. The average age of the participants was 14.67±1.03 years, and 47% of them stated that they had committed self-injury more than once in the past year. Results from table 2 show that self-injury scores were decreased in the experimental (38.41±4.28; 25.19±3.67) and control (39.53±4.67; 38.18±4.29) groups respectively, as compared to their post-test scores. Moreover, the pre-test and the post-test in the experimental (107.87±8.26; 132.44±9.65) and control (106.74±9.14; 108.09±8.82) groups, respectively, showed increased character strength.

Table 2. The distribution of scores of variables			
Variable	Groups	Statistical index	Mean±SD
Self-injury	Pre-test	Experimental	38.41±4.28
		Control	39.53±4.67
	Post-test	Experimental	25.19±3.67
		Control	38.18±4.29
Character strengths	Pre-test	Experimental	107.87±8.26
		Control	106.74±9.14
	Post-test	Experimental	132.44±9.65
		Control	108.09±8.82

In this study, to test the hypotheses and determine the significance of the difference between the scores of the experimental and control groups in the dependent variables of self-injury and character strengths of adolescents with self-injury disorder, the method of multivariate analysis of covariance

(MANCOVA) was used. To ensure that the data of this research meet the main hypotheses of the analysis of covariance, they were investigated before analyzing them.

Table 3 shows a significant difference between the test and control groups at a Pvalue ≤0.001. As a result, at least one of the dependent variables differs significantly between the two groups (self-injury and character strengths). Mancova's text conducted two covariance analyses to determine this difference. According to the calculated effect size, the independent variable can explain 53% of the variances in experimental and control groups.

As seen in table 4, the F=32.61, the effect of family therapy on the self-injury variable is significant at the Pvalue<0.001 level. Also, based on the contents of table 4, the F=24.81, the effect of family therapy on character strengths was confirmed at the Pvalue<0.001 level. In addition, it can be seen that the largest effect size is related to the self-injury variable (0.648), which shows that 64% of the total variances of the experimental and control groups in the self-injury variable are caused by the effect of the independent variable (family therapy) and the lowest effect size is related to the character strengths of adolescents with self-injury disorder (0.596), which shows that 59% of the total variances of the experimental and control groups in the variable of the character strengths of adolescents with self-injury disorder are caused by the effect of the independent variable (family therapy).

Table 3. Results of multivariate analysis of covariance on variables

Test statistic	Value	F	df	df error	Pvalue	Effect size	Eta
Pillai's trace	0.825	60.76	2	26	0.001	0.53	1
Wilks' lambda	0.153	60.76	2	26	0.001	0.53	1
Hotelling's trace	7.47	60.76	2	26	0.001	0.53	1
Roy's Largest root	6.58	60.76	2	26	0.001	0.53	1

Table 4. Results of analysis of covariance in the MANCOVA context

Dependent Variable	SS	DF	MS	F	Pvalue	Eta
Self-injury	3427.57	1	3427.57	32.61	0.001	0.648
Character strengths	2763.22	1	2763.22	24.81	0.001	0.596

Discussion

This study aimed to evaluate the efficacy of family therapy interventions in adolescents with self-injury disorders. Adolescents reported statistically significant reductions in the frequency of self-injury and also an increase in character strengths. The results are in agreement with other studies.^{3,16,21,28,29} Sueki (2020) studied the effectiveness of protective factors of character strengths on suicidal ideation. Among the various character strengths, it has been suggested that the ability to build relationships with people is the protective factor against suicide.²¹ According to Fortune et al. (2016), female sample participants who perceived lower familial support were more likely to feel hopeless, have depressive symptoms, and have suicidal thoughts. In other words, a negative or invalidating environment makes teens (particularly female adolescents) less able to cope with strong negative emotions in adaptive ways, which makes them more likely to self-harm.²⁸ An effective intervention for families with

low support and high levels of parental control and rigidity is parent training.²⁸ According to Glenn (2019), parent training was identified as a mechanism of change for effective interventions for adolescents who self-harm. A parent training program for NSSIs should address psycho-education about commonly-associated social and problem-solving skills.³⁰

Research has shown that parental care has significant positive relationships with authenticity, bravery, perseverance, kindness, love, social intelligence, fairness, and self-regulation and that parental control has significant negative relationships with the aforementioned character strengths. Excessive parental control, characterized by parental intrusion and control, combined with low parental care, characterized by coldness and indifference, tends to interfere with the autonomy of the child, leading to poor character strengths and negative attitudes toward the world.¹⁶ Among the various character strengths, it has been suggested that building relationships with people are protective against suicide.³¹ Creating positive relationships with others, especially loving relationships is a protective

factor against suicide being consistent. Suicidal ideation intensity was related to the risk-taking tendency and the association between risk-taking behavior (e.g., intentional self-injury, substance, and alcohol abuse) and suicide has also been proven in other studies. In addition to being one of our strengths, risk-taking may also lead us to contemplate suicide.²¹

Even in cases where self-harm is influenced by peer victimization rather than by family factors like harsh parenting, therapists should assist families in working directly with school authorities. Additionally, parental support moderates the relationship between bullying and self-harm, and adolescents' perception of family connectedness has been shown to be protective.²² Raimundi et al. (2019) showed elite athletes perceived more positive relationships with their parents as sources of support, enabling them to sustain their activities away from home. Probably because they build intense relationships with their parents, which are necessary to sustain their commitment to elite sports. In difficult times, parents can be an important source of support and advice for teenagers who are struggling. They can also share positive experiences with their parents. Whether elite athletes or recreational sports participants, adolescents who perceived positive family functioning pointed out greater strengths than those who perceived negative family functioning. Meanwhile, elite athletes perceived a greater level of strength than adolescents who participated in recreational sports under the same family functioning conditions. This shows that families and sports can both support adolescents' development of character strengths.¹⁵ In explaining the results, it can be said that family therapy with affecting on family factors such as healthy attachment, healthy relationship between parents, parenting style, the presence of solidarity in the family and a healthy relationship between parents and adolescents, as well as the mental health of parents make it possible to grow in a safe environment with the right ways of expressing emotion. Family therapy with impacting on family factors such as healthy attachment, healthy relationship between parents, parenting style, the presence of solidarity in the family and a healthy relationship between parents and adolescents, as well as the mental health of parents make it possible to grow in a safe environment with the right ways of expressing emotions. Also, they should create a pattern of problem-solving processes in themselves that will be less likely to lead to emotion-focused solutions such as self-harm in dealing with conflicts and family life problems.^{18,32,33} While these findings are promising, there are limitations to this study. The sample size was small, and the results should be interpreted with caution. These include inconsistencies in definitions and categories of NSSI and a useless amount of variety in the measures used to evaluate treatment outcomes, creating difficulties when comparing findings across studies. Given the relative youth of NSSI-focused interventions, it is not surprising that there is considerable diversity in therapeutic approaches and theoretical models. As we work towards improving intervention efficacy, we must consider the current implications of these findings. Therefore, recognizing the limitations of existing interventions is critical. It remains possible that existing interventions may be quite beneficial for some while producing minimal benefits for most. Given these considerations, it may be useful to prioritize inexpensive, brief and scalable treatments when possible, as they demonstrate

comparable efficacy to more expensive, longer, and more intensive treatments.

Future studies, preferably with larger samples and long-term follow-up evaluations, are needed to clarify whether these positive results will persist. It is recommended to design training programs for all members of schools to acquire more durable and effective results.

Non-suicidal self-injurious behaviors are considered serious mental health concerns in adolescents, which can potentially have severe psychological consequences. Several treatments have been developed to try to treat this troubling issue as a result of its urgency and prevalence. Research suggests that adolescent self-harm is strongly correlated with family factors and emotional regulation skills that are themselves strongly correlated with family environments. The results of this research showed that family therapy can effectively improve character strengths and reduce self-injurious behaviors in adolescents aged.¹³⁻¹⁶

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Conflict of Interest

The authors declare that they have no conflict of interest.

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