



Understanding the pathway from cyberbullying to suicidal ideation: Depression as a mediating factor

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Abstract: Cyberbullying and suicidal ideation are ongoing social issues in Indonesia. The purpose of this study is to investigate the influence between cyberbullying and suicide ideation, as well as the role of depression as a mediator variable. A quantitative research approach was used, and 454 adolescents in Indonesia aged between 18 to 25 years old (mean age = 19.3) were recruited through a purposive sampling by completing a questionnaire consisting of the Cyberbullying Survey (CBS), Beck Depression Inventory (BDI II), General Help Seeking Questionnaire (GHSQ), and Beck Scale for Suicide Ideation (BSSI). The Jamovi 2.5.3.0 software analyzed data through descriptive statistics, regression analysis, and mediator analysis. The findings of the study showed that there was a significant effect on the role of depression as a mediator in the relationship between cyberbullying and suicidal ideation. Additionally, 384 (84.6%) of the female respondents reported having experienced cyberbullying, compared to only 70 (15.4%) of the male respondents. Depression as a mediator variable has a partially mediated effect. The effective indirect contribution is 59.7%. Other variables account for 40.3% of the results. The findings revealed that depression serves as a significant mediator in the relationship between cyberbullying victimization and suicidal ideation. This study provides critical insights into the role of depression in the context of cyberbullying and offers proactive guidance for preventing the negative mental health impacts of cyberbullying among adolescents.

Keywords: adolescents; cyberbullying victimization; depression; Jamovi; suicidal ideation

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Introduction

Since the internet and social media have dominated communication channels, cyberbullying has become a global phenomenon, particularly among adolescents. Indonesian adolescents are not immune to the phenomenon, as the anonymity of online contacts frequently exacerbates bullying behavior. Numerous studies have shown that cyberbullying can have serious psychological implications, including anxiety, sadness, and suicidal thinking. Suicidal ideation resulting from cyberbullying is a social issue of increasing concern in Indonesia (Kulovitz, 2013; Putry & Subardjo, 2024; Saman et al., 2021). Reports indicate a 303% rise in suicide rates within the country (Onie et al., 2023).

With the rise of social media and digital platforms, cyberbullying has become a pervasive form of harassment, impacting millions of adolescents worldwide. Unlike traditional bullying, it can occur 24 hours per day, reaching victims through multiple devices and platforms, thus creating a persistent and overwhelming experience.

Previous research has established that victims of cyberbullying are at greater risk of developing depressive symptoms and experiencing suicidal ideation (Kowalski et al., 2014; Smith et al., 2008). However, less is known about the mechanism that links cyberbullying victimization to suicidal thoughts.

The advances in internet technology provide numerous positive benefits, including making it easier for students to complete schoolwork, communicate with peers, and collaborate, and at the same time, encourage various ideas in cooperative learning, improve attitudes toward learning, and increase curiosity and self-concept (Lee & Shin, 2022; Peng et al., 2022; Quarshie & Martin-Odoom, 2012; Wiguna et al., 2021). However, in addition to the beneficial effects, improvements in information technology have

created new issues, one of which is cyberbullying (Chan & Wong, 2017; Macaulay et al., 2022; Peled, 2019). This is defined as any aggressive behavior that insults, humiliates, or threatens others, conducted frequently over the internet by individuals or groups of people with the intent of hurting, insulting, or causing discomfort to others (Petras & Petermann, 2019; Tokunaga, 2010).

Adolescence marks the transition from childhood to adulthood. It is frequently characterized by high energy and turbulent emotions, with self-control not yet complete (Ali, 2011; Rahmat, 2000). A late adolescent is defined as someone between the ages of 19 and 24 who is going through physical, emotional, and social changes and who is vulnerable to mental health problems as a result of poverty, abuse, or violent behavior (WHO, 2012). Adolescence is a time of significant emotional growth, and bullying can seriously impair this process. Suicidal ideation—the desire to end one's own life—has become more common among young people who are cyberbullied. Given the sensitivity of this age group, it is critical to study the elements that mediate this pathway, especially in specific cultural contexts such as Indonesia.

Cyberbullying has serious psychological consequences, including depression and suicidal ideation, particularly for adolescents, a group that is already vulnerable to emotional fluctuations and identity challenges. According to Bauman et al. (2013), cyberbullying can lead to severe emotional distress that may culminate in depression, which in turn, is a well-known risk factor for suicidal ideation. In Indonesia, where social connectivity is highly valued, adolescents experiencing cyberbullying may feel isolated and rejected, exacerbating their mental health struggles (Riyayanatasya & Rahayu, 2020). This study seeks to examine how depression mediates the relationship between cyberbullying and suicidal ideation, providing a clearer understanding of the psychological mechanism at play.

Suicide cases are increasing globally year on year in all countries (Fadhli et al., 2022). WHO states that there is an average of one person who dies due to suicide in the world every 40 seconds. With the number 3.7 per 100.000 population, Indonesia is ranked 159th in suicide cases globally (Setiyawati et al., 2024). In the country, suicide is the second leading cause of death among young aged, which ranges from 15 to 29 (Susilawati, 2018). On average, at least two people commit suicide in Indonesia daily. The National Police Headquarters recorded 981 cases in 2012 and 921 in 2013. The ratio ranges from 0.4 to 0.5 cases per 100,000 population (Linggasari, 2015). The latest 2020 data from INASP (Indonesian Association for Suicide Prevention) shows that the rate of underreporting of suicide in Indonesia is 303%. This figure is very high when compared to the world average of 0 - 50% (based on a comparison of Police Data and SRS Data) (Onie, 2022). In 2018, there were seven deaths per 100,000 people per province, with approximately 81 suicide attempts per 100,000 population per province in Indonesia recorded. These data are figures reported by the police, although field data may show higher numbers. This discrepancy could be due to the stigma attached to suicide by society (Riyayanatasya & Rahayu, 2020).

However, there is no definite data regarding the number of suicide cases in terms of ideas, intentions, or attempts. This is because such cases are not recorded effectively and are, therefore not centralized. To date, suicide reports have been obtained from provincial data. However, there are differences in case data between data from the police and from the Indonesian Ministry of Health. Consequently, it is difficult to produce conclusive data on suicide cases other than what has been reported in the media. Regarding attempts made, data obtained have shown that most individuals committed suicide by hanging themselves, using poison, jumping from heights, or using sharp weapons (Onie, 2022).

In addition, previous studies have reported relatively high rates of females with suicidal ideation (Hinduja & Patchin, 2010; Zhao et al., 2021) and have highlighted the role of depression in cyberbullying victimization and suicidal ideation. However, limited research on Indonesian adolescents connects to these three variables. Therefore, it is important to point to the potential role of depression in the relationship between cyberbullying and suicidal ideation, which will aid in devising various intervention strategies. Specifically, depressive symptoms can be a mediator in the relationship between verbal victimization and suicidal ideation for boys and girls alike. However, depressive symptoms mediated the effects of relational and cyberbullying victimization of suicidal ideation among girls only, and depressive symptoms on suicidal ideation were stronger for girls than boys (Hinduja & Patchin, 2010).

Safaria (2016) discovered that many students in junior high school encountered cyberbullying on Facebook (27.5%), Twitter (12.7%), and SMS (12.7%). The remaining pupils (33.6%) were cyberbullied on them. Research by Ditch the Label (2013), one of the major anti-bullying institutions in the UK, revealed the following results: seven out of ten teenagers (70%) were victims of cyberbullying, 37% of teenagers frequently experienced cyberbullying, and 20% of teenagers experienced extreme cyberbullying every day. Facebook, Ask.FM and Twitter were identified as the most likely sources of cyberbullying, with male and female teenagers equally vulnerable. According to Leung et al. (2018), 58% of 312 Hong Kong Chinese students engaged in cyberbullying, while 68% were cyber victimized. This description demonstrates that cyberbullying is a global issue that must be addressed.

A suicidal idea precedes most suicide attempts. The initial emergence of the idea of suicide in college students can be due to experiences of sexual

harassment (rape): adolescents delinquency (pregnancy out of wedlock): bullying, health problems, psychological disorders (anxiety disorders, depression, trauma): family factors (parental quarrels, financial issues (studying and making money at the same time): friendship problems, such as misunderstandings with friends: or academic issues (the chosen major is not appropriate and unrelated to personality), for example, hidden problems. To overcome such problems, students face obstacles in seeking social assistance, such as economic and personal issues. Economic factors, namely expensive consultation fees with the psychologist, and individual factors are associated with avoiding problems; feeling strange after the problem; not wanting others to know about the problem; feeling unimportant because of the problem; feeling confused because it is a problem that needs to be kept secret; and not wanting to be labeled by others (Saman et al., 2021).

From the results of the Indonesia 2024 internet penetration survey released by APJII, Indonesia's internet penetration rate touched 79.5%. (APJII, 2024). According to APJII, internet users in Indonesia are dominated by late adolescents to young adults (Gen-Z and Gen-Millennial), and they constitute 65.02% of the total (APJII, 2024). Students are the largest population in that age range, with an average age of 18-25, and are included in the category of adolescents to early adults (Bayar et al., 2023). In addition, data obtained from Annur (2020) states that the largest social media users in Indonesia in 2020 were late adolescents to early adults, also in the age range of 18-25 with male and female social media users constituting 16.1% and 14.2% respectively. According to Santrock (2019), the late adolescent phase occurs from the age range of 18-25 years.

Based on information from the United Nations International Children's Emergency Fund (UNICEF), around 2016, it was recorded that the number of individuals who were targets or victims

of cyberbullying in Indonesia reached 40-50% per year. Research from Zalaquett and Chatters (2014) also showed that 613 of their respondents. Students in Indonesia were victims of cyberbullying. Their study found that the consequences of cyberbullying for victims were that 45% of respondents felt angry, 41% felt sad, 32% experienced increased stress, 9% experienced decreased productivity, and only 6% of respondents admitted that cyberbullying did not have a serious impact on them.

The mental health of adolescents is becoming more concerning. This condition is characterized by an increase in the frequency of children and adolescents who have ideas and attempt suicide (CNN Indonesia Reporter, 2019a). Cyberbullying is regarded as more serious than drug problems. One in every five adolescents has been a victim of cyberbullying. In addition to wanting to end their life by suicide, 43% believe cyberbullying has become a more serious problem and worse than direct bullying (Fajrina, 2015). In adolescents, cyberbullying as a part of bullying has several effects, ranging from anxiety to severe depression (CNN Indonesia Reporter, 2019b). Depression is a mental disorder that, if not treated quickly, can lead to suicidal behavior. It is also a chronic mental health disorder that cannot be underestimated. According to WHO (2013), mental health is a condition affecting individuals' well-being and their possibilities to realize their abilities, work productively, and contribute to their community. A mentally healthy individual can cope with the normal pressures of life. The cognitive and emotional disturbances inherent in depression, such as hopelessness, feelings of worthlessness, and impaired problem-solving abilities, are closely associated with suicidal ideation (Joiner, 2005). Therefore, understanding the mediating role of depression could provide essential insights into how cyberbullying leads to suicidal ideation, offering avenues for targeting. Although numerous studies have explored the influence of cyber-

bullying on suicidal ideation, such as Bauman et al. (2013), Fatkhurrohman (2020), Ibrahim and Salleh (2021), Macaulay et al. (2022), Ningrum and Amna (2020), and Omar and Shamsudin (2020), Fadhli et al. (2022), argue that the role of depression as a mediator has yet to be empirically validated. Empirical research is thus crucial to confirm the four hypotheses of this study and provide a robust evidence base.

This study aims to identify the impact of cyberbullying victimization on suicidal ideation and to examine the role of depression as a mediator in their relationship. Specifically, it is hypothesized:

- H₁ There is a significant influence of cyberbullying victimization on depression among Indonesian adolescents.
- H₂ There is a significant influence of depression on suicidal ideation among Indonesian adolescents.
- H₃ There is a significant influence of cyberbullying victimization on suicidal ideation among Indonesian adolescents.
- H₄ Depression acts as a mediator in the relationship between cyberbullying victimization and suicidal ideation among Indonesian adolescents.

Methods

Research Design

Research design is defined as a strategy to establish the research background so that researchers obtain valid data according to the characteristics of the variables and the research objectives. It regulates the systematics that will be conducted in the research. At this stage, researchers must understand various research methods and techniques arranged into a research design. The accuracy of this design determines the quality of the research output. Our research is located in the administrative area of Indonesia and

will examine the phenomenon of cyberbullying that occurs among late adolescents aged 18-25. Participants were selected from all regions of Indonesia, and the data collection involved questionnaires that were both printed and online. The number of participants was 454, all of whom have had suicidal ideation caused by cyberbullying.

Participants

A cross-sectional study was employed, involving 454 Indonesian adolescents aged 18-25, recruited through purposive sampling. It was conducted online using Google Forms and shared links to the respondents, with inclusion criteria being that they were aged 18-25, had experience of being a victim of cyberbullying, and were Indonesian citizens. The subjects of the research were those who had had suicidal ideation due to cyberbullying and were aged 18 to 25 and who were from all over Indonesia.

Data were collected by questionnaire and purposive sampling. The focus was on respondents who had experience with cyberbullying. This concept of respondent selection is by previous studies (Che et al., 2022; Grella & Joshi, 2003; Louge, 2006; Rosenkranz et al., 2012) in which the respondents had experienced cyberbullying, late adolescents who had been victims of cyberbullying were recruited as a sample. The sample of this study consisted of a group of Indonesian males and females selected based on several inclusion criteria, namely: 1) they had experience with cyberbullying 2) were male or female, 3) were able to understand the Indonesian language and answer the questions in the questionnaire, and 4) were late adolescents aged 18-25.

In addition, according to Cohen et al. (2007), the determination of the study sample size should consider the significance level and sampling error. Accordingly, in social science research, the level of significance is often set at $p < .05$, while one of $p < .01$ is usually used in medical science which is

concerned with accuracy (Chua, 2009; Greenland et al., 2016). Therefore, this study determined the sample size by taking into account a sampling error of 5% and a significance level of 95% ($p < .05$). Consequently, a total of 322 samples would be needed for a population size of between 2,000 to 50,000 (Cohen et al., 2007), this number is less than that obtained from Krejcie and Morgan's (1970) sample size determination table, which is 384. Therefore, 384 samples were determined as the sample size for the study based on Krejcie and Morgan's (1970) guidelines. This figure also exceeds the sample size suggested by Cohen et al. (2007). According to Krejcie and Morgan (1970), if the population size is unknown, a table formula can be used, which shows that approximately 384 respondents were required. The participants in the study numbered 454 people, with details of 384 women (84.6%) and 70 men (15.4%).

The sampling technique was purposive sampling. Before collecting the data, the researcher submitted the research test to the ethics committee of Universiti Kebangsaan Malaysia. The formal letter of ethical clearance number was UKM PPI/111/8/JEP-2024-145. After passing the ethics test, the researcher contacted campuses in Indonesia to distribute the scale via Google Forms.

The data were processed using Jamovi 2.5.3.0 software, and descriptive and inferential analysis was conducted. For internal consistency, Cronbach's alpha was used to test the reliability of the measuring instrument, while content validity was used to the validity of the measuring instrument through rational analysis testing, combined with professional judgment to assess whether the items covered all the areas of the object content to be measured.

Instrument

First, two clinical psychologists separately translated the instrument into Indonesian, and then a backward translation was made by an

independent person. This translated version was checked for any misinterpretations or translation problems by comparing it to the original. After editing the Indonesian version of the questionnaire, the researcher used it in a pilot assessment by five laypersons to detect any conflicting or incomprehensible items.

The cyberbullying scale proposed by Willard (2007) covers seven forms: flaming, online harassment, cyberstalking, denigration, masquerade, outing, and exclusion. Each item has five alternative answer choices: often, sometimes, rarely, and never. A Likert scale is used with positive responses starting from never, given a score of 1; rarely, a score of 2; sometimes, a score of 3; often, a score of 4; and always, a score of 5. Non-positive answers were never given a score of 5; rarely a score of 4; sometimes a score of 3; often a score of 2; and always a score of 1. Examples of items are "Someone has uploaded embarrassing photos or videos of me online without my permission, thus damaging my reputation"; "I have been sent sexually explicit things from someone via E-mail or text message repeatedly that made me uncomfortable"; "I have been repeatedly excluded from online group activities or online social communities that made me feel left out". Cronbach's alpha coefficient = 0.918.

Beck Depression Inventory-II. In 1996, the BDI was revised to be more consistent with DSM-V criteria. Beck et al. (1996) named the revised results BDI-II. BDI-II is a very popular measuring tool for describing depression (Beck et al., 1996), and was created for use with individuals aged 13 and over (Segal et al., 2008). Examples of revisions to the BDI include respondents being asked to respond to each statement based on two weeks, not one week, which is the duration of the BDI. The reason for this revision was to comply with the depression criteria in DSM-V, which states that to diagnose depression, depressive symptoms must have been present for at least two consecutive weeks (American Psychiatric Association, 2013). The BDI-II consists

of 21 items that assess the intensity of depression in healthy and physically ill people. Each item consists of four statements indicating specific depressive symptoms, which include sadness, pessimism, past failures, loss of pleasure, feelings of guilt, feelings of punishment, self-dislike, self-crisis, suicidal thoughts or desires, crying, agitation, loss of interest, doubt, worthlessness, loss of energy, changes in sleep patterns, irritability, changes in appetite, difficulty concentrating, fatigue and loss of interest in sex. The items contained in the BDI-II were also developed to assess individual depressive symptoms based on the criteria in the DSM-V, including items on the BDI-II scale which replaced items regarding symptoms of weight loss, changes in body image, and somatic fixation. Other items from the BDI regarding difficulty in working were also replaced with items regarding energy loss. In addition items regarding loss of sleep time and appetite on the BDI were also changed by adding two statement options to the BDI-II, namely increasing or decreasing sleep patterns and eating patterns (Beck et al., 1996). Examples of items are “I don't feel sad”; “I feel sad”; “I feel sad all the time and I can't shake it”; and “I am so sad I can't stand it anymore”. Cronbach's alpha coefficient = .892.

The Beck Scale for Suicidal Ideation (BSSI) is one of the most common questionnaires that evaluate suicide, attributed about 12.7 times per year in research and clinical practice (Tyrer & Methuen, 2007). The reliability and validity of the BSSI in the English language have been frequently reviewed, and almost always the Cronbach's alpha coefficient was .792, and its scores had appropriate correlations with those of depression, hopelessness, anxiety, history of suicide attempts and suicide attempts in the future (Beck et al., 1979, 1988; Brezo et al., 2007; Brown, 2000; Fabrice, 2018; Healy et al., 2006). This questionnaire has been translated into various languages, such as Chinese, Norwegian, Urdu, and Persian (Ayub, 2008; Chioqueta, 2005). The scale is a 21-item instrument that evaluates the presence and intensity of suicidal thoughts a week

before evaluation (Beck et al., 1979). A self-reporting edition of the scale was introduced by Beck et al. (1988). The total score ranges from 0 to 38, with each item being scored on an ordinal scale from 0 to 2. Individuals answer the first five items; if their answer to the fifth item is positive (score of 1 or 2), they answer the remaining items, or otherwise the questionnaire is completed. No cut-point was used to categorize the scores (Franklin et al., 2021; Reinecke, 2002).

Data Analysis

Therefore, for the data analysis, we used the overall scale and the screening portion scores (first and fifth items). In this study, the first two clinical psychologists separately translated the instrument into Indonesian and then a backward translation was done by an independent person and this translated version was checked for any misinterpretations or translation problems by comparing it to the original.

The reliability analysis for each test tool was performed by calculating the Cronbach's alpha coefficient for the entire type of test tool and that for each subscale (dimension) of each test tool. The results of the pilot study analysis showed that all scales and subscales had good Cronbach's alpha coefficient of between $\alpha = .792$ to $\alpha = .956$ for each test tool and $\alpha = .770$ to $\alpha = .963$. The internal consistency of the Depression construct (Beck Depression Inventory, BDI-II), which contains 21 items, showed a relatively high Cronbach's alpha coefficient value of .892. Moreover, the alpha coefficient value for all BDI symptoms exceeded 0.80. This tool is also used in Indonesia to measure the construct of depression so it can be ensured that the construct truly measures the factors that contribute to an individual's level of depression.

The analysis of the pilot study of the suicidal ideation construct (Beck Scale Suicide Ideation, BSSI), which contains 21 items, showed a relatively satisfactory Cronbach's alpha coefficient value of .792. In addition, the value of the alpha

coefficient for the dimension of suicidal ideation is above .792. In general, this result is consistent with the reliability test results of previous studies in which the value of the alpha coefficient for the dimension is .84 - .96 (Anisi et al., 2005; Esfahani et al., 2015; Keliat et al., 2022; Ozcelik & Sahbaz, 2020).

Based on the pilot study, the results of the construct reliability test of negative childhood experiences (the cyberbullying survey) showed a relatively high alpha coefficient value, of .918. In addition, the dimensions of verbal/written victimization (1-10), visual/sexual victimization (11-20), and exclusion victimization (21-27) had alpha coefficient values that exceeded .90. The overall alpha coefficient value is shown in Table 1. The highest alpha coefficient value is .922 in item 5 of the verbal/written victimization dimension (1-10), while the lowest is .910 for item 8 of the verbal/written victimization dimension (1-10).

Results

The study examines whether there is an influence of cyberbullying victimization on suicidal ideation behavior with depression as a moderator variable. Regression and mediator analysis with the Jamovi 5.2.3.0 technique were used to test the proposed hypothesis.

H₁ There is a significant influence of cyberbullying victimization on depression among Indonesian adolescents.

To answer hypothesis 1, the Jamovi version 2.5.3.0 analysis results are shown in Table 1. The F-value is 60.1, and the significance level is 0.001 ($p < .05$), so hypothesis 1 is accepted, meaning that there is a very significant relationship between cyberbullying victimization and depression. The effective contribution of the cyberbullying victimization variable to depression is 11.7% ($100\% - 11.7\% = 88.3\%$), so 88.3% is influenced by other variables, as shown in Table 1.

The study results indicate that cyberbullying victimization has a significant influence on suicidal ideation and that depression has a partial mediator relationship between the two. Table 1 shows a very significant influence of the cyberbullying victimization variable on suicidal ideation ($r = -.332$; $p < .001$). The direct effective contribution of the cyberbullying victimization variable to suicidal ideation is 40.3%. ($100\% - 40.3\% = 59.70\%$) as shown in Table 2. This means that 59.7% is influenced by another variable, and that there is a very significant relationship between cyberbullying victimization and depression ($r = -.343$; $p < .001$). The hypothesis is therefore accepted, meaning that there is a very significant relationship between cyberbullying victimization and depression. In conclusion, hypothesis 1 is accepted, with a very significant relationship between the depression variable and suicidal ideation shown ($r = -.624$; $p < .001$). The direct effective contribution of the cyberbullying victimization variable to suicidal ideation is 40.3%. ($100\% - 40.3\% = 59.70\%$).

H₂ There is a significant influence of depression on suicidal ideation among Indonesian adolescents.

About hypothesis 2, the Jamovi version 2.5.3.0 analysis results shown in Table 1 were referred to and it was found that depression had a significant influence on depression. Based on the data in Table 1, the F-value is .289 and the significance level is .01 ($p < .05$), so hypothesis 2 is accepted. It means that there is a very significant relationship between depression and suicidal ideation. The effective contribution of the depression variable to suicidal ideation is 39.0% ($100\% - 39.0\% = 61.0\%$), so 61.0% is influenced by other variables.

Therefore, further research was conducted on the direct model with the mediator construct removed from the equation. Based on Table 1, the sig value is .01 ($p < .05$). The hypothesis is

therefore accepted, meaning there is a significant relationship between cyberbullying victimization and suicidal ideation, with depression as a mediator. The effective indirect contribution is 59.7%. ($100\% - 59.7\% = 40.3\%$), so 40.3% is influenced by other variables as shown in Table 2.

H₃ There is a significant influence of cyberbullying victimization on suicidal ideation among Indonesian adolescents.

Concerning hypothesis 3, the Jamovi version 2.5.3.0 analysis results shown in Table 1, indicate that the F-value is 56.025 and the significance level is .01 ($p < .05$). The hypothesis is therefore accepted, meaning that there is a very significant relationship between cyberbullying victimization and suicidal ideation. The effective contribution of the cyberbullying victimization variable to suicidal ideation is 11.0% ($100\% - 11.0\% = 89.0\%$), so 89.0% is influenced by other variables as shown in Table 2.

H₄ Depression acts as a mediator in the relationship between cyberbullying victimization and suicidal ideation among Indonesian adolescents.

As emphasized in the first part of the discussion of the hypotheses, the Jamovi version 2.5.3.0 analysis reports for testing the fourth hypothesis involving the indirect path were determined by comparing the mediator model with the direct model. Therefore, further research was conducted on the direct model with the mediator construct removed from the equation. Based on Table 1, the sig value is .01 ($p < .05$). The hypothesis is therefore accepted, meaning that there is a significant relationship between cyberbullying victimization and suicidal ideation, with depression as the mediator. The effective

indirect contribution is 59.7%. ($100\% - 59.7\% = 40.3\%$), so 40.3% is influenced by other variables, as shown in Table 2.

The relationship between these mediator variables is partially mediated, as shown in Figure 1. The depression construct, which plays the role of a partial mediator, offsets the influence of suicidal ideation on its endogenous construct, cyberbullying. In the process, the algorithm from the Jamovi 2.5.3.0 software developed a new sampling distribution and the total standardized indirect effect (obtained from the mediator model), standardized direct effect (obtained from the direct model); and the probability value that shows the significance of both effects were estimated. In this way, it was possible to test and compare the indirect effect hypothesis ($a \times b$) and the direct effect hypothesis c to identify the mediator effect. Accordingly, the significance of the indirect effect shows that the mediator effect exists, while the significance of the direct effect (after the mediator construct is included in the equation) shows that the type of mediator is either full or partial (Awang, 2014; Leth-Steensen & Gallitto, 2016; Pisani et al., 2012). Overall, Figures 1 show the procedure and explanation for the mediator effect test. Finally, a summary of the hypothesis results for the mediator effect test is displayed in Table 2.

Therefore, hypothesis 4 is accepted, indicating that there is a significant link between cyberbullying victimization and suicidal ideation, with depression acting as a mediator. The effective indirect contribution is 59.7%, ($100\% - 59.7\% = 40.3\%$), so other variables influence 40.3% of the results. Consequently, the mediator variable link is only partially mediated, as shown in Table 2 and Figure 1.

Table 1

Model Fit Measures and Analysis of the Influence of Cyberbullying Victimization, Depression, and Suicidal Ideation

<i>Model Fit Measures of Hypothesis 1</i>						
Overall Model Test						
Model	R	R ²	F	df1	df2	p
1	.343	.117	60.1	1	452	< .001
<i>Analysis of the influence of cyberbullying victimization on depression</i>						
Predictor	Estimate	SE	t	P	Stand Estimate	
Intercept	3.550	1.4518	2.45	.015		
Cyberbullying	.255	.0329	7.75	< .001	.343	
<i>Model Fit Measures of Hypothesis 2</i>						
Overall Model Test						
Model	R	R ²	F	df1	df2	p
1	.624	.390	289	1	452	< .001
<i>Analysis of the influence of depression on suicidal ideation</i>						
Predictor	Estimate	SE	t	P	Stand Estimate	
Intercept	-.960	.3460	-2.77	.006		
Depression	.329	.0194	16.99	< .001	.624	
<i>Model Fit Measures of Hypothesis 3</i>						
Overall Model Test						
Model	R	R ²	F	df1	df2	p
1	.332	.110	56.0	1	452	< .001
<i>Analysis of the influence of cyberbullying victimization on suicidal ideation</i>						
Predictor	Estimate	SE	t	P	Stand Estimate	
Intercept	-1.723	.7683	-2.24	.025		
Cyberbullying	.130	.0174	7.48	< .001	.332	

Table 2

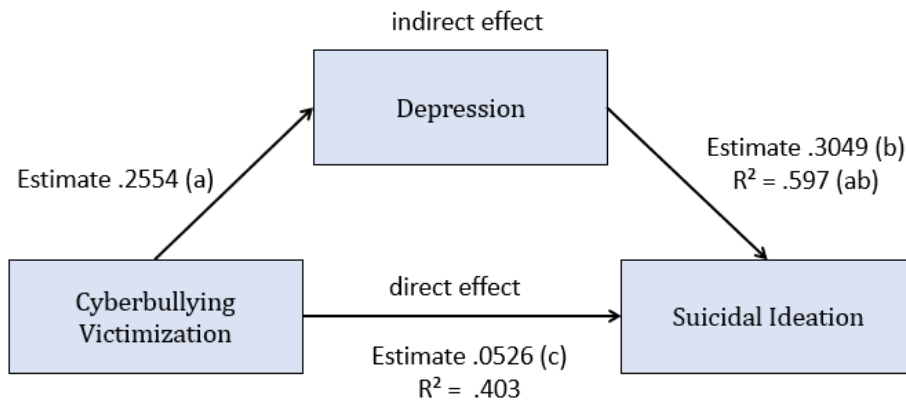
Total, Direct, and Indirect Effects of Cyberbullying Victimization on Suicidal Ideation

Effect	Label	Estimate	SE	Z	P	% mediation
Indirect	a x b	.0779	.0113	6.90	< .001	59.7
Direct	c	.0526	.0151	3.48	< .001	40.3
Total	c + a x b	.1305	.0174	7.50	< .001	100.0

Table 3
Path Estimates Total, Direct, and Indirect Effects of Cyberbullying Victimization on Suicidal Ideation

			95% Confidence Interval						
		Label	Estimate	SE	Lower	Upper	Z	p	
Cyberbullying	→	Depression	a	.2554	.0329	.1910	.3198	7.77	<.001
Depression	→	Suicidal Ideation	b	.3049	.0203	.2651	.3447	15.02	<.001
Cyberbullying	→	Suicidal Ideation	c	.0526	.0151	.0230	.0823	3.48	<.001

Figure 1
Interpretation of Mediator Effect Test – Partial Mediation (CBV_SI Cyberbullying Victimization on Suicidal Ideation)



Note.
 Indirect effect a = .001 (significant).
 Indirect effect b = .001 (significant).
 Thus, the mediator effect in both paths a and b is significant.
 Direct effect (direct model) c = .001 (significant).

Discussion

The study findings of this study suggest that cyberbullying victimization has a significant impact on suicidal ideation. This supports previous findings, such as those of Hasan et al. (2021) and Fadhli et al. (2022), demonstrating a significant negative connection. Cyberbullying is considered a stressful life event, and respondents feel that this can lead to depression (Hinduja & Patchin, 2010). Previous studies have also linked

the experience of being a cyber victim with the frequency of internet use (Smith et al., 2008; Sticca et al., 2013), in line with the findings of this study. In contrast, the type of internet use and online behavior are more significant in the experience of being a cyber victim.

The findings are consistent with previous research on cyberbullying (Kwan & Skoric, 2013; Snell & Englander, 2010; Ybarra & Mitchell, 2004), in which adolescents who use chat rooms and

other social media platforms are shown to be more likely to experience cyberbullying than those who do not. Although access to socializing on the internet provides benefits to users, parents and educators who allow middle school students access to the internet may wish to consider the increased risk of cyberbullying through this medium. The results indicate that boys are more likely to engage in cyberbullying than girls. This supports some previous research (Doane et al., 2013; Li, 2007a, 2007b; Slonje & Smith, 2008; Wong et al., 2014), but contradicts Smith et al. (2008), who found that girls were more likely to be perpetrators. Further research could provide deeper insight into why these gender differences exist.

The bully-victim cycle is important in developing more holistic intervention programs (Li, 2007a). This study has several limitations. First, there is a need for further exploration of cyberbullying in Indonesia by including a more representative sample. In addition to having a larger sample size, participants from different regions in Indonesia (e.g., rural and urban areas) would increase the generalizability of the study findings.

Furthermore, cyberbullying has been shown to have a catastrophic impact on victims, including stress, anxiety, and symptoms of severe depression, which can lead to suicide (Sam et al., 2019). The findings of this study suggest that cyberbullying victimization has an impact on depression, affirming previous studies, such as that of Kim et al. (2016), who found that cyberbullying had a negative influence on victims' psychological health, including the onset of anxiety and depression symptoms.

The study adds to the field of cyberbullying by providing data on its frequency and impact in a sample of Indonesian adolescents. The results indicate that cyberbullying is associated with psychological distress among the adolescents in

our sample. Evidence-based bullying prevention programs should offer some hope in reducing the incidence of cyberbullying in the future. More research is needed to design targeted and successful prevention programs for middle school-aged boys and girls. In implementing prevention programs, current research suggests that gender and type of online media should be considered. In terms of gender, boys should be the primary target of prevention programs, while Facebook should also be considered a dominant medium in which young people are victims of cyberbullying.

Cyberbullying victimization also affects depression. The study results confirm those of previous studies, such research. This is what was stated by Kim et al. (2016), who explains that there is a serious impact on victims of cyberbullying in terms of psychological health, an example of which is the emergence of anxiety and symptoms of depression. According to Hinduja and Patchin (2011) and Ningrum and Amna (2020), individuals who have more experience of cyberbullying victimization, namely those who receive harmful treatment from others is done intentionally and repeatedly, such as being insulted, harassed, threatened, abused, or mocked by the perpetrator through videos, pictures, comments, or text messages via WhatsApp or SMS on the mobile phone. The study by Fatkhurrohman (2020) conducted on students stated that 43% of respondents indicated that cyberbullying had occurred during their studies.

Research by Zalaquett and Chatters (2014) on 613 student respondents in Indonesia who were victims of cyberbullying found that regarding the consequences of cyberbullying, 45% of respondents felt angry, 41% felt sad, 32% experienced increased stress, 9% experienced decreased productivity; while only 6% of respondents admitted that cyberbullying did not have a serious impact on the victim. This means that cyberbullying among students has a serious impact.

In addition, according to Matthews (2000); and Subrahmanyam and Smahel (2011), the factors causing distress due to the influence of individual experiences or unpleasant events that are felt to be dangerous or threatening to individuals so that they can attack individual well-being and are disturbances or obstacles in social relationships experienced by individuals such as friendship environments that occur in cyberspace or in the real world that do not go well so that they cause conflict that makes depression.

In addition, the findings of this study indicate that as cyberbullying victimization increases, depression also increases. The possibility of suicidal ideation was significantly higher for those who had been cyberbullied, with an adjusted odds ratio of 1.88, indicating a strong association between the two phenomena (Yang, 2024). The study results also reveal that cyberbullying victimization is a significant predictor of depression among adolescents. Victims of cyberbullying are at a higher risk of developing depressive symptoms compared to their peers who are not victimized. This finding aligns with previous research, which has established a clear link between cyberbullying and mental health problems (Bauman et al., 2013; Hinduja & Patchin, 2010). Adolescents who are subjected to repeated online harassment often report feelings of sadness, hopelessness, and a loss of interest in activities they previously enjoyed, all of which are key indicators of depression.

One of the most concerning aspects of cyberbullying is its ability to cause long-term emotional distress. Unlike traditional bullying, which often occurs in a confined setting (such as school), cyberbullying can occur at any time, leaving victims feeling trapped and unable to escape the abuse. This study has confirmed that the pervasive nature of cyberbullying significantly contributes to the emotional burden experienced by victims, which in turn leads to increased depressive symptoms.

Victims of cyberbullying often feel a sense of helplessness because the anonymity of the perpetrator makes it difficult to confront or stop the harassment. This persistent exposure to negative online interactions creates a sense of powerlessness, which has been shown in the research to be a key contributor to the development of depressive symptoms. The constant availability of social media and digital platforms means that victims are continuously exposed to hurtful comments, rumors, or images, leading to a heightened emotional response (Smith et al., 2008).

In addition, the study highlights that cyberbullying victimization is significantly associated with increased risks of depression. Victims often experience heightened feelings of isolation, anxiety, and hopelessness, which contribute to depressive symptoms (Slonje et al., 2016). The meta-analysis of the study shows a strong correlation between cyberbullying victimization and depression. Repeated exposure to harmful online behavior exacerbates emotional distress and contributes to a higher prevalence of depressive symptoms in adolescents (Kowalski et al., 2014).

This study provides critical insights into the role of depression and help-seeking behavior in the context of cyberbullying. It offers proactive guidance for preventing the negative mental health impacts of cyberbullying among adolescents. However, the study has limitations that must be considered when generalizing the findings. First, the number of respondents is limited, so it is not very representative of their peer group. The results can only be applied in schools that constitute the study sample. Second, it is a cross-sectional study, so there is a possibility of bias in the results, such as weak assumptions of causal relationships. Third, this study uses a self-report questionnaire that can allow for deliberate positive or negative faking by the respondents. Because the study is based on adolescent students, to reduce the tendency of such

faking before the data collection, the researcher provided comprehensive information about the study and its purpose, assuring that the study findings would have no consequences on students' academic grades. The researcher also encouraged the students to complete the questionnaire honestly and according to the reality they experienced. Future studies should include multiple methods of data collection to minimize such bias. These could include: triangulation of data, or psychological or behavioral measures. To reduce the likelihood of fake responses, future researchers could combine self-reports with external data, such as peer assessments or social media activity analysis, to provide a more comprehensive view of the participants' experience.

Conclusion

The study provides a comprehensive understanding of how cyberbullying victimization,

depression, and suicidal ideation are interconnected, particularly among adolescents in Indonesia. The findings reveal the significant psychological toll of cyberbullying, its role in increasing the risk of depression, and the subsequent impact on suicidal ideation. They also demonstrate that depression serves as a significant mediator in the relationship between cyberbullying victimization and suicidal ideation. However, its effect was not significant in the relationship between depression and suicidal ideation. From a clinical and developmental/social psychology perspective, the results indicate that adolescents who are victims of cyberbullying with high levels of depression, and low levels of help-seeking behavior, are at greater risk of suicidal ideation. []

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Author Contribution Statement

Ratna Yunita Setiyani Subardjo: Conceptualization; Data Curation; Formal Analysis; Investigation; Methodology; Project Administration; Resources; Validation; Visualization; Writing Original Draft; Writing & Editing. **Daniella Maryam Mokhtar:** Conceptualization; Formal Analysis; Methodology; Project Administration; Validation; Mentoring; Review. **Mohammad Rahim Kamaluddin:** Conceptualization; Formal Analysis; Methodology; Validation; Mentoring; Review. **Nur Saadah Mohamad Aun:** Conceptualization; Formal Analysis; Methodology; Validation; Mentoring; Review. **Zeeshan Khan:** Conceptualization; Methodology; Visualization. **Yang Jie:** Conceptualization; Resources.

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