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Does cyberbullying predict internalizing problems and conduct problems when controlled for traditional bullying?

MITCH VAN GEEL  and PAUL VEDDER

Leiden University, Department of Child and Adolescent Studies, Leiden, the Netherlands

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In this study, relations between cybervictimization and internalizing and conduct problems were analyzed while controlling for traditional victimization. A sample of 701 emerging adults in secondary vocational education completed self-reports about cybervictimization, traditional victimization, internalizing problems and conduct problems. Using multiple regression analyses with heteroscedasticity-consistent estimates, it was found that cybervictimization is related to internalizing and conduct problems while controlling for traditional victimization. The results suggest that cybervictimization is related to both internalizing and conduct problems over and above traditional victimization. The discussion focuses on the need to address bullying and cyberbullying among emerging adults.

Key words: Cyberbullying, internalizing problems, conduct problems.

Mitch van Gee, Leiden University, Department of Child and Adolescent Studies, Wassenaarseweg 52, 2333 AK Leiden, the Netherlands. Tel: +31 633137333; fax: +31 715273945; e-mail: mgeel@fsw.leidenuniv.nl

INTRODUCTION

Ample research on bullying has demonstrated the negative effects bullying may have on victims (Barzilay, Klomek, Apter *et al.*, 2017; Kaltiala-Heino, Fröjd & Marttunen, 2010). Bullying is a form of aggression which has been defined in different ways, but key elements of the definition include a power imbalance, repetition, and the intent to harm (Salmivalli, 2010; Volk, Dane, & Marini, 2014). The harmful effects of bullying have previously been explained by using the General Strain Theory which states that relationship strains, including negative experiences with peers, can result in negative outcomes (Agnew, 1992). The General Strain Theory is used by Hay and Meldrum (2010) as well to explain the relation between bullying victimization and self-harm. Another model that explains the negative effects of bullying is the Social Defeat Model which stems from experiments that show that the loser of a fight among animals of the same species may show such signs as increased sleep, lowered testosterone, and less exploratory behavior (Björkqvist, 2001). Several studies suggest support for the Social Defeat Model in humans. This model has been suggested as an explanation of the consequences of bullying victimization (Björkqvist, 2001). With thousands of existing studies, there is now a substantial body of research to demonstrate the negative effects of bullying. However, we know relatively less about a new form of bullying, namely cyberbullying, which can be roughly defined as the use of digital media to deliberately harm a victim. However, definitions of cyberbullying differ from study to study (Kowalski, Giumetti, Schroeder & Lattanner, 2014). The failure to come up with a consensus definition of cyberbullying has likely contributed to the widely differing prevalence estimates, with 3 to 72% of high school students reporting victimization of cyberbullying, depending on the study (Selkie, Fales & Moreno, 2016). Several scholars have worried about unique harmful

elements in cyberbullying. Cyberbullying could be more pervasive than traditional bullying because victims can read unwanted texts and emails even at home. Victims may feel denigrated in front of a wider audience because materials posted on the internet have a potential audience of thousands, or even millions. Victims could relive denigrating episodes repeatedly because material does not disappear easily from the internet. Lastly, bullies may not see the effects that the cyberbullying has on their victims, which may hinder responses of remorse and empathy (Slonje & Smith, 2008; Slonje, Smith & Frisé, 2013). Many studies exist to demonstrate the correlations that cyberbullying has with problem behaviors (see Kowalski *et al.*, 2014 for a meta-analysis), but Olweus (2012) warns that cyberbullying is often studied in isolation from traditional forms of bullying, and therefore we may come to the wrong conclusions. Cyberbullying and traditional bullying are correlated phenomena (Erentaitė, Bergman & Žukauskienė, 2012), yet analyses relating cyberbullying to problem behaviors are often not controlled for traditional bullying (Gini, Card & Pozzoli, 2018). Studying cyberbullying in isolation could lead to an inaccurate estimation of the association between cyberbullying and problem behaviors. In order to provide a more accurate estimation of the relation of cyberbullying to problem behavior, several scholars have provided analyses in which the relations between cybervictimization and internalizing problems have been controlled for traditional bullying (e.g., Hase, Goldberg, Smith, Stuck & Campaign, 2015; Kowalski & Limber, 2013; Waasdorp & Bradshaw, 2015). A recent meta-analysis by Gini *et al.*, (2018) summarized the studies in which the relations between cybervictimization and internalizing problems were controlled for traditional victimization in the analyses, and concluded that there were relations between cybervictimization on internalizing problems, over and above traditional victimization. Though these studies and the summary thereof in a meta-analysis help us to

better understand the potential unique relations between cyberbullying and problem behaviors, other questions remain unanswered.

The current study aims to expand our knowledge about cyberbullying in two ways. First, the discussion about the relations between cyberbullying and problem behavior has mostly focused on internalizing problems. There are only few studies on the relation between cyberbullying and conduct problems, and studies that have been performed (i.e., Calvete, Orue, Estevez, Villardon & Padilla, 2010; Sourander, Klomek, Ikonen *et al.*, 2010) did not correct the analyses for traditional victimization, so that it is still unclear whether cybervictimization is related to conduct problems over and above traditional victimization. Second, most studies about cyberbullying focused on adolescents (Beckman, Hagquist & Hellström, 2012; Gámez-Guadix, Orue, Smith & Calvete, 2013; Kowalski *et al.*, 2014; Van Geel, Vedder & Tanilon, 2014), with several studies also focusing on adults in the workforce (Coyne, Farley, Axtell, Sprigg, Best & Kwok, 2017; Kowalski, Toth & Morgan, 2018; Privitera & Campbell, 2009), but few studies about cyberbullying have focused on emerging adults. Emerging adulthood can be seen as a phase in which the “storm and stress” of adolescence is over, and people become more focused on long lasting commitments, yet are still unlikely to define themselves as adults (Arnett, 2000; Bynner, 2005). The age span of emerging adulthood can be debated, and depends on country of origin and culture (Bynner, 2005). In the current study we focus on 16 to 21 year old vocational students. These students, congruent with the definition of emerging adulthood, have committed to a study that fits a specific vocation (e.g., nurse, construction worker, cook), but have unlikely entered the workforce fulltime, and are unlikely to be married or parents. In short, they are in-between adolescence and adulthood. The current study is meant to analyze the relations between cybervictimization and internalizing problems as well as conduct problems while controlling for traditional victimization in a sample of emerging adults. We hypothesize that cybervictimization will be positively related to internalizing problems and conduct problems when traditional victimization is controlled for in the analyses.

METHOD

Participants

A total of 762 vocational students from 12 vocational schools participated in this study. There were 17 respondents who logged out and did not complete the survey. Because logging out could be a signal that a respondent no longer wants to continue with the study, we deleted these respondents from the dataset. Forty students who were 22 years of age or older were deleted from the dataset.¹ Furthermore, we deleted four respondents who chose not to answer the question about gender. This left a total of 701 students (67.2% female) on which the analyses were performed. Of these students, 93.2% was born in the Netherlands. Ages ranged between 16 to 21 years old, with a mean age of 17.37 years ($SD = 1.23$).

Instruments

Socio-economic status. The Family Affluence Scale (FAS; Boyce, Torsheim, Currie & Zambon, 2006) is a self-report measure of the respondents' socioeconomic status. There are four items namely: “Does

your family own a car, van, or truck?”; “Do you have a bedroom for yourself?”; “During the past 12 months, how many times did you travel away on holiday with your family?”; and “How many computers do your family own?” In previous research the FAS has been found to have substantial test-retest reliability ($ICC = 0.88$; Liu, Wang, Villberg *et al.*, 2012), the total scores correlate significantly with the gross domestic product of a country (Boyce *et al.*, 2006), and overall the FAS has been concluded to be a valid indicator of SES (Currie *et al.*, 2008).

Traditional victimization. The Bullying Participant Role Questionnaire (Summers, Demaray & Becker, 2010) measures traditional bullying victimization and consists of 12 items. A sample item is “I have been made fun of by another student.” Respondents were asked to answer these items for the past 30 days, and items were answered on a five-point scale ranging from “never” to “seven times or more.” In previous research, the scale has been found to have good concordant, convergent and discriminant validity, and good internal consistency for all the subscales ($\alpha = 0.90$ to 0.93) (Summers *et al.*, 2010). Cronbach's alpha for the current study was 0.87.

Cybervictimization. Cyberbullying was measured with the European Cyberbullying Intervention Project Questionnaire which consists of 11 items, each of which can be answered using a five-point scale ranging from “never” to “7 times or more” during the last 30 days. A sample item is: “Someone posted embarrassing videos or pictures of me online”. The questionnaire has demonstrated good internal reliability and construct validity in a study in six European countries (Del Rey *et al.*, 2015). Cronbach's alpha for the current study was 0.83.

Internalizing problems. The psychological problems scale was taken from the ICSEY-study (Berry, Phinney, Sam & Vedder, 2006) and consists of 15 items, each of which can be answered on a five-point scale ranging from “never” up to “very often.” A sample item is “I feel restless.” In the ICSEY study this scale was found to be reliable ($\alpha = 0.88$), unifactorial, and demonstrated convergent validity. Furthermore, there was support for the structural equivalence across ethnic groups (Berry *et al.*, 2006). The Cronbach's alpha for the current study was 0.92.

Conduct problems. The behavioral problems questionnaire was from the ICSEY study (Berry *et al.*, 2006). The scale consists of ten items, each of which can be answered on a five point scale ranging from “never” up to “more than 3 times during the past 12 months.” A sample item of this questionnaire is: “had a serious fight with a teacher.” In the ICSEY study this scale was found to be reliable ($\alpha = 0.80$), unifactorial, and demonstrated convergent validity. Furthermore, there was support for the structural equivalence across ethnic groups (Berry *et al.*, 2006). The Cronbach's alpha for the current study was 0.79.

Procedure

Senior vocational high schools in the Netherlands were invited to participate in a survey about bullying and cyberbullying. Research assistants approached schools according to a standardized protocol. Twelve schools agreed to participate. Prior to completing the questionnaires, students received letters describing the study and were asked to sign a consent form. Because research was to be strictly confidential, we did not obtain lists of students attending a class. Unfortunately, this makes it impossible to calculate a participation rate. However, the research assistants relayed that most students present in class at the time allotted for data collection, participated in the study. Questionnaires were completed independently on computers or mobile phones. The questionnaires were administered during school hours under the supervision of two trained research assistants and a teacher. The trained research assistants ensured that students completed their questionnaires individually and in silence, and answered questions of students about the questionnaire. The teacher remained in the classroom to maintain order, but did not help in the administration of the questionnaires, nor with the answering of student questions. On the first page of the questionnaire, we provided students with an adapted Health

Behavior in School-Aged Children (HBSC) definition of bullying which reads “We say a student is BEING BULLIED when another student, or a group of students, says or does nasty and unpleasant things to him or her. It is also bullying when a student is teased repeatedly in a way he or she doesn’t like. But it is NOT BULLYING when two students of about the same strength quarrel or fight” (Nansel, Overpeck, Pilla, Ruan, Simons-Morton & Scheidt, 2001). The statement was adapted to fit 16–21 years old students instead of school pupils. All respondents signed a letter of consent wherein students were informed that participation was voluntary and anonymous, and could be terminated at any moment without consequences. Students were debriefed after completion of the study and we informed them of several websites about bullying, and the contact details of their school counselor. The Institutional Review Board approved of this study.

Analyses

To test whether cybervictimization adds explained variance in the prediction of internalizing and externalizing problem behaviors we used hierarchical linear regression. In the first block we entered socio-economic status, gender, age, and traditional victimization as control variables. In the second block we added cybervictimization as a predictor. The use of traditional hierarchical regression may present problems when used with clustered data or relatedly, when used on data in which the assumption of homoscedasticity has been violated. It has been advised to use heteroscedasticity-consistent estimates as a way to deal with these problems (Long & Erwin, 2000). In the current article, we examine the robustness of our findings by also presenting the results of two regression analyses with heteroscedasticity-consistent estimates, for which we used the macro developed by Hayes and Cai (2007).

RESULTS

Mean scores, standard deviations and Pearson correlation coefficients are included in Table 1. For all analyses the tolerance scores were higher than 0.7 and the VIF scores were lower than 1.5, which suggests that there were no problems with multicollinearity. Error terms were normally distributed.

To test whether cybervictimization was related to internalizing problems and externalizing problems when traditional victimization was controlled for, hierarchical regression analyses were performed. The outcomes of the regression analyses are reported in Table 2. The model without cybervictimization explained 19% of the variance in internalizing problems [$R^2 = 0.19$, $F(4, 696) = 41.443$, $p < 0.001$], and the model wherein cybervictimization was added explained 22% of the variance in internalizing problems [$R^2 = 0.23$, $F(5, 695) = 41.900$, $p < 0.001$]. Women reported significantly more internalizing problems than men; and emerging adults with a higher SES reported significantly fewer internalizing problems than emerging

adults with a lower SES. Consistent with our hypothesis, cybervictimization was significantly and positively related to internalizing problems when traditional victimization was controlled for. For conduct problems the model that included control variables and traditional victimization explained 6% of the variance [$R^2 = 0.06$, $F(4, 696) = 11.250$, $p < 0.001$], and the model that included cybervictimization explained 8% of the variance in conduct problems [$R^2 = 0.08$, $F(5, 695) = 5.099$, $p < 0.001$]. Men reported significantly more conduct problems than women. Consistent with our hypothesis, cybervictimization was positively related to conduct problems when traditional victimization was controlled for.

To test the robustness of our results, regression analyses were rerun using heteroscedasticity-consistent estimates. Results are reported in Table 3. Consistent with our initial results, both the models for internalizing and conduct problems significantly improved upon adding cybervictimization to the model, and in both the models for internalizing and conduct problems, cybervictimization was a significant predictor when traditional victimization was controlled for in the analyses.

DISCUSSION

Several studies show that cyberbullying is related to problem behaviors (e.g., Beckman *et al.*, 2012; Gámez-Guadix, *et al.*, 2013; Kowalski *et al.*, 2014; Van Geel *et al.*, 2014), but the effects from cyberbullying on problem behaviors have not always been successfully disentangled from traditional bullying in previous research. Our study adds to a growing body of literature showing that there are unique contributions of cybervictimization to the prediction of both internalizing and conduct problems. These results were found in both hierarchical regression analyses and hierarchical regression analyses that used robust standard errors, which suggests that the results are robust. Furthermore, our study demonstrates that cyberbullying is related to problem behavior among emerging adults. There are several explanations as to why cybervictimization may have unique harmful effects. Victims may feel that they have been embarrassed in front of a far wider audience than is the case with traditional bullying, and they may feel extra distress because they do not know who may have seen their embarrassing episode (Slonje & Smith, 2008). In traditional bullying, even a hardened bully may be persuaded by a victims’ signals of distress to cease the bullying but given the lack of face to face interaction these signals may not be directly experienced in a cyberbullying situation. Consequently, in a

Table 1. Means, standard deviations, and Pearson zero-order correlations

	<i>M (SD)</i>	1.	2.	3.	4.	5.
1. Age	17.27 (1.08)	–				
2. SES	10.60 (1.59)	0.16***	–			
3. Trad.vict.	14.82 (5.21)	–0.02	–0.01	–		
4. Cyber	13.44 (4.15)	–0.04	–0.04	0.52***	–	
5. Int. problems	32.66 (11.08)	–0.00	–0.12**	0.31***	0.33***	–
6. Conduct problems	13.94 (4.72)	–0.04	–0.06	0.18***	0.22***	0.16***

Notes: Trad. vict = Traditional victimization; Cyber = Cyber Victimization; Int. problems = Internalizing Problems.

** $p < 0.01$.

*** $p < 0.001$.

Table 2. Results of the hierarchical regression analyses using internalizing and conduct problems as dependent variables

	Model 1			Model 2		
	B	SE	b*	B	SE	b*
Int. problems						
Gender	−6.89	0.82	−0.29***	−6.99	0.80	−0.29***
Age	0.00	0.32	0.00	0.07	0.31	0.01
SES	−0.69	0.24	−0.10**	−0.62	0.24	−0.09**
Trad. vict.	0.694	0.07	0.32***	0.44	0.08	0.20***
Cyber	—			0.62	0.10	0.23***
$\Delta R^2 = 0.04, p < 0.001$						
C. problems						
Gender	1.56	0.37	0.16	1.53	0.37	0.15
Age	−0.23	0.15	−0.06	−0.20	0.14	−0.05
SES	−0.24	0.11	−0.08	−0.22	0.11	−0.08
Trad. vict.	0.15	0.03	0.17	0.07†	0.04	0.08
Cyber	—			0.18	0.05	0.16
$\Delta R^2 = 0.02, p < 0.001$						

Notes: Trad. vict = Traditional victimization; Cyber = Cyber Victimization; Int. problems = Internalizing Problems; C. problems = Conduct problems.

† $p < 0.10$.

* $p < 0.05$.

** $p < 0.01$.

*** $p < 0.001$.

Table 3. Results of the hierarchical regression analyses with heteroscedasticity-consistent estimates using internalizing and conduct problems as dependent variables

	Model 1		Model 2	
	B	SE	B	SE
Int. problems				
Gender	−6.89***	0.79	−6.99***	0.77
Age	−0.00	0.33	−0.07	0.35
SES	−0.69**	0.24	−0.62**	0.24
Trad. vict.	0.69***	0.09	0.44***	0.09
Cyber	—		0.62***	0.13
$\Delta R^2 = 0.04, p < 0.001$				
C. problems				
Gender	1.56***	0.41	1.53***	0.41
Age	−0.22	0.14	−0.20	0.14
SES	−0.24†	0.11	−0.21†	0.12
Trad. vict.	0.15**	0.03	0.07	0.05
Cyber	—		0.18*	0.08
$\Delta R^2 = 0.02, p < 0.05$				

Notes: Trad. vict = Traditional victimization; Cyber = Cyber Victimization; Int. problems = Internalizing Problems; C. problems = Conduct problems.

† $p < 0.10$.

* $p < 0.05$.

** $p < 0.01$.

*** $p < 0.001$.

cyberbullying situation the influence of the perpetrator may last longer and the victim may feel more intensively or longer out of control than in a situation of traditional bullying. A sense of anonymity of the perpetrators on the internet may also make them harass their victims more fiercely over the internet than they do in person. A final explanation concerning the unique effects of cybervictimization is that it can reach the victim at home, making even the home environment unsafe (Slonje *et al.*, 2013).

Research on victimization has more often considered internalizing problems than externalizing problems, including conduct problems. Our study suggests that cybervictimization, over and above traditional victimization, has a unique effect on conduct problems. Relations between victimization and externalizing problems may exist because victims develop hostile socio-cognitive biases, try to defend themselves from bullies by fighting, or demonstrate conduct problems as a reaction to a stressor (Reijntjes, Kamphuis, Prinzie, Boelen, Van der Schoot & Telch, 2011). Extending upon the evolutionary theory (Volk, Camilleri, Dane & Marini, 2012), victims may try to prevent future episodes of victimization by demonstrating “toughness” through acts of problematic behavior and deviance of adult norms. Overall, a focus on traditional and cybervictimization on internalizing as well as externalizing problems is needed to gain a full understanding of the problems victimization may cause.

Our study is not without limitations. We used self-reports of bullying. Although self-reports may capture incidents of bullying unseen to others, and may therefore be particularly useful in the case of cyberbullying, the use of multiple informants to measure bullying is preferred, because different respondents give unique information about the bullying process (Gromann, Goossens, Olthof, Pronk & Krabbendam, 2013). Furthermore, this is a cross-sectional study, and internalizing and conduct problems may be a predictor of bullying as much as an outcome of bullying (Reijntjes, Kamphuis, Prinzie & Telch, 2010). Longitudinal studies focusing on cyberbullying are needed to analyze whether cyberbullying is characterized by similar transactional relationships with internalizing problems as is traditional bullying.

Despite these limitations, this is one of the few studies that addresses bullying and cyberbullying victimization in a sample of emerging adults. This study suggests that emerging adults can experience traditional and cybervictimization, and that both these experiences are related to problem behaviors. Further research on this relatively underserved population is needed, especially longitudinal research to disentangle cause and effect relations. And though the storm and stress of adolescence may be over, this is a population that faces important steps in life such as finding a partner, finishing their studies, and entry into the workforce. The current study again stresses that bullying and cyberbullying are related to negative outcomes, and exposure to bullying may hinder emerging adults in taking important steps in their life. Interventions that have proven to be effective are often aimed at younger age groups (Ferguson, Miguel, Kilburn Jr & Sanchez, 2007; Salmivalli, Kaukiainen & Voeten, 2005) so that we cannot be sure that they will also be effective for emerging adults. In short, we hope that our study can be a stepping-stone towards more research, and intervention and prevention efforts, for bullying and cyberbullying among the emerging adult population.

NOTE

¹ This concerns a group of respondents aged between 22 and 32 years old. We also ran the analyses with the students older than 21 years ($N = 745$). The pattern of significance was not different from the pattern of significance reported in this manuscript. Analyses are available upon request.

REFERENCES

- Agnew, R. (1992). Foundation for a general strain theory of crime and delinquency. *Criminology*, 30, 47–88.
- Arnett, J. J. (2000). Emerging adulthood: A theory of development from the late teens through the twenties. *American Psychologist*, 55, 469–480.
- Barzilay, S., Klomek, A. B., Apter, A., Carli, V., Wasserman, C., Hadlaczky, G. *et al.* (2017). Bullying victimization and suicide ideation and behavior among adolescents in Europe: A 10-country study. *Journal of Adolescent Health*, 61, 179–186.
- Beckman, L., Hagquist, C. & Hellström, L. (2012). Does the association with psychosomatic health problems differ between cyberbullying and traditional bullying? *Emotional and Behavioural Difficulties*, 17, 421–434.
- Berry, J. W., Phinney, J. S., Sam, D. L. & Vedder, P. (2006). Immigrant youth: Acculturation, identity, and adaptation. *Applied Psychology*, 55, 303–332.
- Björkqvist, K. (2001). Social defeat as a stressor in humans. *Physiology & Behavior*, 73, 435–442.
- Boyce, W., Torsheim, T., Currie, C. & Zambon, A. (2006). The family affluence scale as a measure of national wealth: Validation of an adolescent self-report measure. *Social Indicators Research*, 78, 473–487.
- Bynner, J. (2005). Rethinking the youth phase of the life-course: The case for emerging adulthood? *Journal of Youth Studies*, 8, 367–384.
- Calvete, E., Orue, I., Estévez, A., Villardón, L. & Padilla, P. (2010). Cyberbullying in adolescents: Modalities and aggressors' profile. *Computers in Human Behavior*, 26, 1128–1135.
- Coyne, I., Farley, S., Axtell, C., Sprigg, C., Best, L. & Kwok, O. (2017). Understanding the relationship between experiencing workplace cyberbullying, employee mental strain and job satisfaction: A dysempowerment approach. *The International Journal of Human Resource Management*, 28, 945–972.
- Currie, C., Molcho, M., Boyce, W., Holstein, B., Torsheim, T. & Richter, M. (2008). Researching health inequalities in adolescents: The development of the Health Behaviour in School-Aged Children (HBSC) family affluence scale. *Social Science & Medicine*, 66, 1429–1436.
- Del Rey, R., Casas, J. A., Ortega-Ruiz, R., Schultze-Krumbholz, A., Scheithauer, H., Smith, P., *et al.* (2015). Structural validation and cross-cultural robustness of the European Cyberbullying Intervention Project Questionnaire. *Computers in Human Behavior*, 50, 141–147.
- Erentaitė, R., Bergman, L. R. & Žukauskienė, R. (2012). Cross-contextual stability of bullying victimization: A person-oriented analysis of cyber and traditional bullying experiences among adolescents. *Scandinavian Journal of Psychology*, 53, 181–190.
- Ferguson, C. J., Miguel, C. S., Kilburn, J. C. Jr & Sanchez, P. (2007). The effectiveness of school-based anti-bullying programs: A meta-analytic review. *Criminal Justice Review*, 32, 401–414.
- Gámez-Guadix, M., Orue, I., Smith, P. K. & Calvete, E. (2013). Longitudinal and reciprocal relations of cyberbullying with depression, substance use, and problematic internet use among adolescents. *Journal of Adolescent Health*, 53, 446–452.
- Gini, G., Card, N. A. & Pozzoli, T. (2018). A meta-analysis of the differential relations of traditional and cyber-victimization with internalizing problems. *Aggressive Behavior*, 44, 185–198.
- Gromann, P. M., Goossens, F. A., Olthof, T., Pronk, J. & Krabbendam, L. (2013). Self-perception but not peer reputation of bullying victimization is associated with non-clinical psychotic experiences in adolescents. *Psychological Medicine*, 43, 781–787.
- Hase, C. N., Goldberg, S. B., Smith, D., Stuck, A. & Campain, J. (2015). Impacts of traditional bullying and cyberbullying on the mental health of middle school and high school students. *Psychology in the Schools*, 52, 607–617.
- Hay, C. & Meldrum, R. (2010). Bullying victimization and adolescent self-harm: Testing hypotheses from general strain theory. *Journal of Youth and Adolescence*, 39, 446–459.
- Hayes, A. F. & Cai, L. (2007). Using heteroscedasticity-consistent standard error estimators in OLS regression: An introduction and software implementation. *Behavior Research Methods*, 39, 709–722.
- Kaltiala-Heino, R., Fröjd, S. & Marttunen, M. (2010). Involvement in bullying and depression in a 2-year follow-up in middle adolescence. *European Child & Adolescent Psychiatry*, 19, 45–55.
- Kowalski, R. M., Giumetti, G. W., Schroeder, A. N. & Lattanner, M. R. (2014). Bullying in the digital age: A critical review and meta-analysis of cyberbullying research among youth. *Psychological Bulletin*, 140, 1073–137.
- Kowalski, R. M. & Limber, S. P. (2013). Psychological, physical, and academic correlates of cyberbullying and traditional bullying. *Journal of Adolescent Health*, 53, S13–S20.
- Kowalski, R. M., Toth, A. & Morgan, M. (2018). Bullying and cyberbullying in adulthood and the workplace. *The Journal of Social Psychology*, 158, 64–81.
- Liu, Y., Wang, M., Villberg, J., Torsheim, T., Tynjälä, J., Lv, Y. & Kannas, L. (2012). Reliability and validity of Family Affluence Scale (FAS II) among adolescents in Beijing, China. *Child Indicators Research*, 5, 235–251.
- Long, J. S. & Ervin, L. H. (2000). Using heteroscedasticity consistent standard errors in the linear regression model. *The American Statistician*, 54, 217–224.
- Nansel, T. R., Overpeck, M., Pilla, R. S., Ruan, W. J., Simons-Morton, B. & Scheidt, P. (2001). Bullying behaviors among US youth: Prevalence and association with psychosocial adjustment. *JAMA*, 285, 2094–2100.
- Olweus, D. (2012). Cyberbullying: An overrated phenomenon? *European Journal of Developmental Psychology*, 9, 520–538.
- Privitera, C. & Campbell, M. A. (2009). Cyberbullying: The new face of workplace bullying? *CyberPsychology & Behavior*, 12, 395–400.
- Reijntjes, A., Kamphuis, J. H., Prinzie, P., Boelen, P. A., Van der Schoot, M. & Telch, M. J. (2011). Prospective linkages between peer victimization and externalizing problems in children: A meta-analysis. *Aggressive Behavior*, 37, 215–222.
- Reijntjes, A., Kamphuis, J. H., Prinzie, P. & Telch, M. J. (2010). Peer victimization and internalizing problems in children: A meta-analysis of longitudinal studies. *Child Abuse & Neglect*, 34, 244–252.
- Salmivalli, C. (2010). Bullying and the peer group: A review. *Aggression and Violent Behavior*, 15, 112–120.
- Salmivalli, C., Kaukiainen, A. & Voeten, M. (2005). Anti-bullying intervention: Implementation and outcome. *British Journal of Educational Psychology*, 75, 465–487.
- Selkie, E. M., Fales, J. L. & Moreno, M. A. (2016). Cyberbullying prevalence among US middle and high school-aged adolescents: A systematic review and quality assessment. *Journal of Adolescent Health*, 58, 125–133.
- Slonje, R. & Smith, P. K. (2008). Cyberbullying: Another main type of bullying? *Scandinavian Journal of Psychology*, 49, 147–154.
- Slonje, R., Smith, P. K. & Frisén, A. (2013). The nature of cyberbullying, and strategies for prevention. *Computers in Human Behavior*, 29, 26–32.
- Sourander, A., Klomek, A. B., Ikonen, M., Lindroos, J., Luntamo, T., Koskelainen, M. *et al.* (2010). Psychosocial risk factors associated with cyberbullying among adolescents: A population-based study. *Archives of General Psychiatry*, 67, 720–728.
- Summers, K. H., Demaray, M. K. & Becker, L. D. (2010). *Assessment of bystander participant roles in bullying situations*. Denver, CO: Annual Convention of the National Association of School Psychologists.
- Van Geel, M., Vedder, P. & Tanilon, J. (2014). Relationship between peer victimization, cyberbullying, and suicide in children and adolescents: A meta-analysis. *JAMA Pediatrics*, 168, 435–442.
- Volk, A. A., Camilleri, J. A., Dane, A. V. & Marini, Z. A. (2012). Is adolescent bullying an evolutionary adaptation? *Aggressive Behavior*, 38, 222–238.
- Volk, A. A., Dane, A. V. & Marini, Z. A. (2014). What is bullying? A theoretical redefinition. *Developmental Review*, 34, 327–343.
- Waasdorp, T. E. & Bradshaw, C. P. (2015). The overlap between cyberbullying and traditional bullying. *Journal of Adolescent Health*, 56, 483–488.

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