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Prediction of Self-Harming Behaviours Based on The Emotion Regulation Difficulty and Intolerance of Uncertainty In Students

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ABSTRACT

Introduction: The present study was conducted to predict self-injurious behaviour based on the emotional regulation difficulty and intolerance of uncertainty in female second-grade high school students.
Research method: The research method was a descriptive-correlation type. The statistical population of the present study included all the students of the second secondary school in the 4th district of Alborz province in the academic year of 2021-2022, and 200 of them were selected by the available sampling method of 2 schools. The instrument of the current research is the Self-Harm Inventory by Sansone et al. (1998); the Emotion Regulation Difficulty Scale by Gratz & Roemer (2004) and the Intolerance of Uncertainty Scale by Foreston et al. (1994). The hierarchical multivariate regression method was used for data analysis.
Results: The results of the present study showed that intolerance of uncertainty and among the components of emotion regulation difficulties, non-acceptance of emotional responses, difficulty in performing purposeful behaviour, lack of emotional awareness and lack of emotional clarity, predicted self-harming behaviour positively and at a significance level of 0.01 in students.
Conclusion: Based on the results of this research, educational programs should be considered to promote and improve students' emotion regulation and tolerance of ambiguity and uncertainty.

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1. Introduction

Adolescence is a period of profound life flow that is accompanied by profound changes in the body and mind and the power of visualization and imagination (Keating et al., 2019). The transition from childhood to adolescence is influenced by important changes at the emotional and cognitive levels. Adolescence is a period in which biological, cognitive, social and emotional changes occur. In fact, apart from the neonatal period, no other period of life changes as much as adolescence in an individual. During this period, adolescents experience puberty, which affects physical, physiological and psychological development. Significant changes occur in their self-concept, adolescents experience crises, emotional issues and problems increase, they become ready to accept adult issues and enter the political and social scene of society, and they become preoccupied with choosing a future career and forming a family life (Faramarzi et al., 2013).

Self-harm and attempted suicide are among the psychosocial problems that adolescents believe they have (Hakim Shushtari and Khanipour, 2014). Self-harm is one of the problems of adolescence and young adulthood that leaves many psychological and social lives behind. Non-suicidal self-injury in adolescence is an important risk factor for suicidal behaviours and an important clinical marker of psychiatric disorders (Kickens et al., 2019; Gromatsky et al., 2019). Self-harm is a behavioural and intentional act that involves physical violence that an individual inflicts on their own body and intends to harm and even possibly kill. This is one of the victims and victims of the individual. Some self-harm behaviours, such as self-harming, take the form of suicide. But suicide and self-harming behaviors need to be distinguished from the union: in suicide, the intention is to die, while in self-harm, the intention is to harm or injure oneself. However, the distinction between these is not clear (Picard, 2015). Self-injurious behaviours are behaviours that harm the body with the purpose of suicide. Suicidal behaviour involves the intention to die. Hopelessness, depression, and despair are precursors to suicidal behaviours, which, in addition to hopelessness and depression, are also precursors to self-harming behaviours (Sabisa et al., 2016). Self-harm is an inappropriate way to deal with emotional problems, anger, and frustration. Although this behaviour initially reduces tension and feelings of peace, the person is then faced with feelings of guilt, shame, and the return of negative feelings (Chen and Chun, 2019).

According to the cry and pain theory of Williams (2001) and Williams and Pollock (2000; 2001), self-injurious behaviour is a response to stressful situations that provoke feelings of failure and are considered inevitable. Psychological factors, such as the belief that the individual cannot effectively solve their problems, lead to increased helplessness and hopelessness. These theorists have suggested that although some self-injurious behaviours may not be motivated by death, a common motivation in these behaviours is to escape from unbearable conditions and psychological suffering and pain. Some research has shown that self-injurious behaviours have an emotion regulation function and that individuals engage in self-injurious behaviour to escape from negative, intense, or unwanted feelings (Slabert et al., 2021). It can be broadly defined as the ability to respond to the ongoing demands of environmental experiences with a wide range of emotions, in a manner that is socially acceptable and flexible enough to include spontaneous reactions as well as the ability to delay spontaneous reactions when needed (Hu et al., 2017). According to Gratz and Roemer (2004), emotion regulation is a multidimensional concept that includes 1) awareness and understanding of emotions, 2) acceptance of emotions, 3) the ability to control impulsive behaviours and behave by desired goals when experiencing negative emotions, and 4) the ability to use appropriate emotion regulation strategies in situations flexibly to regulate emotional responses to address goals and environmental demands. The relative absence of any or all of these abilities leads to difficulties in emotion regulation or emotion dysregulation.

Intolerance of ambiguity is another variable that appears to be associated with self-harming behaviours. Intolerance of ambiguity refers to a personality trait defined by negative beliefs about

ambiguity and its implied meaning, and beliefs about one's ability to cope with ambiguity. Intolerance of ambiguity may lead to avoidance responses or distressing performance (Sarawagi, Oglesby, & Kagel, 2013). Krohn (1989) stated in the hyperarousal-avoidance model of anxiety that intolerance of ambiguity leads to hyperarousal and subsequent negative emotional arousal. Therefore, individuals try to avoid ambiguity to avoid experiencing unpleasant emotional experiences such as anxiety, and the negative feelings resulting from intolerance of ambiguity may hinder appropriate performance. In this model, it is assumed that people who are unable to tolerate ambiguity are prone to engaging in worry because the lack of tolerance for ambiguity triggers a chain of worry, negative problem orientations, and cognitive avoidance (Osmangoglu, Cresswell, & Dodd, 2018). People with high ambiguity tolerance experience less anxiety and, as a result, can show better adaptation and resilience in dealing with stressful situations by finding appropriate solutions and coping styles in unpleasant situations (Ahmadi & Siahi, 2017).

In this regard, the findings support the idea that difficulties in emotion regulation and intolerance of ambiguity are risk factors for the occurrence of impulsive and self-injurious behaviours. In the research of Khedmati (2020), the results showed that there is a significant positive relationship between the dimensions of emotion regulation difficulty, including non-acceptance of emotional responses, difficulty in performing purposeful behaviour, difficulty in impulse control, lack of emotional awareness, and limited access to emotion regulation strategies, and self-injurious behaviours. In the research of Ahmadi Marviili et al. (2019), the findings also show the predictability of self-injurious behaviours and suicidal tendencies in adolescents, considering the mediating role of cognitive emotion regulation strategies based on the type of attachment style and personality organization. Birami et al. (2021) showed that cognitive emotion regulation strategies affect substance abuse in students. Ghaderi et al. (2020) concluded that emotion regulation and intolerance of uncertainty mediate the relationship between childhood maltreatment and non-suicidal self-harm in adolescents. Durbina et al. (2021) stated that intolerance of ambiguity is associated with distress, which may lead to maladaptive behaviours such as impulsive behaviours and self-injurious behaviours. Niaxio et al. (2018) showed in their study that emotion regulation difficulties predict suicidal behaviours. A review of the research background shows that emotion regulation and, along with it, tolerance of ambiguity are influential variables in the occurrence of self-injurious behaviours. However, no study was found that examined intolerance of ambiguity in the occurrence of self-injurious behaviours in adolescents. Therefore, the present study seeks to answer the question of whether emotion regulation difficulties and intolerance of ambiguity predict self-injurious behaviours in students.

Research Method

The research method was descriptive-correlational. The statistical population of the present study included all second-year secondary school students in District 4 of Alborz Province in the academic year 1400-1401, of which 200 people were selected from 2 schools by convenient sampling method. The instruments used in the present study were as follows:

Self-harm Questionnaire. The self-harm questionnaire of Sanson et al. (1998) consists of 22 items that examine direct self-harm behaviours (cutting, burning, suicide attempts, etc.) and indirect self-harm behaviours (illegal drug abuse, risky driving, risky sexual behaviours, etc.) as yes = 1 and no = 0. The minimum score in this tool is 0 and the maximum score is 22, and the cut-off point for this tool is 5. Khedmati (2020) reported the correlation of this tool with the Difficulty of Emotion Regulation Scale in a range of 0.11 to 0.44 as an indicator of the convergent validity of the tool and the Cronbach's alpha coefficient for this tool was 0.80 as an indicator of internal consistency. In the present study, the Cronbach's alpha coefficient for this tool was 0.84.

Difficulty of Emotion Regulation Scale. The Difficulty of Emotion Regulation Scale of Gratz and Roemer (2004) consists of 36 items that assess 6 subscales: non-acceptance of emotional responses, difficulty in performing goal-directed behaviour, difficulty in impulse control, lack of emotional awareness, limited access to emotional regulation strategies, and lack of emotional clarity on a 5-point Likert scale from "1 = very rarely" to "5 = almost always". Item numbers 1, 2, 6, 7, 8, 10, 17, 20, 22,

24, 34 are scored in reverse order. Gratz and Roemer (2004) reported a Cronbach's alpha coefficient of 0.93 and a test-retest coefficient of 0.87 for this instrument as an indicator of internal consistency and the correlation coefficients between the subscales of the Difficulty in Emotion Regulation Questionnaire and the Hayes et al. 2004 Acceptance and Commitment Questionnaire indicate the convergent validity of this instrument. In the study by Khanzadeh et al. (2012), the results of exploratory factor analysis revealed eight factors for this scale, six of which were consistent with the previous subscales and the other two factors were removed because only one item loaded. Khanzadeh et al. (2013) reported a Cronbach's alpha coefficient for this instrument between 0.86 and 0.88 as an indicator of the internal consistency of the instrument. In the present study, the Cronbach's alpha coefficient for this instrument was 0.70.

Intolerance of ambiguity scale. The Intolerance of ambiguity scale of Freeston et al. (1994) consists of 27 items designed to measure the degree of tolerance of individuals to ambiguous situations and 4 subscales of low tolerance to ambiguous situations, positive beliefs about worry, cognitive avoidance, and negative orientation to the problem are evaluated on a 5-point Likert scale from completely false = 1, false = 2, somewhat true = 3, true = 4 to completely true = 5. Baher and Dugas (2006) reported the correlation of this instrument with the Penn State Anxiety Inventory as 0.60 as an indicator of the convergent validity of the instrument and the Cronbach's alpha coefficient for this instrument as 0.94 as an indicator of the internal consistency of the instrument. In the present study, the Cronbach's alpha coefficient for this instrument was 0.88.

Implementation Method

In the present study, completing the questionnaires took 20 to 30 minutes. In this study, the ethical principles of research, including confidentiality, privacy, and individual privacy, were observed, and participants were assured that participating in the study did not cause any potential harm to the participants. The statistical inference section of the data includes the answer to the main research question. To study the relationships between the research variables, the Pearson correlation coefficient was used, and to simultaneously predict multiple criterion variables from the predictor variables, the multivariate regression model was used if the main assumptions of multivariate regression analysis, including missing values, normality, linearity, and collinearity, were met.

Research Findings

In this study, all participants were female twelfth-grade students

Table 1. Correlation coefficients between research variables

7	6	5	4	3	2	1	Research variables
						-	1. Intolerance of ambiguity
					-	0/38**	2. Difficulty regulating emotions - refusal to accept emotional responses
				-	0/69**	0/41**	3. Difficulty regulating emotions - difficulty in performing goal-directed behaviour
			-	0/54**	0/42**	0/32**	4. Difficulty regulating emotions - difficulty in controlling impulses
		-	0/20**	0/12	0/08	0/11	5. Difficulty regulating emotions - lack of emotional awareness
	-	0/22**	0/38**	0/49**	0/57**	0/34**	6. Difficulty regulating emotions - limited access to strategies
-	0/39**	0/47**	0/34**	0/41**	0/35**	0/30**	7. Difficulty regulating emotions - lack of emotional clarity
0/54**	0/42**	0/32**	0/36**	0/45**	0/51**	0/47**	8. Self-harming behaviors

*P <0/05 ،**P <0/01

Table 1 shows that all components of emotion regulation difficulties, along with intolerance of ambiguity, are positively correlated with self-injurious behaviours at a significance level of 0.01.

Table 2. Hierarchical multivariate regression in predicting self-injurious behaviors based on intolerance of ambiguity and components of emotion regulation difficulties

p	t	β	SE	b	Variables
					Stage One (Intolerance of Ambiguity)
0/001	3/65	0/215	0/012	0/043	Intolerance of Ambiguity
-		R^2=0/221 و adjR^2=0/217			<0/001P(1 ،186)=52/86،F
					Stage 2 (Difficulty regulating emotions)
0/033	2/15	0/162	0/051	0/110	Non-acceptance of emotional responses
0/002	3/10	0/250	0/048	0/150	Difficulty in performing goal-directed behavior
0/703	0/42	0/025	0/045	0/019	Difficulty in impulse control
0/002	3/18	0/191	0/038	0/120	Lack of emotional awareness
0/857	0/23	0/013	0/035	0/008	Limited access to strategies
0/001	3/71	0/245	0/056	0/280	Lack of emotional clarity
=0/293ΔR^2		0/495 adjR^2=0/514 وR^2=			<0/001P(7 ،180)=27/18،F =0/001P=18/05،ΔF

Table 2 shows that intolerance of ambiguity, which was entered into the prediction equation of self-injurious behaviours in the first stage, was predicted at a significance level of 0.01 (p<0.01, F=52.86 (186 and 1)). Examination of the obtained multiple correlation squared showed that the value of the multiple correlation coefficient (R2) was equal to 0.221. This indicates that intolerance of ambiguity explains 22.1% of the variance of self-injurious behaviours in students. The regression coefficient between intolerance of ambiguity and self-injurious behaviours (β=0.215, p=0.001) was positive and significant at the 0.01 level.

Table 2 shows that by entering the components of emotion regulation difficulties into the prediction equation of self-injurious behaviours in the second stage, the R2 value reached 0.514. This finding means that the entry of the components of emotion regulation difficulties along with intolerance of ambiguity caused 51.4 per cent of the variance of self-injurious behaviors to be explained. The value of R2 changes (R2Δ) was equal to 0.293. This finding means that by entering the components of emotion regulation difficulties into the prediction equation and by controlling the contribution of intolerance of ambiguity, the amount of explained variance of self-injurious behaviors increased by 29.3 per cent, which is statistically significant at the 0.01 level (P<0.01, ΔF=18.05). The regression coefficients also showed that among the components of emotion regulation difficulties, non-acceptance of emotional responses (β=0.162, p<0.05) positively predicted self-harming behaviours in students at a significance level of 0.05, and the components of difficulty in performing goal-directed behaviour (β=0.250, p<0.01), lack of emotional awareness (β=0.191, p<0.01), and lack of emotional clarity (β=0.245, p<0.01) positively predicted self-harming behaviours in students at a significance level of 0.01.

Discussion and Conclusion

The results of the present study showed that intolerance of ambiguity and, among the components of emotion regulation difficulties, non-acceptance of emotional responses, difficulty in performing purposeful behaviour, lack of emotional awareness, and lack of emotional clarity positively predicted

self-harming behaviours in students at a significance level of 0.01.

In explaining the present finding, it can be said that, following the metacognitive model, it is assumed that intolerance of ambiguity increases the risk of excessive worry and is also a factor in increasing vulnerability to worry and anxiety because it causes people to tend towards cognitive avoidance (Kertz and Woodruff Borden, 2013). In line with these findings, Aftab and Shams (2020) stated that because humans have the cognitive capacity to create mental representations of past events and also to face future events to solve problems, they can create mental representations of future bitter events that are the cause of mental health problems, in situations that have not yet happened. One of the consequences of worry and intolerance of ambiguity is the ability to produce and maintain mental health problems, including anxiety, in the absence of external fear, with catastrophic thoughts and images of non-existent fears and the dangers of facing them in the future. Cognitive avoidance in anxious individuals impairs the individual's performance in the face of uncertainty and ambiguity (Ethni Ashari et al., 2017). In line with the findings in the present study, Alizadeh et al. stated that intolerance of ambiguity is a type of cognitive bias that affects how an individual perceives, interprets, and reacts to an uncertain situation at the emotional, cognitive, and behavioral levels (Alizadeh et al., 2014). People who are intolerant of ambiguity believe that uncertainty is stressful and upsetting; uncertainty about the future is unfair; negative events are unexpected and should be avoided. Also, ambiguity interferes with an individual's ability to act (Dougas et al., 2007). These individuals have functional difficulties in ambiguous situations (Dugas et al., 2004). They also tend to overestimate the probability of unpredictable or negative events and have threatening interpretations of ambiguous information. When the available information cannot be interpreted and the upcoming situation is threatening, it causes some people to feel anxious and ultimately quickly avoid the desired activity. People with lower tolerance for ambiguity usually experience more stress and mental health problems (Yuk et al., 2010). According to cognitive avoidance theory, anxious and worried people actually have the knowledge to solve their problems, but due to having a negative cognitive framework about problems, they have difficulty preparing themselves to use problem-solving knowledge when facing them (Athni Ashari et al., 2017). Lee and Woodruff-Borden found that individuals with an inability to tolerate ambiguity are prone to worry because their intolerance of ambiguity sets off a cascade of anxiety and mental health problems (Lee & Woodruff-Borden, 2018). According to the ambiguity intolerance model, these individuals perceive uncertain or ambiguous situations as stressful and upsetting, and as a result, they experience chronic worry in response to such situations. These individuals believe that worrying helps them to effectively cope with feared situations or thereby prevent such events from occurring. Worrying, in turn, leads to negative problem orientation and cognitive avoidance, which in turn perpetuate worry in a vicious cycle. People with intolerance of ambiguity find the existence of possible negative and ambiguous situations unacceptable and when faced with such situations, they use worry as the main strategy to reduce their levels of ambiguity (Alizadeh et al., 2014). According to the results of Forouzanfar's (2017) research, those who do not tolerate ambiguity are often described as oblivious to reality, with a tendency to resort to black-and-white solutions and make quick and arbitrary judgments. It seems that when caregivers of Alzheimer's patients experience high intolerance of ambiguity and become worried and anxious due to the mental and physical conditions of their patient, as well as the burnout and suffering caused by caregiving, intolerance of ambiguity and attempts to exert control over the situation cause mental health problems in turn.

Deficits in emotion regulation are considered a key factor for individual functioning and social development. People who experience inability or difficulty in emotion regulation are more prone to interpersonal problems. These people often make unsuccessful attempts to avoid emotional experiences (Hosseini et al., 2018). Emotion regulation strategies can be considered efficient emotion regulation strategies such as problem-solving (Wang et al., 2023), acceptance (Wolf and Isakowitz, 2022), reappraisal and planning (Liu et al., 2023) and ineffective emotion regulation strategies such as rumination and thought suppression (Hosking et al., 2018). People who exhibit self-harming behaviours use ineffective emotional strategies (Weiss et al., 2015). Lack of emotional awareness can

be considered as the inability to identify and describe one's own and others' emotions; Lack of emotional awareness also includes not accepting one's own and others' emotions; therefore, people who are weak in identifying their own and others' emotions are not very sensitive to their own and others' emotions; lack of emotional awareness is one type of difficulty in regulating emotions and shows the adolescent's inability to identify their own and others' emotions. For example, by constantly thinking about future events, they judge their thoughts in a way, which prevents awareness and acceptance of emotions. Also, by getting involved in the content of their thoughts, these people prevent them from evaluating the situation from positive or safe perspectives and solving the problem. Because in an efficient problem-solving process, it is first necessary to define the problem objectively, then through brainstorming, all available options are identified and their usefulness or unusefulness is examined (Govia et al., 2022). Difficulty in impulse control means that when a person is experiencing negative emotions, he or she has no control over his or her personal behaviors. Voluntary control with conscious and voluntary strategies, such as waiting and thinking about the consequences of an action before doing it, prevents the impulse from being overcome; in this way, the person also considers other responses; people with poor emotional clarity are unable to recognize their own and others' emotions and become confused when facing problems. This causes them to have a limited ability to choose adaptive emotional strategies (Schreiber et al., 2012). Self-harm behaviour is a way to express, animate, or manage negative emotional states, and the reason for the continuation of this behaviour is its effect on reducing negative emotions or creating positive states or getting rid of states of emotional numbness and numbness (Khidmati, 2020), which ultimately leads to self-harming behaviours. In general, it can be said that self-harm is done to regulate emotional turmoil because the desire to act to relieve the pressure of unpleasant emotions is so intense for this group of adolescents that they cannot use other possible solutions that they have as emotional regulation skills.

Limitations and suggestions

Every research has its limitations. Among the limitations of the current research was its implementation during the COVID-19 epidemic, which made the researcher face difficulties in collecting samples and losing participants. Based on the present research results, it is suggested that educational programs should be considered to promote and improve emotion regulation and tolerance of ambiguity and uncertainty in students.

Following the principles of research ethics:

A manuscript in the form of a statement about approval and moral consent was received from the current research participants.

Sponsor:

Credit for the reported study was obtained from personal sources.

The role of each author:

All authors contributed equally to drafting, revising and revising the present article.

Conflict of interest

The authors declare that they have no conflict of interest.

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