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The Relationship Between Bullying and Risk of Suicide Among Adolescents During the COVID-19 Pandemic in Indonesia

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Objectives: Although adolescents appear less vulnerable to coronavirus disease (COVID-19), the side effects of this pandemic can still be devastating. Bullying and suicidality are significant global issues with detrimental effects on young people, particularly during school closure. This study aimed to identify the relationship between bullying and suicide risk among adolescents in Indonesia during the COVID-19 pandemic.

Methods: A cross-sectional study was conducted on adolescents aged 14–18 years in May 2020 in Bandung, Indonesia, using a web-based closed survey. The Adolescent Peer Relations Instrument and the Suicide Behavior Questionnaire-Revised were used to measure bullying and risk of suicide. Multinomial logistic regression analysis was performed.

Results: This study included 268 participants in 2020 and 175 participants in 2019. In 2020, the prevalence of perpetrators and victims of bullying combined was 74.6%. Meanwhile, in 2019, the prevalence of perpetrators and victims of bullying combined was 82.9%. Risk of suicide increased from 26.1% in 2019 (before the COVID-19 pandemic) to 36.5% in 2020 (during the first wave of the COVID-19 pandemic). The risk of perpetrators and suicide victims was higher than that of perpetrators and victims alone (odds ratio [OR]=4.0, 95% confidence interval [CI]=1.5–6.6 vs. OR=1.3, 95% CI=1.0–2.9 and OR=1.6, 95% CI=1.1–2.8, respectively).

Conclusion: Bullying can enhance the likelihood of suicide among adolescents in Indonesia, and the risk was highest for the combination of victims and perpetrators. It is very important to provide early risk prediction for youths with bullying behavior and improve the knowledge and understanding of families and schools regarding the negative effects of bullying behavior.

Keywords: Adolescents; Bullying; COVID-19; Suicide.

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INTRODUCTION

The coronavirus disease (COVID-19) pandemic has been associated with mental health issues as an effect of both disease mortality and prevention [1]. In early March 2020, the Indonesian government mandated the closure of all elementary, junior high, and high schools to avoid further spread of COVID-19. Consequently, teaching and learning methods have gradually started moving from classroom settings to online platforms, and learners have become much more connected to the virtual environment [2].

However, spending time at home and not at school can have both direct and indirect impacts on children's psychological well-being, as children may encounter trouble in school (e.g., bullying) or feel distressed about their relationships with friends and family members (i.e., family violence) [1,3]. Studies on the effect of the COVID-19 pandemic on adolescent mental health have shown mixed results. For example, a study in Japan suggested that the first wave of the COVID-19 pandemic did not significantly affect suicide rates in schoolchildren and adolescents at school [4]. School closures may have resulted in less academic and social pressure, fewer peer problems, and less bullying [3]. However, an Australian study found that the COVID-19 pandemic was associated with increased admissions among children and adolescents

to intensive care units due to self-harm [5]. Additionally, a Norwegian study found that the prevalence of bullying, anxiety, and loneliness was higher than before the pandemic and significantly reduced the quality of life in adolescents [6].

Bullying is a deliberate and violent behavior that is repeatedly carried out based on a power imbalance between the perpetrators and victims [7,8]. Traditionally, there have been many forms of bullying, including physical, verbal, and relational bullying—an indirect form of victimization that includes the exclusion and spread of rumors [9]. A meta-analysis reported that the prevalence of traditional bullying ranges from 16% to 36% during childhood or adolescence [10]. However, during the COVID-19 pandemic, bullying may have occurred under different conditions; for example, bullying from siblings or other family members or verbal bullying often occur through social media chats. A Cinese study reported that the pandemic increased bullying victimization (crude odds ratio [OR]=2.290; 95% confidence interval [CI]= 2.011−2.609) and perpetration (crude OR=2.876; 95% CI= 2.400−3.446) compared to before the pandemic [11]. A Spanish study reported that 22.8% of students reported having been victims and 26.5% perpetrators of cyberbullying for the first time during the COVID-19 pandemic [12]. Another study in Korea found that in 2020 the bullying rate (perpetrators or victims) was 22.8%, down 4.1% from 2019. They reported that cyberbullying perpetration dropped 8.5% in 2020, but victimization rose 0.7% [13].

Recently, the association between bullying and suicide has attracted increasing attention. Studies have attempted to demonstrate the relationship between these two entities [14]. There was a higher risk of suicidal ideation and suicide attempts among adolescents involved in bullying in any capacity, including victims, perpetrators, and those who were both victims and perpetrators [15]. One study found that children and adolescents victimized by perpetrators are vulnerable to suicide risk because they take more actions to kill themselves and have mental health problems [16]. Another study indicated a greater risk of adverse results from suicidal thoughts, suicidal ideas, and attempts at self-harm and suicide among adolescents who were victimized by both traditional and cyberbullying [17]. A Finnish study found that students who only reported bullying in high school without depression or a prior history of suicidality tended to have fewer psychological issues and risk of later suicidality than students found to be at baseline risk of suicide [18,19]. A strong correlation between bullying and suicidality was shown conflicting in study conducted by Limbana et al. [2].

The prevalence of victimization and bullying perpetrators differs across countries; however, it is consistent that bullying leads to mental health issues and suicidal ideation [2]. However, there is still a lack of empirical data on the consequences of the COVID-19 pandemic on bullying victimization and perpetration and their association with suicide risk during the COVID-19 pandemic. This study aimed to establish an association between bullying victimization and perpetration and the risk of suicide among adolescents disclosed during the COVID-19 pandemic in school. If bullying disrupts the mental health of children and teenagers, the highest priority should be to give precendence to a bully free environment under any condition [20].

METHODS

Study design

This cross-sectional study was conducted in May 2020, in Bandung, West Java, Indonesia. In 2020, a web-based closed survey was conducted to gather information on bullying, victims, and suicide risk. We then utilized the yearly school survey data from the school commission in 2019 using the same methods as in 2020.

Participants

Adolescents aged 15−18 years, in 9th through 12th grade in two public high schools in Bandung, were enrolled. The requird 2020 sample size was calculated using G-Power software version 3.1.9.4 (Heinrich-Heine-Universität Düsseldorf, Düsseldorf, German), assuming Chronbach's α was 0.05 and a small effect size (0.23). The total sample was 259, with an attrition rate of 10%. The sampling technique used in this study was simple random sampling using a lottery application drawn from the classes.

Measurements

The Adolescent Peer Relations Instrument was used to assess student bullying, divided into perpetrators and victims, was used to assess student bullying. This instrument assesses three aspects of bullying: verbal, social, and physical [21]. This instrument uses a Likert scale ranging from 1 (never) to 6 (every day). The Cronbach's α was 0.93 (perpetrators) and 0.95 (victims) [21]. In this study, Cronbach's α was 0.90 for perpetrators and 0.89 for victims.

The Suicide Behavior Questionnaire-Revised (SBQ-R) was developed [22] to identify the risk of suicide among adolescents. The SBQ-R uses the Thurstone scale in which each response option has a specific meaning [23]. The SBQ-R questionnaire consists of four dimensions: lifetime suicidal ideation and/or suicide attempt, frequency of suicidal ideation over the past 12 months, threat of suicide attempt, and self-reported likelihood of suicidal behavior in the future. The responses can be used to identify at-risk individuals and specific risk

behaviors. The average rating on the SBQ-R questionnaire is 7, with less than 7 indicating no suicide risk and more than 7 indicating suicide risk [22]. In the high school population, the SBQ-R questionnaire has a Cronbach's α reliability value of 0.87 [22]. In this study, the Cronbach's α was 0.89.

Data collection

The Institutional Review Board of the Sekolah Tinggi Ilmu Keperawatan PPNI Jawa Barat approved this study (III/098/KEPK/STIKep/PPNI/Jabar/III/2020) on March 19, 2020, at the relevant research department in West Java. In 2020, the active and written consent of the parents and adolescent (or consent, depending on the age of the participant) were obtained by telephone prior to the study. Confidentiality issues are addressed in compliance with established clinical ethics. Google collected confidential information to ensure the anonymity of the participants. Data were stored on a drive that could only be accessed by the research team. The system automatically resolved the potential for double respondents by preventing two or more user permissions from the same e-mail address if the questionnaire had already been completed. The data were then converted into a codebook. Prior to the survey, the adolescents were told that if they had severe suicide risk, the researchers would be informed and discussed with their parents. If the adolecent was in danger of harming themselves, the clinician contacted the individual to evaluate the urgency of the problem and communicated directly with the parents.

Data analysis

Data analysis was performed using IBM SPSS statistical software (version 20.0; IBM Corp., Armonk, NY, USA). The significance level was α=0.05 and all tests were 2-tailed. Descriptive analysis was conducted to describe the sociodemographic information of the participants, the prevalence of bullying perpetrators and victims, and the risk of suicide. To examine the association between bullying and suicide risk, a multinomial logistic regression analysis was performed. The ORs and 95% CIs were estimated. In the logistic regression, sex and age of the respondent, grade, religion, and ethnicity were included as covariates.

Patient and public involvement

The patients and/or the public were not involved in the design, conduct, reporting, or dissemination of this study.

RESULTS

This study included 268 participants in 2020 and 175 participants in 2019. Approximately 61.9% and 54.3% of participants were female participants in 2020 and 2019, respectively. The average age was 16.53 (standard deviation [SD]= 1.78) years in 2020 and 15.78 (SD=2.03) years in 2019. The majority of the participants in 11th grade, Islamic, and Sundanese (Table 1).

In 2020, the prevalence of perpetrators and victims of bullying combined was 74.6%. Of these, 10.1% were victims only and 9.0% were perpetrators only at all times. In 2019, the prevalence of perpetrators and victims of bullying combined was 82.9%. Risk of suicide increased from 26.1% in 2019 (before COVID-19 pandemic) to 36.5% in 2020 (during the first wave of COVID-19 pandemic) (Table 2).

Moreover, in 2020, following the classification of suicide, 20.5% of particpants had lifetime suicidal ideation and/or suicide attempts, 14.9% reported experiencing suicidal ideation more than three times over the past 12 months, 85.1% of them reported a threat of suicide attempt, and 5.2% presented a self-reported likelihood of future suicidal behavior.

The grade, having ever experienced self-quarantine, history of COVID-19, and type of bullying were significantly associated with suicide risk (Table 3).

Using data from 2020, the risk of suicide was correlated with combined perpetrators and victims, perpetrators only, and victims only. The risk of perpetrators and suicide victims was higher than that of perpetrators or victims alone (OR=4.0, 95% CI=1.5–6.6 vs. OR=1.3, 95% CI=1.0–2.9 and OR= 1.6, 95% CI=1.1–2.8, respectively). In multivariate analysis, having experienced self-quarantine (OR=2.6, 95% CI=1.2–5.6) and diagnosed with COVID-19 (OR=2.3, 95% CI=1.5–6.7) was significantly associated with risk of suicide (Table 4).

Table 1. Sociodemographic characteristics of the participants

Variable	2019 (n=175)	2020 (n=268)
Sex		
Male	80 (45.7)	102 (38.1)
Female	95 (54.3)	166 (61.9)
Grade		
10th	23 (13.1)	83 (31.0)
11th	85 (48.6)	154 (57.4)
12th	67 (38.3)	31 (11.6)
Age (yr)	15.78±2.03	16.53±1.78
Religions		
Islam	155 (88.6)	253 (94.4)
Kristen	17 (9.7)	14 (5.2)
Hindu	3 (1.7)	1 (0.4)
Ethnicity		
Sundanese	123 (70.3)	233 (86.9)
Java	17 (9.7)	20 (7.5)
Batak	12 (6.9)	11 (4.1)
Others	23 (13.1)	4 (1.5)

Values are presented as mean±standard deviation or number (%).

Table 2. Prevalence of bullying and risk of suicide in 2020 compare to 2019

Variable	2020			2019		
	Total (n=268)	At risk of suicide (n=70)	No risk of suicide (n=198)	Total (n=175)	At risk of suicide (n=64)	No risk of suicide (n=111)
Perpetrators	24 (9.0)	4 (1.5)	20 (7.5)	12 (6.9)	6 (9.4)	14 (21.9)
Victim	27 (10.1)	6 (2.2)	21 (7.8)	16 (9.1)	14 (21.9)	25 (39.1)
Perpetrators and victim	200 (74.6)	57 (21.4)	143 (53.4)	145 (82.9)	35 (54.7)	54 (84.4)
Not at all	17 (6.3)	3 (1.0)	14 (5.2)	2 (1.1)	9 (14.1)	18 (28.1)

Values are presented as number (%).

Table 3. Participants' demographic characteristics and frequency distribution of behavior related to suicide (data in 2020)

Variable	Total (n=268)	At risk of suicide (n=70)	No risk of suicide (n=198)	p
Sex				0.175
Male	102 (38.1)	20 (28.6)	82 (30.6)	
Female	166 (61.9)	50 (71.4)	116 (43.3)	
Grade				0.042
10th	83 (31.0)	21 (7.8)	62 (23.1)	
11th	154 (57.4)	42 (15.7)	112 (41.8)	
12th	31 (11.6)	7 (2.6)	24 (9.0)	
Age (yr)	16.53±1.78	15.02±2.01	17.45±1.73	0.125
Religions				0.326
Islam	253 (94.4)	68 (25.4)	185 (69.0)	
Kristen	14 (5.2)	2 (0.7)	12 (4.5)	
Hindu	1 (0.4)	0 (0.0)	1 (0.4)	
Ethnicity				0.216
Sundanese	233 (86.9)	57 (21.3)	176 (65.8)	
Java	20 (7.5)	8 (3.0)	12 (4.5)	
Batak	11 (4.1)	3 (1.0)	8 (30.0)	
Others	4 (1.5)	2 (0.7)	2 (0.7)	
Ever self-quarantine				<0.001
Yes	110 (41.1)	43 (61.4)	67 (33.8)	
No	158 (58.9)	27 (38.6)	131 (66.2)	
History of COVID-19				<0.001
Yes	64 (23.9)	33 (47.1)	34 (15.2)	
No	204 (76.1)	37 (52.9)	168 (84.2)	

Values are presented as mean±standard deviation or number (%). COVID-19, coronavirus disease

From the data in 2020, combined of bullying perpetrator and victim was associated with lifetime suicide ideation (OR=2.2, 95% CI=1.6–4.6), frequency of suicidal ideation (OR=2.8, 95% CI=1.6–5.1), and threat of suicide attempt (OR=1.7, 95% CI=1.1–2.9). This study found that bullying perpetrators was only associated with threat of suicide attempt (OR=1.7, 95% CI=1.1–3.8). However, bullying victims only were associated with frequency of suicidal ideation (OR=1.8, 95% CI=1.2–4.3), threat of suicide attempt (OR=1.6, 95% CI=1.2–3.3), and likelihood of suicidal behavior (OR=2.1, 95% CI=1.1–4.6) (Table 5).

DISCUSSION

The prevalence of combined of perpetrators and victims of bullying increased from 74.6% in 2019 (before the COVID-19 pandemic) to 82.9% in 2020 (during the first wave of the COVID-19 pandemic). Perpetrators also increased from 6.9% in 2019 to 9.0% in 2020, while victims decreased from 9.1% in 2019 to 10.1% in 2020. A study in China reported that perpetrators and victimization increased [11], whereas in this study, victimization decreased. Victimization may have decreased because of smaller class sizes, less supervision, and fewer possibilities for social engagement in schools [11]. In Korea, the cyberbullying experience rate of South Korean students reportedly decreased between 2019 and 2020, but the victim experience rate increased. During the COVID-19 pandemic, students may have used more social media to engage in more cyberbullying or bullying through online chats.

Our results suggest that the spread of the COVID-19 pandemic, and implementation of preventive and control measures in schools contributed to the observed increase in bullying incidents during the pandemic.

This study shows that both the victims and perpetrators of bullying are more than just victims. This is in line with previous studies showing that the intention of victims as bullies is to defend themselves, gain a sense of protection from their environment, and provide a means of revenge for having been victims [24,25]. Family responses to bullying transparency should be carefully monitored and intensified particularly during school closures. Prompt identification and assessment are crucial for preventing further harassment and should be properly managed.

Table 4. The relationship between bullying and risk of suicide among adolescent during the first wave of lockdown (data in 2020)

Variable	Univariate analysis OR (95% CI)	Multivariate analysis OR (95% CI)
Bullying		
Perpetrators	1.3 (1.0–2.9)*	2.0 (1.1–3.6)*
Victim	1.6 (1.1–2.8)*	2.7 (1.3–4.7)*
Perpetrators and victim	4.0 (1.5–6.6)**	6.1 (2.3–8.9)**
Not at all	1.0	1.0
Ever self-quarantine	3.1 (1.7–6.8)*	2.6 (1.2–5.6)*
Ever diagnosed with COVID-19	2.9 (1.2–5.9)*	2.3 (1.5–6.7)*
Grade		
10th	1.1 (0.6–1.9)	1.0 (0.3–1.9)
11th	0.9 (0.3–2.4)	1.4 (0.6–3.8)
12th	1.0	1.0
Religions		
Muslim	0.7 (0.7–1.9)	1.2 (0.7–2.1)
Non-Muslim	1.0	1.0
Ethnicity		
Sundanese	1.1 (0.4–2.6)	1.2 (0.5–2.7)
Others	1.0	1.0

*p<0.05; **p<0.001. OR, odds ratio; CI, confidence interval; COVID-19, coronavirus disease

Risk of suicide increased from 26.1% in 2019 (before COVID-19 pandemic) to 36.5% in 2020 (during the first wave of COVID-19 pandemic). Exposure to COVID-19 has been associated with an increased risk of suicide [26]. A study in Taiwan showed that 20.3% of junior high school students (mean age, 13.2 years) had suicidal ideation, 5.7% suicide plans, and 4.7% actual suicide attempts during the course of one-year COVID-19 [27]. This study could facilitate suicide prevention using society-wide efforts to minimize the negative impacts of risk factors associated with infectious diseases. Early suicide detection and effective and timely interventions are essential for preventing tragic suicides in high-risk groups. Suicide is preventable with earlier detection of suicide risk factors and evidence-based treatments. Policymakers and mental health professionals should pay attention to potential suicide events to avoid the long-term impact of COVID-19 on individuals at high risk of suicide.

Adolescents involved in bullying, both victims and perpetrators, are more vulnerable to suicide both before and after the COVID-19 pandemic. A previous study found that victims, perpetrators, and a combination of both types were at a higher risk of suicidal ideation, and the most troubled adolescents were victims of murder [18,28]. Another study found that individuals who had been both victims and perpetrators, but not exclusively perpetrators were more likely to commit suicide [29]. Similarly, Klomek et al. [19] found no association between bullying and suicidal ideation at the age of 8 years. There could be differences between our results and those of previous studies related to the measurement of bullying (e.g., the current study of traditional bullying or age and sex distribution).

Additionally, similar to previous findings [30], females were more likely to be at a higher risk of suicide than males. These findings demonstrate that the effects of bullying on suicidal ideation and behavior among adolescents is associated with biological sex [15]. Another possible reason could be linked to the different reactions to bullying behaviors in females and males, since the risk of suicide among females has been shown to be more vulnerable to depression or mental health problems than males [31]. These findings generally suggest a num-

Table 5. The risk of different type behavior related to suicide between different types of bullying (data in 2020)

Variable	Lifetime suicide ideation OR (95% CI)	Frequency of suicidal ideation OR (95% CI)	Threat of suicide attempt OR (95% CI)	Likelihood of suicidal behavior OR (95% CI)
Bullying				
Perpetrators vs. not at all	1.4 (0.8–7.2)	1.6 (0.5–5.2)	1.7 (1.1–3.8)*	1.0 (0.4–2.7)
Victim vs. not at all	2.0 (1.3–3.8)	1.8 (1.2–4.3)*	1.6 (1.2–3.3)*	2.1 (1.1–4.6)*
Perpetrators and victim vs. not at all	2.2 (1.6–4.6)*	2.8 (1.6–5.1)*	1.7 (1.1–2.9)*	1.3 (0.5–3.4)

*p<0.05. OR, odds ratio; CI, confidence interval

ber of recommendations to prevent bullying and youth suicide, such as the provision of early risk prediction to youths with bullying behavior, improvement of the knowledge and understanding of families and schools regarding the negative effects of bullying behavior, and the implementation of school-based risk reduction or intervention programs. Future research needs to investigate the reasons for sex differences in the association between bullying and suicidal behavior.

This study has several limitations that should be acknowledged. First, owing to its cross-sectional research design, all confirmed relationships should be explained with caution, and prospective studies are required to evaluate any possible cause-effect correlations. Second, self-report surveys were used to gather data on bullying and suicidal behaviors. Although specific questions were characterized by the measurements of bullying and suicidal behavior and this approach has been widely validated, the responses could still be highly subjectively biased. Third, there may be differences in characteristics between adolescents with a history of a single suicidal behavior and those with multiple suicidal behaviors. However, this study focused mainly on the risk of suicide among Indonesian adolescents.

In conclusion, bullying (victim, perpetrator, and a combination of both types) and exposure to the COVID-19 pandemic can enhance the likelihood of suicide among adolescents in Indonesia, and the risk was the highest for the combination of victims and perpetrators. Although the specific mechanism for the associations described in this study is still uncertain, the findings are important for families, schools, and communities that seek to help adolescents who have been involved in bullying, particularly during this pandemic.

Availability of Data and Material

The datasets generated or analyzed during the study are not publicly available due privacy issues but are available from the corresponding author on reasonable request.

Conflicts of Interest

The authors have no potential conflicts of interest to disclose.

Author Contributions

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