



The role of mediator and moderator variables in suicidal ideation among adolescents in Gunungkidul, Yogyakarta, Indonesia

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Abstract: Adolescent mental health is influenced by resilience, which is defined as the ability to face challenges. Low resilience renders adolescents vulnerable to loneliness due to limited social support, which in turn heightens the risk of suicidal ideation. Social support can bolster resilience while mitigating the negative effects of loneliness; however, research positioning resilience as a mediator and social support as a moderator in this relationship remains limited, particularly among adolescents in high-risk areas such as Gunungkidul. This study aims to explore the role of resilience as a mediator and social support as a moderator in the relationship between loneliness and suicidal ideation. A quantitative cross-sectional correlational method was employed, together with a cluster random sampling technique. The sample comprised 420 students, consisting of 308 females and 112 males. The data collection technique used a social support scale, a resilience scale, and a suicidal ideation scale. The data were analyzed through a series of path analyses with the causal step method and MRA. Social support is shown to significantly moderate the direct effect of loneliness on resilience ($p = .006 < .05$), which indicates that social support increases. However, such support is unable to moderate the direct effect of resilience on suicidal ideation ($p = .196 > .05$), nor of loneliness on suicidal ideation ($p = .338 > .05$). The mediation effect test shows that loneliness does not have a significant effect on suicidal ideation when the resilience variable is controlled ($p = .185 > .05$). Regression model 2 in the mediation effect test indicates that only resilience has a significant effect on suicidal ideation ($-.184 p < .05$). The implications of the study include the understanding that suicidal ideation will be lower if accompanied by a decrease in loneliness and an increase in resilience and social support.

Keywords: adolescence; loneliness; resilience; social support; suicidal ideation

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Introduction

Suicide incidents are becoming an increasingly worrying issue. The World Health Organization noted that every 40 seconds, one person commits suicide, and that the suicide ratio is 2.4 per 100,000 people. It means that two people in Indonesia commit suicide per 100,000 population that year (Azizah, 2019). Most cases of suicide were found amongst males and the adolescent and elderly age groups (Nurtanti et al., 2020).

The Indonesian provinces with the highest suicide rates are Bali, Riau Islands, Central Java, Special Region of Yogyakarta, and Central Kalimantan. Rural suicides occurred at a level 4.47 times higher than those in urban areas (Onie et al., 2023).

One of the districts with the highest suicide rate is Gunungkidul Regency, where, in 2021-2024, the Special Region Yogyakarta health office recorded 106 cases. The second-highest number corresponded to Sleman Regency, with 66 cases, followed by Bantul Regency with 35 cases, Kulon Progo Regency with 29 cases, and Yogyakarta City with 7 cases (Harminanto, 2023).

According to Klonsky and May (2015), suicidal behavior always starts with the idea or thought of taking one's own life, with the concept or thought of committing suicide, as all human actions always begin with a cognitive process. Shneidman (1993) states that suicidal ideation is a thought process involving planning and consideration of committing suicide.

Suicidal ideation tends to occur in adolescence, with its prevalence higher among adolescents than other age groups (Oppenheimer et al., 2020). It is closely associated with an increased risk of depression (Chrisman et al., 2021; Gijzen et al., 2021; Ivey-Stephenson et al., 2020). According to the

results of the Youth Risk Behavior Survey in the United States, 20.4% of high school students (14-18 years old) reported having seriously considered suicide in the previous 12 months (Verlenden et al., 2024).

One factor that is thought to play a role in preventing suicidal ideation in adolescents is resilience. It is the ability to cope with and adapt to difficult events in life, to survive in stressful situations, and to face adversity. Resilience turns difficulties into challenges, failures into successes, and helplessness into strengths (Goldstein & Brooks, 2023; Hendriani, 2017; Reivich & Shatté, 2002). It transforms victims into survivors, allowing them to thrive (Filmanda et al., 2022; Finklestein et al., 2022; Najlawati & Purwaningsih, 2019).

According to other research, adolescents are shielded from suicidal ideation by resilience (Holman & Williams, 2022; Ponder et al., 2023). Conversely, low resilience increases the occurrence of suicidal ideation (Knowles et al., 2022). One risk factor for suicidal ideation in adolescents is when they feel lonely and are not coping well, and reported having suicidal thoughts. A study in the UK showed that young people and students who felt lonely and were not coping well during the COVID-19 pandemic reported having suicidal thoughts. According to study in Germany, 23.2% of vocational school students have suicidal thoughts, which are linked to feelings of loneliness (Lamlé et al., 2023). Around 6.5% of Indonesian adolescent girls report feeling lonely most or all the time. Adolescents who felt lonely were more likely than those in the general population to have suicidal thoughts (21%) and plans (20.8%). According to multiple regression analysis, teens who had experienced bullying and lacked close friends in the previous month, had trouble sleeping, or had considered or planned suicide, were more likely to have also experienced loneliness (Marthoenis et al., 2022). Loneliness is

an unpleasant feeling associated with a mismatch between the need to be intimate with others and personal intimacy (Peplau & Perlman, 1982). It is an unhappy emotional and cognitive state caused by the desire for intimate relationships, but the inability to achieve them (R. A. Baron & Byrne, 1987). The lonelier an individual feels, the more often they experience suicidal ideation.

Feelings of loneliness arise when individuals do not receive social support (Czaja et al., 2021). It refers to actions taken and given by people related to the perception that comfort, care, and help are available when needed (Sarafino & Smith, 2012). Lack of social support can make people feel lonely. On the other hand, those who have wide social support will feel less stressed, be better at handling stress, and enjoy more positive experiences in life (Adinda & Prastuti, 2021; Budiarto et al., 2020; Farida, 2017; Koamesah et al., 2022).

Research in Indonesia on suicidal behavior has explored the factors behind suicide (Mulyani & Eridiana, 2019), and myths and poverty (Fahrudin, 2012). More specifically, research on suicidal ideation in teenagers has found that social rejection associated with negative events is related to the emergence of suicidal ideation (Oppenheimer et al., 2020). Other studies have also found that cyberbullying influences the emergence of suicidal ideation (Ballerina et al., 2023; Extremera et al., 2018; Quintana-Orts et al., 2022; Rey et al., 2019). In addition, research shows that economic status, unemployment, personal psychological disorders, and depression are all related to suicidal ideation (Nurtanti et al., 2020).

However, although the topic of suicidal ideation has been studied in Indonesia, no research in the country has tested the mediation-moderation model of resilience, social support, and loneliness in relation to suicidal ideation. Resilience, loneliness, and suicide have a complex and interdependent relationship. Resilience, the ability to recover from adversity, can reduce the

risk of suicide, whereas loneliness can increase it (Stark et al., 2022). Low social support and feelings of loneliness interact as risk factors that increase a person's chances of suicidal ideation.

Strong social support can reduce feelings of loneliness and the risk of suicide. Conversely, increased social support significantly reduces the risk of suicidal ideation (de Lange et al., 2023).

In theoretical terms, resilience was selected as a mediator because it serves as a protective factor that mitigates the effect of loneliness on suicidal ideation through individual adaptive capacity, as proposed in R. M. Baron and Kenny's (1986) mediation model and research such as that of Kim et al. (2020). In addition, social support was chosen as a moderator because it can strengthen the relationship between loneliness and resilience, consistent with empirical findings by Czaja et al. (2021). This design is relevant for addressing the literature gap in relation to associated studies in Indonesia, particularly in rural areas with high suicide rates. It supports the development of contextually-relevant resilience and social support-based interventions to avoid suicidal ideation among adolescents.

The novelty of the study lies in its integration of resilience as a mediator and social support as a moderator in the relationship between loneliness and suicidal ideation among adolescents in Gunungkidul. Although earlier research has found resilience to be a protective factor against suicidal ideation (Holman & Williams, 2022; Ponder et al., 2023), with loneliness as a significant risk factor (Czaja et al., 2021; Marthoenis et al., 2022), it primarily focuses on direct relationships, or other factors such as social rejection or cyberbullying (Ballerina et al., 2023; Oppenheimer et al., 2020). However, our study uniquely examines how resilience mediates the impact of loneliness on suicidal ideation and how social support moderates this relationship. In doing so, it provides new insights into the psychological

processes that underlie suicidal ideation and informs interventions for high-risk rural adolescent populations in Indonesia.

The study aims to demonstrate the influence of resilience variables in mediating loneliness on suicidal ideation, the role of social support as a moderator variable through direct and mediation pathways in adolescents in Gunungkidul. Accordingly, the research is a mediation model, in which resilience mediates the effect of loneliness on suicidal ideation, together with a moderation model in which social support moderates the direct effect of loneliness on resilience and suicidal ideation; the direct effect of resilience on suicidal ideation; and the effect of loneliness mediated by resilience on the suicidal ideation of high school students in Gunungkidul.

The research tests the following hypotheses:

- H₁ The relationship between loneliness and suicidal ideation is mediated by resilience.
- H₂ The relationship between loneliness and suicidal ideation is moderated by social support.

Methods

Research Approach

This research used a quantitative correlational method with a cross-sectional design. This

approach was employed to demonstrate the existence of a relationship between the variables and the influence of the mediator variables. Moderators conducted surveys of the research samples.

Participants

The study population comprised high school students in Semin District, Tepus, and in Wonosari Gunungkidul Regency, totalling 2,901 students. The research sample was chosen based on the phenomena observed in the research participants from the initial data collection, and there has been no research that examines loneliness, social support, resilience, and suicidal ideation in the context of adolescent students.

The sampling size was based on the table developed by Krejcie and Morgan (1970) with a population of 2,901; the minimum sample required would be 341. The sample was determined by the cluster random sampling technique, by which high schools in Semin, Tepus, and in Wonosari were selected randomly to represent the area. The schools selected as samples were taken at each grade level and randomized based on the number of classes in each grade level. Consequently, the sample obtained was 420 students, comprising 308 females and 112 males. See Table 1.

Table 1
Research Sample Composition (N = 420)

Classification	Frequency	Percentage (%)
<i>Gender</i>		
Female	308	73.3
Male	112	26.7
<i>Class Level</i>		
Class 1	180	42.9
Class 2	110	26.2
Class 3	130	30.9

Data Collection

A scale can be considered valid if the statements on it describe what the scale is intended to measure (Creswell, 2014). Validity indicates the degree of accuracy of a measurement instrument in relation to the actual content or meaning being measured. This study employed expert validation using a Formula 1 (Gregory, 2015). Gregory states that content validity indicates the extent to which the statement items are capable of representing all aspects being measured.

$$Vi = \frac{D}{(A+B+C+D)} \text{----- (1)}$$

Note:

Vi: Content validity

A: Number of items which both experts disagreed

B: Number of items that expert I agreed, but expert II disagreed on

C: Number of items that expert I disagreed, but expert II agreed on

D: Number of items that both experts agreed on

According to Gregory's (2015) theory, content validity can be measured as: Very High Validity (0.8 – 1), High Validity (0.6 – 0.79), Moderate Validity (0.4 – 0.59), Low Validity (0.20 – 0.39), Very Low Validity (0.00 – 0.19)

Instrument validation was performed by two experts in the field of psychology. The detailed results of the validation calculations for both research instruments are presented as follows:

$$\text{Suicidal Ideation : } Vi = \frac{19}{(0+1+0+19)} = 0.95$$

$$\text{Loneliness : } Vi = \frac{15}{(0+3+6+15)} = 0.62$$

$$\text{Resilience : } Vi = \frac{40}{(0+1+1+40)} = 0.95$$

$$\text{Social Support : } Vi = \frac{15}{(0+0+1+15)} = 0.93$$

Based on the validation results using Gregory's formula, the suicidal ideation variable instrument obtained a value of 0.95, indicating very high

validity. Loneliness obtained a value of 0.62, indicating high validity, while resilience obtained a value of 0.95 and social support of 0.93, both indicating very high validity. The researchers also conducted a trial to test the correlation coefficient using Pearson's product-moment correlation analysis on 50 of the respondents, with a significance level of 5%. This measurement was used to determine the extent to which the scale accurately measured the object being studied (Gregory, 2015). DeVellis (2016) states that items are considered to have achieved a minimum correlation coefficient of $r = .3$ ($p < .05$). Cronbach's alpha was used to calculate the reliability estimates.

Loneliness Scale

The loneliness scale was constructed by referring to the work of Peplau and Perlman (1982), in which loneliness is seen as an unpleasant subjective experience in which individuals suffer a significant decrease in the quality and quantity of their relationships. Loneliness includes affective, cognitive, motivational, and behavioral aspects. The loneliness scale consisted of four aspects, each comprising six items, totaling 24 items, including 12 favorable and 12 unfavorable ones. The scale was selected based on the criterion of $\text{rit} < .25$. The result was 14 valid items and 10 eliminated ones; after testing using Cronbach's alpha, the reliability was .871.

Social Support Scale

A social support scale was also constructed, referred to the work of Sarafino and Smith (2012), who define social support as actions taken and given in response to the perception that comfort, care, and assistance should be available when needed. Aspects of social support include emotional or esteem support, tangible or instrumental support, informational support, and companionship support. The scale consisted of four aspects, each comprising four statement items, giving a total of 16 statement items, divided into eight favorable items and eight unfavorable

ones. The social support scale was also based on the $\alpha < .25$ criterion. Sixteen items were declared to be valid, with none eliminated. After being tested using Cronbach's alpha, the social support scale had a reliability of .938.

Resilience Scale

The resilience scale was based on the research of Reivich and Shatté (2002), in which resilience refers to the capacity to persevere under duress, overcome adversity or trauma, and adjust to significant life events or challenges. Aspects of resilience include emotional regulation, impulse control, optimism, self-efficacy, cause-and-effect analysis, empathy, and seeking help. The scale consisted of seven aspects, each composed of six items, resulting in a total of 42 items, with 26 favorable and 16 unfavorable. The scale was also selected based on the $\alpha < .25$ criterion. The result was 40 valid items and two eliminated ones. After being tested using Cronbach's alpha, the reliability coefficient was .965.

Suicidal Ideation Scale

The suicidal ideation scale was based on the work of Reynolds (1991), who defines suicidal ideation as the thoughts and cognitions held by individuals relating to suicidal behavior and the desire to commit suicide, which can be considered a major sign of a more serious suicide risk. Suicidal ideation includes two aspects: specific plans and wishes, and the response and aspect of others. The scale consisted of two aspects: the former, comprising 12 items, and the latter, comprising eight items. The total of 20 items included 12 favorable ones and 8 unfavorable ones. The scale was also selected based on the $\alpha < .25$ criterion. The result was 19 valid items and one eliminated one. After being tested using Cronbach's alpha, the scale had a reliability coefficient of .935.

Data analysis was conducted using SPSS 26.0 software, and a series of path analyses and MRA were performed. The path analysis aimed to establish the influence of resilience mediation on

the relationship between loneliness and suicidal ideation, while MRA aimed to analyze the role of social support in moderating the relationship between loneliness and suicidal ideation.

Results

As seen in Table 2, the Kolmogorov-Smirnov test results of .034 ($p = .200 > .05$), indicated that the data were normally distributed. The results of the linearity test on the relationships between loneliness and resilience, loneliness and suicidal ideation, and resilience and suicidal ideation show linear data with a value ($p < .05$). The multicollinearity test on the relationship between independent variables, mediators and moderators had a tolerance value greater than 0.01, with the variable of loneliness having value of .475, resilience .456, and social support .622. The variance inflation factor (VIF) value was similar, with the absence of a VIF value from the independent variables, mediators and moderators that had a VIF value of less than 10, with the VIF value of the loneliness variable having being 2.104, of resilience 2.195 and of social support of 1.609. Based on the findings of the VIF and tolerance calculations, it can be said that the independent variables in the regression model did not exhibit multicollinearity.

Table 3 shows the mean, standard deviation and direct effect tests separately between X and Z on Y and X on Z. The analysis shows that loneliness had a positive relationship and direct influence on suicidal ideation (.367, $p < .05$), and that resilience (-.424, $p < .05$) had a very significant negative relationship and direct influence on suicidal ideation. The results of the analysis also show that loneliness had a negative relationship with and direct influence on resilience (-.701, $p < .05$). (See Figure 1).

The contribution of loneliness to resilience is 49.2% while the remaining 50.8% is the contribution of other variables. The contribution of loneliness to suicidal ideation is 13.5% and that

of resilience to suicidal ideation 18% while the remaining 68.5% comprises the contribution of other variables.

In Table 4, analysis of the moderation interaction test on the direct relationship between variables indicates that social support significantly moderates the direct effect of loneliness on resilience .743 ($p = .006 < .05$). This shows that

social support strengthens the relationship between loneliness and resilience, from .701 to .743, with an increase in the contribution of effectiveness, from 49.2% to 55.2%. However, social support was unable to moderate the direct effect of resilience on suicidal ideation ($p = .196 > .05$) nor of loneliness on suicidal ideation ($p = .338 > .05$), as shown in Figure 2.

Table 2

Assumption Test Results

Assumption Test	Static	p	Tolerance	VIF	Caption
Normality	.034	.200>.05	-	-	Normal
Linearity					
Loneliness-Resilience		.000<.05			Linear
Loneliness-Suicidal Ideation		.000<.05			Linear
Resilience-Suicidal Ideation		.000<.05			Linear
Multicollinear					
Loneliness			.475>0.01	2.104<10	Multicollinearity Free
Resilience			.456>0.01	2.195<10	Multicollinearity Free
Social Support			.622>0.01	1.609<10	Multicollinearity Free

Table 3

Mean (M), Standard Deviation (SD) and Direct Effect Test

Variables		M	SD	R	R ²	p
Loneliness (X)	→ Suicidal Ideation (Y)	32.16	6.221	.367	.135	.000
Resilience (Z)	→ Suicidal Ideation (Y)	156.40	17.086	-.424	.180	.000
Loneliness (X)	→ Resilience (Z)	32.16	6.221	-.701	.492	.000

Figure 1

First and Second Regression Equations

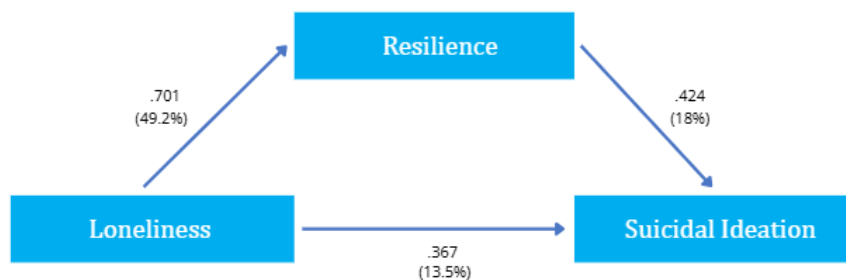
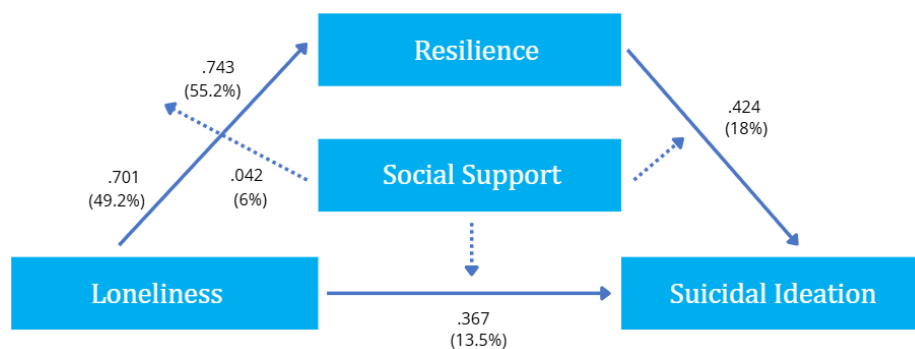


Table 4*Moderation Interaction Test on Direct Relationship between Variables*

Interaction	T count	Significance	Coefficient	R Square
X → Z	-2.740	.006	.743	.552
Z → Y	1.294	.196	-	-
X → Y	-0.959	.338	-	-

Figure 2*Direct Relationship Moderation Interaction***Table 5***Mediation Effect Test*

Variable	Coefficient	T count	Significance	R Square
Loneliness	.185	1.935	.054	.195
Resilience	-.184	-5.158	.000	(19.5%)

In Table 5, the analysis of the mediation effect test shows that loneliness does not have a significant effect on suicidal ideation when the resilience variable is controlled (.185, $p > .05$). The results of regression model 2 in the mediation effect test show that only resilience has a significant effect on suicidal ideation (-.184, $p < .05$). The R Square value is .195, which means that the contribution of loneliness and resilience to suicidal ideation is 19.5%, while the remaining 80.5% is the contribution of other variables not examined in this study.

In Table 6, it is indicated that the coefficient value of loneliness on resilience is -.701 with a standard error of .096, and that the coefficient

value of resilience on suicidal ideation is -.424, with a standard error of .024. In Table 7, the results of the Sobel test in relation to loneliness through resilience on suicidal ideation produce a statistical value of 6.748 ($p < .05$).

As shown in Table 8, the results of the analysis of the moderation interaction of social support on loneliness with resilience obtained a coefficient value of .089 ($p = .006 < .05$) with an R square value of .008 (0.8%), meaning that social support moderates the relationship between loneliness and resilience on the mediation path. The moderation interaction of social support on resilience with suicidal ideation obtained a coefficient value of .000 ($p =$

.976 > .05), indicating that social support was unable to moderate the relationship between resilience and suicidal ideation on the same path.

Figure 3 shows the results of the correlational analysis, which found that the independent and mediating variables have a significant relationship with the dependent variable, both separately and simultaneously. The results of the moderation analysis on the

direct relationship between variables show that the moderation variable of social support can moderate the relationship between the independent variable of loneliness and the mediating variable of resilience. However, social support does not moderate the relationship between either loneliness or resilience with suicidal ideation.

Table 6

Sobel Test Calculation Reference

Variable	Coefficient	Std. Error
Loneliness versus Resilience	-.701(a)	.096 (sa)
Resilience to Suicidal ideation	-.424 (b)	.024 (sb)

Table 7

Sobel Test Results

Loneliness	Statistical Test	P	Information
a	-.701		
b	-.424	6.748	
sa	.096	.000	p value < .05
sb	.024		

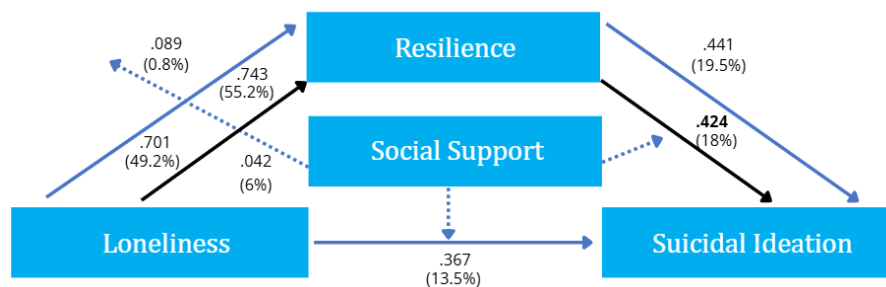
Table 8

Moderation Interaction on Mediation Path

Interaction	R	R Square	F	df ₁	df ₂	P
X → Z	.089	.008	7.510	1	416	.006
Z → Y	.000	.000	0.001	1	416	.976

Figure 3

Path Analysis and MRA



Four steps are involved in Baron and Kenny's approach (1986) to constructing perfect mediation. First, a significant relationship between the independent variable and the dependent variable is required in the first regression equation. Second, a significant relationship between the independent variable and the mediating variable is required in the second regression equation. Third, the mediating variable must be significantly related to the dependent variable, and the independent variable must not significantly affect the dependent variable when both the independent variable and the mediating variable are predictors of the dependent variable in the third regression equation. Fourth, the coefficient of the relationship between the independent variable and the dependent variable must be greater (in absolute value) than the coefficient of the relationship between the independent variable and the dependent variable in the regression model, with both the independent and mediating variables predicting the dependent variable.

Discussion

Complete mediation occurs when the independent variable no longer affects the dependent variable after the mediating variable is controlled, and all regression equations are satisfied (R. M. Baron & Kenny, 1986).

Based on the results of the regression equation data analysis described above, loneliness does not have a significant effect on suicidal ideation when resilience is controlled. It means that in our study resilience has been demonstrated to be a perfect mediator of loneliness on suicidal ideation, indicating that resilience is a factor that has the potential to reduce the tendency of loneliness and the emergence of suicidal ideation. In line with these results, several studies have previously found that resilience mediates loneliness with

life satisfaction (Padmanabhanunni & Pretorius, 2021), and that resilience mediates loneliness with depression (Aulia et al., 2023).

Research on Korean workers also found that high levels of resilience were associated with a lower incidence of suicidal ideation, as it is a significant protective factor against such thoughts (Kim et al., 2020). A later study presented the resilience-suicide buffer hypothesis, in which resilience may moderate the impact of existing suicide risk factors, such as negative attributional style, excessive perfectionism, and hopelessness (Johnson et al., 2011).

In the mediation pathway, this study found that the moderating variable of social support moderated the relationship between the independent variable of loneliness and the mediating variable of resilience. However, social support did not moderate the mediating variable of resilience on the dependent variable of suicidal ideation. It means that students who experience higher levels of loneliness are more likely to have suicidal thoughts when there is a mismatch in their need to be close to other people.

Empirical research has also shown a relationship between lethal suicidal behavior and low social support (Czaja et al., 2021). According to the theory, when the need to belong is not met or, as commonly referred to, individuals feel a "thwarted sense of belonging", then the desire to die will develop. For a relationship to fulfill the need to belong, it must be characterized by frequent and positive mutually supportive interactions, so that a reciprocal caring relationship is created (Baumeister & Leary, 1995).

The notion of social support in this study refers to emotional or esteem support, tangible or instrumental support, informational support or companionship support in fulfilling the basic needs that should be continuously met by others

to achieve happiness (Cutrona, 1996). When individuals have good social support, it can reduce the risk of them having thoughts of ending their lives (Otten et al., 2022). The previous literature review also concluded that perceived social support from parents and peers plays an important role in the development of suicidal ideation and suicide attempts in school adolescents (Hussein & Yousef, 2024).

Furthermore, perceived social support has a significant impact on suicidal ideation in adolescents with a history of suicide attempts. Low perceptions of school and parental support are important in understanding suicidal ideation. Individuals who perceive lower levels of support from school and parents report higher levels of suicidal ideation compared to others (Darvishi et al., 2024; Miller et al., 2015).

Koğar and Yılmaz-Koğar (2025) found that the mediating role of resilience in the relationship between loneliness and distress was statistically significant in both groups with low and high perceived social support. In this case, the findings of both groups support the partial mediation model. Furthermore, their research revealed that for women with low perceived social support, social support was a moderator variable; however, this was not the case for men.

The results of this study correspond to those of Taylor et al. (2000) because to respond to stress with “tend and be friends” behavior. When women’s social support is low, they lose access to the “be friending” mechanism, which is important for reducing the impact of loneliness. As a result, loneliness affects stress, making social support a significant variable.

The importance of social support is consistent across theories of suicidal behavior and developmental psychopathology research, such as Durkheim’s sociological theory of suicide (Durkheim, 2005); Shneidman’s psychache theory of suicide (Shneidman, 1993), and

Joiner’s interpersonal psychological theory of suicide (IPTS) (Joiner, 2005), showing that inadequate social support and interpersonal relationships strongly increase the risk of suicidal ideation and suicide attempts.

The theoretical contribution of this study is that it develops a model of the mediation-moderation relationship between resilience, loneliness and social support and suicidal ideation in adolescents. The practical implications could be the basic for related policy and the development of intervention models for preventing suicidal behavior among adolescents.

The study has potential limitations. For example, it did not control for variables that might influence the research results, such as gender, socioeconomic status, mental health status, and negative life experiences. Future studies should include such variables to improve the significance of the variety of factors that influence suicidal ideation.

Conclusion

This study demonstrates that resilience serves as a perfect mediator in the relationship between loneliness and suicidal ideation among adolescents in high-risk rural areas such as Gunungkidul, Yogyakarta, Indonesia. Specifically, loneliness negatively impacts resilience, which in turn heightens the risk of suicidal ideation, with resilience fully accounting for this pathway. Furthermore, social support acts as a significant moderator, strengthening the link between loneliness and resilience by enhancing adaptive capacities, although it does not moderate the direct effects of resilience or loneliness on suicidal ideation. The findings underscore the interconnected roles of psychological and social factors in adolescent mental health, aligning with theoretical frameworks such as Baron and Kenny’s mediation model and the interpersonal-psychological theory of suicide.[]

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Author Contribution Statement

Haniek Farida: Conceptualization; Data Curation; Formal Analysis; Funding Acquisition; Investigation; Methodology; Writing Original Draft. **Sulistyo Budiarto:** Conceptualization; Data Curation; Formal Analysis; Methodology; Validation; Writing Original Draft. **Siti Hafsa Budi Argiati:** Formal Analysis; Methodology; Writing Original Draft. **Ufuoma Patience Ejoke:** Methodology; Writing Original Draft; Writing, Review & Editing; Proofreading.

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