

Original Article

Online mentalization-based treatment on negative affection and non-suicidal self-injury in adolescence

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Abstract

The prevalence of adolescents who self-injure each year indicates a public health problem requiring attention and intervention. This study investigated the effectiveness of mentalization-based treatment on negative affection and non-suicidal self-injury in adolescence. The research method was quasi-experimental with pre-test and post-test design with a control group. The study included 22 adolescents with non-suicidal self-injury selected with a snowball sampling method and randomly divided into two groups, experimental (n=11) and control (n=11) from November to January 2021 in Tehran, Iran. To collect data, questionnaires such as the Inventory of Statements About Self-Injury and the Positive and Negative Affect Questionnaire were administered. For the experimental group, mentalization-based treatment was administered in ten sessions of 90 minutes each week, while the control group received no treatment. The data were analyzed using MANOVA in SPSS software version 23. The participants ranged in age from 14 to 18 years old, with a mean age of 14.89 years (SD = 2.01). The results suggest that the mentalization-based treatment had positive effects on negative affection ($p < .01$, $F_{1,18} = 9.396$) and non-suicidal self-injury ($p < .01$, $F_{1,18} = 10.048$) in adolescent girls with non-suicidal self-injury (p -value $< .01$). The study found that mentalization-based treatment for negative affection and non-suicidal self-injury was an effective intervention for adolescents with non-suicidal self-injury aged 14 to 18.

Keywords

Mentalization-based treatment, negative affection, non-suicidal self-injury, adolescence.

Received: 2022/03/08

Accepted: 2022/04/16

Available Online: 2022/05/22

Introduction

Non-suicidal Self-Injury (NSSI) in children and adolescents is a major public health problem in many countries. In a large population-based cohort study from Australia, for example, 8% of adolescents aged less than 20 years reported harming themselves at some time. Studies reported an increased annual incidence of self-harm in girls (37.4 per 10 000) compared with boys (12.3 per 10 000). This is consistent with previous hospital-based studies and recent primary care-based studies reporting on self-poisoning. Lower annual incidence rates were reported from a study based in six hospitals 30.2 (95% confidence interval 26.9 to 33.5) per 10 000 for girls aged 10-14 years and 6.7 (5.2 to 8.2) per 10 000 for boys,¹³ although caution is required when comparing rates across studies, as differences in self-harm definitions, derivation of rates, age ranges and age categorizations and timescale used, must be carefully considered (Morgan, Webb, Carr, Kontopantelis, Green

et al., 2017). Self-harm is intentional harmful behavior in the context of emotional distress (Jarahi, Dadgarmoghaddam, Naderi, & Ghalibaf, 2021).

Indeed, NSSI sometimes serves interpersonal functions; however, across studies by diverse investigators using diverse methods and populations, it has become clear that NSSI is infrequently attention-seeking. Instead, NSSI is most often performed in private as a way to quickly alleviate intense negative emotions (Klonsky, Victor, & Saffer, 2014). Moreover, self-harm may lead to the person not learning the proper way to deal with stress, feeling guilty, depressed, ultimately causing exacerbation of the primary psychological illness (Kleiman, Ammerman, Look, Berman, & McCloskey, 2014). NSSI most commonly functions to (temporarily) alleviate overwhelming negative emotion. Intense negative emotions precede NSSI, and the performance of NSSI results in reduced negative emotions as well as feelings of calm and relief (Klonsky, Victor, & Saffer, 2014). In a study, almost all the adolescents (99.5%) who

fulfilled the criteria for NSSI disorder reported engaging in NSSI to relieve both intrapersonal and interpersonal, likewise, most patients engaged in NSSI with the expectation to lead relief from either a negative feeling or cognitive state (82.0%) or resolution of an interpersonal problem (57.1%) (Cipriano, Cella, & Cotrufo, 2017). Clinicians and expert NSSI researchers described experiencing a negative feeling or before the NSSI behavior as a prototypic symptom, followed by preoccupation and an urge to engage with less agreement (Lengel & Mullins-Sweatt, 2013).

Previous clinical, empirical, and theoretical work has indicated that NSSI is primarily used as an emotion regulation strategy (Laporte, Tunte, Ozolins, Westrin, Westling, et al., 2021). Studies have found that NSSI may be used mainly to relieve negative affect states with high arousals, such as frustration, feeling overwhelmed, or high anxiety, or low arousal state such as sadness, emptiness, or loneliness (Ghorbani, Kameneh, Motaahedy, & Alipour, 2020). Reductions in negative affect have been found to predict the lifetime frequency of cutting, indicating that affective changes associated with NSSI could further reinforce the behavior (Klonsky, 2009). However, existing research on the functions of NSSI is based mostly on clinical observations and self-reports from self-harming clients; researchers have previously described the difficulties of categorizing the functions of NSSI. In a recent study of forensic psychiatric patients, intrapersonal functions, such as self-punishment, emotion regulation, and marking distress, were the most relevant to the participants (Laporte et al., 2021).

As Korte (2010) demonstrated in a study, negative emotions such as anger, sadness, and disgust were negative and negatively correlated with mental health, while positive emotions such as optimism were directly correlated with mental health. On the other hand, Sadeghi, Shahri, Khaleghi Kiadehi, Asadian, and Pirani (2015) noted that negative emotions are associated with aggressive behavior in students. Several meta-analyses have synthesized data from RCTs that examined psychotherapies for self-harm in youth. Ougrin, Tranah, Stahl, Moran, & Asarnow. (2015) found the largest effect sizes with dialectical behavioral therapy (DBT), and mentalization-based therapy (MBT). Nonetheless, they noted a lack of independent replications of efficacy for any intervention (Bahji, Pierce, Wong, Roberge, Ortega et al., 2021). Mentalization is the process of understanding actions through thought and feeling. It is assumed that its enhancement will enhance self-control and agency in people who suffer from affect dysregulation and impulse control problems. As a result of compromised mentalization, self-related negative cognitions are experienced with great intensity, resulting in intense depression and an urgent need for distraction. Further, self-harm and manipulative behavior can help re-connect those whose non-mentalization has marked them as socially isolated. In the absence of mentalization of social experience, impulsive (poorly regulated) behaviors and subjective states that trigger self-harm become prominent (Rossouw & Fonagy, 2012).

According to Storeb, Stoffers-Winterling, Völlm, Kongerslev, & Mattivi (2020), DBT and MBT had some positive effects on reducing self-harm, however, these results were based on low-quality evidence. In a 2015 report, Hawkon et al. suggested that MBT may be associated with reductions in self-harm, and recommended further research into the therapeutic assessment. Different treatment methods – like cognitive behavior therapy, dialectic behavior treatment, and mentalization behavior treatment – have been shown to reduce self-harm, depression, and suicidal ideation among adults and adolescents. However, more research on effective interventions for adolescents and children who self-harm is needed (Stänicke Haavind, Gullestad, 2020; Hawton et al., 2015). There have been few studies with this approach that addressed self-injurious behavior, and most of these studies focused on borderline disorders. Thus, this study examines whether mentalization-based treatment for adolescents (MBT-A) is more effective than treatment as usual (TAU) for adolescents who have NSSI.

Method

Participants

A quasi-experimental design was used with pre-test and post-test data analysis, comparing an experimental group with a control group. In this study, the population included adolescents with non-suicidal self-injury (age 14-18) from Tehran, Iran, from 2021 to 2022. Researchers selected the participants by using a snowball sampling and divided them into two groups (experimental participants: 11 and control participants: 11).

Inclusion and Exclusion of research

Inclusion

Study's inclusion criteria were the absence of comorbid health conditions, no substance use, and no behavioral problems. Those eligible to participate in the study were non-suicidal self-injury adolescents, those who had self-damage criteria, who were between 14 and 18 years of age, who had signed a written consent form, and who had both parents.

Exclusion

The exclusion criteria include incomplete questionnaires, and the absence of two intervention sessions.

Procedure

As a pre-test, the questionnaires (Inventory of Self-injury and the Positive and Negative affects questionnaire) were sent through the Links in the application WhatsApp. The first author implemented MBT as individual and group psychotherapy through the meet application for what's up for ten sessions of 90

minutes each week. Its goal is to improve mentalizing capacity, especially under stressful conditions, and, in doing so, it is expected to reduce self-injury and negative affection (Bateman, O’Connell, Lorenzini, Gardner, & Fonagy, 2016, Table 1). After completing Mentalization-Based Treatment in the intervention group, questionnaires as a post-test were administered to both groups (intervention and control) and analyzed using SPSS23. To evaluate the effectiveness of Mentalization-Based Treatment on negative affection and non-suicidal self-injury in adolescent girls, a multivariate analysis of covariance was used. The Shapiro-Wilk test was used to assess the normality of the distribution of scores, and the hypothesis of normality of the distribution of scores was confirmed because the results were not significant.

Instrument

Inventory of Statements About Self-injury:

The inventory of statements about self-injury (ISAS) created by Klonsky, & Glenn (2009), has two parts. The first part evaluates the lifetime frequency of 12 NSSI behaviors shown intentionally without any suicidal intent. Subjects with one or more NSSI behaviors were asked to complete the second part. This part generally evaluates 13 potential NSSI functions with two interpersonal and intrapersonal subscales. Each function is rated on a scale of 0 to 2, with scores each ranging

from 0 to 6. The internal consistency of the questionnaire has been reported to be high (0.84). Also, the test-retest reliability of the omnibus NSSI scale has been measured to be 0.85, and its construct validity has been confirmed (Somer, Basay, Basay, & Özbaran, 2013). In Iranian opioid and alcohol abusers, the total Cronbach’s alpha coefficient for this subscale was 0.93 (Zarghami Babakhanian, Asgarabad, Ghazanfanpour, Akrami, et al., 2020). Cronbach’s alpha coefficient of this questionnaire was 0.97 in this study. The Cronbach’s alpha coefficient obtained for the entire inventory in the present research was 0.86.

Positive and negative affects questionnaire:

The questionnaire has 20 items and was developed by Watson et al, designed to measure both positive and negative mood dimensions (Watson, Clark & Tellegen, 1988). The items respond on a 5- degree scale. This tool completes self-assessment and by modifying its instructions one can measure the emotional state or attribute dimension. Cronbach’s alpha coefficients of positive and negative affect subscales were 0.86 to 0.90 and 0.87 to 0.84, respectively. The retest reliability coefficient for the positive and negative affect was reported 0.68 to 0.47 and 0.71 to 0.39, respectively. The alpha coefficient of the Persian version was 0.87 (Mohammadi, Birashk & Gharraee, 2013).

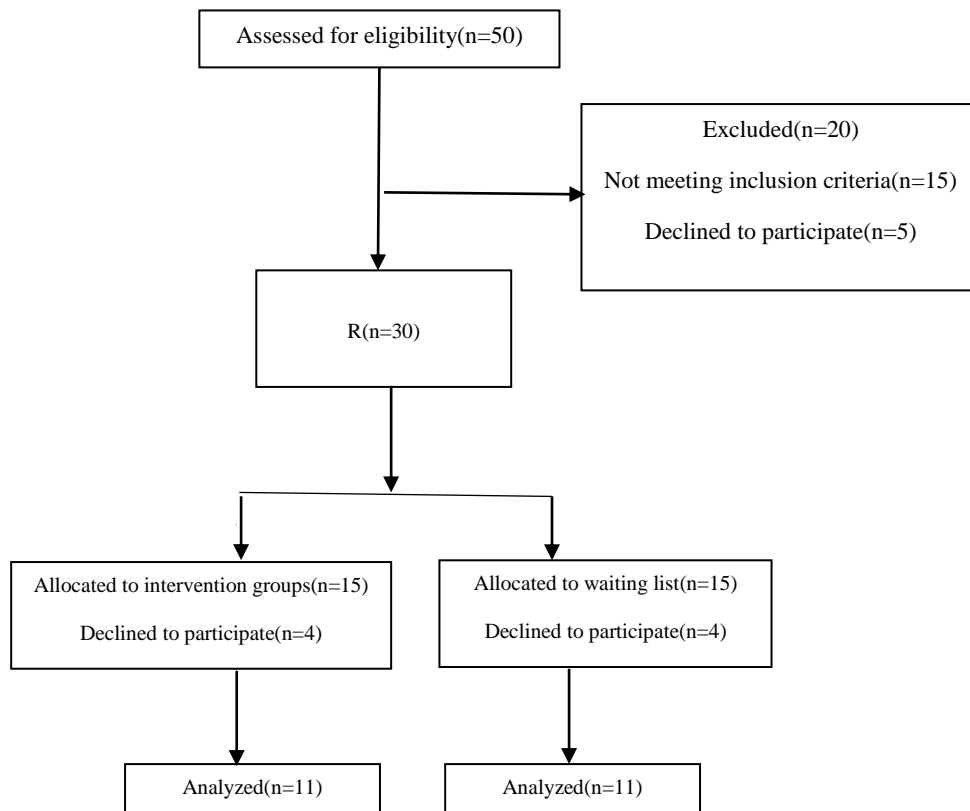


Figure1. Participants flow-chart

Sessions	Table 1. Contents of Therapeutic Protocol Sessions
Session 1	Introduction sessions, what is mentality and position of mentality? (Welcome / Introducing the group leader / expressing the goals of the group sessions / expressing the goals of the first session / emphasizing the active presence of group members / Introducing the group members and why they were referred for treatment? / Presenting worksheet / Description of group structure / Presenting group activity / Explaining specific aspects, dimensions, and benefits of mentalization and distinguishing it from misinterpretations by the group leader / Examples given by participants / Review of issues raised by members / Homework presentation
Session 2	Poor and good mentalization indices / Difficulties in self-reading and others / Problems of emotion regulation and impulsivity / Interpersonal sensitivity (/ Exercise presentation / Clarification of participants' interpretations by the group leader and discussion about them / Homework presentation
Session 3	Why we have emotions and the main emotions Review the discussion of the previous session / Review of assignments / expressing the objectives of the session), Primary and social emotions / Primary and secondary emotions, (Presenting group activities / Describing different types of emotions and individual differences in controlling emotions / Homework.
Session 4	Emotion Mentoring: Expressing the goals of the session (how to deal with emotions and feelings) / Presenting group activities on how to record emotions about oneself and others / discussing the issues raised by the participants / Interpreting the inner emotional symptoms in ourselves and emotional states in others/group activity / Discussion / Self-regulation of emotions and how others can help regulate our emotions/group activity / Discussion / Non-mentalizing emotions that are very distressing and how we can manage such emotional states/group activity / Discussion / Provide relaxation techniques/homework.
Session 5	The importance of attachment relationships (discussion about attachment and attachment strategies in adulthood/group activity presentation/discussion/homework presentation.
Session 6	Attachment and subjectivization (group activity presentation / discussion / attachment conflicts / group activity presentation / discussion / homework presentation.
Session 7	Mentalization-based therapy (Expressing specific MBT characteristics and goals / Group mentoring training and practice / Homework presentation.
Session 8	Emotional Identification and Emotional Focus (Emotional Identification and Emotional Focus on Topics Raised by Group Members
Session 9	training to mentalize content to facilitate epistemic trust
Session 10	Preparing to end treatment / Focusing on feelings of absence at the end of treatment / Ending treatment.

Results

Girls who self-injure have a mean age of 14.89 and an average standard deviation of 2.01. Table 2 shows demographic information such as age, income, and

parental education for the experimental and control groups

Table 2. Demographic information of the sample

Variables		Control		Experimental	
		Frequency	Percent	Frequency	Percent
Age	14 years	-	-	1	9.1
	15 years	1	9.1	1	9.1
	16 years	1	9.1	1	9.1
	17 years	2	18.2	4	36.4
	18 years	7	63.6	4	36.4
Income level	Poor	4	36.4	1	9.1
	Medium	1	9.1	4	36.4
	Good	4	36.4	2	18.2
	Very good	2	18.2	4	36.4
Mother's education	Diploma and under	6	54.6	8	72.8
	Bachelor's degree	5	45.6	2	18.2
	Master's degree	-	-	1	9.1
Father's education	Diploma and under	6	54.6	6	54.6
	Bachelor's degree	3	27.3	4	36.4
	Master's degree	2	18.2	1	9.1

Table 3. Descriptive statistics in experimental and control groups

Groups	Variables	Pre-test		Post-test		Shapiro-Wilk	Sig.
		Mean	Std. Deviation	Mean	Std. Deviation		
Control	Negative Affection	18.82	2.562	18.36	1.286	0.910	0.242
	Non-suicidal Self-Injury	16.55	2.103	16.32	2.359	0.887	0.126
Experimental	Negative Affection	19.73	2.970	16.64	2.461	0.932	0.429
	Non-suicidal Self-Injury	15.14	1.227	12.64	2.087	0.970	0.891

Descriptive indicators of variables and their normalization test are reported in Table 3.

Both experimental and control groups had the same slopes of the regression line at pre-test and post-test ($p < .05$, $F(4.30) = 1.547$). In Levene's test of homogeneity of variance of the dependent variables in the groups, the variance of negative affection ($p < .05$, $F(1.20) = 0.085$) and non-suicidal self-injury ($p < .05$, $F(1.20) = 1.013$) in the groups was equal. According to the Box test to check for parity of the covariance matrix, the dependent variables between the experimental and control groups

showed the same covariance matrix ($p < .05$, $F = 1.342$, Box's M Test = 4.515). Since the number of participants in the two groups is equal, this does not interfere with the analysis of variance. The Chi-Square-Bartlett test of sphericity and significance found that the relationship between factors is significant ($p < .01$, $df = 2$, $\chi^2 = 24.505$). As a result of examining the assumptions of multivariate analysis of covariance, the test results revealed that there was a significant difference between non-suicidal self-injury and negative affection between experimental and control groups ($p < .01$, $F(2.17) = 6.365$, Wilks' lambda = 0.572).

Table 4. Results of analysis of covariance of the variables

Dependent Variable	Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Eta
Negative Affectivity	group	21.333	1	21.333	9.396	0.007	0.343
	Error	40.866	18	2.270			
Non-suicidal Self-Injury	group	35.123	1	35.123	10.048	0.005	0.358
	Error	62.917	18	3.495			

In Table 4, the F statistic is significant for negative affection ($p < .01$, $F(1.18) = 9.396$) and non-suicidal self-injury ($p < .01$, $F(1.18) = 10.048$). These results indicate that there are significant differences between the groups. As a result of these findings, mentalization-based treatment is effective and reduces non-suicidal self-injury and negative affection in adolescents. Moreover, Table 4 shows the effect size of group membership is 34.3% for the negative affection change and 35.8% for the non-suicidal self-injury change.

Discussion

The aim of this study was to determine the effectiveness of mentalization-based treatment on negative affection and non-suicidal self-injury in adolescents. According to the results, mentalization-based treatments reduce negative affection and non-suicidal self-injury in adolescents. The results of this study are similar to those found in some previous studies such as Bevington et al. (2013), Ougrin et al. (2015), Beck et al. (2020), Storebø et al. (2020) and Jørgensen et al. (2021). According to seven studies measuring para-suicidal behavior and two follow-ups, mentalization-based therapy reduced self-mutilating behaviors significantly (Bales et al., 2012; Bateman & Fonagy, 2009; Kvarstein et al., 2015; Rossouw & Fonagy, 2012). Of these, five studies, including two follow-ups, found that MBT achieved superior reductions in self-harm behaviors than their control groups (TAU, SGT) (Bateman & Fonagy, 2009;

Rossouw & Fonagy, 2012; Vogt & Norman, 2019).

Often, mentalization-based treatment is used to regulate internal storms in adolescents who self-harm. These vulnerable young people are said to collapse during the adolescent stage of their development. These patients can be hard to connect with emotionally in therapy, and the process can be fraught with counter-transference reactions (Rossouw, 2015). According to Mentalization, capacity is a key mechanism for change during psychological treatment (Markowitz, Milrod, Luyten, & Holmqvist, 2019). Mentalization refers to the ability to understand actions as expressions of thoughts and feelings. Enhancing it is thought to strengthen self-control and agency in those with affect dysregulation and impulse control problems. There is evidence that self-harm occurs in adolescents when the individual fails to represent the social experience through mental states in response to relationship stress. Mentalizing is compromised when negative cognitions about oneself are experienced with great intensity, leading both to depression and the need to distract.

Additionally, when mentalization of social experience fails, impulsive behaviors and subjective states that lead to self-harm are more likely to develop (Rossouw & Fonagy, 2012). Research demonstrates that mentalization skills continue to develop during adolescence, supported, in part, by structural and functional changes within the adolescent brain. For instance, increased activity in certain brain regions of left temporoparietal junction and right dorsolateral prefrontal cortex in adolescents has been associated

with increased sensitivity to others' perspectives: a central component of mentalization. Mentalization assists young people to navigate these new social challenges by enabling them to understand their own and others' thoughts, feelings, and intentions and to identify and follow social conventions in new situations (Clarke, Meredith, & Rose, 2020). There are some limitations, including the low-quality evidence and biases possible in the included studies, the generalizability of the findings, the absence of randomness in the study design, and the use of a few samples.

Conclusion

This systematic review indicates that MBT is an effective treatment for reducing negative affection and non-suicidal self-injury in patients. A number of practical suggestions are made for future research. First, studies of higher quality are clearly needed. Future RCTs should be double-blind, appropriately randomized, and report statistical power. It is recommended to conduct RCTs without the involvement of the authors of the MBT in order to avoid potential bias. Additionally, future studies should explore the effects of potential moderators of MBT effectiveness, including the severity of non-suicidal self-injury, gender, treatment adherence, and attendance to determine which treatment format is most effective for which category of non-suicidal self-injury patients. Third, future MBT studies should monitor patients' mentalization skills at the beginning and end of treatment to see if MBT improves them; furthermore, they should conduct mediation analyses to see if changes in mentalization skills actually moderate the effects of MBT on symptoms.

Acknowledgments

It was a doctoral research project of the first author that led to the writing of this clinical psychology paper with a registered ethical number IR.ACECR.ROYAN.REC.1400.054.

Disclosure Statement

There is no conflict of interest reported by the authors.

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