

Variables Linking School Bullying and Suicidal Ideation in Middle School Students in South Korea

Aran Min¹, Seon-Cheol Park^{2,4}, Eun Young Jang¹, Yong Chon Park^{1,3,4} and Joonho Choi^{1,3,4*}

¹Department of Psychiatry, Hanyang University Guri Hospital, Guri, South Korea

²Department of Psychiatry, Yong-In Mental Hospital, Yongin, South Korea

³Department of Psychiatry, Hanyang University College of Medicine, Seoul, South Korea

⁴Institute of Mental Health, Hanyang University, Seoul, South Korea

Abstract

Background: We aimed to identify clinical variables linking school bullying with suicidal ideation among middle school students in South Korea, and to discuss the implications of our findings for school mental health in South Korea.

Methods: From September to October, 2012, 1,198 participants were enrolled from among middle school students in the 7th and 8th grade in Guri, South Korea. Psychometric tools, consisting of the BVQ, SSI-Beck, CES-D, CAS and AMPQ-II, were used to evaluate perpetration of bullying and bullying victimization, suicidal ideation, delinquency, history of childhood trauma, and depressive symptoms, respectively. The relationships between bullying, suicidal ideation, and latent variables were fitted to a structural equation model.

Results: The model represented the following findings: bullying victimization was indirectly related to suicidal ideation ($\beta=0.47$, $P<0.001$), mediated by depressive symptoms ($\beta=0.13$, $P<0.01$), whereas bullying perpetration was directly related to suicidal ideation ($\beta=0.13$, $P<0.01$). In terms of latent clinical variables, delinquency was regarded as a factor influencing suicidal ideation, mediated by depressive symptoms ($\beta=0.67$, $P<0.001$). In addition, neglect was regarded as a factor influencing delinquency, bullying victimization and bullying perpetration ($\beta=0.45$, $P<0.001$; $\beta=0.43$, $P<0.001$; $\beta=0.28$, $P<0.001$).

Conclusions: Childhood trauma is an important factor linking school bullying and suicidal ideation among middle school students in South Korea.

Keywords: School bullying; Suicidal ideation; Childhood trauma; South Korea

Abbreviations: BVQ: Bully-Victim Questionnaire; SSI-Beck: Scale for Suicidal Ideation-Beck; CES-D: Center for Epidemiological Studies-Depression Scale; CAS: Childhood Abuse Scale; AMPQ-II: Adolescents' Mental Health and Problem Behavior Screening Questionnaire-II

Introduction

Suicides by victims of bullying have received recent public attention and have been recognized as a serious social problem. In fact, school bullying is not a recent phenomenon, but it has become a growing concern due to media reports about children who committed suicide after being victimized by bullies. Reports of school bullying in the wake of a recent series of suicide cases among children have been a cause for alarm in South Korea. According to previous research, the prevalence of school bullying is 5-12% among adolescents in South Korea [1,2]. Additionally, previous studies have suggested that victims of school bullying are more likely to have diverse psychosocial problems including depressive symptoms, anxiety symptoms, academic maladjustment, antisocial personality, and violence and aggression, and that these can be predisposing factors for suicide [3-6]. Moreover, school bullying is generally regarded as a risk factor for suicide [7,8]. Hence, it is important to identify variables intervening between school bullying and suicide.

In 2013, the suicide rate of 10-24 year-olds in South Korea was 9.4 persons per 100,000 whereas the average suicide rate for the similar age-group in the nations within the Organization for Economic Cooperation and Development (OECD) was 6.5 persons per 100,000 [9]. Hence, concern about adolescent suicide has gradually increased in the area of mental health promotion of South Korea [10]. Gender, socioeconomic

status, family structure, depressive symptoms, school bullying, sexual abuse, physical abuse, sexual minority status, impulsivity, aggression, low self-esteem and other variables have been suggested as potential risk factors for adolescent suicide [7,11-13]. Variables intervening between school bullying and suicidal ideation have, to our knowledge, rarely been examined in previous studies [14]. In the present work we used Structural Equation Modeling (SEM), which is able to evaluate the relationships between several risk factors simultaneously. In addition, we show that school bullying increases the risk of suicidal ideation and that this risk is mediated by comorbid conditions in adolescents. Among latent variables, depressive symptoms have a strong association with suicidal ideation, and school bullying is associated with depressive symptoms [2,4,6,7,13-16]. Hawker and Boulton suggested that the trauma of school bullying can lead to psychosocial maladjustments such as depressive symptoms, anxiety symptoms and loneliness [4]. Victimization by bullying, especially, is related to depressive, anxious and psychosomatic symptoms [15]. Based on these earlier studies, we

***Corresponding author:** Joonho Choi, MD, PhD. Department of Psychiatry, Hanyang University Guri Hospital, Gyeongchun-ro 148beon-gil, Guri 471-701, Korea, Tel: +82.31-560-2268, Fax: +82.31-554-2599; E-mail: jchoi@hanyang.ac.kr

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anticipated that there would be a direct relationship between depressive symptoms and suicidal ideation, and that school bullying would be related to suicidal ideation via the intermediary of depressive symptoms.

School bullying in South Korea has distinctive features and is referred to as 'Wang-ta'. In western societies, many students report being bullied by just one student in a higher grade. However, most victims in Korean schools report being bullied by a number of students in their own class; over one half by 3-5 students, and some 30% by 10 students or more [2]. Chung and Chun reported that male gender, young age, low self-esteem, child abuse by parents, delinquency experience, and peer delinquency were associated with 'wang-ta' [16]. We have focused on the relationship between childhood trauma and school bullying. Childhood trauma leads to aggressiveness, impulsivity, social withdrawal, self-destructive behavior, depressive symptoms, difficulties in school adjustment and psychiatric disorders in adolescents [17-19]. We expected that the experience of childhood trauma would have an effect on vulnerability to school bullying. Therefore, our second hypothesis was that childhood trauma is associated with bullying victimization and bullying perpetration.

Active bullying is associated with different traits than being a victim of bullying. Previous studies suggested that victims of bullying tend to be depressed, anxious, and have psychosomatic problems, while bullying is more associated with conduct and hyperactivity symptoms [14,20,21]. Bullying activity is associated with delinquency as an externalizing problem in adolescents, and delinquency is associated with impulsivity, aggressiveness, substance abuse, self-destructive behavior and suicidal ideation [19-21]. Some workers have suggested that delinquency can lead to depression but others make the opposite claim [22-24]. In addition according to previous research, delinquency is related to childhood trauma [25-27]. In particular, Duke and Pettingell concluded that childhood trauma should be considered a risk factor for adolescent perpetration of interpersonal violence as well as for delinquency and self-directed violence [25]. Based on these researches, we wished to establish a pathway between delinquency and suicidal ideation in order to assess the association between bullying and suicidal ideation. Our third hypothesis is that delinquency is associated with childhood trauma and suicidal ideation.

A goal of this study was to draw attention to the need for more theoretical, conceptual, and empirical research to explain the complex interrelationships between school bullying, suicidal ideation and latent variables. Our theoretical mediation model bearing on the relationship between latent variables is shown in Figure 1. Our hypotheses were as follows; First, being a victim of bullying and being a perpetrator are both related to suicidal ideation mediated by depressive symptoms. Second, childhood trauma is associated with bullying victimization and perpetration. Third, delinquency is associated with childhood trauma and suicidal ideation. Fourth, bullying victimization and delinquency are mediated by childhood trauma, and suicidal ideation is mediated by depressive symptoms.

Materials and Methods

Participants

We conducted a community-based survey in Guri, South Korea. South Korea had one of the world's fastest growing economies from the early 1960s to the late 1990s, and it is still one of the fastest growing developed countries in the 2000s. The rapid industrialization brought about family disintegration and breakdown of the social support system, resulting in displacement of mentally ill persons outside of the family

[28]. Guri is located immediately to the east of Seoul. It has a population of 200,000, is located in the heart of the capital metropolitan area and is fast-growing like the rest of the area. Of the 8 middle schools in Guri, 2 agreed to participate in our survey. The survey was administered to 7th and 8th grade male and female students. Questionnaires that were incomplete or contained inconsistent or unreliable responses were excluded. Of the total of 1,227 students, 1,198 responded; thus, the response rate was 97.6%. One of the two schools was a girl's school with a student population of 801; hence the girls in this school made up 66.9% of the total number of female respondents. The socio-demographic characteristics of the participants are presented in Table 1.

Instruments

Bullying victimization and perpetration

To measure bullying victimization and perpetration, Han and Lim's edited version of the Bully-Victim questionnaire (BVQ) developed by Olweus was used [29,30]. Each of the two subscales is composed of 11 items scored on a 6-point scale (1 to 6). The reliability coefficient (α) was 0.85 for bullying perpetration and 0.85 for bullying victimization. Four random parcels were made from bullying and victimization and used as indicators of the latent constructs in the SEM.

Suicidal ideation

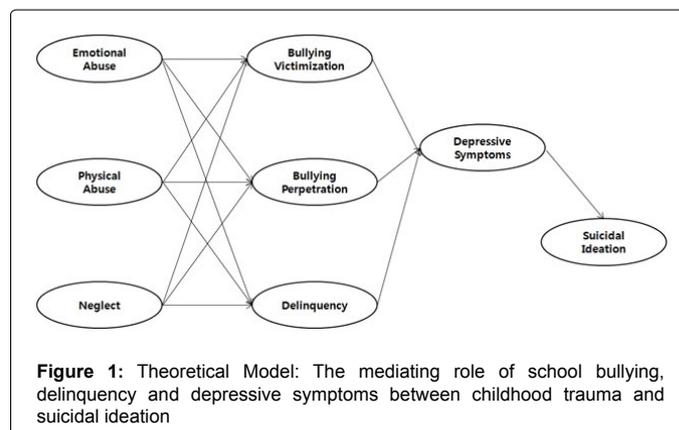
To measure degree of suicidal ideation, we used the Scale for Suicidal Ideation (SSI) developed by Beck et al. and a standardized Korean version of the self-report scale from Shin et al. and revised by You [31-33]. The scale contains 19 items, and uses a response scale from 0 to 2 points. The reliability coefficient (α) was 0.90. Total scores for suicidal ideation were used as indicators in the SEM.

Depressive symptoms

Depressive symptoms were measured using a standardized Korean version of the Center for Epidemiological Studies-Depression Scale (CES-D) developed by Cho and Kim [34,35]. The scale consists of 20 items with a score for each question ranging from 0 to 3 points. The reliability coefficient (α) was 0.91. Total depression scores were used as indicators in the SEM.

Childhood trauma

Childhood trauma was assessed using a Childhood Abuse Scale standardized by Kim and Lee [36]. The CAS contains 21 items, each scored on a scale from 1 to 7 points. The reliability coefficients (α) were 0.70 for emotional abuse, 0.72 for physical abuse, and 0.52 for neglect.



Variables		n	%
School	A	497	41.5
	B	701	58.5
Gender	Male	397	33.1
	Female	801	66.9
Grade	7th (12 years old)	613	51.2
	8th (13 years old)	585	48.8
Socioeconomic status	Very high	41	3.4
	High	276	23
	Middle	774	64.6
	Low	99	8.3
	Very low	8	0.7
Status of parents	Living with both parents	1055	88.1
	Parents dead	3	0.3
	Separated	36	3
	Divorced	85	7.1
	Remarried	13	1.1
	Living together	6	0.4
Educational level of father	Middle school	36	3
	High school	468	39.1
	University	596	49.7
	Graduate school	98	8.2
Educational level of mother	Middle school	30	2.5
	High school	575	48
	University	516	43.1
	Graduate school	77	6.4

Table 1: Socio-demographic characteristics of participants (n = 1198)

Five items from each of the three types of maltreatment were used as indicators of the latent construct in the SEM.

Delinquency

A subscale of the Adolescents' Mental Health and Problem Behavior Screening Questionnaire-II (AMPQ-II) was used to measure delinquency [37]. Three items using a 4-point (0 to 3) scale were used to measure violations of regulation, and those items were also used as indicators of the latent construct in the SEM. The reliability coefficient (α) was 0.81.

Procedure

The research was conducted from September 27, 2012, to October 13, 2012. Two employees of Guri Mental Health Center and 2 psychologists with masters degree from Hanyang Guri Hospital participated as surveyors. Since the survey respondents were minors, the surveyors obtained signed consent forms from the parents and conducted the survey during class times with the help of school counselors. The surveyors explained clearly the purpose of the surveys and promised that all responses would be anonymous, confidential, and used only for research purposes. The surveyors then explained the content and method of the survey and encouraged participants to ask questions about anything that may have been unclear. In addition, the participants were informed that they could stop participating at

any time. Participants completed the self-report questionnaires in an average of 40-45 minutes.

Data Analysis

Statistical analyses were performed using SPSS 18.0. Cronbach's alpha, mean, standard deviation and correlations were calculated for each measured variable to verify the credibility of the research tools. An observed categorical variable reflecting the likelihood of engaging in suicidal ideation represented the dependent variable in the analysis. Research hypotheses were verified and the path coefficients of the structural analysis model were estimated using Lisrel, version 8 [38]. Structural analysis is the process of specifying latent variable models that provide separate estimates of the relations among the latent constructs and their manifest indicators (the measurement model) and of the relations among constructs (the structural model). An additional strength of structural analysis is the availability of measures of global fit that can provide a summary evaluation of complex models that involve a large number of linear equations and can estimate the testability of the mediating factors. To evaluate the goodness of fit of the structural equation modeling, we used the Root Mean Square Error of Approximation (RMSEA), Goodness of Fit Index (GFI), and Comparative Fit Index (CFI) together. The RMSEA assessed closeness of fit, with values approximating 0.08, 0.05 and 0 indicating reasonable, close, and exact fits, respectively [39]. Values of the GFI and CFI can range from 0 to 1, values over 0.9 being indicative of an acceptable fit [40,41]. In addition, to examine possible gender difference, we analyzed a multi-group SEM based on gender. For all analyses, a two-sided $P < 0.05$ was considered statistically significant.

Results

Correlation analysis of latent variables

The bivariate correlations for childhood trauma, bullying victimization and perpetration, delinquency, depressive symptoms and suicidal ideation are reported in Tables 2 and 3. Most of the measured variables were positively correlated in both genders. The latent variable most directly correlated with suicidal ideation was depressive symptoms ($r=0.618$, $P<0.01$).

The measurement model

Confirmatory Factor Analysis (CFA) was conducted to determine if the observed measures loaded on the latent constructs as hypothesized. The following constructs were specified as latent: Emotional abuse, physical abuse, neglect, bullying victimization and perpetration, delinquency, depressive symptoms and suicidal ideation. The CFA was estimated using maximum likelihood by covariance matrix. The measurement model provided a reasonable fit to the data, χ^2 (334, $n=1198$)=1415.62, $P<0.001$; RMSEA=0.05; GFI=0.92; CFI=0.97. All factor loadings were significant and exceeded 0.22.

The structural model

Our structural equation model (SEM) with hypothesized paths is shown in Figure 2. Emotional abuse, physical abuse, and neglect are all exogenous variables. Endogenous variables are bullying victimization, bullying perpetration, delinquency, depressive symptoms and suicidal ideation. The SEM explained 52% of the depression and 43% of the suicidal ideation. When we had specified the final structural model, we explored potential gender differences. The sample was divided into females and males, and a multi-group ("stacked") SEM model was analyzed, with each path allowed to vary according to gender. The

	Suicidal Ideation	Depressive Symptoms	Delinquency	Victimization	Perpetration	Emotional Abuse	Physical Abuse	Neglect
Suicidal Ideation	1.00							
Depressive Symptoms	0.46**	1.00						
Delinquency	0.32**	0.50**	1.00					
Victimization	0.37**	0.35**	0.25**	1.00				
Perpetration	0.33**	0.17**	0.27**	0.68**	1.00			
Emotional Abuse	0.24**	0.27**	0.38**	0.41**	0.31**	1.00		
Physical Abuse	0.14**	0.23**	0.31**	0.36**	0.29**	0.58**	1.00	
Neglect	0.31**	0.26**	0.17**	0.17**	0.15**	0.24**	0.10	1.00

Table 2: Correlations between latent variables in male participants (n=397) Pearson correlation coefficients *P < 0.05; ** P < 0.01

	Suicidal Ideation	Depressive Symptoms	Delinquency	Victimization	Perpetration	Emotional Abuse	Physical Abuse	Neglect
Suicidal Ideation	1.00							
Depressive Symptoms	0.67**	1.00						
Delinquency	0.48**	0.64**	1.00					
Victimization	0.41**	0.51**	0.40**	1.00				
Perpetration	0.33**	0.29**	0.31**	0.50**	1.00			
Emotional Abuse	0.48**	0.50**	0.52**	0.36**	0.29**	1.00		
Physical Abuse	0.41**	0.37**	0.44**	0.28**	0.31**	0.59**	1.00	
Neglect	0.43**	0.49**	0.51**	0.33**	0.22**	0.55**	0.45**	1.00

Table 3: Correlations between latent variables in female subjects (n=801) Pearson correlation coefficients *P < 0.05; ** P < 0.01

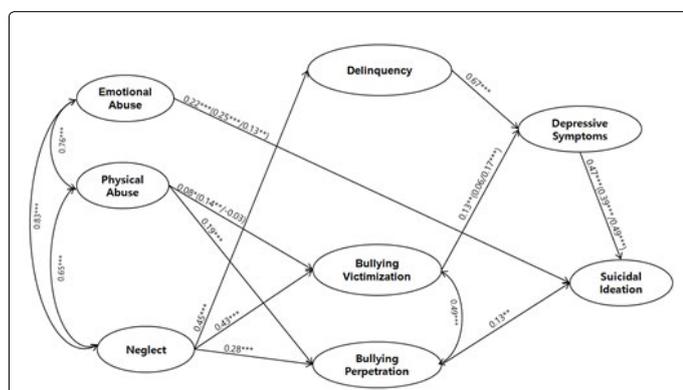


Figure 2: Multi-sample structural model for suicidal ideation among 1,198 middle school students of South Korea, *P < 0.05; **P < 0.01; ***P < 0.001

model allowing the path from T1 prototype to T2 health behavior to vary had a significantly better fit than the model in which the path was equal for both groups, $\Delta\chi^2(1, N=353)=8.82, P<0.001$.

H1: Bullying victimization and perpetration are related to suicidal ideation via the mediation of depressive symptoms. Bullying victimization and perpetration were associated with depressive symptoms and suicidal ideation especially in females. Bullying victimization was associated with depressive symptoms ($\beta=0.13, P<0.01$) but the effect was significant only in females ($\beta=0.17, P<0.001$). In addition, depressive symptoms were significantly associated with suicidal ideation ($\beta=0.47, P<0.001$) in both males ($\beta=0.39, P<0.001$) and females ($\beta=0.49, P<0.001$). Bullying perpetration was directly related to suicidal ideation ($\beta=0.13, P<0.01$), independent of depressive symptoms.

H2: Childhood trauma is associated with bullying victimization

and perpetration. As expected, childhood trauma was associated with bullying victimization and perpetration. Neglect, specifically, was associated with bullying victimization ($\beta=0.43, P<0.001$) and bullying perpetration ($\beta=0.28, P<0.001$) in adolescents. Physical abuse was associated with victimization ($\beta=0.08, P<0.05$) and perpetration ($\beta = 0.19, P <0.001$), and a difference between the genders was found in the path between psychological abuse and victimization: the link was significant only in males ($\beta=0.14, P<0.01$). However, emotional abuse was associated directly with suicidal ideation ($\beta=0.22, P<0.001$) in both males ($\beta=0.25, P<0.001$) and females ($\beta = 0.13, P<0.01$).

H3: Delinquency is associated with childhood trauma and suicidal ideation. Neglect was associated with delinquency ($\beta=0.45, P<0.001$) in adolescents, and delinquency was indirectly associated with suicidal ideation ($\beta=0.47, P<0.001$), mediated by depressive symptoms ($\beta=0.67, P<0.001$).

H4: Bullying victimization, perpetration and delinquency mediate childhood trauma, while depressive symptoms mediate suicidal ideation. The indirect effect of physical abuse on depressive symptoms was not significant in either males or females ($\beta_s=0.01, NS$) (Table 4). However, its indirect effect on suicidal ideation was significant (male: $\beta_s=0.03, P_s<0.01$ / female: $\beta_s=0.03, P_s<0.05$). Therefore we can infer that bullying perpetration mediates the effect of child physical abuse on suicidal ideation in adolescents. The indirect effect of neglect on depressive symptoms was significant in both males and females ($\beta_s=0.59, P_s<0.001$ / $\beta_s=0.64, P_s<0.01$), and its indirect effect on suicidal ideation was significant ($\beta_s=0.28, P_s<0.001$ / $\beta_s=0.35, P_s<0.001$). It seems therefore that bullying victimization and delinquency mediate the effect of child neglect on depressive symptoms, and that bullying perpetration mediates the effect of child neglect on suicidal ideation in adolescents.

Path	Male		Female	
	Total effect	Indirect effect	Total effect	Indirect effect
Emotional abuse → Suicidal ideation	0.13**	.	0.24***	.
Physical abuse → Bullying victimization	0.15**	.	0.01	.
Physical abuse → Bullying perpetration	0.19***	.	0.19***	.
Physical abuse → Depressive symptoms	0.01	0.01	0.01	0.01
Physical abuse → Suicidal ideation	0.03**	0.03**	0.03*	0.03*
Neglect → Delinquency	0.84***	.	0.84***	.
Neglect → Bullying victimization	0.44***	.	0.46***	.
Neglect → Bullying perpetration	0.28***	.	0.28***	.
Neglect → Depressive symptoms	0.59***	0.59***	0.64***	0.64***
Neglect → Suicidal ideation	0.28***	0.28***	0.35***	0.35***
Delinquency → Depressive symptoms	0.7***	.	0.65***	.
Delinquency → Suicidal ideation	0.27***	0.27***	0.32***	0.32***
Bullying victimization → Depressive symptoms	0.02	.	0.21***	.
Bullying victimization → Suicidal ideation	0.01	0.01	0.1***	0.1***
Bullying perpetration → Suicidal ideation	0.16***	.	0.14***	.

Table 4: Standardized coefficients of total and indirect effects by gender from the structural equational modeling (n=1198). Statistics of direct and indirect effects were estimated from structural equational modeling and t-test was performed to confirm the significance. Indirect effect means the combined effects of all possible indirect paths linking two factors by through of mediator excluding direct paths. Total effect means the combined effects of all possible indirect paths in addition to direct path, *P < 0.05; ** P < 0.01; *** P < 0.001

Discussion

Our data confirm that school bullying, depressive symptoms and delinquency are risk factors for suicidal ideation, and that childhood trauma is related to suicidal ideation via the intermediary of these risk factors. Emotional abuse, bullying perpetration and depressive symptoms, in particular, are directly related to suicidal ideation. We will analyze each relationship based on the result of this study.

First, our results confirmed that bullying victimization, perpetration, and delinquency mediate childhood trauma and suicidal ideation. This study demonstrated that emotional abuse including physical bondage, restriction, verbal or psychological threat, and any other abusive act was associated directly with suicidal ideation. Previous studies found a direct association between emotional abuse and suicidal ideation [34,42]. In addition work indicates that the risk of suicidal ideation increases 5-fold when there is a history of physical abuse and 12-fold when there is a history of emotional abuse [43]. This study demonstrated that emotional abuse in childhood, even more so than physical abuse or neglect, is a potent risk factor for suicidal ideation. Adolescents who do not receive proper parental support and care in childhood have difficulty creating their own identities and have low self-esteem, and this greatly increases the risk of suicidal ideation. It seems that a scolding, discriminating, and condescending parental demeanor contributes more significantly to a child's vulnerabilities than does neglect of the child's physical needs.

Second, these results are consistent with findings suggesting that adolescents who have experienced physical abuse also endure more bullying victimization, and perpetrate more bullying. These experiences are more common in males, which suggest that males who experienced physical abuse are more likely to become victims or bullies. Physical abuse in childhood increases vulnerability to suicidal

ideation in adolescents, which is mediated by bullying victimization or perpetration. The adolescent who experiences physical abuse considers these aggressive actions as normal defensive behaviors, and establishes similar interpersonal relationships, and tends to evaluate other people's actions negatively and to experience bullying at school [35]. Thus, physical abuse in childhood is associated with various adolescent adjustment problems, and suicidal ideation. Parental neglect in childhood is a factor affecting adolescent adjustment problems. Students who did not have a positive relationship with their parents have difficulty forming peer relationships, and have adjustment problems in adolescence [41-43]. This indicates that a lack of social skills and a tendency to negatively evaluate others' emotions or intentions increases vulnerability to depressive symptoms. As a result, these adolescents may choose to commit suicide as a way of expressing their pain and escaping from reality [44-47]. However, would adolescents who have not received formal education be safe from the risk of bullying victimization or perpetration? According to previous studies, suicidal ideation is closely related to school interruption, and childhood trauma increases the risk of adolescent school interruption [48-50]. In accordance with previous studies, we found that childhood trauma increases the risk of adjustment problems in adolescents such as bullying, delinquency, depressive symptoms, suicidal ideation, and school interruption. The involvement of school interruption suggests that mental health may be an important factor in the successful transition from school to work, and disengagement from social institutions may increase the risk of psychopathology [50]. Therefore, it is important to support adolescents who are vulnerable to adjustment problems so that they are able to continue studying in school.

Finally, bullying victimization is related to suicidal ideation via depressive symptoms, but bullying perpetration is directly related to suicidal ideation. Bullying victimization is thought to influence suicidal

ideation, but when the data for males and females were analyzed separately, we only detected a significant effect in females. Therefore, females are more vulnerable than males to depressive symptoms after experiencing school bullying, and they eventually experience suicidal ideation. Bullying perpetration has a substantial effect. Previous research suggested that bullying perpetration leads to compulsive suicidal ideation in the absence of depressive symptoms [51,52]. This suggests that victims of bullying can either become bullies themselves or experience depressive symptoms followed by suicidal ideation. There is evidence that male and female victims of bullying employ different defense mechanisms [52,53]. However, school bullying increases the likelihood of suicidal ideation in both victims and bullies.

Our study aimed to identify factors linking school bullying and suicidal ideation. Suicide by victim of bullying is a serious social problem in South Korea and one that calls for school-based psychiatric approaches to reduce mental health problem in adolescents. Additional mental health programs are being developed in schools in South Korea so as to serve more of these children and adolescents. An example is the Expanded School Mental Health (ESMH), which is a well-established program in Baltimore, USA. ESMH provides a full range of mental health services (assessment, treatment, case management, prevention) for children and adolescents. In additions there have been training programs to develop counselors, social workers, and psychologists. Mental health professionals also work closely with health professionals [54-56]. We greatly need an effective school-based mental health system to protect our child and adolescents from suicide and school bullying.

Limitations

The primary limitation of the present study is that the results cannot be generalized to all Korean adolescents because we only examined adolescents in Guri. A second limitation is that we used a cross-sectional design so that the memories of child abuse reported by respondents may have been distorted. In addition, we could not evaluate the adolescent adjustment problems and suicidal ideation in a longitudinal study. A third limitation was that the surveys were self-reports, which increases the possibility of biased responses.

Conclusions

Despite these limitations, the results of this study confirmed the link between school bullying and suicidal ideation among middle school students in South Korea. This study is significant because the idea that childhood trauma and adolescent adjustment problems affect suicidal ideation was confirmed by statistical analysis. This study also contributes to our understanding of how the consequences of adolescent adjustment problems differ depending on the defense mechanisms employed. The present study suggests that greater societal support and attention are necessary to prevent adolescent suicide and improvemental health in school.

Human Subjects Approval Statement

The institutional review board of the Hanyang University Guri Hospital approved this analysis.

Declaration of Interest

The authors have no financial conflicts of interest to declare.

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