

Original Article



Predicting suicide attempts among teenagers in Bandar Abbas: The role of rumination and emotion regulation

Roohollah Karami Beldaji^{1*}, Mahmoud Ismaeili², Ashraf Beirami³, Yasaman Mirzadeh Baghdadi⁴, Fereshteh Mazhari Azad³

¹Department of Counseling and Psychology, School of Humanities, Hormozgan University, Hormozgan, Iran

²Department of Psychology, School of Humanities, Najafabad Branch, Islamic Azad University, Isfahan, Iran

³Department of Nursing, School of Nursing, Bandar Abbas Branch, Islamic Azad University, Hormozgan, Iran

⁴Department of Psychology, School of Humanities, Bandar Abbas Branch, Islamic Azad University, Hormozgan, Iran

*Corresponding Author: Roohollah Karami Beldaji, Email: karamiboldaji@gmail.com

Abstract

Background and aims: Suicide attempts among teenagers are a significant public health concern, often linked to emotional and cognitive factors, such as rumination and emotion regulation. This study investigated the relationship between rumination, emotion regulation, and suicide attempts among teenagers aged thirteen to eighteen in Bandar Abbas who have attempted suicide at least once in 2023.

Methods: The present research employed a descriptive design, which is a form of causal-comparative research. The statistical population comprised all teenagers who attempted suicide in 2023. The sample included 100 teenagers selected through convenience sampling. The data were collected using the Cognitive Emotion Regulation Questionnaire, the Nolen-Hoeksema Rumination Questionnaire, and the Ask Suicide-Screening Questionnaire. The data were analyzed using Pearson's correlation coefficient and simultaneous regression.

Results: The analysis of the main research hypotheses revealed a statistically significant positive correlation between rumination and suicide attempts ($P < 0.001$). More precisely, the likelihood of suicide attempts increased with an increase in rumination among teenagers. Conversely, the correlation between overall emotion regulation and its dimensions was statistically significant and negative ($P < 0.001$), suggesting that improvements in emotional regulation are associated with a decreased likelihood of suicide attempts among teenagers. Finally, the regression analysis showed that both rumination ($\beta = 0.49$) and emotion regulation ($\beta = -0.39$) were statistically significant predictors of suicide attempts.

Conclusion: The research results indicated that both emotion regulation and rumination are predictive factors for teen suicide attempts. Consequently, this finding represents a significant advancement in understanding factors contributing to suicide risk in this population.

Keywords: Rumination, Emotion regulation, Suicide attempt, Teenagers

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Introduction

Teenage is a critical transition period from childhood to adulthood, characterized by various stressors that can increase the risk of suicide among teenagers (1). A suicide attempt is defined as an act in which an individual seeks to end their own life but does not result in death (2). Currently, suicide is the second leading cause of death among teenagers, following accidents. Over the past 40 years, the incidence of suicide among this age group has increased more than fourfold (3), resulting in one teenage suicide occurring approximately every five minutes (4). The studies report an overall suicide rate of 9 per 100 000 individuals, with teenagers accounting for approximately 10% of these cases (5).

Studies on suicide typically focus on two key factors, namely, suicidal thoughts and suicidal behaviors (6). Suicidal mental ruminations encompass a spectrum of thoughts, ranging from vague desires to die to more

structured and active suicidal ideations (7). Ruminations refer to the process of negatively processing information, which can prolong the impact of stressful events in individuals' lives. This pattern is associated with heightened emotional distress and psychological trauma (8,9). Several studies have indicated that rumination is a significant predictor of suicidal ideation (10,11). Additionally, findings suggest that people with high levels of rumination are more prone to experiencing negative emotions and are at greater risk of suicide (12,13).

Another factor that can influence suicide attempts among teenagers is the lack of emotion regulation. Emotion regulation refers to the processes through which individuals modify their emotional responses, aiming to reduce the intensity of their emotional experiences (14). It can be defined as how people experience, express, or control their emotions (15,16). For teenagers, emotion regulation serves as a cognitive strategy employed when

confronting stressful events (17,18). Common strategies include self-blame, blaming others, rumination, positive focus, positive evaluation, acceptance of circumstances, and positive refocusing (17).

Given that suicide attempts represent a significant challenge in Iran, it is essential to thoroughly understand the factors influencing this phenomenon to develop effective preventive solutions for teenagers who have attempted suicide. Recognizing the importance of this issue, the present study aims to investigate the relationship between rumination, emotion regulation, and suicide attempts among teenagers in Bandar Abbas.

Materials and Methods

Statistical population and sampling method

The statistical population of this research comprised teenagers (both boys and girls) aged 13–18 years in Bandar Abbas who had attempted suicide at least once in 2023. The research sample consisted of 100 teenagers who had attempted suicide, selected through convenience sampling. One method for determining sample size in post-event research involves referencing published studies that are related to the research topic. In the present study, at least three studies pertinent to the topic were identified, and the average sample size from these studies was utilized as the sample size for this research (19). To identify eligible participants, the researcher consulted hospitals and medical and counseling centers to ascertain the number of teenagers who had attempted suicide. Research questionnaires were then distributed to these individuals for completion. To ensure ethical compliance, the researcher obtained written consent from both parents and teenagers, confirming their voluntary participation in the study. Additionally, incentives were offered to encourage participation.

The criteria for participation in the research included individuals aged 13–18 years who had made at least one suicide attempt in 2023. On the other hand, the exclusion criteria comprised non-cooperation and failure to complete the research questionnaires.

Research tools

Ask Suicide-Screening Questionnaire

Developed by Kate in 1984, this questionnaire consists of 13 questions aimed at assessing the potential suicidal propensity in teenagers. Each question offers “Yes” and “No” response options, which are scored as 1 and 0 points, respectively. However, questions 1, 5, and 11 are reversely scored. To determine the overall score, the points from all questions are summed, resulting in a total score that ranges from 0 to 13. A higher score on the questionnaire indicates a greater inclination toward suicidal behavior among respondents and vice versa. In Nouri’s research (20), the apparent validity of the questionnaire was confirmed by two university professors. Additionally, the reliability of the questionnaire was assessed using Cronbach’s alpha, which yielded a value of 0.65 for the Ask Suicide-

Screening Questionnaire, indicating acceptable reliability (20). In the current study, the reliability calculated using Cronbach’s alpha for the entire questionnaire was found to be 0.87.

Nolen-Hoeksema Rumination Questionnaire

Nolen-Hoeksema and Marrow developed a self-report questionnaire in 1991. The Rumination Response Scale consists of 22 items, where respondents are asked to rate each item on a scale. The scoring method for this questionnaire is based on a four-point Likert-type scale, ranging from “never” to “always.” A cutoff score of 33 is established, with scores below and above 33 indicating low and high rumination, respectively (18). The reliability of the questionnaire, assessed using Cronbach’s alpha, was 0.90, while its validity was established through correlation with the Metacognitive Beliefs Questionnaire, yielding a validity coefficient of 0.65 at a significance level of 0.001 (21). In the present study, the reliability of the scale was 0.89.

Cognitive Emotion Regulation Questionnaire

This multidimensional questionnaire, compiled by Garnefski et al (22), has been designed to identify cognitive coping strategies in individuals following negative events or situations. It assesses a person’s thoughts after experiencing a negative or traumatic event. This self-report tool is easy to implement and can be used by individuals aged 12 and older, including both general and clinical populations. This five-point Likert-type scale consists of 36 questions (ranging from “always” to “never”) that evaluate seven factors (positive reappraisal, positive evaluation, blaming others, self-blame, rumination, catastrophizing, and acceptance). Garnefski et al (22) reported the alpha coefficients for the subscales of this questionnaire to be between 0.71 and 0.81. Additionally, the validity coefficients for these subscales, assessed using a retest method over a 14-month interval, ranged from 0.48 to 0.61. In Iran, Samani and Sadeghi (23) found the alpha coefficients for the subscales to range from 0.62 to 0.91, with validity coefficients for these factors, using a retest method with a one-week interval, ranging from 0.75 to 0.88 (23). Notably, the reliability of the scale in the present study was determined to be 0.91, as measured by Cronbach’s alpha.

Results

Hypothesis 1: There is a relationship between rumination, emotion regulation, and its subscales with attempted suicide in teenagers.

Table 1 presents the results of the correlation between rumination, emotion regulation, and its subscales with attempted suicide among teenagers aged 13–18 in Bandar Abbas.

Based on the results (Table 1), the obtained correlation between rumination and suicide attempts was $r=0.72$ ($P<0.001$), indicating a positive relationship between

Table 1. Coefficients of simple correlation between rumination, emotion regulation, and its subscales with attempted suicide in teenagers

Variable	Attempted suicide	
	Correlation coefficient	Level of significance
Rumination (total)	0.72	0.001
Emotion regulation (total)	-0.68	0.001
Emotion regulation subscales	Positive refocus/planning	-0.56
	Positive evaluation/broader perspective	-0.66
	Blaming others	0.43
	Self-blame	0.49
	Rumination	0.61
	Catastrophizing	0.12
	Acceptance	-0.74

rumination and suicide attempts among teenagers. Furthermore, the results revealed that the correlation for emotion regulation (overall) was $r = -0.68$ ($P < 0.001$). Additionally, the subscales of positive refocusing/planning, positive evaluation/broadening perspective, and acceptance had correlation coefficients of -0.56, -0.66, and -0.74, respectively ($P < 0.001$). Therefore, there was a significant negative relationship between these subscales and suicide attempts among teenagers. Moreover, blaming others, self-blame, and rumination showed significant positive correlations with suicide attempts among teenagers, with coefficients of 0.43, 0.49, and 0.61, respectively ($P < 0.001$). Finally, the results indicated that the variable of catastrophizing was not statistically significant and had no significant relationship with suicide attempts.

Hypothesis 2: Rumination and emotion regulation can predict suicidal behavior in teenagers (ages 13–18) in Bandar Abbas.

The results of the simultaneous regression analysis predicting teen suicide attempts based on rumination and emotion regulation variables are provided in Table 2.

Based on the obtained data (Table 2), the multiple correlation between rumination and emotion regulation with teen suicide attempts was 0.79, and the adjusted coefficient of determination was 0.62. In other words, 62% of the variability in the criterion variable of suicide attempts was explained by rumination and emotion regulation. Additionally, it was found that rumination and emotion regulation were statistically significant (F-value: 81.90, $P < 0.001$), indicating that the present regression model is statistically significant. Finally, among the input variables in the regression, both rumination ($\beta = 0.49$, $t = 6.57$) and emotion regulation ($\beta = -0.39$, $t = -5.15$) were significant ($P < 0.001$) and could predict the suicide attempts of participants. Importantly, among the input variables, rumination was a positive predictor, while emotion regulation was a negative predictor for suicide attempts. According to the results (Table 2), rumination ($\beta = 0.49$) plays a more important role in predicting teen

suicide attempts.

Discussion

This study aimed to predict suicide attempts among teenagers aged 13–18 in Bandar Abbas based on rumination and emotion regulation. Our findings demonstrated a positive correlation between rumination and suicide attempts, suggesting that increased rumination elevates the likelihood of such attempts. Conversely, a negative correlation was observed between emotion regulation—specifically positive refocusing, positive evaluation, and acceptance—and suicide attempts, implying that enhanced emotion regulation is associated with a reduced risk of suicide attempts. Notably, reducing self-blame and rumination also correlates with a lower likelihood of suicide attempts.

Regression analysis confirmed that both rumination and emotion regulation are significant predictors of suicide attempts, acting as positive and negative predictors, respectively. These findings underscore the critical roles of rumination and emotion regulation in adolescent suicidal behavior.

Our results align with those of previous studies. For instance, Yadgari et al (24) found a significant link between self-criticism and rumination related to self-harm, reinforcing our findings on the detrimental effects of rumination. Similarly, Bahrebar (25) reported a negative relationship between cognitive emotion regulation and suicidal tendencies among students, supporting our conclusion that effective emotion regulation can mitigate suicide risk. Khedmati (26) observed that there was a connection between rumination, emotion regulation difficulties, and self-harming behaviors, corroborating our results.

In the context of international research, Schneider's theory highlights that unbearable psychological pain often triggers suicidal behavior due to unmet psychological needs, which conforms to our findings on the psychological factors influencing suicide attempts. Additionally, Rogers and Joiner (27) identified differences in rumination types between individuals who have attempted suicide and those who have not, suggesting that the nature of rumination may play a crucial role in suicidal ideation and behavior.

In summary, our study contributes to the understanding of the interplay between rumination and emotion regulation in predicting suicide attempts among adolescents, reinforcing the need for targeted interventions that address these psychological factors.

Conclusion

Our findings indicated a positive correlation between rumination and suicidal behavior, as well as a negative correlation between overall emotional regulation and its subscales with suicidal behavior among teenagers. Given that teen suicide poses significant challenges in the realm of public health, it is imperative to pay attention to these factors. Furthermore, our research demonstrated that

Table 2. Summary of the results of simultaneous regression for predicting suicide attempts in teenagers based on rumination and emotion regulation variables

Variable	Predictive variables	Multiple correlation (R)	Determination coefficient (R ²)	F value	Level of significance	Standard value of β	t value	Level of significance
Suicide attempts	Rumination	0.79	0.628	81.90	0.001	0.49	6.57	0.001
	Emotion regulation					-0.39	-5.15	0.001

rumination and emotional regulation are two fundamental factors in predicting teen suicidal behavior. Consequently, mental health professionals can utilize the results of this study to create appropriate environments aimed at preventing teen suicide. Overall, it is recommended that future research focus on enhancing mental health and reducing suicidal behavior among teenagers, considering that teenage is a critical period in human development. Overall, it is important to acknowledge that this study, similar to others, is subject to limitations, including the potential for response bias associated with self-report questionnaires; therefore, caution should be exercised in generalizing the results.

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Authors' Contribution

Conceptualization: Roohollah Karami Beldaji, Ashraf Beirami, and Fereshteh Mazhari Azad.

Data curation: Mahmoud Ismaeili and Yasaman Mirzadeh Baghdadi.

Formal analysis: Roohollah Karami Beldaji and Ashraf Beirami.

Funding acquisition: Roohollah Karami Beldaji, Mahmoud Ismaeili, and Yasaman Mirzadeh Baghdadi.

Investigation: Roohollah Karami Beldaji, Mahmoud Ismaeili, Ashraf Beirami, Yasaman Mirzadeh Baghdadi, and Fereshteh Mazhari Azad.

Methodology: Roohollah Karami Beldaji.

Project administration: Roohollah Karami Beldaji, Ashraf Beirami, and Fereshteh Mazhari Azad.

Resources: Mahmoud Ismaeili, Yasaman Mirzadeh Baghdadi, and Fereshteh Mazhari Azad.

Supervision: Roohollah Karami Beldaji and Fereshteh Mazhari Azad.

Writing-original draft: Roohollah Karami Beldaji, Yasaman Mirzadeh Baghdadi, and Fereshteh Mazhari Azad.

Writing-review and editing: Mahmoud Ismaeili, Ashraf Beirami, and Yasaman Mirzadeh Baghdadi.

Competing Interests

The authors declare that there is no conflict of interests.

Ethical Approval

This manuscript was approved by the Ethics Committee of the Medical Sciences School of Bandar Abbas Islamic Azad University (approval No. IR.IAU.BA.REC.1402.068).

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