Adolescents' viewing of suicide-related web-content and psychological problems: differentiating the roles of cyberbullying involvement

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Adolescents' viewing of suicide-related web-content and psychological problems:

Differentiating the roles of cyberbullying involvement

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Abstract

Possible links of cyberbullying with suicide and psychological problems have recently received considerable attention. Suicide-related behaviours have also been linked with viewing of associated web-content. Studies on traditional bullying indicate that the roles of bullying involvement (bullies, victims and bully-victims) matter in terms of associations with specific suicide-related behaviours and psychological problems. Yet, related research in the area of cyberbullying is lacking. The current study investigates the association of cyberbullying roles with viewing of specific suicide-related web-content and psychological problems. Data from N = 19,406 (50% girls) 11-16 year olds (M = 13.54, SD = 1.68) of a representative sample of internet using children in Europe were analysed. Self- reports were obtained for cyberbullying role, viewing of web-content related to self-harm and suicide as well as the emotional, peer and conduct problems subscales of the Strength and Difficulties Questionnaire (SDQ). Multi-nomial logistic regression analyses revealed that compared to those not involved in cyberbullying, viewing of web-content related to suicide was higher for cybervictims and cyberbully-victims but not for cyberbullies. Viewing of web-content related to self-harm was higher for all cyberbullying roles but especially for cyberbully-victims. Rates of emotional problems were higher among cybervictims and cyberbully-victims, rates of peer problems were higher for cybervictims, and rates of conduct problems were higher for all cyberbullying roles. Moreover, the links between cyberbullying role and viewing of suicide-related web-content were independent of psychological problems. The results can be useful to more precisely target efforts towards the specific problems of each cyberbullying role. The outcomes on viewing of web-content also indicate an opportunity to enhance the presence of health service providers on internet platforms.

Introduction

Bullying has long been present in young people's lives, and the relationship between bullying, mental health difficulties, and suicide-related behaviours, has been well documented.[1–4] Consequences of bullying are compounded by the use of internet and mobile phones to bully others[5]; a phenomenon also referred to as cyberbullying. Both traditional and cyberbullying among adolescents are considered a major public health concern.[6] Cyberbullying is mostly defined similar to traditional bullying; that is, as an act of aggression that is intentional, repetitive, and towards an individual of lower power[7], but extended to electronic forms of contact.[5] Cyberbullying can take various forms such as sending unwanted, derogatory or threatening comments, spreading rumours, sending pictures or videos that are offensive or embarrassing, as well as excluding someone via means of electronic communication.[8] Prevalence estimates vary depending on the subgroups studied, covered time periods, as well as definitions and measurement. Prevalence rates for victims of cyberbullying (cybervictims) range anywhere from 4% to 72% [9,10] while the prevalence rates for cyberbullies range from 4% to 20%.[11] Reviews of cyberbullying studies suggest that most report prevalence rates to range between 20%-40%[12] with an average of 24%[13] while thoroughly designed survey studies report significantly lower rates of 6%[14] or 9%[15]. Smith[16] argued that those differences are mainly driven by how the frequency of occurrences is assessed yielding around 20% for one-of occurrences and around 5% for repeated incidences.

Public interest in cyberbullying has been spurred by recent media coverage depicting cases of young people who have attempted suicide as a consequence. However, media reports often appear to exaggerate the prevalence rates of cyberbullying as well as the direct causal link with suicidal behaviours (i.e., "cyberbullying will cause suicide").[17] Nonetheless, there is some evidence showing that being involved in cyberbullying (as a victim, a bully or both – a bully-victim) as a young person increases the risk of suicide-related behaviours (i.e., suicidal

ideation, suicide attempt, self-harming).[18,19] Moreover, recent evidence suggests that cyber-victimisation is more strongly related to suicidal ideation than traditional bullying.[20]

The risk for carrying out suicide-related behaviours, particularly among adolescents, has been linked to the viewing of websites, where suicide-related content is discussed.[21–23] Adolescents who have been contemplating suicide-related behaviours are likely to view websites with suicide-related content. Viewing of such websites occurs for different reasons, ranging from searching for information on carrying out the actual behaviours to seeking support.[24] Given the documented link of cyberbullying with suicide-related behaviours, a link between cyberbullying involvement and viewing of suicide-related web-content also stands to reason.

However, the associations of cyberbullying with viewing of suicide-related web-content are yet to be investigated. Moreover, many studies on traditional bullying have shown that associations with suicide-related behaviours, as well as psychological problems, vary with the role of bullying involvement, i.e. whether a person is only a bully (has bullied others but has not been bullied by others), only a victim (has been bullied by others but has not bullied others) or a bully-victim (has bullied others and has been bullied by others).[25–28] However, the differentiation of all three bullying roles among school-aged adolescents in studies linking cyberbullying with suicide-related behaviours, or psychological problems, is rare.[8,29–31] The current study aims to complement previous research by addressing the roles of cyberbullying involvement and links with the viewing of suicide-related web-content as well as with psychological problems. Given the scarcity of research on cyberbullying roles in this area and the considerable overlap between bullying and cyberbullying[5,8,32], the following overview of research on bullying roles and their correlates includes research on traditional bullying to more thoroughly inform the research hypotheses.

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Bullying roles and suicide-related behaviours

Only a few studies have investigated the relationship between cyberbullying roles and suicide-related behaviours. Samples vary in country of origin, specific age range and measurement of cyberbullying as is common in the cyberbullying literature.[9,10,11] Most of those studies assessed measures for cybervictim and cyberbully roles separately or cyber-victimisation only. There was only one study which investigated cyberbullying roles in their combination, i.e. cyberbullies, cybervictims and cyberbully-victims.[31] Across studies it was shown that compared to youth not involved in cyberbullying, victims of cyberbullying were more likely to report suicidal ideation and attempts[18,19,31,33,34] as well as self-harming behaviour.[19,34] Likewise, cyberbullies reported a higher likelihood of suicidal ideation and attempts when compared to youth not involved in cyberbullying,[19,31,33] while cyberbully-victims showed higher suicide ideation when compared to cyberbullies, cybervictims, and those not involved.[31]

Numerous studies have investigated the relationship between traditional bullying and suicide-related behaviours as documented by at least two reviews which include more than 30 studies each.[4,35] Underpinning the findings from research on cyberbullying, these studies found a consistent association between bullying roles and suicide-related behaviours among adolescents. Commonly, both bullies and victims were at a higher risk of suicide ideation and suicide attempts compared to youths not involved in bullying. Moreover, bully-victims were the most at-risk group for suicide ideation, suicide attempts, and self-harm.[36–38]

Bullying roles and psychological problems

Victims of cyberbullying have shown symptoms of depression and emotional difficulties, [8,25,29,32] while cyberbullies have shown externalizing problems[29] such as conduct disorder and associated behaviours (e.g., stealing, physical assault, damaging property etc.).[8,30] In addition, cyberbully-victims were more likely to be emotionally distressed by

being bullied, had higher rates of depression, and had higher incidences of problem behaviour when compared with other cyberbullying roles, or non-involved youths.[8,29]

Victims of traditional bullying mainly suffered from psychological problems associated with internalising disorders[1] such as depression and anxiety, as well as low social competence and peer problems.[39] In comparison, bullies mainly showed psychological problems associated with externalizing disorders, such as behaviours associated with conduct disorder (e.g., delinquency and crime).[40] Evidence concerning bullies' social competencies and relationships with peers is mixed. Some studies report bullies as domineering toward peers, with poorer relationships.[26] However, they are still better accepted than victims,[41] and are at greater ease when making friends.[39] Bully-victims display problem behaviours and depressive symptoms[27] as well as externalizing problems, lower social competencies, and higher peer problems.[26] Some have noted that bully-victims show the emotional problems associated with victimisation and conduct problems found in bullies.[31] A meta-analysis[28] showed that bullies mainly struggle with externalizing behaviours, while victims struggle with internalizing behaviours and low social skills, and bully-victims with comorbid internalizing and externalizing behaviours.

It has been suggested that the link between bullying and suicide-related behaviours might be due to an increase in psychological problems;[6] however, the research evidence paints a mixed picture. A recent study of US undergraduate students showed that the link between intensity of cyberbullying and suicidal ideation was mediated by depression when controlling for sexual orientation.[42] While previous studies among school-aged adolescents have shown that depression mediated the relationship between frequency of bullying and suicide attempts for traditional bullies but not for cyberbullies, and the link between cyber or traditional victimisation with suicide attempts existed only for females.[19] Similarly, the link of bullying with suicidal-ideation and self-harm disappeared for bullies but not for victims or

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bully-victims when controlling for delinquency and depression.[43] Moreover, traditional bullying was a risk factor for suicidal ideation and suicide attempts independent of depression.[44]

The current study

The current study investigated adolescents' viewing of web-content related to self-harm and suicide as well as their psychological problems while differentiating between cyberbullying roles (bullies, victims or bully-victims). In line with previous research it was hypothesised that among all three cyberbullying roles, the viewing of suicide-related web-content will be more prevalent than among those not involved; however, the cyberbully-victim group was expected to show the highest prevalence. Further, it was hypothesised that in comparison to those not involved in cyberbullying, cybervictims will mostly suffer from emotional and peer problems, cyberbullies will show a higher prevalence of conduct problems, and cyberbully-victims will display higher rates for all psychological problems. In addition, it was assessed whether the associations of cyberbullying role with viewing of suicide-related web-content are independent of individuals' levels of psychological problems. While no assumptions about causality are made in the present work, but in order to link with previous research[6,19], it will also be explored at this point whether the relationship between cyberbullying involvement type and viewing of suicide-related web-content might be mediated by psychological problems.

Method

Participants and Procedure

Data came from the EU Kids Online study a random stratified sample of approximately 25,000 internet-using European children aged 9-16 years who were interviewed at home during spring and summer 2010. Interviews were conducted face-to-face for questions about internet access and use, with private completion for sensitive questions,

including those on viewing of suicide-related web-content and psychological problems. For ethical reasons questions about viewing of suicide-related web-content and psychological problems were posed only to 11-16 year olds ($M = 13.54$, $SD = 1.68$), with a core sample size of 19,406[i] (50% girls). Full details of sampling and procedures are available elsewhere.[46,45]

Measures

Cyberbullying role. Respondents were given the following introductory text: "Sometimes children or teenagers say or do hurtful or nasty things to someone and this can often be quite a few times on different days over a period of time, for example. This can include: teasing someone in a way this person does not like, hitting, kicking or pushing someone around, leaving someone out of things." Respondents were then given the following response options to indicate in what way someone had acted in such a way towards them or they had acted towards someone else: "in person / face to face", "by mobile phone calls, texts or image/video texts", "on the internet", or "some other way".[ii] Cyberbullying was indicated when the response options "on the internet" and/or "by mobile phone" were chosen.[47] Respondents indicating that someone had acted towards them but who did not indicate that they had acted towards someone else were classified as cyberbullies, respondents who indicated that they had acted towards someone but who did not indicate that someone had acted towards them were classified as cybervictims, while respondents who had indicated that someone had acted towards them and that they had acted towards someone else were classified as cyberbully-victims, and those who indicated neither were classified as not involved.

Viewing of suicide-related web-content. Respondents were given an introductory question: "In the past 12 months, have you seen websites where people discuss…". Selecting the response option "ways of committing suicide" was classified as viewing of content

containing suicide and selecting the response option "ways of physically harming or hurting themselves" as viewing of content with self-harm.[ii]

Psychological problems. Items from subscales of the Strengths and Difficulties Questionnaire[48] (SDQ) (α = .69) were used in order to assess emotional problems (e.g., "I am often unhappy, downhearted or tearful"), peer problems (e.g., "Other people my age generally like me"; reverse scored) and conduct problems (e.g., "I get very angry and often lose my temper"). Psychometric properties were in line with previous studies and have been well documented in detail elsewhere.[49, 50] The SDQ is a widely-used and well-validated measure; it has been found to discriminate between community and clinical samples satisfactorily[51] and is used by child and adolescent mental health services cross-nationally to screen for psychopathology.[52] Cut-off points have been established for each scale for this purpose. In the current study the borderline clinical cut-off points for each subscale were used, so that percentage rates and odds ratios of the analyses would reflect associations with psychological problems that are considered to be in the clinical range. Details on the exact wording and scoring of the SDQ can be found on the Youthinmind website.[53]

Results

Eighty-eight percent (*n* = 17,022) of the sample reported not being involved in any role of cyberbullying, 6% (*n* = 1,144) reported being a cybervictim, 2.4% (*n* = 468) a cyberbully and 1.7% (*n* = 332) a cyberbully-victim (missing responses: 2.3%, *n* = 441). Further, in the full sample viewing web-content containing self-harm was reported by 6.8% (*n* = 1,319) and suicide by 4.3% (*n* = 836) (missing responses: 5.6%, *n* = 1,084 and 4.5%, *n* = 875, respectively). Moreover, 4.1% (*n* = 787) were classified to have emotional problems, 16.8% (*n* = 3,261) conduct problems and 15.8% (*n* = 3,062) peer problems that are potentially in the clinical range (missing responses: 0.2%, *n* = 40). The following results were

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obtained performing complete case analyses, excluding cases that had missing responses on any of the variables.

The proportions for adolescents within each cyberbullying role that have viewed self-harm and suicide-related web-content and that have been classified for potentially displaying psychological problems that are borderline clinical or above are displayed in Table 1.

Table 1 about here.

A small proportion of those not involved in bullying viewed web-content related to self-harm or suicide. However, about one fifth of cybervictims and cyberbullies and about one third of cyberbully-victims had viewed content with self-harm. Viewing of web-content relating to suicide showed higher rates among cybervictims and cyberbully-victims but not notably among cyberbullies, when compared to those not involved. Emotional and peer problems showed higher rates among cybervictims and cyberbully-victims, when compared to those not involved. Conduct problems showed higher rates among all cyberbullying roles when compared to not involved youth. Cyberbullies and cyberbully-victims also showed higher rates of conduct problems than cybervictims.

Multi-nomial logistic regression analyses with cyberbullying role as the criterion variable[8,30] (reference group: not involved) were performed assessing the associations of viewing of suicide-related web-content and psychological problems with each cyberbullying role. Socio-demographic variables (i.e., age and gender) were controlled for. The regressions were performed in two steps, the first without and the second with the psychological problem variables included as predictors. It was then assessed whether statistically significant coefficients for the associations between viewing of suicide and self-harm related content with cyberbullying types were reduced significantly (partial mediation) or became

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statistically insignificant (full mediation) when adding the psychological problem variables to the model in order to explore a possible mediation effect.[54,55] The results of the multi-nomial regressions are displayed in Table 2.

Table 2 about here.

Within all cyberbullying roles, adolescents were more likely to be older than in the not involved group. This relationship was particularly strong for cyberbullies and cyberbully-victims with the odds of being involved in cyberbullying increasing by 30% per one year increase in age. Girls were more likely to be in the cybervictim and cyberbully-victim groups compared to boys.

Compared to those not involved, the odds of viewing web-content related to self-harm were twice as high for cybervictims and cyberbullies, and three to four times as high for cyberbully-victims. The odds of viewing web-content related to suicide was two to three times as high for cybervictims and cyberbully-victims, no significant effect emerged for cyberbullies, when compared to those not involved.

The odds for cybervictims and cyberbully-victims to have emotional problems were about twice as high compared those not involved. Conduct problems were more likely among all cyberbullying involvement groups compared to those not involved, with the odds for cyberbullies being about four times as high, followed by cyberbully-victims (2.5 times as high), and cybervictims (1.5 times as high). Among all cyberbullying involvement groups only cybervictims had higher odds of peer problems (about 70%) than those not involved.

The coefficients for the associations with viewing of suicide-related web-content dropped when including psychological problems as predictors. However, the coefficients remained statistically significant, while none of the decreases in coefficients were significant,

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as indicated by the overlap in their confidence intervals when comparing steps 1 and 2 of the regression. Hence, the relationships between cyberbullying role and viewing of suicide-related web-content were independent of psychological problems and an assumption of mediation effects of the relationships between cyberbullying involvement type and viewing of suicide-related web-content by psychological problems can be rejected on statistical grounds. When the SDQ scales were studied as linear variables, the results remained the same.

Discussion

This study set out to differentiate the level of viewing of websites with suicide-related content and psychological problems among different cyberbullying roles. The predictions for viewing suicide-related web-content were confirmed for the cyberbully-victim group, which showed higher prevalence than those not involved for self-harm and suicide content. All cyberbullying involvement groups showed a higher prevalence for the viewing of web-content related to self-harm. Against predictions, cyberbullies did not show a higher prevalence for web-content related to suicide. This last finding was unexpected, in so far as self-harming is considered a risk factor for suicide behaviours; however, the current finding supports arguments elsewhere that both behaviours should be differentiated.[56]

Generally, the associations of cyberbullying with viewing of suicide-related web-content are in line with previous research on associations with suicide-related behaviours.[18,19,33,34] Those studies mostly showed markedly lower rates for suicide-related behaviours among youth involved in cyberbullying than were found here for viewing of suicide-related web-content. This suggests that only some who view this kind of content are further driven to carry out the actual behaviours, while others might be dissuaded or seek out those websites in order to get support. The reasons for and consequences of viewing the web content cannot be ascertained within the current study which did not assess these. Recent

assertions by youth mental health organisations suggest that the viewing of suicide-related web-content further contributes to suicide-related behaviours.[57,58] While not without merit, the current findings do not unanimously support such assertions, instead there is some indication in support of previous research which paints a more differentiated picture. That is, internet use is linked to suicide-related thoughts and behaviours for maladaptive (encouraging behaviours), but more commonly, for constructive reasons (help seeking, coping strategies).[24]

In line with predictions as well as with previous findings,[8,25,29,32] cybervictims showed a higher prevalence of emotional problems and peer problems, while cyberbullies were found to have a higher prevalence of conduct problems,[8,29,30] and cyberbully-victims showed higher emotional and conduct problems. Findings that confirm previous assertions that cyberbully-victims show the internalising problems of victims and the externalizing problems of bullies.[31,59] Against predictions, cybervictims also displayed a higher prevalence of conduct problems; however, this was markedly lower than those found among cyberbullies or cyberbully-victims. Cyberbully-victims and cyberbullies did not display a higher prevalence in peer-problems, a further contribution to inconsistencies shown in previous research with regard to cyberbullies and peer problems.[26,39,41] Such inconsistencies point to the existence of other factors that might moderate these associations. For example, there is strong empirical evidence that individuals showing general anti-social behaviour, but only during adolescence (adolescence-limited), tend to be accepted among peers, while those with on-going (life-course-persistent) anti-social behaviour show high peer problems (cf. 'Moffitt's taxonomy of anti-social behaviour'[60]), i.e. different timing of the anti-social behaviour is either positively or negatively related with peer problems. Perhaps cyberbullies might similarly need to be differentiated by the timing and onset of their behaviours.

Notably, the current analyses do not support the notion that suicide-related behaviours and cyberbullying are linked due to psychological problems.[6] A possible explanation for the

mixed evidence base on the mediating effect of psychological problems might be the bidirectional nature of the association between bullying and depression and other psychological problems, i.e. the fact that bullying can cause depression, and that those who suffer from depression are more likely to experience bullying.[31] Possibly, a mediation effect is only present in those cases where psychological problems are causally linked to the bullying involvement.

The current study presents some limitations in so far as its cross-sectional nature prevents the examination of any causal relationships. Hence, it cannot be established whether it is the involvement in cyberbullying that might drive adolescents to seek out suicide-related web-content, or; if those who seek out such content are the same individuals who are more likely to get involved in cyberbullying. Furthermore, it cannot be ascertained whether those who came across suicide-related web-content did so deliberately. Longitudinal studies of cyberbullying and associated psychological problems are scarce;[61] however, they are much needed to shed some light on these and other similar questions.

Conclusions

The present findings add to the current research on cyberbullying and its associations with psychological problems, as well as the viewing of suicide-related web-content. The findings add new insight into the specific association for each cyberbullying role. The present findings highlight the fact that all adolescents involved in cyberbullying are in some way psychologically vulnerable. It appears that cyberbully-victims are perhaps the most vulnerable group, and arguably the most in need of support for various psychological problems. Meanwhile, more targeted interventions could focus on support for the emotional and peer problems of cybervictims, as well as providing for cyberbullies by targeting conduct problems. There is some indication that a significant proportion of youths involved in cyberbullying, who also consider suicide-related behaviours, are amenable to support from

web-resources.[24] Hence, intervention strategies targeting those involved in cyberbullying and

suicide-related behaviours might consider investigating the use of internet platforms for their

implementation.

On the whole, these findings suggest that the associations of cyberbullying with

suicide-related behaviours and psychological problems for different bullying roles resemble

those for traditional forms of bullying[4,28,31,35]. Furthermore the notion that it might be the

same kind of youth who gets involved in traditional and online bullying seems to be further

elucidated.[62] Ultimately, the findings support continued appeals to practitioners and policy

makers for integrative prevention and intervention strategies for both bullying and

cyberbullying, as well as for online and offline risks, in general.[63,64]

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[i] In line with reports of the EU Kids Online survey data country and individual level weights have been applied when reporting descriptive statistics; however, weights have not been used for statistical significance testing.[45] The unweighted sample size was N = 18,709.

[ii] For the full wording of the questionnaire and routing procedure please refer to the study's website: www.eukidsonline.net

Table 1.

Percentages for Viewing of Suicide-Related Web-Content and Psychological Problems within Cyberbullying Role.

	Cyberbullying Role					
	Not involved	Victim only	Bully only	Bully-victim		
	% (n)	% (n)	% (n)	% (n)	$X^2(3)$	r_φ
Viewing of Web-Content						
Self-Harm	5.7 (922)	17.7 (186)	19.4 (83)	30.2 (92)	570.51***	.18
Suicide	3.7 (607)	12.2 (129)	5.8 (25)	16.1 (51)	272.83***	.12
Psychological Problems						
Emotional	3.1 (529)	12.8 (146)	5.4 (25)	15.7 (52)	387.23***	.14
Peer	14.7 (2496)	25.4 (290)	16.9 (79)	21.7 (72)	104.32***	.07
Conduct	14.7 (2497)	28.5 (325)	39.5 (185)	44.3 (147)	520.87***	.17

Note. ***$p < .001$

Table 2.
Multi-Nomial Regressions of Socio-Demographic Characteristics, Viewing of Web-Content and Psychological Problems on Cyberbullying Role (Reference Group: Not Involved).

	Step 1			Step 2		
	B	*Exp(B)*	95% CI	B	*Exp(B)*	95% CI
Intercept						
Victim only	-3.57			-3.92		
Bully only	-7.45			-7.79		
Bully-victim	-7.50			-7.92		
Age (years)						
Victim only	0.07	1.07***	(1.03, 1.11)	0.08	1.10***	(1.05, 1.14)
Bully only	0.26	1.30***	(1.22, 1.38)	0.27	1.30***	(1.22, 1.39)
Bully-victim	0.24	1.28***	(1.18, 1.38)	0.26	1.30***	(1.20, 1.40)
Gender (Base = Female)						
Victim only	-0.45	0.64***	(0.56, 0.73)	-0.47	0.67***	(0.59, 0.77)
Bully only	0.11	1.11	(0.91, 1.35)	0.07	1.05	(0.85, 1.29)
Bully-victim	-0.36	0.70**	(0.55, 0.89)	-0.37	0.74**	(0.57, 0.95)
Viewing of Web-Content						
Self-harm						
Victim only	0.75	2.11***	(1.69, 2.63)	0.68	1.79***	(1.44, 2.24)
Bully only	1.28	3.60***	(2.72, 4.77)	1.17	2.92***	(2.19, 3.88)
Bully-victim	1.34	3.82***	(2.73, 5.35)	1.25	3.10***	(2.22, 4.33)
Suicide						
Victim only	0.88	2.41***	(1.86, 3.12)	0.73	2.03***	(1.56, 2.63)
Bully only	0.30	1.35	(0.93, 1.97)	0.19	1.17	(0.80, 1.71)
Bully-victim	0.98	2.65***	(1.80, 3.91)	0.83	2.23***	(1.52, 3.29)
Psychological Problems						
Emotional						
Victim only				0.75	2.11***	(1.63, 2.73)
Bully only				0.20	1.22	(0.78, 1.90)
Bully-victim				0.80	2.23***	(1.46, 3.43)
Conduct						
Victim only				0.48	1.61***	(1.37, 1.90)
Bully only				1.31	3.71***	(2.99, 4.61)
Bully-victim				0.92	2.52***	(1.92, 3.32)
Peer						
Victim only				0.52	1.69***	(1.42, 2.00)
Bully only				-0.08	0.92	(0.69, 1.23)
Bully-victim				0.21	1.23	(0.89, 1.71)

Notes. **$p < .005$; ***$p < .001$.
CI = Confidence Interval.