WHY DID YOU DO THAT TO ME?: A SYSTEMATIC REVIEW OF CYBERBULLYING IMPACT ON MENTAL HEALTH AND SUICIDE AMONG ADOLESCENTS

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ABSTRACT

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Adolescents have more time to access the internet during pandemic COVID-19. Lack of surveillance from parental figures and developing a sense of mental stability make adolescents susceptible to the negative influence of the internet, such as cyberbullying. This study aimed to identify cyberbullying's effect on mental health and the risk for suicide among adolescents during the COVID-19 pandemic. Methods A total of 10 cross-sectional studies were sorted out from five electronic journal databases: PubMed, Science Direct, BMC, Sage Journal, and Google Scholar. The following search term combinations are "adolescents", "cyberbullying", "suicide", and "depression". Article inclusion criteria are the study population: adolescents aged 11-18 years; the article was published from January 2020 to July 2021 and discussed the experience of cyberbullying, its effects on mental health, and the risk of suicide. The results are bullying at school is a risk factor for adolescent suicidal behavior, including suicidal ideation, suicidal plans and behavior, and suicide attempts. In addition, bullying at school impacts other mental-emotional problems such as self-harm, avoidant, stress, and depression. Factors influencing cyberbullying include communication between parent-adolescents, personal qualities of adolescents (gratitude, optimism, emotional intelligence, forgiveness, rejection sensitivity), internet addiction, and family socioeconomic status (SES). Males are more likely to be aggressive than females student. Cyberbullying also influences the academic performance of students. This study has given broader insight into how cyberbullying can affect mental health in adolescents and identified the gaps for further longitudinal research on cyberbullying among adolescents.

Keywords:
Adolescent, COVID-19, Cyberbullying, Mental health, Systematic review

BACKGROUND

Bullying is defined by its three characteristics; im-

balance of power, intentional harm, and repeated behavior. Direct bullying may include; engaging in a physical conflict, calling derogatory names, and threat-

ening the victims, while rumor spreading and social exclusion are the more indirect forms of the act (Martínez-Monteagudo et al., 2020). Having an overlapping characteristic with traditional bullying, cyberbullying involves gadgets and other forms of electronic communication such as call and text messages, social media platforms, instant messaging websites, and applications on the internet (Quintana-Orts et al., 2020). The sense of anonymity granted by the easily faked online identity also poses another danger to the victim since it can be challenging to track the actual perpetrators. Cyberbullying has been a significant public health concern that affects millions of adolescents worldwide. This online victimization is disturbing and exposes adolescents to dangerous physical and psychological health risks such as depression, stress, low self-esteem, fear of rejection, and suicide. Victims of cyberbullying have been found to be more vulnerable to ideas and attempts of suicide (Xin et al., 2021). Both traditional and cyberbullying are known to have long-term detrimental effects on physical and mental health and social, financial, and environmental outcomes.

Internet and social media have influenced social interaction since early 2000. The United Nations International Children's Emergency Fund (UNICEF) reported that more than 30 million Indonesian adolescents have access to the internet, and 70% of them use the internet to meet new online friends through social media (Fitransyah, 2018). After implementing distance learning due to COVID-19 restrictions, the Ministry of Communication and Information Technology reported a rise in internet use up to 10-40% each day in Indonesia (Kominfo, 2020). In the third quarter of 2020, Indonesia's average daily time spent on the internet was around 8 hours and 52 minutes. Indonesian averagely, spent 3 hours and 14 minutes on social media daily (Nurhayati-Wolff, 2021). This rising internet traffic indicated that the internet is now a staple need and incorporated into all the population's daily activities, including adolescents.

It is difficult to determine the exact record of cyberbullying cases in Indonesia due to the ambiguous nature of its criminal offence. According to Nugaraha (2019), at least 25 instances of cyberbullying are reported to the Greater Jakarta Metropolitan Police each day. The Indonesian Child Protection Commission estimated that 22,4% of adolescents in Indonesia were victims of cyberbullying, and the number can rise along with the increasing use of the internet among adolescents. They also reported a rising report of cyberbullying from 2011 to 2014, which 25% of the total reports or roughly 1,480 cases com-

ing from the educational institution.

The internet is an open space that exposes the world to more extensive and varied audiences with no limitations. The freedom of expression and a vague sense of social control on the internet make cyberbullying liable to everyone, including adolescents. Cyber victimization related to cyberbullying has been linked to numerous mental health disorders and the risk of suicide. This article aimed to identify the impact of cyberbullying on mental health and the risk for suicide among adolescents during the COVID-19 pandemic.

METHODS

This systematic review included studies on the prevalence of cyberbullying and its relation to mental health and the risk of suicide among adolescents. Cyberbullying was defined in some literature as aggressive and harmful acts carried out by using the perpetrator's internet and gadgets, which also checked out the other three characteristics of bullying. This systematic review aims to unify cyberbullying as "intentional and aggressive actions towards another person through the internet". Mental health and its disorder were referred to as emotional, psychological and social well-being and recognizable emotional problems, behaviors and symptoms related to personal distress and disturbance in personal functions.

Five electronic journal databases were searched for relevant studies from January to July 2021: PubMed, Science Direct, BMC, Sage Journal and Google Scholar. Boolean Logic combinations were used as keywords to find related articles. Several keywords combinations were used for article searching: cyberbullying AND adolescent AND depression AND suicide. The references were screened for additional information.

The study selection was guided by the PRISMA four-stage flow diagram presented in Figure 1. Articles were selected and evaluated based on the inclusion criteria: (1) articles with the main theme of cyberbullying and its correlating causes and effects among adolescents aged 11 to 18; (2) adolescents were students of middle and high school; (3) cross-sectional study on the prevalence of cyberbullying; (4) articles published from January 2020 to July 2021; (5) studies used standardized and reliable measurements for cyberbullying and mental health disorders. We excluded studies based on our exclusion criteria: (1) study on adolescents with disabilities and chronic illnesses such as ADHD, cancer, autism, etc., (2) experimental study design, and (3) study participants

above the age of 18. Titles and abstracts were evaluated independently by two evaluators.

Several data were collected and categorized based on outcomes associated with cyberbullying and its influence on mental health: 1) age, sex, and grade; 2) psychosocial influence; and 3) mental health.

Regarding the risk of bias in the included articles, the author used Joanna Briggs Institute Critical Appraisal Tool. Assessments were carried out by both authors individually but would later be discussed together.

RESULTS

The authors found 4,866 articles from the systematic search and three from other sources like official reports and news from government websites. 3,847 were excluded based on the exclusion criteria resulting in 35 articles assessed for eligibility. Twenty-five articles were excluded because the full text was unavailable. The samples had a history of chronic disease that was not explicitly mentioned in the abstract and did not use a cross-sectional study, leaving ten relevant articles to be included in this study.

The 10 studies analysed 63,004 adolescents from 7 different countries: Spain (n = 2), China (n = 2), Australia (n = 1), Japan (n = 1), Vietnam (n = 1), America (n = 2), and Canada (n = 1). The sample sizes ranged from 251 to 28,899 adolescents age range from 11 to 17 years old with junior and high schools as common cluster. The detailed study characteristics are presented in Table 1.

Adolescents' prevalence of cyberbullying varied between 15.5% to 71.6% across studies. Risk factors associated with cyberbullying varied in the studies. In most studies, the present cyberbullying is related to previously experienced bullying: traditional and cyberbullying. Other risk factors which have been associated with cyberbullying: (1) internet usage and addiction; (2) Perceived stress and rejection sensitivity; (3) Mental health disorder, self-harm, suicidal ideation and attempt; (4) Previous experience of traditional, cyberbullying or both; (5) Emotional intelligence; (6) Socio-economic status; (7) Gender; (8) Academic pressure, and (9) Child-parent relation.

Internet Usage and Addiction
Internet addiction has been reported to be almost 47.7% in a study by Lin et al. (2020). It is significantly related to social isolation, depressive disorder and other adverse health consequences which worsen the condition of victims of cyberbullying. In the study by Islam et al. (2020), children who spent more hours on a typical day in internet browsing are more likely to experience traditional and cyberbullying victimization (71.6%, (X^2 = 18.0, p <0.001)). Internet addiction also directly mediated the association between cyber victimization and physical and psychological symptoms.

Perceived Stress and Rejection Sensitivity
Cybervictimization is also another factor which has bidirectional relation with perceived stress that is associated with suicidal ideation (r = 0.47, p <0.001), revenge (r = 0.11, p <0.001) and avoidance (r = 0.10, p <0.001) (Quintana-Orts et al., 2020). Cybervictimization is positively correlated with rejection sensitivity (r = 0.23, p <0.01) and internet addiction (r = 0.30, p <0.01). Rejection sensitivity was also a significant mediator of cybervictimization and internet addiction among adolescents (indirect effect = 0.21, 95% CI: 0.12-0.33) (Xin et al., 2021).

Mental Health Disorder, Self-Harm, Suicidal Ideation and Attempt
Cyberbullying has also been associated with depressive symptomatology and other mental health disorders. Besides being a risk factor for developing depressive symptoms, cyberbullying was considered a major risk factor for suicidal ideation and attempts. Those who suffered cyber victimization had 2.56 times higher odds of developing than those who did not (Islam et al., 2020). 22% of children among traditional bullying victims had a mental disorder (X^2 = 32.1, p <0.001) and more than 25% of children among those who reported cyberbullying and both bullying victimizations were suffering from a mental disorder.

The overall prevalence of suicidal ideation was 25.7%, while the prevalence of suicidal attempts was 5.4% among Japanese adolescents. Female adolescents are twice more likely to have made suicide attempts than males (6.6% vs 3.5%) (Nagamitsu et al., 2020).

Previous Experience of Traditional, Cyberbullying or Both
Children who experience any type of bullying were 2.56 times more likely to develop the major depressive disorder (95% CI, 1.59-4.12) (Islam et al., 2020). One of the significant factors which contribute to suicidality among junior and high school students was a previous experience with cyberbullying (OR 6,5, 95% CI 4.7-8.8).

Personal Resources
Adolescents with a high level of depressive symp-

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Identification

Records identified from five          Additional records identified
electronic journal databases    ◄──   from other resources
(n= 4,866)                            (n=3)

          │
          ▼
Total number of records               Number of duplicates removed
(n=4,869)                      ──►     (n=977)

          │
          ▼
Screening

Records screened for                  Records excluded based on
titles/abstracts               ──►     titles/abstracts (n=3,847)
(n=3,892)

          │
          ▼
Eligibility

Full-text articles assessed for       Reasons for excluding the
eligibility (n= 35)            ──►     full-text articles (n=25)
                                      • Full-text unavailable
                                      • Samples had history of
                                        chronic disease
                                      • Participants' age above 18
                                        years old
                                      • Not a cross-sectional study
          │
          ▼
Included

Articles included in the
systematic review (n = 10)

          │
          ▼
Articles included in the narrative
synthesis (n = 10)
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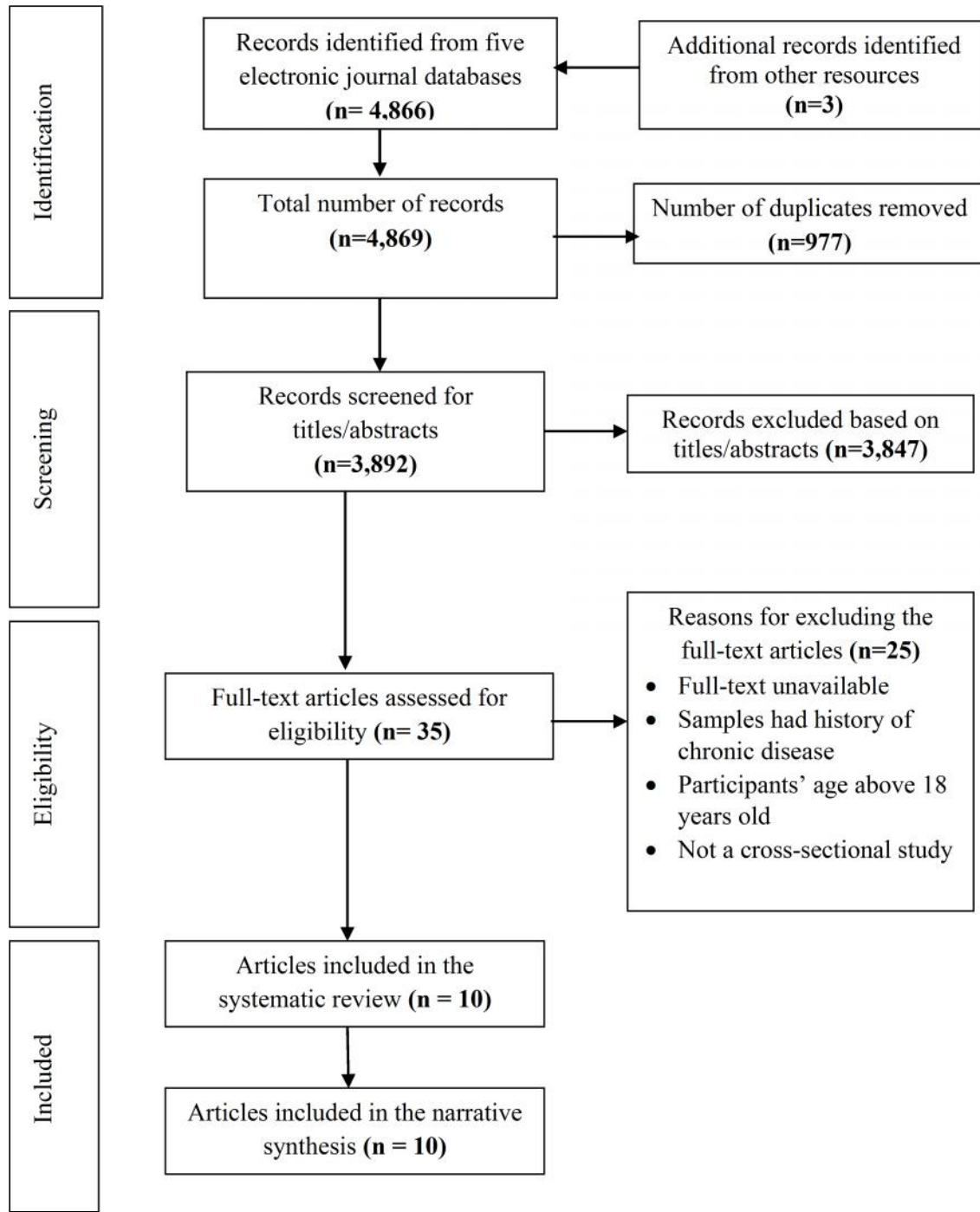
Figure 1. Preferred Reporting Items for Systematic Reviews and Meta-Analyses flow chart

toms due to cyber victimization had lower scores in personal resources such as emotional intelligence, gratitude, optimism and forgiveness. Emotional regulation abilities can minimize the risk of depressive symptoms. Appreciation and non-depressive symptomatology may determine the psychopathological outcomes. Although forgiveness may be challenging to have after being cyberbullied, the forgiveness of others facilitates coping with offensive behaviour under certain circumstances (Rey et al., 2020).

Socio-Economic Status

Socioeconomic status can also be one of the risk factors of being cyberbullied among adolescents. Being seen as "less" or "unworthy" gives the perpetrator sense of dominance and power over others in the lower economic class. Children in higher grades and from low-middle income families were more likely to be victims of bullying - traditional, cyber or both types of bullying. Around 50% children victimized by traditional bullying (χ^2=13.8, p <0.001) cyberbullying

Table 1. An Overview of Studies' Characteristics and Main Findings

Author, Country	Objective	Research Design	Research Instrument	Main Findings
Quintana-Orts et al., 2020 / Spain	Examine perceived stress as mediator and forgiveness as moderator regarding how and when cyber victimization is related to suicidal ideation	A Cross-sectional	European Cyberbullying Intervention Project Questionnaire (ECIPQ); Frequency of Suicidal Ideation Inventory (FSII)	1. Cybervictimization was positively associated with: (1) Perceived stress (M = 1.57, SD = 0.80), (2) Suicidal ideation (M = 8.21, SD = 3.94), (3) Avoidance (M = 3.20, SD = 1.01), (4) Revenge (M = 2.17, SD = 1.04) 2. Perceived stress was positively associated with: (1) Suicidal ideation (r = .47, p < .001), (2) Avoidance (r = .10, p < .001), (3) Revenge (r = .11, p < .001) 3. Benevolence did not show association with cybervictimization, perceived stress or suicidal ideation (M = 2.82, SD = 1.03)
Islam et al., 2020 / Australia	Investigate the influence of internet addiction between per victimization and psychological and physical symptoms	A Cross-sectional	Olweus Bully-Victim Questionnaire; Diagnostic Interview Schedule for Children (DISC-IV)	1. Children who spent more hours on a typical day in internet browsing are more likely to experience traditional & cyberbullying victimization (71.6%, (X^2 = 18.0, p<0.001)) 2. 22% of children among traditional bullying victims had a mental disorder (X^2 = 32.1, p<0.001) & >25% of children among those who reported cyberbullying & both bullying victimizations were suffering from mental disorder 3. Children who experience any types of bullying were 2.56 times more likely to develop major depressive disorder (95% CI, 1.59-4.12) 4. Children who were in higher grades and who were from low-middle income families were more likely to be victims of bullying – traditional, cyber or both types of bullying. Around 50% children victimized by traditional bullying (X^2 = 13.8, p < 0.001) cyberbullying (X^2 = 16.6, p < 0.001) and both bullying type (X^2 = 13.7, p < 0.001)

(X^2 = 16.6, p <0.001) and both bullying type (X^2 = 13.7, p <0.001) (Islam et al., 2020). Socioeconomic challenges (X = 0.173, p = 0.007) were also associated significantly with experiencing cyberbullying victimization.

Gender

Baiden et al., (2020), in their research, stated the difference between male and female adolescents in response to cyberbullying incidence. Compared to males, females had 1.19 times higher odds of experiencing suicidal ideation (AOR = 1.19, p <0.001, 95 % CI = 1.15-1.23). Male adolescents tend to fight more (t = -14.11, p <0.001) in incidence of cyberbullying because they spend more time online than girls online (t = -5.22, p <0.001).

In addition, Strohacker et al., (2021) added several other gender differences exist concerning the independent and dependent variables regarding cyberbullying. Female adolescent experienced more cyberbullying (t = 7.63, p <0.001) and combined bul-

lying (t = 12.94, p <0.001) than male adolescents. Females were also more likely to have experienced depressive symptoms (t = 25.81, p <0.001) and considerably more suicidal ideation (t = 17.09, p <0.001), suicidal ideation and plan (t = 12.63, p <0.001), suicidal behaviour with suicide attempt (t = 8.79, p <0.001) and suicide attempt with injury (t = 6.45, p <0.001) than males.

Academic Pressure

The rates of suicidal ideation and suicide attempts were significantly higher among adolescents with high perceived academic pressure (OR = 3.15; 95% CI, 1.55, 6.39) (Nguyen et al., 2020).

Child-Parent Relation

Good communication between parents and adolescents is negatively associated with cybervictimization (r = -0.14, p <0.01), rejection sensitivity (r = -0.13, p <0.01) and internet addiction (r = -0.20, p <0.01) (Xin et al., 2021).

| Lin et al., 2020 / China | Investigate the association between bullying victimization (traditional, cyber and both) with mental disorders, suicidality (ideation, plan and attempt) and self-harm | A Cross-sectional | Internet Addiction Test by Young for cyberbullying and WHOQOL-BREF | Internet addiction has a direct effect on mediating the association between cyber victimization and psychological and physical symptoms among adolescents both directly (95% CI = − 2.989 (− 4.283, − 1.696) and indirectly (95% CI = − 1.329 (− 1.904, − 0.820) |
| Nagamitsu et al., 2020 / Japan | Examine the prevalence of suicidality among Japanese adolescent and its associated factors | A Cross-sectional | Questionnaire by Nagamitsu (Approved by The Promotion Council for Healthy Parents and Children

21 (Second Phase)) | The overall prevalence of suicidal ideation was 25.7% while the prevalence of suicidal attempts was 5.4% among Japanese adolescents.

Major factors which contribute to suicidality in junior high school students are:
1. Experience of previous cyberbullying (OR 6,5, 95% CI 4.7-8.8)
2. Stress of school bullying (OR 1.9, 95% CI 1.5-2.4)
Major factors which contribute to suicidality in high school students are:
1. Experience of cyberbullying (OR 3.6, 95% CI 2.5-5.3)
2. Stress about bullying (OR 2.6, 95% CI 1.4-4.9) |

DISCUSSION

In the last decade, cyberbullying has been widely studied to gain more information regarding the phenomenon, especially among adolescents. This systematic review examines the incidence of cyberbullying and its effect on the risk of mental health and suicide among adolescents during the COVID-19 pandemic. From the included studies, the evidence suggested that several factors contribute to the development of mental health disorders and suicide risk. Overall, the evidence reveals that a systemic approach and collaboration from all stakeholders, including the government, educational institutions, and parents, are vital to reducing the burden of cyber victimization and rehabilitating the perpetrators. Our review highlighted that the risk factors related to cyberbullying varied across studies, but the results showed that these nine risk factors were the most prominent ones.

Internet Usage and Addiction

Internet and social media are widely used for communication and recreation by many people. Although it can be, overuse of the internet can be harmful and lead to internet addiction. More than 2 hours of internet use can be detrimental and may lead to an addiction if it is not monitored. Internet addiction has a bidirectional association with cyberbullying and risky behavior such as chatting with strangers, posting personal information and pictures, etc. (Lin et al., 2020). Internet addiction is the uncontrollable, excessive and compulsive use of the internet. Internet addiction can be seen as a psychological escape mechanism from interpersonal stress caused by cyber victimization (Wang et al., 2020). It is important to address signs of internet addiction among adolescents in schools, family and clinical practices, and cyberbullying victims to decrease the probability of adverse physical and psychological health outcomes. Internet addiction was more likely to develop in adolescents who had higher levels of rejection sensitivity. Internet usage, such as accessing social media or video games, can increase the individual's subjective perception with high rejection sensitivity. Excessive internet use may increase, contributing to an increased risk of internet addiction development among adolescents. It is can potentially be an underlying mediating mechanism between cyber victimization and internet addiction (Farahani et al., 2011).

Perceived Stress and Rejection Sensitivity

Psychological stress can be seen as a relationship between an individual and the environment, which the person appraises as threatening, that can hurt their physical and mental health (Raskauskas & Huynh, 2015). According to the concept of perceived stress,

Nguyen et al., 2020 / Vietnam	Examined the association among cyberbullying, parental attitudes, self-harm and suicidal behaviours and their confounding factors	A Cross-sectional	Global School-Based Student Health Survey (GSHS); Youth Risk Behaviour Survey	1. Cyberbullying is a significant predictor of self-harm (OR 2.97, 95% CI 1.32-6.71) 2. The rates of suicidal ideation and suicide attempts were significantly higher among adolescents with high perceived academic pressure (OR = 3.15; 95%CI, 1.55, 6.39) 3. History of self-harm significantly associated with suicidal behaviours and more likely to engage in suicidal attempts (OR 0.37, 95% CI, 0.15-0.94)
Strohacker et al., 2021 / America	Examined the association between gender, bullying victimization (both traditional and cyber), depressive symptoms and suicidality	A cross-sectional	Youth Risk Behaviour Survey	1. Female students experienced more incidence of traditional and cyberbullying (t = 7.63, p < .001) than male students. 2. Female students were more likely to have experienced depressive symptoms (t = 25.81, p < .001), more suicidal ideation (t = 17.09, p < .001), suicidal plan and behaviour (t = 12.63, p < .001), and suicide attempt with injury (t = 6.45, p < .001)
Ashrafi et al., 2020 / Canada	Identify latent classes of different types of co-occurring bullying victimization	A cross-sectional	Centre for Epidemiological Studies Depression Scale	1. Moderately victimized adolescents have 15.5% higher odds of being bullied electronically (2. Aggressively victimized children were 2.14 times (95% CI 1.18-3.87) more likely to have suicidal ideation 3. Males were more likely to be aggressively victimized than females (OR: 1.79, CI 1.26-2.54)

uncontrollable and chronic stressors (often found in cases of cyberbullying) contribute to the development of internalizing symptoms such as self-harm and suicidal ideation. Cyberbullying can be perceived as stressful from the victim's internal state, such as negative feelings, disturbing thoughts, etc. This internal state of the victim is linked to different appraisal strategies and decision processes, which can lead to the victims engaging in particular responses to the situation, such as seeking help, doing nothing, engaging in cyberbullying with the perpetrators, and any other type of coping mechanisms. Among adolescents, cases of perceived stress have been associated with a higher risk of suicide ideation and attempt (Albdour et al., 2016). It is essential to see how adolescents perceive the experience influencing their reaction to stress and mental health. It can be used as a mediation approach to see the causal mechanism contributing to cyberbullying and mental health bidirectional relationship (Quintana-Orts et al., 2020).

Perceived stress itself contributes to developing other emotions, such as revenge and avoidance. Revenge motivation moderated the perceived stress and suicidal ideation that can generate negative emotions. Lower levels of revenge were associated with a lower intention of self-harm and suicide. Cyberbullying vic-

tims' negative feelings, such as anger, hatred, hostility, and thoughts, can manifest in hostile actions that can even turn the victims into perpetrators. Similar to revenge, avoidance was positively associated with suicidal ideation. Although it is usually seen as less harmful, researchers have highlighted both physical and psychological delirious effects in the long term (Zvolensky et al., 2016).

Rejection sensitivity is described as a cognitive and emotional tendency to anticipate, perceive and overreact defensively to the signs of rejection by others. Adolescents who suffer interpersonal rejection tend to experience higher rejection sensitivity, leading to maladaptive responses. (Williams et., 2017). Cyber victimization can promote rejection sensitivity due to the development of "basic mistrust" of interpersonal relationships, which builds up into low social self-perception, and negative evaluation of their ability, thus can lead to the development of social anxiety (Martínez-Monteagudo et al., 2020).

Mental Health Disorder, Self-Harm, Suicidal Ideation and Attempt

Some works of the literature showed the significant relationship between cyberbullying victimization and rates of depression, severe suicidal ideation and

Baiden & Tadeo, 2020 / America	Investigate the association between bullying victimization and suicidal ideation among adolescents: Evidence from the 2017 Youth Risk Behaviour Survey	A cross-sectional	Youth Risk Behavior Survey	1. Adolescents who experienced both school bullying and cyberbullying had 7.88 times higher odds of experiencing suicidal ideation (OR = 7.88, p<.001, 95 % CI=7.57-8.20), 2. Adolescents who experienced cyberbullying victimization had 4.31 times higher odds of experiencing suicidal ideation (OR = 4.31, p<.001, 95 % CI=4.10-4.54), 3. Adolescents who experienced school bullying victimization had 3.67 times higher odds of experiencing suicidal ideation (OR = 3.67, p<.001, 95 % CI=3.52-3.83). 4. Adolescents who experienced both school bullying and cyberbullying victimization had 3.26 times higher odds of experiencing suicidal ideation (AOR = 3.26, p<.001, 95 % CI=3.10-3.43 5. Adolescents who experienced cyberbullying victimization were twice as likely to report to experiencing suicidal ideation (AOR = 2.00, p<.001, 95 % CI=1.87-2.14)
Rey et al., 2020 / Spain	Analysed the relationship between positive personal resources and clinical symptoms in previously cyberbullied victims	A cross-sectional	1. The European Cyberbullying Intervention Project Questionnaire (ECIPQ) 2. The Children's Depression Inventory Short (CDI-S 3. The Wong and Law Intelligence Scale (WLEIS) 4. The Gratitude Questionnaire (GQ), 5. The Revised Life Orientation Test (LOT-R) 6. The Brief Multi-Dimensional Measure of Religiousness and Spirituality (BMMRS)	1. the significant correlations between the personal resource variables ranged from 0.33 (p < 0.01; optimism and forgiven by God) to 0.45 (p < 0.01; gratitude). 2. association between gratitude and the non-depressive symptomatology group on psychopathological outcomes. 3. high level of depressive symptoms had lower score in personal resources such as emotional intelligent, gratitude, optimism and forgiveness. 4. negative association between dispositional optimism and depression. 5. negative and significant association between forgiveness of self and depressive symptomatology. 6. forgiveness of others facilitates coping with offensive behaviour. 7. emotional abilities were found to be a good predictor of depressive symptomatology.
Xin et al., 2021 / China	Examine the association between cybervictimization and internet addiction and its mediating and moderating variables	A cross-sectional	Cyber Bullying Inventory (CBI); Internet Gaming Disorder Questionnaire (IGDQ)	1. Cyber victimization is positively correlated with rejection sensitivity (r=0.23, p<0.01) and internet addiction (r = 0.30, p < 0.01). 2. Communication between parents and adolescent is negatively correlated with cyber victimization (r = -0.14, p < 0.01), rejection sensitivity (r = -0.13, p < 0.01) and internet addiction (r = -0.20, p < 0.01) and can be a moderating mechanism. 3. Rejection sensitivity significantly predicted Internet addiction (b = 0.19, p < 0.01, 95% CI: 0.38–0.73). 4. Rejection sensitivity significantly mediated cyber victimization and internet addiction in adolescent (indirect effect = 0.21, 95% CI: 0.12–0.33)

attempts among adolescents (Strohacker et al., 2021). in their research, Chu et al., (2018) highlighted the short-term and long-term effects of cyberbullying victimization on individuals' negative emotions. In the short term, after being cyberbullied, adolescents can quickly feel depressed and anxious as an immediate reaction to the negative event. For a long time, adolescents tend to develop feelings of hopelessness from the continuous and chronic cyberbullying experience that can manifest into depressive and anxiety symptoms.

Adolescents may showcase a variety of emotional responses when exposed to cyberbullying. In a study by The European Multicentre on many adolescents, 68.5% of adolescents experienced several negative emotions such as anger, worry, upset, stress, fear and depressive feelings (Ortega et al., 2012). In their study, Reed et al., (2016) also found a positive correlation between depressive symptoms and cyberbullying. Adolescents who experienced cyberbullying. Adolescents who experienced cyberbullying, especially those who suffered frequent attacks (two or more times in a month), had more severe depressive symptoms than those who experienced less incidence of cyberbullying.

The feeling powerless and helpless to defend themselves from cyberbullying incidents can worsen adolescents' sense of fear and emotional distress, contributing to developing depressive symptoms and increasing the risk of suicidal ideation and attempt (Bottino et al., 2015).

Previous Experience of Traditional, Cyberbullying or Both

Nagamitsu et al. (2020), in their research, have confirmed that the experience of cyberbullying is one of the most prominent factors of suicidality among Japanese adolescents. 1.8% of adolescents (n = 402) reported having experienced cyberbullying, 19.9% had attempted suicide, and 52% had suicidal ideation. Meanwhile, about 1 in 10 adolescents (9.1%) were victims of both traditional and cyberbullying in the US and had 2 - 3.26 times higher odds of experiencing suicidal ideation. Experience of cyberbullying was also a stressful life event that could contribute to numerous mental health problems and suicide. Align with other previous research, Kim et al. (2020) stated in tother previous research, Kim et al. (2020) stated in heir study that all female students who experienced being bullied online also reported becoming the perpetrator of cyberbullying. Around 16% (n=10) of the male students reported having cyberbullying experiences and had the highest risk of suicidal ideation.

Personal Resources

When cyberbullying happens but is not appropriately managed, adolescents are more likely to internalize the problems. It can trigger depressive symptoms. Individuals with different personal resources can be differently influenced by stressors or adverse events (Hinduja & Patchin, 2017). The study by Rey et al. (2020) found that cyberbullying victims who experienced depressive symptoms had lower scores in several personal resources such as emotional intelligence, gratitude, optimism and forgiveness. This result aligned with the study by Fredrickson, (2001), which stated that people who experienced positive emotions have broader and better cognitive and behavioural activities. In the context of cyberbullying, victims who experience more positive emotions such as gratitude and optimism can change themselves to be more resilient against peer aggression and thus have a lower chance of developing depressive symptoms.

Regarding the nature of forgiveness in cyberbullying, our results are mixed. Although another piece of literature highlights the benefit of forgiveness for cases of bullying, the study by Rey et al. (2020) reported that forgiveness of others is related to the development of depressive symptomatology. Forgiveness of others can facilitate a coping mechanism from the offences by regulating one's own negative emotions over the situation. Likewise, people can cope better when they perceive more control over their circumstances (Hunter & Boyle, 2004). However, it is more difficult for adolescents to have more control when cyberbullying happens on the internet. Research by Ogurlu & Sar?çam (2018) highlighted that after experiencing an offence that was difficult to handle or eliminate directly, adolescents often use forgiveness as a coping mechanism focused on emotion. Other studies, such as Barcaccia et al. (2017), revealed the negative association between benevolent motivations and psychological conditions. Our results concluded that forgiving cyberbullying perpetrators could be a negative coping mechanism, resulting in adverse adolescents' mental health outcomes.

Socio-Economic

Socioeconomic status (SES) is a concept of prestige-based and resource-based indicators of socioeconomic position. SES indicators such as education, income and occupation at societal levels. SES influences adolescents' level of education based on their family status. SES of adolescents' parents affects adolescents' condition, such as (1) income level, which

can be associated with unmet needs of adolescents; (2) educational level of their parents that may influence parent' opinion regarding education for their children (Ronis & Slaunwhite, 2017).

During the COVID-19 pandemic, the unemployment rate in Indonesia rose as companies and workplaces tried to cut down their budget. This economic challenge can significantly influence their family, especially when members have needs to be met, such as education, health care, etc. This unemployment can seriously alter parents' physical and psychological conditions (Achdut & Refaeli, 2020). As a result, this socioeconomic challenge can be one of the risk factors that are significantly related to experiencing cyberbullying among adolescents. The relationship between socioeconomic status and cyber victimization is intriguing and can be explained several ways. Being from a lower socioeconomic background can alienate the children for not being able to afford the same lifestyle as their peers. It can also expose children to an adverse environment and coercive relationships with their family, inhibiting individual and interpersonal relationships with their friends (Chaux & Castellanos, 2015). This complex relationship between socioeconomic status and cyberbullying requires more data and studies to explain this phenomenon.

Gender

Several studies, such as one by Baiden et al. (2020), reported that demographic factors such as gender and race had been associated with bullying victimization and suicide ideation. A lot of studies have mixed results with the differences in different settings. Other literature has found that male adolescents are more likely to be the perpetrator. In contrast, female adolescents are more likely to be both the perpetrators and victims of cyberbullying (Nagamitsu et al., 2020). Regarding suicidal ideation and attempt between males and females, in the United States, females tend to have higher suicide ideation across all age groups. Still, the actual death from suicide is higher among males. In cyberbullying situations, males tend to choose more dangerous and predictable suicide plans with higher risk than females (Baiden & Tadeo, 2020).

A later study by Strohacker et al., (2021) highlighted more differences in cyberbullying impacts between males and females. Males who experienced cyberbullying had a higher risk of attempting suicide, but not depression or having suicidal ideation than those who never experienced it. On the other hand, females were more likely to experience depressive symptoms, suicidal ideation and suicidal attempts regardless of the frequency of the victimization.

Kowalski & Limber, (2013) mentioned several interesting points about the differences. Negative outcomes were more visible in male perpetrators or victims than females. Male also reported being more conscious about their condition and thus more likely to report depression and suicidal attempts if they were frequently bullied. This review of the difference in reaction between male and females are still mixed. Therefore, it needs a more thorough study in different settings to gain more insights.

Academic Pressure

Academic transition, especially during COVID-19 restrictions, requires emotional, social and educational adjustment. Victims of cyberbullying generally have trouble concentrating on their studies, which can affect their academic progress. Since the victims often have psychological trauma, the depressive effect of cyberbullying can cause their academic to be underperformed. A study by Peled (2019) found a statistically significant correlation between cyberbullying and adolescents' academic problems. Cyberbullying influenced academic abilities, motivation to learn and general satisfaction with the educational environment. Nguyen et al. (2020) also added more insight from their study on cyberbullying. The rates of suicidal ideation and attempts were significantly higher among adolescents with high levels of perceived academic pressure. The most common method of cyberbullying is using instant messaging, which influences students' academic performance.

Child-Parent Relation

Parent-adolescent communication is a process where parent and their children share common attitudes, knowledge, values, and expectations. Excellent communication between adolescent and their parent can moderate the effect of cyberbullying and other adjustment problems. Parents play an important role in adolescents' development. In their study, Liu et al. (2019) confirmed that parent-adolescent communication and parental support improve adolescents' understanding of their immediate and long-term emotional reactions, which allows them to recognize their emotions rather than relying on the internet as an escape. Specifically, adolescents as victims of cyberbullying tend to communicate their problems with their parents, thereby can help to lessen the physical and psychological impact by providing basic psychological needs, such as autonomy, competence, relatedness and problem-solving skills (Ford et al. 2019).

This sense of security and acceptance provided by the parents can compensate for the need for belonging in adolescents who are frustrated after experiencing cyber victimization (Özdemir, 2014).

Cyberbullying is unlikely to be the sole cause of adolescent' mental health disorders and suicide. Instead, it may aggravate an adolescent' sense of insecurity and depression when they are already facing difficulties. Future research should do a more thorough investigation to address more insight regarding cyberbullying and its impact on adolescents' mental health disorders and suicide.

Limitations

One of the limitations of this systematic review was that it only included a quantitative study using a cross-sectional study which limited the diversity of the result. Most of the studies have no follow-up studies that did not give enough longitudinal research results. As one of the new subjects and concepts in the modern aspect of social interaction, cyberbullying has multiple interpretations, which vary in terms such as "online bullying, "internet harassment", "electronic bullying", and others. Differences in definitions would later cause subjective interpretation of each researcher depending on the objectives and research question. It can be risky to discrepancies in the estimates of the prevalence of cyberbullying and its relation to mental health among adolescents.

Due to the lack of acceptance of open discussion about cyberbullying and its influence on adolescents, evaluating violent and risky behaviours has a high risk of bias. Finally, the causal and correlation relation between cyberbullying and mental health problems cannot be decided by cross-sectional studies included in this review.

CONCLUSIONS

The government imposed distance learning to stop COVID-19; online communication has become one of the most widely used forms of interaction among adolescents. Internet becomes an open space for anyone to seek psychosocial development and build relationships with each other. However, it can also be a dangerous place with the risk of getting into aggressive interactions such as cyberbullying.

Cyberbullying contributes to a high risk of physical and psychological disorders, including depression and suicide. As a stakeholder, the government has an essential role in imposing strict laws against cyberbullying and collaborating with other sectors to provide prevention and rehabilitation for the perpe-trators and cyberbullying victims. Parents and educational institutions should be more aware of the signs of bullying and how to help the students when dealing with such incidents effectively. Health professionals must be mindful of the physical and psychological risks and disorders caused by cyberbullying to plan suitable procedures and interventions.

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