

Original Article

# Association Between Cyberbullying Exposure and Suicide Risk Among Undergraduate Students: A Cross-Sectional Study



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## ABSTRACT

**Background:** The increasing use of the internet and social media among undergraduate students has contributed to the growing prevalence of cyberbullying. Exposure to cyberbullying may negatively affect students' mental health and increase the risk of suicidal ideation and suicidal behavior. However, limited evidence exists regarding the relationship between cyberbullying and suicide risk among college students in low- and middle-income countries, including Indonesia. Therefore, this study aimed to examine the relationship between cyberbullying exposure and suicide risk among undergraduate students.

**Methods:** This cross-sectional study followed the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) guidelines and involved 392 undergraduate students recruited via convenience sampling. Cyberbullying exposure was treated as the independent variable, while suicide risk was the dependent variable. Data were collected using the Cyberbullying Behavioral Scale and the Beck Scale for Suicide Ideation (BSS). Statistical analysis was performed using the Spearman rank correlation test.

**Results:** Most respondents reported low levels of cyberbullying exposure, 359 (91.6%), and low suicide risk (82.7%). Spearman rank analysis demonstrated a statistically significant positive relationship between cyberbullying exposure and suicide risk ( $r = 0.141$ ,  $p = 0.005$ ), indicating a weak positive correlation.

**Conclusion:** Cyberbullying exposure was associated with suicide risk among undergraduate students. However, this finding should be interpreted cautiously and not considered evidence of a causal relationship. These results highlight the importance of mental health screening, cyberbullying prevention, and suicide risk assessment programs within university settings.

**Keywords:** Cyberbullying; Suicide Ideation; Undergraduate Students; Mental Health; Risk Factors.

## Implications for Practice:

- The findings suggest that routine screening for cyberbullying and suicide risk may be considered within student health services using validated tools for early identification.
- Universities may consider exploring evidence-based policies and structured intervention programs to reduce

## Implications for Practice:

- cyberbullying and improve students' mental health outcomes.
- Preventive strategies may provide preliminary adaptations to resource-limited settings by incorporating culturally sensitive and scalable mental health support systems.

## Introduction

Undergraduate students are categorized as emerging adults, a developmental stage that generally occurs between the ages of 18 and 25. This developmental phase is characterized by significant psychological, emotional, and social transitions as individuals adapt to academic responsibilities, social relationships, and increasing independence (Fekih-Romdhane, 2024). Students continuously and extensively use internet resources as an important component of their education (Salam & Farooq, 2020), with an easy and universal platform to connect, forming strong social bonds and adopting new approaches to education. The use of the internet and digital technology can have negative impacts, one of which includes (Al-shatnawi et al., 2024). Cyberbullying that causes harm to others (Yosep et al., 2024).

Cyberbullying is a form of aggressive behavior conducted through electronic media with the intention of harming others repeatedly (Yichuan et al., 2020). Cyberbullying is a pre-planned aggressive act carried out against victims who are unable to defend themselves through continuous and regular electronic communication by individuals or organizations (Fadhli et al., 2022). Globally, cyberbullying has become a major public health concern among adolescents and young adults. A survey conducted by the United Nations Children's Fund (UNICEF), which involved 170,000 adolescents and young adults in 30 countries, found that one-third of adolescents are victims of cyberbullying. The global prevalence in college students reports that there are 30.6% to 36.9% of students experiencing cyberbullying through emails, short messages, social media, and online video platforms (Kucuk et al., 2023). Cyberbullying occurs 75% on Facebook,

Twitter, and Instagram simultaneously. Cyberbullying has a crucial impact psychologically and mentally on college students, including sleep disorders, low self-esteem, anger, helplessness, and concentration problems that affect academic performance (Xavier & Dwivedi, 2022).

Cyberbullying has been associated with suicidal ideation, suicide attempts, and increased suicide risk (Yichuan et al., 2020). Suicide is the second leading cause of death in individuals aged 10-34 years, with an incidence rate of 10.2 per 100,000 people (Schonfeld et al., 2023). The prevalence of suicidal ideation among college students worldwide is 22.3%. The suicide attempt rate in Indonesia is 2.25 attempts per 100,000 people (Salifu & Yidana, 2024; Onie et al., 2024). The results of a preliminary study on five students conducted in December 2024 found that students reported experiencing cyberbullying on social media, especially on the WhatsApp, TikTok, Instagram, Twitter, and Facebook applications. The World Mental Health International College Students Project (WMH-ICS) in 2022 reported that a survey of 20,842 college students from nine countries found that college students had a prevalence of suicidal ideation at 63%, suicide planning at 30%, and suicide attempt behavior at 47% (Mortier et al., 2022). The interpersonal theory of suicide posits that the suicide risk escalates when individuals encounter denied belongingness and perceived burdensomeness. Experiences of cyberbullying among adolescents might precipitate psychological disorders, resulting in psychological distress and an elevated suicide risk (Robison et al., 2024). Social media also plays an important role in shaping mental health communication and suicide prevention efforts among young people. Previous studies reported that social media platforms may function both as

risk environments for cyberbullying and as supportive spaces for suicide prevention campaigns, mental health education, and emotional support dissemination among adolescents and university students (Nurhaliza et al., 2022).

Although previous studies have demonstrated an association between cyberbullying and suicidal behavior, findings regarding the strength and direction of this relationship remain inconsistent across studies. Furthermore, most previous studies have focused on adolescents in high-income countries, whereas evidence among undergraduate students in Indonesia remains limited. College students may experience unique psychosocial stressors related to academic demands, social transitions, and increased digital exposure, which may influence both cyberbullying exposure and suicide risk. Therefore, this study aimed to examine the relationship between cyberbullying exposure and suicide risk among undergraduate students.

## Methods

### Study Design

This study employed a cross-sectional correlational design to examine the relationship between cyberbullying exposure and suicide risk among undergraduate students. The study was reported in accordance with the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) guideline.

### Participants

The study population consisted of active undergraduate students enrolled at a private university in Yogyakarta, Indonesia, with a total population of 19,494 students. Participants were recruited using a convenience sampling technique through online questionnaire distribution. The sample size was calculated using the Slovin

formula, resulting in a minimum sample size of 392 respondents. Inclusion criteria included active undergraduate students who used the internet and social media and were willing to participate in the study. Students who were on academic leave or unwilling to participate were excluded.

The recruitment process was conducted by distributing an online questionnaire link through social media platforms and student communication groups. A total of 398 responses were collected, and 392 completed responses were included in the final analysis after excluding incomplete questionnaires. The response rate was 98.5% in this study

### Instruments

Cyberbullying was measured using the Cyberbullying Behavior Scale adapted from Willard's (2007) theory of cyberbullying behavior. The instrument consisted of 32 valid items categorized into seven dimensions: flaming, harassment, cyberstalking, denigration, impersonation, outing and trickery, and exclusion. The Cyberbullying Behavior Scale is divided into 22 favorable items and 10 unfavorable items. Statements that support cyberbullying behavior in students are considered favorable items, while statements that do not support are considered unfavorable items, with four response options, namely: Strongly Agree, Agree, Disagree, and Strongly Disagree. The research score on the Cyberbullying Behavior Scale ranges from four to one for favorable, and one to four for unfavorable. Responses were measured using a four-point Likert scale ranging from strongly disagree to strongly agree. Ordinal categorization is used to divide the sample into groups. The calculation of the cyberbullying behavior scale categorization is interpreted as  $X < 64$  (low),  $64 \leq X < 96$  (moderate), and  $96 \leq X$  (high) levels of cyberbullying.

The validity of the Cyberbullying Behavior Scale was previously assessed using expert judgment and Content Validity Ratio (CVR), demonstrating acceptable content validity. Reliability testing showed a Cronbach's alpha value of 0.977, indicating excellent internal consistency. The Cyberbullying Behavior Scale used in this study primarily assessed participants' exposure to cyberbullying-related experiences occurring through digital communication platforms. The instrument was employed to identify the frequency of respondents' encounters with cyberbullying situations rather than to distinguish explicitly between victimization and perpetration roles. Therefore, the findings should be interpreted as reflecting general cyberbullying behavior rather than specific cyberbullying victimization or perpetration experiences.

Suicide risk was measured using the Beck Scale for Suicide Ideation (BSS), which was developed by Beck et al (1979). The BSS consists of 19 items with response scores ranging from 0 to 2. Total scores were categorized into none, low, high, and very high suicide risk levels. The Indonesian version of the BSS underwent translation and cultural adaptation procedures prior to use. Previous validity testing demonstrated item correlation values ranging from 0.643 to 0.913, while reliability testing showed a Cronbach's alpha value of 0.963, indicating excellent reliability.

### Data Collection

Data collection was conducted from May to September 2025 using an online questionnaire distributed through Google Forms. Before completing the questionnaire, all participants provided informed consent electronically. All collected data were anonymized during data collection, analysis, and reporting. Respondents' identities were protected using coding systems, and data files were stored in

password-protected electronic folders accessible only to the researchers. Responses with incomplete data were excluded from the final analysis to maintain data quality and integrity.

### Data Analysis

Data processing included editing, coding, tabulation, data entry, and data cleaning procedures. Data were analyzed using the Statistical Package for the Social Sciences (SPSS) version 26 for Windows. Descriptive statistics were used to describe respondents' demographic characteristics and the distribution of study variables. Normality testing was conducted before inferential analysis. Because the data were not normally distributed and both variables were measured on an ordinal scale, Spearman rank correlation analysis was performed to examine the relationship between cyberbullying exposure and suicide risk. Statistical significance was determined at  $p < 0.05$ . The primary analysis utilized categorized scores because the classification system was adopted from previous instrument guidelines and was intended to facilitate interpretation of risk levels. Nevertheless, categorization may reduce variability and statistical power compared with continuous-score analysis. Therefore, the findings should be interpreted with consideration of potential information loss resulting from score categorization.

### Ethical Considerations

This study was approved by the Health Research Ethics Committee of the Faculty of Medicine and Health Sciences, Universitas Muhammadiyah Yogyakarta, Indonesia, with ethical approval number 139/EC-KEPK FKIK UMY/IV/2025. This study adhered to the ethical principles outlined in the Declaration of Helsinki. All participants received information regarding the study objectives, procedures, confidentiality,

voluntary participation, and the right to withdraw at any time without consequences. Participant anonymity was maintained using coding systems during data analysis and reporting.

Participants who demonstrated elevated suicide risk based on the Beck Scale for Suicide Ideation were provided with information regarding available psychological counseling services and

mental health support resources. Contact information for university counseling services and emergency mental health assistance was included at the end of the questionnaire to ensure that participants experiencing psychological distress could seek appropriate professional support.

## Results

**Table 1.** Demographic Characteristics of Respondents (n=392)

Characteristic	Category	Frequency (n)	Percentage (%)
Gender	Male	127	32,4
	Female	265	67,6
Age (years)	18 years old	20	5,1
	19 years old	71	18,1
	20 years old	96	24,5
	21 years old	141	36,0
	22 years old	53	13,5
	23 years old	10	2,6
	24 years old	1	3
Residence	Own House	76	19,4
	Boarding House	316	80,6
Force	2021	31	7,9
	2022	185	47,3
	2023	73	18,6
	2024	103	26,3
Faculty	Engineering	42	10,7
	Agriculture	31	7,9
	Economics and Business	37	9,4
	Social Sciences and Political Science	41	10,5
	Law	39	9,9
	Islamic Religion	31	7,9
	Language Education	32	8,2
	Medicine and Health Sciences	120	30,6
	Dentistry	19	4,8
<b>Total</b>		<b>392</b>	<b>100,0</b>

A total of 392 undergraduate students participated in this study. Most respondents were female (67.6%) and aged 21 years (36%). The majority of participants lived in boarding houses (80.6%) and belonged to the 2022 academic cohort (47.3%). Most respondents were enrolled in the Faculty of

Medicine and Health Sciences (30.6%) (**Table 1**).

### *Cyberbullying Exposure Among Undergraduate Students*

Most respondents reported low levels of cyberbullying exposure (91.6%), while 8.2% reported moderate exposure and 0.3% reported high exposure. Female

students accounted for the majority of respondents with low cyberbullying exposure. High cyberbullying exposure was identified primarily among male respondents. Students living in boarding houses reported higher frequencies of cyberbullying exposure compared to those living in their own homes. Respondents from the 2024 academic cohort demonstrated relatively higher levels of cyberbullying exposure compared to other cohorts.

#### *Suicide Risk Among Undergraduate Students*

Most respondents demonstrated low suicide risk (87.8%), while 8.7% were categorized as having high suicide risk and 0.3% demonstrated very high suicide risk. Based on descriptive data, a greater

proportion of female students were represented in the higher frequencies of suicide risk compared to male students. Similarly, students living in boarding houses demonstrated higher suicide risk levels than students living with their families. Respondents from the Faculty of Medicine and Health Sciences also demonstrated relatively higher frequencies of suicide risk. This study used only Spearman's rank correlation. Inferential statistical analysis was used on cyberbullying exposure and suicide risk. Comparisons of demographic subgroups did not involve inference. Therefore, statements regarding gender, residential status, academic year, and faculty affiliation are now only descriptive observations.

**Table 2.** The Relationship Between Cyberbullying and suicide risk in College Students

Cyberbullying	None n (%)	Low n (%)	High n (%)	Very High n (%)	Total n (%)	p-value	Spearman's rho
Low	10 (2.6)	324 (82.7)	24 (6.1)	1 (0.3)	359 (91.6)	0.005	0.141
Medium	3 (0.8)	19 (4.8)	10 (2.6)	0 (0.0)	32 (8.2)		
High	0 (0.0)	1 (0.3)	0 (0.0)	0 (0.0)	1 (0.3)		
Total	13 (3.3)	344 (87.8)	34 (8.7)	1 (0.3)	392 (100.0)		

Spearman rank correlation analysis demonstrated a statistically significant but weak positive relationship between cyberbullying exposure and suicide risk among undergraduate students ( $r = 0,141$  and  $p = 0.005$ ). This research suggests that increased exposure to cyberbullying correlates with marginally elevated suicide risk scores. The minimal effect size indicates that exposure to cyberbullying contributes just a small fraction of the variability in suicide risk. Therefore, other psychological, social, and environmental factors not analyzed in this study may significantly influence suicide risk among undergraduate students (**Table 2**).

## Discussion

This study identified a statistically significant positive association between cyberbullying exposure and suicide risk among undergraduate students. However, the magnitude of the association was weak ( $r = 0.141$ ), suggesting that cyberbullying exposure explains only a limited proportion of the variability in suicide risk. Although the association was statistically significant, the observed correlation coefficient represents a small effect size according to Cohen's interpretation guidelines. This finding suggests that cyberbullying exposure contributes only modestly to suicide risk among undergraduate students. Descriptive observations suggested that

cyberbullying exposure and suicide risk appeared more frequently among female students and those living in boarding houses. However, because no subgroup inferential analyses were conducted, these findings should be interpreted cautiously and cannot be considered evidence of statistically significant differences. Similar findings have been reported in previous studies indicating that suicidal ideation and suicidal behaviors are complex phenomena influenced by multiple interacting psychological, social, familial, and environmental factors rather than a single exposure alone (Dadras & Takashi, 2024). Therefore, cyberbullying should be considered one component within a broader network of suicide-related risk factors rather than an independent determinant of suicidal behavior. Given the multifactorial nature of suicidal behavior, other psychosocial factors, including depression, anxiety, academic stress, social support, family relationships, and socioeconomic circumstances, may contribute more substantially to suicide risk than cyberbullying exposure alone. This finding is consistent with previous studies conducted among university students in Qatar and Bangladesh, which reported that cyberbullying remains prevalent among young adults and university populations (Sheikh et al., 2023). The transition period of emerging adulthood may increase vulnerability to cyberbullying due to emotional instability, adaptation challenges and increased dependence on social media (Lane, 2020). Cyberbullying in adulthood is exacerbated by the influence of the social environment (Scott et al., 2023). According to Alrajeh et al. (2021), on the prevalence of cyberbullying among Qatari students in a sample of 836 individuals aged 18-24 years. It shows that 29.2% of students experience cyberbullying. Younger students less than 25 years old reported their experiences as

victims and then became perpetrators compared to students over 26 years old. The study noted that about 13.6% of college students experienced at least one form of cyberbullying in the past 12 months (Sheikh et al., 2023).

Female students represented the majority of respondents experiencing cyberbullying exposure and suicide risk. Previous studies have similarly reported that women are more vulnerable to emotional distress related to cyberbullying experiences, including online harassment and verbal aggression. Women may demonstrate greater emotional sensitivity toward interpersonal conflicts occurring through digital platforms (Li & Peng, 2024). Research by Kumar & Goldstein (2020) shows that in males, aggressive behavior occurs directly, such as lighting fires and making threats. However, results vary among students due to emotional maturity, university context, and culture. Research shows that females are also frequently perpetrators of cyberbullying behaviors such as gossiping and spreading photos. In this study, more female students were found to have low cyber risk. However, since no inferential statistical analysis was done, this finding should only be seen as descriptive and not proof of a statistically significant gender difference.

Students living in boarding houses demonstrated higher levels of cyberbullying exposure and suicide risk compared to students living with their families. Limited family supervision, social isolation, and increased internet use among students living independently may contribute to greater vulnerability to cyberbullying experiences and psychological distress (Wright, 2024). Studies by Sheikh et al. (2023) also demonstrated that most respondents had low suicide risk. However, several respondents reported high and very high suicide risk levels. Previous studies have

shown that academic stress, social isolation, emotional dysregulation, and mental health problems contribute significantly to suicide risk among university students. Living away from family often leads to less supervision, more intense peer interaction patterns, and free access to the internet, thus opening up greater opportunities for cyberbullying behavior (Ma et al., 2024).

The significant relationship identified between cyberbullying exposure and suicide risk supports previous studies demonstrating that cyberbullying is associated with suicidal ideation and self-harm behavior (Jamnongrit, 2022). Students in Thailand in the first batch are vulnerable to becoming perpetrators and victims of cyberbullying, and this is related to low levels of psychosocial well-being as well as mental health problems such as depression and anxiety. Senior students are sometimes more often involved in conflicts that are rooted in academic or organizational rivalries (Zorlu, 2023). Bernardo et al. (2022) cyberbullying to a higher rate or a greater effect on them than in later years. In addition, digital communication environments may simultaneously function as both harmful and protective spaces for mental health. Social media exposure may increase vulnerability to cyberbullying; however, online mental health campaigns and suicide prevention education through digital platforms may also help increase awareness, emotional support, and early help-seeking behavior among young people (Nurhaliza et al., 2022).

Cyberbullying through official university platforms is reported to be experienced by 30.6% of students experiencing cyberbullying. This shows that forms of digital abuse are formed in an academic environment (Ghitani et al., 2025). Research found that as many as 60.6% of medical school students have been victims of cyberbullying in some form

(Gupta et al., 2023). The victim experienced academic, psychological problems, decreased self-esteem, behavioral and interpersonal problems. Competitive academic pressure underlies the vulnerability of cyberbullying in Faculty of Medicine students (Deshmukh et al., 2025).

The suicide risk increases with age. One reason the suicide risk is higher at a young age is due to the lack of ability to control impulsive behavior in them (Song et al., 2022). College students in the young adult age range are a group with a high suicide risk, including suicidal ideation, plans, and attempts (Lee et al., 2020).

Suicide is the second leading cause of death among young people worldwide. Globally, suicide causes death among adolescent girls and is the third most common cause of death in the male sex (McLoughlin et al., 2022). The results showed that the majority of respondents were women, as many as 265 (67.6%). In line with research on college students in China's Jilin and Zhejiang Provinces, it was reported that female college students had a higher suicidal tendency compared to male students (Zhuang et al., 2020).

Suicide risk is influenced by residence because boarding houses contribute to feelings of isolation and neglect, which are important risk factors for the decline of mental health (Damiens & Schnor, 2022). The lack of a stable living environment worsens mental health and increases the risk of suicide (Fastenau et al., 2024). Students who live in their own homes tend to have better social integration and support systems to protect against the suicide risk (Schonfeld et al., 2023).

The level of suicidal ideation varies in each generation, especially among first-, second-, and third-year students. In first-year students, this may be related to the adaptation to the new environment. Lecture force is associated with the length of the lecture, which is an academic adaptation

that affects the psychological and emotional states of students ([Farooq et al., 2021](#); [Stack, 2021](#)). Force is an important period of development that marks the transition from adolescence to adulthood, characterized by significant psychological, emotional, and social changes ([Liao et al., 2025](#)).

Suicide risk affected by academic stress, competitive environment, exam stress, and financial burden significantly increases student suicide risk ([Yunitri et al., 2025](#)). Research on medical students has shown a fairly high suicidal tendency; the associated factors include academic stress, fatigue, and depression. The study found that, compared to elementary school students, college students at the clinic had higher scores of suicidal ideation and mental risk factors ([Huang et al., 2024](#)).

The findings may also be interpreted through the Interpersonal Theory of Suicide proposed by Joiner. According to this theory, suicide risk increases when individuals experience thwarted belongingness and perceived burdensomeness. Experiences of cyberbullying may contribute to social exclusion, humiliation, rejection, and emotional distress, which can undermine an individual's sense of belonging and self-worth. Repeated exposure to negative online interactions may therefore increase vulnerability to suicidal thoughts, particularly among young adults who rely heavily on social relationships and digital communication for emotional support ([Robison et al., 2024](#)). However, the weak association observed in the present study suggests that additional psychosocial variables likely exert stronger influences on suicide risk than cyberbullying exposure alone.

An additional consideration is the highly skewed distribution of both study variables. More than 90% of participants were classified as having low cyberbullying exposure, and nearly 88% reported low

suicide risk. Such restricted variability may have attenuated the correlation coefficient observed in this study and potentially limited the ability to detect stronger associations between the variables. Future studies may benefit from larger and more diverse samples with broader distributions of cyberbullying exposure and suicide risk.

Because this study employed a cross-sectional design, the direction of the relationship between cyberbullying exposure and suicide risk cannot be determined. Although cyberbullying exposure may contribute to psychological distress and increased suicide risk, it is also possible that students with pre-existing emotional vulnerabilities are more likely to perceive, report, or become involved in cyberbullying experiences. Therefore, the findings should be interpreted as evidence of co-occurrence rather than causality.

From a nursing and mental health perspective, the findings underscore the importance of early identification of students exposed to cyberbullying. University students often experience concurrent stressors, including academic demands, social adjustment difficulties, financial concerns, and mental health challenges. Cyberbullying may exacerbate these existing stressors and contribute to emotional distress. Consequently, nursing professionals and university health services should adopt a comprehensive assessment approach that considers cyberbullying exposure alongside depression, anxiety, stress, coping mechanisms, and social support when evaluating suicide risk among students ([Yunitri et al., 2025](#); [Salifu & Yidana, 2024](#)). Although the association identified in this study was weak, the findings remain clinically relevant because cyberbullying represents a potentially modifiable risk factor. Unlike many individual-level risk factors for suicide, cyberbullying may be addressed through institutional policies, digital literacy

programs, peer-support initiatives, and early mental health interventions. Therefore, even modest associations may have meaningful public health implications when applied to large student populations.

### **Implications and limitations**

Several limitations should be considered when interpreting the findings. First, the cross-sectional design precludes causal inference and limits conclusions regarding the direction of the observed association. Second, the study employed convenience sampling from a single private university, with a relatively large proportion of respondents originating from the Faculty of Medicine and Health Sciences. These sampling characteristics may limit the representativeness and generalizability of the findings. Third, the highly skewed distributions of cyberbullying exposure and suicide risk may have reduced variability and attenuated the observed correlation. Fourth, potentially important confounding variables, such as depression, anxiety, academic stress, social support, and socioeconomic status, were not measured and therefore could not be controlled in the analysis. Future studies are recommended to employ longitudinal designs and include additional psychosocial variables, such as depression, anxiety, coping mechanisms, and social support, to better understand factors contributing to suicide risk among university students.

### **Relevance to Practice**

The findings of this study may provide preliminary insights for nursing practice, mental health services, and university health programs. Early detection and routine screening for cyberbullying exposure and suicide risk could be considered into student health services using validated screening instruments. Universities may consider strengthening mental health promotion programs by

developing evidence-based interventions aimed at reducing cyberbullying and improving psychological well-being among students. Counseling services, peer support programs, and psychoeducational interventions may help students develop adaptive coping strategies and resilience. In addition, educational institutions may highlight the potential importance of developing clear policies and reporting systems related to cyberbullying prevention to create safer and more supportive digital environments for students.

### **Conclusion**

Cyberbullying exposure was significantly associated with suicide risk among undergraduate students; however, the observed relationship was weak. These findings suggest that cyberbullying may represent one component within a broader network of psychosocial factors influencing suicide risk. Due to the cross-sectional design and absence of confounding-variable adjustment, the findings should not be interpreted as evidence of causality. Future studies employing longitudinal and multivariable approaches are needed to better understand the independent contribution of cyberbullying exposure to suicide risk among university students.

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### **CrediT Authorship Contributions Statement**

**Laili Nur Hidayati:** Conceptualization, Methodology, Supervision

**Dhella Angelica:** Writing - Original Draft, Software, Validation

**Rosnani binti Sarkarsi:** Investigation, Writing - Review & Editing Resources

## Conflicts of Interest

There is no conflict of interest.

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## Supplementary Materials

Supplementary File S1: Research Instrument contains the full questionnaire used for data collection.

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