

Research Paper: Investigating the Role of Childhood Trauma, Emotion Dysregulation, and Self-criticism in Predicting Self-harming Behaviors



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ABSTRACT

Objective: Self-harming behavior is a major clinical issue in adolescenc. Childhood trauma, emotion dysregulation, and Self-criticism are the main concerns associated with self-harming behavior. In this study, we investigated the relationship between childhood trauma, emotion dysregulation, and Self-criticism with self-harming behaviors among adolescents in Iran.

Methods: A sample of 558 (263 girls and 295 boys) middle school-aged adolescents (aged 13–17) was recruited. Participants had at least one self-harming behavior in their clinical records. Self-harm Inventory (SHI), Childhood Trauma Questionnaire (CTQ), Difficulties in Emotion Regulation Scale (DERS), and Levels of Self-criticism questionnaire (LOSC) were completed online.

Results: Findings of step by step regression revealed a significant relationship between childhood trauma, emotion dysregulation, and Self-criticism with self-harming behaviors. More specifically, childhood trauma ($\beta=0.253$, $t=6.42$), emotion dysregulation ($\beta=0.135$, $t=2.77$), and Self-criticism ($\beta=0.345$, $t=8.67$) predicted self-harming behaviors.

Conclusion: Our findings provided a therapeutic insight to prevent suicide and other related destructive behaviors among adolescents.

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Highlights

- There is a significant relationship between Self-criticism and self-harming behaviors. Self-criticism is the strongest predictor of self-harming behaviors.
- Childhood trauma predicts self-harming behaviors and is correlated significantly with self-harming behaviors.
- There is a significant relationship between emotion dysregulation and self-harming behaviors. Furthermore, emotion dysregulation predicts self-harming behaviors.

Plain Language Summary

Adolescence is one of the most important stages of human life. Self-harm and related behaviors, such as suicide during adolescence, are a current concern for psychologists. Because of the unpleasant consequences of self-harming behaviors, psychologists seek to find reasons that make adolescents harm themselves. Our findings show that adolescents who cannot control their emotions in stressful situations are more likely to do self-harm behaviors. In addition, emotionally and sexually abused adolescents, and those who constantly blame themselves, are also at risk of self-harm.

1. Introduction

Self-harm among adolescents is focused globally as a growing public health problem (Hawton, Saunders, & O'Connor, 2012). Those who do this behavior are at high risk of suicide regardless of their intention to die (Pilkington, Younan, & Bishop, 2020). Self-harm starts during adolescence and is related to puberty stages that are late or complete more than chronological (Hawton et al., 2012; Patton et al., 2007). It has been reported that 19 percent of adolescents have at least one self-harm behavior at the age of 15 (Mars et al., 2014). The prevalence of the average self-harmed behavior among adolescents is around 13-23% (Muehlenkamp, Claes, Havertape, & Plener, 2012) and 30-82% in clinical samples (Hooley & Franklin, 2018).

In Iran, a review study showed that the prevalence of self-harming behavior is in the range of 4.3% to 40.5% (Ezakiyan, Mirzaian, & Hosseini, 2018). Most self-harmers do not commit suicide, and none of them do it to end their life; however, this behavior is reversible (Saunders & Smith, 2016). More than half of those killed by suicide have a history of self-harm (Whitlock et al., 2013), and 1% of people involved in harming themselves will die because of suicide in the next 12 months (Bebbington et al., 2010). Therefore, it is necessary to examine this problem. In the context of self-harm predisposition factors, research has shown that psychological, social, and biological factors play a role in this phenomenon (Abdelraheem, McAloon, & Shand, 2019).

Self-harm and emotion dysregulation

Several studies have shown that self-harming behavior is explainable through the framework of the Emotional Dysregulation Model (Peh et al., 2017; Pisani et al., 2013; Wang, Pisetsky, Skutch, Fruzzetti, & Haynos 2018; Wolff et al., 2019; Zelkowitz, Porter, Heiman, & Cole, 2017). Emotion regulation is a mechanism that is intentionally or accidentally modifies their emotional experience to achieve their desires (Aldao, Nolen-Hoeksema, & Schweizer, 2010). Emotion dysregulation has been associated with aggressive behavior in laboratory-related activities (Cohn, Zeichner, & Seibert, 2008) and distinguishes individuals who have been involved in violent relationships with partners from those who have not yet (Gratz & Roemer, 2004). In other words, emotion dysregulation is a suicide behavior predictor (Rajappa, Gallagher, & Miranda, 2012).

Self-harm and childhood trauma

Childhood trauma, which includes emotional, physical, and sexual abuse, and emotional and physical neglect, is a general and global phenomenon (Stoltenborgh, Bakermans-Kranenburg, Alink, & van IJzendoorn, 2015). Childhood trauma has four types: emotional abuse, physical abuse, sexual abuse, and neglect. Based on the literature, childhood trauma is the major risk factor for self-harming behavior among adolescence (Afifi, Boman, Fleisher, & Sareen, 2009; Brezo, Paris, Vitaro, Herbert, Tremblay, & Turecki, 2008). One study showed the relationship between childhood maltreatment (including emotional abuse, physical abuse, sexual abuse, emo-

tional neglect, and physical neglect) and non-suicidal self-injury. According to a longitudinal study, non-suicidal self-injury behavior was associated with childhood maltreatment (Kaplan, Tarlow, Stewart, Aguirre, Galen, & Auerbach, 2016). In addition, a systematic review reported that childhood maltreatment is an important risk factor for non-suicidal self-injury (Serafini et al., 2017).

Self-harm and Self-criticism

Self-criticism is the risk factor of self-harming behavior without suicide ideas based on the results of research that showed a significant relationship between self-harm and Self-criticism (Daly & Willoughby, 2019). Self-criticism is the tendency of people to have high hopes for themselves and to criticize their performance (James, Verplanken, & Rimes, 2015). There are two types of Self-criticism in individuals; comparative Self-criticism and internalized Self-criticism. In comparative Self-criticism, individuals compare themselves with others, and in self-internalized Self-criticism, they compare themselves to high-level internal expectations that are not achievable. Finally, both types of Self-criticism are associated with low self-esteem and psychological disorders (Thompson & Zuroff, 2004). According to previous research mentioned above, in this study, we aimed to clarify and determine whether childhood trauma, emotion dysregulation, and Self-criticism predict adolescents' self-harming behaviors.

As mentioned in the previous studies, there is a relationship between childhood trauma, emotion dysregulation, and Self-criticism with self-harming behaviors but there was no study that examined the role of the three variables in the prediction of self-harming behaviors simultaneously. Therefore, the aim of this study was to investigate the relationship between childhood trauma, emotion dysregulation, and Self-criticism simultaneously with self-harming behaviors using step by step regression analysis.

2. Materials and Methods

This was a cross-sectional study using structural equation modeling. Participants were recruited from 900 people who had a clinical record at the counseling center located in Karaj, Iran. They had at least one history of self-harming behavior in their records. The first sampling was done with simple randomized sampling and one center was selected from four counseling centers. In the second stage, the participants were selected through intentionally sampling and based on inclusion and exclusion criteria and 631 out of 900 participants completed the research questionnaires online. Data from 558 participants (263 girls and 295 boys) aged 13-17, were

analyzed and 73 of them were excluded because of not meeting the inclusion criteria while the ethical principles of research, such as informed consent and confidentiality were followed. The inclusion criteria were the minimum of one self-harming behavior in clinical records, age between 13 and 17 years, and not receiving medical or psychological treatment at the same time during the research. Two conditions as exclusion criteria were incomplete questionnaires and unintentional answers. The following measures were used in the present study.

Self-harm Inventory (SHI)

SHI is a 22-item questionnaire that measures the history of intentional self-harm and covers various physical and non-physical behaviors directly and indirectly. Self-harming behaviors that received a score above five were considered a sign of psychopathology, and SHI was given a score by summing the number of behaviors (Sansone, Wiederman, & Sansone, 1998). SHI is proven to have good internal consistency in clinical and non-clinical populations (Sansone, Reddington, Sky, & Wiederman, 2007). Cronbach's alpha in this study was 0.87.

Childhood Trauma Questionnaire (CTQ-SF)

The severity of experienced physical, sexual, and emotional abuse and physical and emotional neglect during childhood and adolescence was measured by CTQ-SF as a 28-item self-report questionnaire. Items are rated from 1 (never true) to 5 (very often). The CTQ-SF is reported to be valid and reliable (Bernstein et al., 2003; Spinhoven, emnix, Hickendorff, van Hemert, Bernstein, & Elzinga, 2014). Cronbach's alpha in the present study was 0.88.

Difficulties in Emotion Regulation Scale (DERS)

DERS has 36 items as a self-report questionnaire that was developed to measure clinically associated emotion dysregulation and normal development. DERS evaluates emotion dysregulation through six subscales; non-acceptance of negative emotions, difficulties engaging in goal-directed behaviors, difficulties controlling impulsive behaviors, lack of emotional awareness, limited access to effective emotion regulation, and lack of emotional clarity. The scale has shown good reliability and validity with adolescent samples (Neumann, van Lier, Gratz, & Koot, 2010). Cronbach's alpha in the present study was 0.91.

Levels of Self-criticism Scale (LOSC)

LOSC is a 22-item scale that measures the levels of Self-criticism (Thompson & Zuroff, 2004). A five-point scale

ranging from ‘this is a very bad description of me’ to ‘this is a very good description of me’ is used to score this scale. The LOSC scale has two subscales: Comparative Self-criticism (CSC) and Internalized Self-criticism (ISC). A study reported good internal consistency for this scale with a Cronbach’s alpha of 0.90 (Yamaguchi & Kim, 2013). Cronbach’s alpha in the present study was 0.72.

3. Results

The data were gathered from 558 adolescents aged 13 to 17 years, of whom 263 were girls and 295 were boys. Table 1 shows the total scores of each variable and its subtypes for each gender. As Table 1 shows, the Mean±SD total scores and standard deviation of childhood trauma were 111.96 and 12.16, respectively. Also, the scores of difficulties in emotion regulation (136.32±22.83), Self-

criticism (82.58±19.85), and self-harming behaviors (13.73±3.64) are described.

Table 2 shows the correlational matrix between predictor variables and self-harming behaviors. As can be seen, Self-criticism had the highest correlation with self-harming behaviors ($r=0.345$), which was significant ($P<0.01$). Emotion dysregulation and childhood trauma also had a significant relationship ($r=0.329$ and $r=0.319$, respectively) with self-harming behaviors ($P<0.01$).

For analyzing step by step regression, the Durbin-Watson index was measured, which was 1.82 and appropriate and acceptable. As shown in Table 3, regression was performed in three steps. In the first step, the value of the multivariate correlation coefficient with one predictor variable (Self-criticism) was 0.345, which was significant ($F=75.20$, $P<0.001$). In the second step, the value of

Table 1. Descriptive results of variables and subscales

Variables	Mean±SD		
	Girls	Boys	Total
Emotional abuse	22.79±3.81	23.43±2.99	23.13±3.41
Physical abuse	23.71±3.04	23.87±2.98	23.79±3.01
Sexual abuse	24.08±2.70	24.15±2.55	24.12±2.62
Emotional neglect	17.40±3.45	17.54±3.28	17.47±3.36
Physical neglect	23.37±2.80	23.51±2.46	23.44±2.62
Childhood trauma	111.35±13.10	112.49±11.25	111.96±12.16
Non-acceptance of negative emotions	23.45±5.28	23.57±5.17	23.52±5.21
Difficulties engaging in goal-directed behaviors	17.57±4.69	17.93±4.77	17.76±4.73
Difficulties controlling impulsive behaviors	22.95±5.71	23.45±5.30	23.22±5.50
Lack of emotional awareness	21.18±3.12	21.30±3.27	21.24±3.19
Limited access to effective emotion regulation	31.36±7.35	32.11±6.25	31.76±6.80
Lack of emotional clarity	18.72±3.61	18.92±3.49	18.82±3.55
Emotion Dysregulation	135.24±23.74	137.27±21.98	136.32±22.83
Internalized Self-criticism	42.75±12.90	44.55±11.87	43.70±12.39
Comparative Self-criticism	38.56±9.56	39.16±9.53	38.88±9.54
Self-criticism	81.31±20.18	83.71±19.52	82.58±19.85
Self-harming Behaviors	13.69±3.67	13.77±3.62	13.73±3.64
Total	263	295	558

Table 2. Correlational matrix between predictor variables and self-harm

Variables	Childhood Trauma	Emotion Dysregulation	Self-criticism	Self-harm
Childhood Trauma	1	0.582**	0.227**	0.319**
Emotion Dysregulation	0.582**	1	0.342**	0.329**
Self-criticism	0.227**	0.342**	1	0.345**
Self-harm	0.319**	0.329**	0.345**	1

**P<0.01, N=558.

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the multivariate correlation coefficient with two predictor variables (Self-criticism and childhood trauma) was 0.424, which was significant as well ($F=60.93$, $P<0.001$). Finally, in the third step, the value of the multivariate correlation coefficient with three predictor variables (Self-criticism, childhood trauma, and emotion dysregulation) was 0.437, which was also significant ($F=43.68$, $P<0.001$). Standardized and unstandardized regression coefficients are reported below.

Based on the results of Table 4, the first and strongest predictor of adolescents' self-harming behaviors was Self-criticism, which significantly with a beta coefficient ($\beta=0.345$) predicted self-harming behaviors ($t=8.67$, $P<0.001$). In the second step, childhood trauma was added to the model; thus, it is concluded that the childhood trauma of adolescents with a beta coefficient ($\beta=0.253$) significantly ($t=6.42$, $P<0.001$) predicted self-harming behaviors. Finally, as the third step, emotion dysregulation was entered into the model. Adolescents' emotion dysregulation significantly ($t=2.77$, $P<0.006$) predicted self-harming behaviors with a beta coefficient of 0.135. As shown in Table 4, all coefficients were positive and significant. Based on these results, it can be concluded that Self-criticism, childhood trauma, and emotion dysregulation significantly predicted adolescents' self-harming behaviors, so that with increasing each of these variables, the probability of self-harm also will increase.

4. Discussion

Based on the results of the current study, there was a significant relationship between childhood trauma, emotion dysregulation, and Self-criticism with self-harming behaviors.

Concerning childhood trauma, the results were consistent with both developmental models of self-harm and studies indicating a relationship between childhood trauma and self-harm (Afifi et al., 2009; Brezo et al., 2008; Hu, Taylor, Li, & Glauert, 2017; Kaplan et al., 2016; Peh et al., 2017; Serafini et al., 2017; Wang, Xu, Zhang, Wan, & Tao, 2020). Based on the developmental model, childhood physical and sexual abuse affects the adolescent's mental development and reduces the ability to regulate emotions, communicate with the environment, differentiate between themselves and others; thus, self-harm occurs as a compensatory strategy to cope with this disability (Yates, 2004).

Another result of this study concerning emotion dysregulation can be explained based on the emotion regulation model (Gratz, 2003). Therefore, environmental risk factors, such as strict, discredited parenting and victimization in the peer group affect self-harming behaviors through emotional regulation deficits (McKenzie & Gross, 2014). This finding was consistent with the other studies (Kimball & Diddams, 2007; Rogier, Petrocchi, D'aguanno, & Velotti, 2017; Tao, Bi, & Deng, 2020). Also, based on the experiential avoidance model (Howe-Martin, Murrell, & Guarnaccia, 2012)

Table 3. Summary of step by step regression model with self-harm

Model	R	R ²	Adjusted R ²	Std. Error	F	Sig.
Step 1	0.345	0.119	0.118	3.421	75.20	0.0001
Step 2	0.424	0.180	0.177	3.304	60.93	0.0001
Step 3	0.437	0.191	0.187	3.284	43.68	0.0001

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Table 4. Coefficients of step by step regression model with self-harm

Model	Predictor Variable	B	Std. Error	Beta	t	Sig.
Step 1	Self-criticism	0.063	0.007	0.345	8.672	0.0001
Step 2	Self-criticism	0.053	0.007	0.288	7.289	0.0001
	Childhood Trauma	0.076	0.012	0.253	6.421	0.0001
Step 3	Intercept	0.796	1.323	---	0.602	0.548
	Self-criticism	0.047	0.007	0.258	6.335	0.0001
	Childhood Trauma	0.054	0.014	0.181	3.859	0.0001
	Emotion Dysregulation	0.022	0.008	0.135	2.777	0.006

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those who are engaged in self-harm behaviors, experience high emotional responsiveness, such as shame, guilt, and poor regulation of emotional arousal due to impulsivity and novelty seeking. Therefore, this process increases the tendency to self-harm.

There was also a significant relationship between Self-criticism and self-harming behaviors. This finding is in line with the integrated theoretical model (Nock, 2010) and findings of studies indicating the role of Self-criticism as a factor related to self-harm (Daly & Willoughby, 2019; Thompson & Zuroff, 2004). According to this model, aversive thoughts (e.g. self-critical thoughts) are the cause of intrapersonal vulnerability to the emergence of self-harming behaviors and other destructive behaviors. This finding also is allied with the self-punishment model (Nock, 2010). Based on the self-punishment model, when someone commits a self-harming behavior, he or she might consider him or herself as guilty and try to confirm his or her negative self-concept, which is resulted from the dissonance between the self-image and the wrong behavior.

Adolescence is one of the most important stages of a person's life and it can be considered as a critical stage that highlights investigating self-harming behaviors due to the high prevalence and high lethality compared to adults. Considering that self-harm is the strongest predictor of suicidal behaviors, the clinical significance of the present findings becomes more and more important to prevent suicide and its related behaviors.

5. Conclusion

Adolescence is one of the most important stages of a person's life and it can be considered as a critical stage that highlights investigating self-harming behaviors due

to the high prevalence and high lethality compared to adults. Considering that self-harm is the strongest predictor of suicidal behaviors, the clinical significance of the present findings becomes more and more important to prevent suicide and its related behaviors. Therefore, it is recommended that mental health professionals pay more attention to the role of childhood trauma, such as sexual abuse and other abuses in their treatment plans. Also, they must be aware of the important role of emotion regulation in reducing self-harming behaviors. Finally, in order to prevent self-harm, it is better to use cognitive techniques to moderate Self-criticism thoughts.

Limitations

This study had some limitations. First, it was conducted using a cross-sectional design and it is better to use longitudinal designs in the future to explain the relationship between variables more precisely. Second, due to the COVID-19 pandemic, the questionnaires were completed online, which increases the likelihood of random responses. Third, the clinical interview was not administered because of the prevalence of COVID-19.

Ethical Considerations

Compliance with ethical guidelines

This research was approved by the Research Ethics Committee of Shahid Beheshti University of Medical Sciences (Code: IR.SBMU.MSP.REC.1399.525).

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Authors' contributions

All authors equally contributed to preparing this article.

Conflict of interest

The authors declared no conflict of interests.

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