Mediating Effect of Self-esteem in the Relationship between Loneliness and Suicidal Ideation of Male Adolescents

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Abstract

Introduction: Research has found that problems in interpersonal relationships are positively associated with suicidal behaviors. Nevertheless, it is required to further investigate internal mechanisms underlying this relationship. So, the current study aimed to examine the mediating role of self-esteem in the relationship between loneliness and suicidal ideation.
Method: The research design was descriptive – correlational. From the male high school students' population of Nourabad in the academic year of 2020, a total of 261 participants were selected using convenience sampling and were tested by Scale for Suicide Ideation, Rosenberg Self-Esteem Scale, and the UCLA Loneliness Scale. To analyze the data, path analysis were conducted.
Results: The findings revealed that there is a direct effect of loneliness on suicidal ideation. Also, results showed that the mediating role of self-esteem in the relationship between loneliness and suicidal ideation was significant.
Conclusion: Based on the findings, it can be concluded that loneliness and self-esteem are two important factors affecting male adolescents' suicidal ideation. Therefore, on the basis of the results of this study, it is necessary to develop intervention strategies regarding suicide ideation for adolescents that could be established and actively implemented to prevent adolescents' suicide.

Keywords: Adolescent, Loneliness, Self-esteem, Suicidal Ideation

Introduction

Suicide is an important problem worldwide [1]. Recent evidence suggests that, globally, about 3.8 per 100,000 persons aged 10–19 die by suicide annually [2]. While these are global statistics, suicide is categorized as the fifteenth highest cause of death worldwide and approximately 75% of these suicides had occurred in middle and low- income countries [3]. Suicidal behavior involves three concepts, one of which is suicidal ideation, which is a condition where an individual thinks about, considers, or plans to suicide; a suicide attempt involves behaviors towards ending one's life that does not result in death, and completed suicide is the voluntary act of ending one's life, which results in death [4].

Suicide in adolescence is often underreported with possible cause of death being classified as underdetermined or accident to protect the families from possible stigma associated with it [5]. Adolescents need to be more careful than any other age group because the risks of suicidal ideation are higher amongst them than adults [6]. Suicidal ideation and suicide attempt among adolescents have been associated with different psychosocial correlates. Negative affect, hopelessness, low self-esteem (1), drug use, and early life traumatic experiences have been found to increase the risk of suicidal behavior [7]. According to the model proposed by Bonner and Rich [8], psychological variables are believed to increase the risk of suicide ideation in adolescence. Indeed, consistent with their framework, findings

from numerous studies over the past several decades have consistently implicated psychological variables as important risk factors associated with suicide in adolescence [9, 10].

Problems in interpersonal relationships are often cited as psychological risk factors for suicide [11]. The perception of a lack of satisfying interpersonal relationships can be so damaging to adolescents that it predicts suicidality [12, 13]. Further, the Interpersonal-Psychological Model of Suicide posits that loneliness is one of the three major factors leading to suicide [14]. Loneliness results from the perception that one's interpersonal relationships do not meet personal expectations and thus are deficient [15]. Consistent with this view, findings from studies on loneliness have also implicated it as a reliable predictor of suicidal risk in adolescent populations [16, 17]. Accordingly, several studies showed that loneliness in adolescence is associated with peer difficulties and maltreatment [18, 19] and, in adolescence more generally, with low self-esteem, anxiety/depression, and emotional disregulation [20, 21] . Therefore, it is possible that risk for suicidal ideation is increased in adolescents with high levels of loneliness.

Some pieces of research and theories suggest that the key mechanisms mediating between loneliness and the various suicidal behaviors should be sought in the different aspects of the self, whereas most researchers have focused primarily on self-esteem [22]. Self-esteem is reported to have a significant impact on important life outcomes including health and social outcomes during adolescence and it means the value that one considers for oneself. Also, it may be a judgment that a person has on his/her own value [23]. A number of researchers have suggested that low self-esteem is causally related to suicidal behaviors [24, 25]. For example, Baumeister [26] proposed that suicide ideation arises from a strong desire to escape aversive self-awareness. The literature demonstrates that a correlation has been detected between low self-esteem and adolescents' suicidal ideation and attempts [27, 28]. Reports during the past few years indicate that there is a strong relationship between loneliness, low self-esteem, and suicidal ideation among adolescents [29], thus demonstrating the potential importance of self-esteem difficulties in creating a longstanding vulnerability for suicide ideation. Finally, some studies have demonstrated that self-esteem mediates the relationship between loneliness and different indicators of suicide behaviors [30, 31].

Despite the fact that a great number of studies confirm that low self-esteem can estimate suicidal ideation in male adolescents, only few studies have directly investigated the mediating role of self-esteem in the relationship between loneliness and suicidal ideation. To investigate the relationship among loneliness and suicidal ideation, loneliness was taken as an independent variable and suicidal ideation as a dependent variable to establish Path Analysis Model. So, investigating the mediating role of self-esteem in the relationship between loneliness and suicidal ideation in order to figure out the inner deep structure of the three variables is possible. Above all, the current study aimed to examine loneliness and its association with suicidal ideation in male adolescents. Furthermore, how self-esteem mediates this association is investigated.

Method
This cross-sectional and correlational study was conducted on male high school students of Nourabad, Lorestan in the academic year of 2020-2021. There is no consensus on the sample size for path analysis. However, many researchers recommended 200 cases as the minimum sample [32]. So, a total of 280 subjects from eight high schools were selected using convenience sampling method. The inclusion criteria included: 1) the age range of 15 to 18 years old, and 2) Willingness to participate in the research. The only exclusion criterion was having a psychological problem background (based on participants' self- report). Before completing the survey, all participants gave their written informed consent, noting that they were aware that the investigation was anonymous and confidential and that participants had the right to withdraw at any time without explanation. The following three paper-and-pencil questionnaires were distributed by the researcher.

CLA Loneliness Scale (UCLA): The UCLA loneliness scale consists of 20 items, half of which describe non-lonely thoughts while the other half describes feelings of loneliness [33]. Respondents are asked to rate their experienced feelings using a 4-point Likert-type scale, ranging from 1 (never) to 4 (often). The overall score for the scale ranges from 20 to 80, wherein higher scores indicate greater levels of loneliness. In support of construct validity, scores on the UCLA loneliness scale have been found to be positively associated with other measures of social disconnectedness [33]. In Wang et al.'s [34] study, the Cronbach's alpha was 0.85 indicating a good scale score reliability. In the present study, the UCLA loneliness scale has demonstrated good internal consistency with a Cronbach's alpha coefficient 0.83.

Rosenberg Self-Esteem Scale (RSES): The RSES is a 10 item trait measure of global self-esteem [35]. Responses are provided using a four-point Likert scale ranging from 1 (not at all) to 4 (very much so). Total scores range from 10 to 40, with higher scores indicating greater self-esteem. Previous research has demonstrated that the RSES possesses sound psychometric properties [36]. In Sharifi and Moltafet's [28] study, the Cronbach's alpha was 0.85 indicating good scale score reliability. In the present study, the Persian translation of the RSES has demonstrated good internal consistency with Cronbach's alpha coefficient 0.91.

Scale for Suicide Ideation (SSI): The SSI is a 19-item instrument of the current intensity of specific attitudes, behaviors, and plans to commit suicide [37]. Each item consists of three options graded according to the intensity of the suicidality and rated on a 3-point scale ranging from 0 to 2 (no ideation to strong ideation). The ratings are then summed to yield a total score, which ranges from 0 to 38. The SSI has been found to have moderately high internal consistency with Cronbach

coefficient alphas ranging from .84 to .89 [38]. Moreover, the predictive validity of the SSI for completed suicide is supported [39]. In the present study, the SSI has demonstrated good internal consistency with Cronbach's alpha coefficient 0.86.

Means, standard deviations, and Pearson correlations for the levels of loneliness, self-esteem and suicidal ideation, together were conducted using SPSS 25.0. Path analysis was conducted to examine the mediating role of self-esteem using AMOS 21.0. It is noted that, 19 participants missed more than 50% of items on a given scale and were excluded from subsequent analyses.

Results

Descriptive statistics such as mean, standard deviation, and correlation coefficients are presented in Table 1. The result of Kolmogorov-Smirnov test showed that the distributions of study variables are normal (P>0.05). Also, the results in Table 1 showed that all relationships were significantly positive at P<0.01. Therefore, based on the significance relationship between the variables, the necessary condition for investigating the mediating role of self-esteem in the relationship between loneliness and suicidal ideation is fulfilled.

Prior to conducting path analysis, it was ensured that its basic assumptions, such as adequacy of the *sample size*, data distribution normality, and multi-collinearity, were established. The research model of the relationship between loneliness and suicidal ideation mediated via self-esteem is shown in Table 1 based on standardized coefficients (β). As shown in Table 2, the proposed model had a good fit based on fitness indices. The most commonly used fitness index in the model analysis is CMIN/DF, that with a value less than three in the current research model shows a good fit. The Goodness of Fit Index (GFI), the Normalized Fit Index (NFI), and the Comparative Fit Index (CFI) with values higher than 0.90 indicates an acceptable fit to the current data. Also, the Root Mean Square Error of Approximation (RMSEA) with a value between 0.05 and 0.10 shows an acceptable fit of the model.

The parameters of the direct relationship measurement in the research model are presented in Table 3. As shown, the direct effect of loneliness on suicidal ideation and the loneliness on self-esteem were significant. Moreover, the direct effect of self-esteem on suicidal ideation was significant.

Table 1. Descriptive Statistics, Correlation Matrix and Tests of Normality for Study Variables

Variables	Mean	SD	1	2	3	Kolmogorov–Smirnov	
							P
1) Loneliness	41.67	8.25	1	-	-	0.07	0.061
2) Self-esteem	19.53	4.13	-0.41**	1	-	0.07	0.058
3) Suicidal ideation	17.85	3.39	0.32**	-0.49**	1	0. 08	0.053

P < 0.01**

Table 2. General Fit Assessment Indices of Model

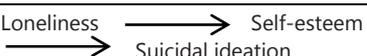| Indices	CMIN/DF	GFI	SRMR	CFI	NFI	RMSEA
Model values	2.31	0.92	0.04	0.95	0.94	0.05
Acceptable values	Less than 3	Greater than 0.90	Less than 0.05	Greater than 0.90	Greater than 0.90	Less than 0.08
Status	Good	Good	Good	Good	Good	Good
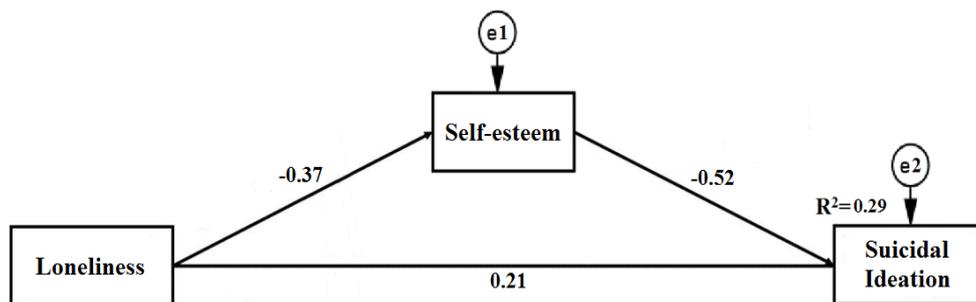
Figure 1. Model of the mediating role of self-esteem.

Table 3. Direct Relationship Measurement Parameters in the General Research Model

Direct Pathways		B	SE	Beta	C. R	P
Loneliness ⟶ Suicidal ideation		0.46	0.19	0.21	3.19	P<0.001
Loneliness ⟶ Self-esteem		0.29	0.13	-0.37	6.09	P<0.001
Self-esteem ⟶ Suicidal ideation		0.16	0.07	-0.52	8.42	P<0.001

Table 4. Results of the Bootstrap Method of Indirect Pathway in the General Research Model

Model pathway	Beta	SE	t	(95% CI)	
				Lower Bound	Upper Bound
Loneliness → Self-esteem → Suicidal ideation	0.19	0.009	3.01	0.10	0.19

We examined the mediating effect of self-esteem on the relationship between loneliness and suicidal ideation using a bootstrapping method (Table 4). The upper (0.19) and lower (0.10) limits of the confidence interval for indirect effect of loneliness on suicidal ideation did not include zero, indicating a significant mediating effect.

Discussion

The present study investigated the mediating role of self-esteem in the relationship between loneliness and suicidal ideation among male adolescents. The results showed that loneliness had a significant positive effect on suicidal ideation in male adolescents. Loneliness can be severe enough to lead to death by suicide [15]. In general, the perception of a lack of satisfying interpersonal relationship can be so damaging to adolescents that it predicts suicidality [12]. In line with the current study's findings, some of the previous studies reported that, suicidal thoughts and ideation in adolescents occur through exposure to problems in interpersonal relationships, such as loneliness, which is a tension factor in interpersonal relationships [16, 17]. The higher the level of one's experience of tension in relationships, the higher the level of loneliness and anger expressed, which also has a significant effect on depression symptoms or leads to a high probability of developing suicidal thoughts and ideation [21]. Further, based on the Interpersonal-Psychological Model of Suicide, male adolescents are more likely to respond to problems in interpersonal relationships by externalizing depressive behaviors [14], and, on average, are more likely than females to isolate themselves from the support available from the greater social network, and to engage in self-harm behaviors [11]. One explanation for the results of this study could be that young boys, who are unable and/or reluctant to seek assistance for personal problems to cope with the expectations placed upon them as boys and who also have fewer relational skills are more likely to express externalizing behaviors (e.g., depression and loneliness indicators) and, in extreme cases, may be more likely to experience suicide ideation [6].

The findings showed that loneliness through self-esteem had a significant effect on suicidal ideation .The results suggest that satisfactory relationships with others, especially with significant others, are a key to the validation of the true self, which consequently translates to self-esteem. This finding is consistent both with the classic theoretical concepts indicating the social sources of self, contemporary concepts of self-esteem and the results of studies that demonstrate that feeling socially disconnected predicts a low level of self-esteem [27, 34]. Lowered self-esteem as an effect of loneliness is strongly related to self-harm thoughts and behaviors [30]. In line with this, an explorative prospective study reported that self-esteem plays a role in buffering the relationship between loneliness and suicidal ideation [31]. Another possible explanation is that male adolescent with lower levels of loneliness may, in turn, have greater levels of self-esteem, with the latter construct potentially bolstering the use of positive suicide ideation [25]. This relationship is in line with past research; namely, that higher self-esteem appears to serve a protective function against suicidal ideation [31]. In clarifying the results, it can be pointed out that when male adolescents set unattainable goals and then blame themselves for their failure to achieve these goals, the negative self-attributions provide a context for the development of suicidal thoughts and ideation [22].

The study's findings should be interpreted with caution as the study had some limitations. First, the present study only investigated male adolescents of Nourabad and therefore, and may not represent the total population. Second, the cross-sectional design, which is not the best way to evaluate causal relations, also limits the results. Further experimental and longitudinal studies are required to confirm the relationships between the variables. Third, all the data were obtained through self-reports and thus it potentially affected the study's validity. Future investigation can employ multiple methods such as observation and standardized interview for the data collection purpose. In this way, they can provide more detailed information and reduce potential common method bias. Finally, the literature in this field is not yet rich enough. This study is innovative in exploring self-esteem as a mediator variable that has not received previous scrutiny. Limitations aside, the present study provided some theoretical and practical implications. The study's findings can contribute to targeted preventions and suicidal behavior interventions in male adolescents. Thus, mental health practitioners can educate students about the potential harms of loneliness and help them set self-encouraging goals to control their suicidal ideation. These methods can help them efficiently overcome their problems in interpersonal relationships and properly regulate themselves and also help them promote healthy behaviors. Furthermore, this study expands our knowledge on the suicidal ideation associated with high loneliness and highlighting the role of self-esteem in setting undesirable conditions for the male adolescents.

Conclusion

This research project evaluated a mediation model to investigate self-esteem underlying the correlation between loneliness and suicidal ideation. Briefly, the results demonstrated that loneliness was a risk factor of low self-esteem in male adolescents, predicting suicidal ideation via measuring self-esteem. These findings

substantially contribute to our understanding of loneliness and suicidal ideation. This likelihood demonstrated the superposition effects of the risk factors. The findings revealed that the intervention decreased loneliness and increased self-esteem, and thus, decreased the frequency of suicidal ideation. Also, male adolescents displaying high suicidal behaviors should be attentively monitored for loneliness and low self-esteem.

Conflict of Interest

The author declares that he has no conflicts of interest.

Ethical Consideration

All ethical principles were considered in this article. The participants were informed about the purpose of the research and its implementation stages. They were also assured about the confidentiality of their information. Moreover, they were allowed to leave the study whenever they wish, and if desired, the results of the research would be available to them.

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