



Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

Elsevier hereby grants permission to make all its COVID-19-related research that is available on the COVID-19 resource centre - including this research content - immediately available in PubMed Central and other publicly funded repositories, such as the WHO COVID database with rights for unrestricted research re-use and analyses in any form or by any means with acknowledgement of the original source. These permissions are granted for free by Elsevier for as long as the COVID-19 resource centre remains active.



ELSEVIER

Contents lists available at [ScienceDirect](https://www.sciencedirect.com)

Child Abuse & Neglect

journal homepage: www.elsevier.com/locate/chiabuneg

Did the prevalence of traditional school bullying increase after COVID-19? Evidence from a two-stage cross-sectional study before and during COVID-19 pandemic

Qingchen Da^{a,b}, Jinyu Huang^{a,b,c}, Zhekuan Peng^{a,b,d}, Yueliang Chen^{a,b},
Liping Li^{a,b,*}

^a School of Public Health, Shantou University, Shantou, China

^b Injury Prevention Research Center, Shantou University Medical College, Shantou, China

^c Center for Disease Control and Prevention of Guangzhou Huangpu District, Guangzhou, China

^d The Third Affiliated Hospital of Sun Yat-sen University, Guangzhou, China

ARTICLE INFO

Keywords:

Bullying
Victimization
Perpetration
China
COVID-19
Students

ABSTRACT

Background: COVID-19 has had a range of adverse effects on the behavior and mental health of adolescents globally, including bullying, anxiety and depression. However, there is a lack of comparative studies on the changes of school bullying before and during COVID-19 pandemic.

Objective: To examine the changes in traditional bullying before and during COVID-19 pandemic and reveal the related risk factors in Shantou, China.

Participants and setting: Two samples of secondary school students were collected in 2018 and 2021 in Shantou, respectively.

Methods: Bullying history and risk behaviors of students were measured in the past six months. The χ^2 test was used to analyze differences in baseline information and bullying types. The binary logistic regression with Forward LR method was used to analyze factors that affect the risk of bullying victimization and perpetration before and during COVID-19.

Results: A total of 5782 secondary school students were included, 3071 before COVID-19 pandemic and 2711 during COVID-19. The prevalence of different types of victimization and perpetration all increased during COVID-19 ($P < 0.001$). Boarding, being a lower secondary school student (as opposed to upper secondary school), being male (as opposed to female), drinking, and playing violent video games were shared risk factors for bullying victimization and perpetration. Living in an urban (as opposed to rural and island) was a risk factor for perpetration. Smoking was a risk factor for perpetration. All differences were statistically significant ($P < 0.05$).
Conclusions: We found that the prevalence of bullying victimization as well as perpetration increased during COVID-19. It suggests that we need to pay more attention to traditional school bullying prevention and control in China in the pandemic context.

* Corresponding author at: School of Public Health, Shantou University, Shantou, China.

E-mail addresses: 21qcda@stu.edu.cn (Q. Da), 1366198405@qq.com (J. Huang), 16zkpeng@alumni.stu.edu.cn (Z. Peng), chenyueliang2022@163.com (Y. Chen), lppli@stu.edu.cn (L. Li).

<https://doi.org/10.1016/j.chiabu.2023.106256>

Received 25 October 2022; Received in revised form 10 May 2023; Accepted 21 May 2023

Available online 26 May 2023

0145-2134/© 2023 Elsevier Ltd. All rights reserved.

1. Introduction

COVID-19 has an enormous impact on the daily life of adolescents worldwide, including isolation, school closures and restrictions in social leisure activities (Sheikhan et al., 2022). In addition, COVID-19 has a series of adverse behavioral, psychological and physical effects on students, such as increased sedentary time, decreased physical activity levels (Maltoni et al., 2021), increased internet use (Sikorska et al., 2021), substance abuse (Chaffee et al., 2021), decreased self-efficacy (Ritchie et al., 2021), increased stress (Chen et al., 2022), sleep disorders (Becker et al., 2021), depression (Hollenstein et al., 2021), anxiety (Lane et al., 2022), obesity (Jang & Hwang, 2022), increased self-harm ideation (Turner et al., 2022) and suicidal ideation (Brausch et al., 2022), mental health-related disorders (Leeb et al., 2020) and so on. In addition, COVID-19 might also contribute to bullying (Shin & Choi, 2021; Vaillancourt et al., 2021) and other adverse childhood experiences.

School bullying is an important public health issue among students. Traditional school bullying can be classified as physical bullying (e.g., “Punched me”), verbal bullying (e.g., “Made fun of me”), social manipulation (e.g., “Turned others against me”), and property attacks (e.g., “stole my possessions”) (Joseph et al., 2018). Traditional school bullying is characterized by intentionality, repetition and imbalance of power (Olweus, 2013). With the development of the Internet, cyberbullying has also emerged (Huang et al., 2021). Bullying is prevalent among teenagers worldwide. About one-third of students have been bullied at least once (UNESCO, 2019). The results of another study are similar, which found that the African region and the Mediterranean region had the highest rates of bullying around the world, both exceeding 40 % (Biswas et al., 2020). The prevalence of being bullied was 19 % in United States (Li et al., 2020), 15 % in Australia (Jadambaa et al., 2019), 16 % in Russia (Avanesian et al., 2021), and 22 % in China (Eyuboglu et al., 2021). According to a meta-analysis, the mean prevalence of bullying victimization in the world was 24.32 % (Li et al., 2022). In addition to being associated with regional differences, differences in prevalence may also be due to differences in definitions and measurement tools (Vivolo-Kantor et al., 2014).

Bullying has a range of adverse health outcomes in adolescents, such as depression (Hill et al., 2017), suicide (Baiden et al., 2019) and self-harm (Myklestad & Straiton, 2021). Bullying experiences can also affect mental health in adulthood (Hashorva et al., 2017), such as causing eating disorders (Copeland et al., 2015). Individuals who also experience bullying are more likely to use mental health services in the future (Evans-Lacko et al., 2017). Key roles in bullying include victims and perpetrators (Sheikhan et al., 2022). In addition, bullying roles also include Bully-victims and bystanders (Wu et al., 2016).

There are various factors associated with bullying, including being lesbian, gay, bisexual, or transgender, having a disability, being obese, and other characteristics that make adolescents appear different from their peers, and one significant cause is related to peer relationships (Juvonen & Graham, 2014). The isolation of COVID-19 may affect the quality of peer relationships (Foulkes & Blake-more, 2021), leading to less support from peers and subsequently to the occurrence of bullying (Cook, 2022) and bullying was moderated by peer relationships (Cho, 2018).

With the pandemic of COVID-19, the impact of it on bullying has also attracted the attention of scholars and a series of papers have been published. However, most of the previous studies were during COVID-19 (Armitage, 2021; Gomez-Leon, 2021; Lee, Choi, & DeLarac, 2022), with few comparative studies before and during this period. At least one study (Vaillancourt et al., 2021) has measured the impact of COVID-19 on bullying using home surveys, the results of which may differ from the results of school surveys. Previous research on the impact of COVID-19 on bullying has focused on developed countries such as Canada (Vaillancourt et al., 2021). On the contrary, relevant research in developing countries such as China is still limited.

The purpose of this study was to examine the longitudinal changes in traditional school bullying in a group of Chinese adolescents in Shantou before and during the COVID-19 pandemic and to explore the risk factors in order to provide a reference for the further studies in COVID-19.

2. Methods

2.1. Participants

Stratified cluster sampling was used to select secondary school students in June 2018 and June 2021 in Shantou. Two lower secondary schools and two upper secondary schools were respectively selected from urban and rural areas, and one lower secondary school and one upper secondary school were selected from the island areas. Three classes were selected for each grade of school. If there were less than three classes, the whole grade was sampled. All students in the class were surveyed. The grade range was 7th, 8th, 10th, and 11th. The 9th and 12th graders were excluded because they were busy preparing for their entrance exams.

2.2. Procedure

Before formal surveys, the researcher will introduce the aim of this study to the students. Questionnaires were completed by students independently under the supervision of the teachers in the classroom, which included basic demographic information, history of bullying in the past six months and risk behaviors (smoking, drinking, playing violent video games). Teachers helped collect questionnaires and return them to the researchers. Researchers present when questionnaires were completed.

Participation was voluntary, participants signed an informed consent form, and their teachers consented to and supported data collection. After the survey, the completeness and logical consistency of data were checked by researchers to ensure the validity. Data was processed anonymously and stored in a central database. Ethical approval to conduct the study was obtained from the Ethics Committee of Shantou University Medical College (SUMC-2018-42, SUMC-2021-92).

2.3. Measurement

2.3.1. Bullying

Bullying victimization was measured with the Multidimensional Peer Victimization Scale (MPVS) (Mynard & Joseph, 2000; Raine et al., 2011). It was divided into four dimensions with 16 items: physical victimization, social manipulation, verbal victimization and attacks on property. This scale has been validated in China (Zhekuan, 2019). In this study, the Cronbach's α for the four dimensions of the MPVS were 0.810, 0.881, 0.785, and 0.773 before COVID-19. And 0.767, 0.741, 0.832, and 0.792 during COVID-19. Bullying perpetration was measured with the Multidimensional Peer Bullying Scale (MPVS-RB) (Betts et al., 2015), which was divided into four dimensions: physical bullying, social manipulation, verbal bullying and attacks on property. This scale has also been validated in China (Zhekuan, 2019). In this study, the Cronbach's α for the four dimensions of the MPVS-RB were 0.882, 0.845, 0.814, and 0.889. And 0.743, 0.834, 0.631, 0.786, and 0.927 during COVID-19. Each item is scored on a five-point Likert scale ranging from 0 (never) to 4 (always). If the score for each dimension is >1 , it indicates that the student is being bullied or bullying others in that dimension. If the total score of the four dimensions is >1 , it means that the student is being bullied or bullying others at school.

2.3.2. Risk behaviors

In this study, risk behaviors including smoking, drinking and playing violent video games. Smoking and drinking frequency were assessed by the five-point Likert scale ranging from 0 (never) to 4 (≥ 5 times/month). Playing violent video games was also assessed by it, ranging from 0 (never) to 4 (≥ 5 h/week). If the total score is >1 , it means that the student has these risk behaviors.

2.4. Statistical analysis

Statistical analysis was performed using SPSS 19.0. Categorical variables were presented using frequency and percentage. The χ^2 test was used to analyze differences in baseline information and bullying types. Multicollinearity was checked using tolerance and variance inflation factor (VIF). The influencing factors of bullying victimization and perpetration before and during COVID-19 were analyzed using the binary logistic regression with the forward step method based on the likelihood ratio test. Multiple imputation with 5 imputed data sets was used to fill missing values. Test level was $\alpha = 0.05$ with two-sided test.

3. Results

A total of 3097 students participated in the survey before COVID-19, and 3071 students during COVID-19, with a response rate of 99.2 % and 95.4 % respectively. Finally, a total of 5782 secondary school students were included in this study, 3071 before COVID-19

Table 1
Demographic and basic information of participants ($N = 5782$).

	Before COVID-19 n (%)	During COVID-19 n (%)	χ^2	<i>P</i>
Gender	(Missing 65)		4.194	<0.001
Male	1543 (51.3)	1465 (54.0)		
Female	1463 (48.7)	1246 (46.0)		
School			23.658	<0.001
Lower secondary school	1563 (50.9)	1553 (57.3)		
Upper secondary school	1508 (49.1)	1158 (42.7)		
Grade			150.781	<0.001
7	851 (27.7)	537 (19.8)		
8	715 (23.3)	1016 (37.5)		
10	732 (23.8)	609 (22.5)		
11	773 (25.2)	549 (20.3)		
Region			186.093	<0.001
Urban	1251 (40.7)	1255 (46.3)		
Rural	1450 (47.2)	1387 (51.2)		
Island	370 (12.1)	69 (2.5)		
Boarding	(Missing 139)		1102.376	<0.001
Yes	1469 (50.1)	2461 (90.8)		
No	1463 (49.9)	250 (9.2)		
Drinking	(Missing 20)		0.519	0.471
Yes	232 (7.6)	220 (8.1)		
No	2819 (92.4)	2491 (91.9)		
Smoking	(Missing 21)		3.394	0.065
Yes	108 (3.5)	73 (2.7)		
No	2942 (96.5)	2638 (97.3)		
Playing violent video games	(Missing 67)		69.260	<0.001
Yes	1496 (49.8)	1053 (38.8)		
No	1508 (50.2)	1668 (61.2)		
Only child			10.037	<0.001
Yes	395 (12.9)	430 (15.9)		
No	2659 (87.1)	2281 (84.1)		

and 2711 during COVID-19. There were 65 missing values for gender (1.10 %), 20 missing values for drinking (0.30 %), 21 missing values for smoking (0.40 %), 67 missing values for playing violent video games (1.20 %), and 139 missing values for boarding school (2.40 %), which were filled by multiple imputation. Boarding school students refers to students who were living in school dormitories due to the long distance between their schools and homes. There were 3008 males and 2709 females. There was a significant difference in gender before and during COVID-19 ($\chi^2 = 62.232$, $P < 0.01$). There were 3116 lower secondary school students and 2666 upper secondary school students. The distribution of lower and upper secondary school students significantly differed before and during COVID-19 ($\chi^2 = 23.658$, $P < 0.01$). There were all statistically significant differences in grade ($\chi^2 = 150.781$, $P < 0.01$), student's home region ($\chi^2 = 186.093$, $P < 0.01$), boarding ($\chi^2 = 1102.376$, $P < 0.01$), playing violent video games ($\chi^2 = 69.260$, $P < 0.01$) and being an only child ($\chi^2 = 10.037$, $P < 0.01$). There was no multicollinearity between the variables (VIF < 5, tolerance > 0.1) (Table 1).

The prevalence of different types of victimization increased during COVID-19, and all differences were statistically significant ($P < 0.001$). The prevalence of different types of perpetration increased, which were statistically significant ($P < 0.001$) (Table 2).

Urban students were more likely to be bullied than others before COVID-19, however the linkage disappeared during COVID-19. Drinking was positively associated with victimization during COVID-19. Bullying victimization was more prevalent in boarding students, lower secondary school students, males and students who played violent video games before and during COVID-19 ($P < 0.05$) (Table 3).

Boarding, being a lower secondary school student, being male, drinking, smoking, and playing violent video games were shared risk factors for perpetration before and during COVID-19. All differences were statistically significant ($P < 0.05$) (Table 4).

4. Discussion

This study compared changes in the prevalence and risk factors of traditional school bullying before and during COVID-19, filling a gap in Chinese research and providing evidence for the impact of COVID-19 on student health. This study also suggests that in the next pandemic, government and school administrators should focus on school bullying to prevent a pandemic aggravating school bullying.

In this study, we found the prevalence of traditional bullying victimization and perpetration both increased during COVID-19 and all types increased by twice or more. This may be related to the lack of supervision of bullying during a pandemic when teachers were required to spend more time and effort focusing on whether students were following infection control rules to avoid the transmission of COVID-19 (Forsberg & Thorvaldsen, 2022).

Previous studies (Borualogo & Casas, 2023; Repo et al., 2022; Vaillancourt et al., 2021) argued that COVID-19 reduced school bullying because students had long-term online learning at home. However, Shantou students only experienced relatively short periods of online learning or only those classified as close contacts needed to be isolated, while the rest of the class could still return to school due to the low number of confirmed cases in Shantou. We were able to conduct an offline survey in the school rather than having to rely on an online survey. These may have contributed to the discrepancy in the study results. This study also suggests that future studies on the impact of COVID-19 on school bullying need to consider the impact of COVID-19 on the online learning policy of local schools.

In line with previous research (Vaillancourt et al., 2021; Xing et al., 2022), we found both bullying victimization and perpetration were more prevalent in males and lower secondary school students. Gender differences may be attributed to the males being more aggressive (Archer, 2004). In addition, females are more likely to follow the rules due to Chinese cultural influences (Xing et al., 2022). Grade difference may be related to the fact that lower secondary school students are more impulsive in their adolescence (Defoe et al., 2022), at the same time, impulsivity is a risk factor for bullying (Erreygers et al., 2016), leading to more severe bullying in lower secondary school.

The region also affects traditional school bullying. Bullying is more severe in urban areas than in rural areas, which is similar to previous studies (Cabrera et al., 2022). However, there was no statistically significant difference between the island and rural areas. This may be related to the small number of students from the islands in our study.

The study also found that boarding students are also at higher risk of being victim and perpetrator both before and during COVID-19, which is consistent with previous research (Pfeiffer & Pinquart, 2014). This is related to the fact that boarding students have a

Table 2
Impact of COVID-19 on bullying victimization and perpetration.

Victimization	Before COVID-19	During COVID-19	χ^2	<i>P</i>
Physical victimization	76 (2.5 %)	112 (4.1 %)	12.561	<0.001
Social manipulation	132 (4.3 %)	191 (7.0 %)	20.602	<0.001
Verbal victimization	325 (10.6 %)	592 (21.8 %)	136.665	<0.001
Attacks on property	213 (6.9 %)	411 (15.2 %)	101.17	<0.001
Total	452 (14.7 %)	768 (28.3 %)	160.226	<0.001
Perpetration	Before COVID-19	During COVID-19	χ^2	<i>P</i>
Physical bullying	38 (1.2 %)	73 (2.7 %)	16.197	<0.001
Social manipulation	53 (1.7 %)	125 (4.6 %)	40.167	<0.001
Verbal bullying	138 (4.5 %)	336 (12.4 %)	119.417	<0.001
Attacks on property	33 (1.1 %)	58 (2.1 %)	10.54	<0.001
Overall	186 (6.1 %)	424 (15.6 %)	140.13	<0.001

Table 3
Logistic regression predicting factors associated with bullying victimization.

Victimization	Before COVID-19 (n = 3071)		During COVID-19 (n = 2711)	
	P	OR (95 % CI)	P	OR (95 % CI)
Boarding (ref: no)				
Yes	<0.001	1.851 (1.492–2.297)	<0.001	2.464 (1.703–3.564)
Region (ref: rural)				
Urban	0.007	1.341 (1.083–1.660)	–	–
Island	0.827	1.044 (0.710–1.534)	–	–
School (ref: upper secondary school)				
Lower secondary school	0.001	1.402 (1.139–1.726)	<0.001	1.444 (1.208–1.727)
Gender (ref: female)				
Male	0.007	1.379 (1.093–1.740)	<0.001	1.591 (1.312–1.929)
Drinking (ref: no)				
Yes	–	–	<0.001	1.764 (1.315–2.366)
Playing violent video games (ref: no)				
Yes	<0.001	1.719 (1.360–2.173)	<0.001	1.635 (1.352–1.978)

Table 4
Logistic regression predicting factors associated with bullying perpetration.

Perpetration	Before COVID-19 (n = 3071)		During COVID-19 (n = 2711)	
	P	OR (95 % CI)	P	OR (95 % CI)
Boarding (ref: no)				
Yes	0.001	1.729 (1.263–2.367)	0.007	1.904 (1.195–3.033)
School (ref: upper secondary school)				
Lower secondary school	0.022	1.438 (1.055–1.960)	0.002	1.431 (1.142–1.794)
Gender (ref: female)				
Male	<0.001	2.385 (1.606–3.644)	<0.001	1.852 (1.434–2.390)
Drinking (ref: no)				
Yes	<0.001	2.898 (1.902–4.415)	0.001	1.766 (1.252–2.491)
Smoking (ref: no)				
Yes	0.015	2.001 (1.145–3.497)	0.001	2.349 (1.395–3.955)
Playing violent video games (ref: no)				
Yes	0.001	1.907 (1.294–2.811)	<0.001	2.261 (1.781–2.870)

higher level of contact with their peers because they are in a closed environment. In turn, the school lockdown due to COVID-19 may have increased the percentage of boarding students (Pfeiffer & Pinquart, 2014; Yin et al., 2017). More strong evidence is needed in the future among Chinese boarding students compared to others.

Plus, drinking during COVID-19 was associated with bullying victimization, which is consistent with previous research (Kim et al., 2018). However, this behavior had no statistically significant effect on bullying before COVID-19. This may be related to the increased consumption of alcohol during COVID-19 (Pocuca et al., 2022).

Playing violent video games was associated with bullying victimization and perpetration both before and during COVID-19. Previous research has found that playing violent video games is associated with traditional perpetration (Teng et al., 2022) and cyberbullying victimization (Lam et al., 2013). In contrast, the present study also found that playing violent video games was associated with traditional school bullying victimization. We believe that it is possible that playing violent video games leads to cyberbullying victimization, which is associated with traditional bullying victimization (Kim et al., 2022).

Smoking was associated with bullying perpetration as well, which is consistent with previous research (Azagba, 2016). This may be related to the bullying perpetrators' wish to make themselves attractive and gain social status through smoking (Vieno et al., 2011).

4.1. Strengths

First, to the best of our knowledge, this study might be the first study to examine the impact and influencing factors of traditional school bullying in China among secondary students before and during COVID-19. Second, stratified cluster sampling was used to ensure the representation of subjects was strong and meaningful. Third, an offline classroom survey was performed in two cross-sectional studies, which avoided the bias of home survey and ensured the authenticity of the data.

4.2. Limitations

The present study also has some limitations. First, we used data in 2018 and 2021 to approximately evaluate changes of bullying rate instead of every year, so that we cannot observe the exact changes during COVID-19, which may have caused some bias on the results. Future high-quality studies like cohort studies are needed to confirm the continuous dynamic changes in bullying rates. Second,

cross-sectional study cannot reach causal inference, which needs further longitudinal studies in the future. Third, in order to get a higher response rate from students, we investigated few questions, other associated factors such as school climate and family support (Lee, Roh, & Yang, 2022; Montero-Carretero et al., 2021) were not included in this research. An authoritative school climate can reduce risk behaviors such as bullying, drinking, and suicide (Cornell & Huang, 2016). Family support is a protective factor for bullying (Chrysanthou & Vasilakis, 2020). Future studies should consider the impact of these factors. Fourth, the effect of COVID-19 on cyberbullying was not included in this study. Because of COVID-19, students' Internet classes at home resulted in increased time spent online and their probability of being affected by cyberbullying. Studies on changes in cyberbullying before and during COVID-19 in Korea are available (Shin & Choi, 2021). Future studies should examine the impact of COVID-19 on cyberbullying among Chinese students. Fifth, although the students were supervised by their teachers in completing the questionnaires, there may still be reporting bias. Future studies need to ensure the reliability of the findings through various means, such as parental reports, teacher reports, and so on. Sixth, our study only included two roles, perpetrator and victim, and future research should also consider the impact of the COVID-19 on bully-victim and bystander. Seventh, the differences in the composition of the datasets collected before and during COVID-19, and particularly the higher proportion of male, lower-secondary, urban, and boarding students in the sample collected during COVID-19 may have some impact on the study results.

5. Conclusion

COVID-19 was associated with traditional school bullying among Chinese secondary school students. Compared to the period before COVID-19, the prevalence of all types of traditional bullying victimization and perpetration increased among Chinese secondary school students during COVID-19. Moreover, factors such as gender, school, region, boarding, smoking, drinking, and playing violent video games affect the prevalence of traditional school bullying.

CRedit authorship contribution statement

L.L. conceived of the study, participated in its design and coordination. J.H. and Z. K. and performed the measurement. Q.D. participated in the design of the study and performed the statistical analysis. Y.C. helped to draft the manuscript. All authors read and approved the final manuscript.

Declaration of competing interest

The authors declare no competing interests.

Data availability

Data will be made available on request.

Acknowledgements

We appreciate all participants, teachers and school administrators for their patience and help in this research.

Funding

No funding was received to assist with the preparation of this manuscript.

Data sharing and declaration

The datasets generated and/or analyzed during the current study are not publicly available unless ask for the corresponding author on reasonable request.

Compliance with ethical standards

Ethical approval

This study was performed in line with the principles of the Declaration of Helsinki. Approval was granted by the Ethics Committee of Shantou University Medical College (SUMC-2018-42, SUMC-2021-92).

Informed consent

Written informed consent was obtained from all participants.

References

- Archer, J. (2004). Sex differences in aggression in real-world settings: A meta-analytic review. *Review of General Psychology*, 8(4), 291–322. <https://doi.org/10.1037/1089-2680.8.4.291>
- Armitage, R. (2021). Bullying during COVID-19: The impact on child and adolescent health. *British Journal of General Practice*, 71(704), 122. <https://doi.org/10.3399/bjgp21X715073>
- Avanesian, G., Dikaya, L., Bermous, A., Kochkin, S., Kirik, V., Egorova, V., & Abkadyrova, I. (2021). Bullying in the Russian secondary school: Predictive analysis of victimization. *Frontiers in Psychology*, 12, Article 644653. <https://doi.org/10.3389/fpsyg.2021.644653>
- Azagba, S. (2016). School bullying and susceptibility to smoking among never-tried cigarette smoking students. *Preventive Medicine*, 85, 69–73. <https://doi.org/10.1016/j.ypmed.2016.01.006>
- Baiden, P., Kuire, V. Z., Shrestha, N., Tonui, B. C., Dako-Gyeke, M., & Peters, K. K. (2019). Bullying victimization as a predictor of suicidal ideation and suicide attempt among senior high school students in Ghana: Results from the 2012 Ghana Global School-Based Health Survey. *Journal of School Violence*, 18(2), 300–317. <https://doi.org/10.1080/15388220.2018.1486200>
- Becker, S. P., Dvorsky, M. R., Breaux, R., Cusick, C. N., Taylor, K. P., & Langberg, J. M. (2021). Prospective examination of adolescent sleep patterns and behaviors before and during COVID-19. *Sleep*, 44(8), zsab054. <https://doi.org/10.1093/sleep/zsab054>
- Betts, L. R., Houston, J. E., & Steer, O. L. (2015). Development of the Multidimensional Peer Victimization Scale-Revised (MPVS-R) and the Multidimensional Peer Bullying Scale (MPVS-RB). *The Journal of Genetic Psychology*, 176(2), 93–109. <https://doi.org/10.1080/00221325.2015.1007915>
- Biswas, T., Scott, J. G., Munir, K., Thomas, H. J., Huda, M. M., Hasan, M. M., ... Mamun, A. A. (2020). Global variation in the prevalence of bullying victimisation amongst adolescents: Role of peer and parental supports. *Eclinicalmedicine*, 20, Article 100276. <https://doi.org/10.1016/j.eclim.2020.100276>
- Borualogo, I. S., & Casas, F. (2023). Sibling bullying, school bullying, and children's subjective well-being before and during the COVID-19 pandemic in Indonesia. *Child Indicators Research*, 1-30. <https://doi.org/10.1007/s12187-023-10013-5>
- Brausch, A. M., Whitfield, M., & Clapham, R. B. (2022). Comparisons of mental health symptoms, treatment access, and self-harm behaviors in rural adolescents before and during the COVID-19 pandemic. *European Child and Adolescent Psychiatry*, 1–10. <https://doi.org/10.1007/s00787-022-02039-x>
- Cabrera, M. C., Larranaga, E., & Yubero, S. (2022). Bullying/cyberbullying in secondary education: A comparison between secondary schools in rural and urban contexts. *Child and Adolescent Social Work Journal*. <https://doi.org/10.1007/s10560-10022-00882-10560> (doi:10.1007/s10560-022-00882-0).
- Chaffee, B. W., Cheng, J., Couch, E. T., Hoefl, K. S., & Halpern-Felsher, B. (2021). Adolescents' substance use and physical activity before and during the COVID-19 pandemic. *JAMA Pediatrics*, 175(7), 715–722. <https://doi.org/10.1001/jamapediatrics.2021.0541>
- Chen, Y., Osika, W., Henriksson, G., Dahlstrand, J., & Friberg, P. (2022). Impact of COVID-19 pandemic on mental health and health behaviors in Swedish adolescents. *Scandinavian Journal of Public Health*, 50(1), 26–32. <https://doi.org/10.1177/14034948211021724>
- Cho, S. J. (2018). The impact of low self-control and delinquent peer associations on bullying perpetration and victimization among South Korean adolescents: Time-concurrent, time-lagged, and latent growth curve modeling. *Journal of School Violence*, 17(4), 500–520. <https://doi.org/10.1080/15388220.2018.1453821>
- Chrysanthou, G. M., & Vasilakis, C. (2020). Protecting the mental health of future adults: Disentangling the determinants of adolescent bullying victimisation. *Social Science & Medicine*, 253, Article 112942. <https://doi.org/10.1016/j.socscimed.2020.112942>
- Cook, E. C. (2022). Perceived changes in peer relationships and behavioral health among college students during COVID-19. *Journal of American College Health*, 1-8. <https://doi.org/10.1080/07448481.2022.2106787>
- Copeland, W. E., Bulik, C. M., Zucker, N., Wolke, D., Lereya, S. T., & Costello, E. J. (2015). Does childhood bullying predict eating disorder symptoms? A prospective, longitudinal analysis. *International Journal of Eating Disorders*, 48(8), 1141–1149. <https://doi.org/10.1002/eat.22459>
- Cornell, D., & Huang, F. (2016). Authoritative school climate and high school student risk behavior: A cross-sectional multi-level analysis of student self-reports. *Journal of Youth and Adolescence*, 45(11), 2246–2259. <https://doi.org/10.1007/s10964-016-0424-3>
- Defoe, I. N., Khurana, A., Betancourt, L. M., Hurt, H., & Romer, D. (2022). Cascades from early adolescent impulsivity to late adolescent antisocial personality disorder and alcohol use disorder. *Journal of Adolescent Health*, 71(5), 579–586. <https://doi.org/10.1016/j.jadohealth.2022.06.007>
- Erreygers, S., Pabian, S., Vandebosch, H., & Baillien, E. (2016). Helping behavior among adolescent bystanders of cyberbullying: The role of impulsivity. *Learning and Individual Differences*, 48, 61–67. <https://doi.org/10.1016/j.lindif.2016.03.003>
- Evans-Lacko, S., Takizawa, R., Brimblecombe, N., King, D., Knapp, M., Maughan, B., & Arseneault, L. (2017). Childhood bullying victimization is associated with use of mental health services over five decades: A longitudinally nationally representative cohort study. *Psychological Medicine*, 47(1), 127–135. <https://doi.org/10.1017/s00332917160001719>
- Eyuboglu, M., Eyuboglu, D., Pala, S. C., Oktar, D., Demirtas, Z., Arslantas, D., & Unsal, A. (2021). Traditional school bullying and cyberbullying: Prevalence, the effect on mental health problems and self-harm behavior. *Psychiatry Research*, 297, Article 113730. <https://doi.org/10.1016/j.psychres.2021.113730>
- Forsberg, J. T., & Thorvaldsen, S. (2022). The severe impact of the COVID-19 pandemic on bullying victimization, mental health indicators and quality of life. *Scientific Reports*, 12(1), 22634. <https://doi.org/10.1038/s41598-022-27274-9>
- Foulkes, L., & Blakemore, S. J. (2021). Individual differences in adolescent mental health during COVID-19 the importance of peer relationship quality. *Neuron*, 109(20), 3203–3205. <https://doi.org/10.1016/j.neuron.2021.07.027>
- Gomez-Leon, M. I. (2021). Decreased anxiety in victims of bullying during confinement by COVID-19. *Red-Revista De Educacion a Distancia*, 21(65). <https://doi.org/10.6018/red.439601>
- Hashorva, A., Pengili, T., Lici, M., & Prifti, I. (2017). What are the mental health impacts on adults coming from childhood bullying? *European Psychiatry*, 41, S129–S130. <https://doi.org/10.1016/j.eurpsy.2017.01.1942>
- Hill, R. M., Mellick, W., Temple, J. R., & Sharp, C. (2017). The role of bullying in depressive symptoms from adolescence to emerging adulthood: A growth mixture model. *Journal of Affective Disorders*, 207, 1–8. <https://doi.org/10.1016/j.jad.2016.09.007>
- Hollenstein, T., Colasante, T., & Loughheed, J. P. (2021). Adolescent and maternal anxiety symptoms decreased but depressive symptoms increased before to during COVID-19 lockdown. *Journal of Research on Adolescence*, 31(3), 517–530. <https://doi.org/10.1111/jora.12663>
- Huang, J., Zhong, Z., Zhang, H., & Li, L. (2021). Cyberbullying in social media and online games among Chinese college students and its associated factors. *International Journal of Environmental Research and Public Health*, 18(9), 4819. <https://doi.org/10.3390/ijerph18094819>
- Jadambaa, A., Thomas, H. J., Scott, J. G., Graves, N., Brain, D., & Pacella, R. (2019). Prevalence of traditional bullying and cyberbullying among children and adolescents in Australia: A systematic review and meta-analysis. *Australian and New Zealand Journal of Psychiatry*, 53(9), 878–888. <https://doi.org/10.1177/0004867419846393>
- Jang, S. H., & Hwang, H. (2022). Multilevel factors associated with obesity among South Korean adolescents before and during the COVID-19 pandemic. *Childhood Obesity*. <https://doi.org/10.1089/chi.2022.0053>
- Joseph, S., Stockton, H. J. A., & Behavior, V. (2018). The multidimensional peer victimization scale: A systematic review. *Aggression and Violent Behavior*, 42, 96–114.
- Juvonen, J., & Graham, S. (2014). Bullying in schools: The power of bullies and the plight of victims. *Annual Review of Psychology*, 65, 159–185. <https://doi.org/10.1146/annurev-psych-010213-115030>
- Kim, D. H., Hong, J. S., Wei, H. S., Lee, J. M., Hahm, H. C., & Espelage, D. L. (2018). Pathways from bullying victimization to alcohol and tobacco use in South Korean adolescents: Findings from a nationally representative sample. *Journal of the Society for Social Work and Research*, 9(3), 395–411. <https://doi.org/10.1086/699187>
- Kim, J., Lee, Y., & Jennings, W. G. (2022). A path from traditional bullying to cyberbullying in South Korea: Examining the roles of self-control and deviant peer association in the different forms of bullying. *Journal of Interpersonal Violence*, 37(9–10), 5937–5957. <https://doi.org/10.1177/08862605211067022>
- Lam, L. T., Cheng, Z. H., & Liu, X. M. (2013). Violent online games exposure and cyberbullying/victimization among adolescents. *Cyberpsychology, Behavior and Social Networking*, 16(3), 159–165. <https://doi.org/10.1089/cyber.2012.0087>
- Lane, J., Therriault, D., Dupuis, A., Gosselin, P., Smith, J., Ziam, S., ... Dufour, M. (2022). The impact of the COVID-19 pandemic on the anxiety of adolescents in Quebec. *Child & Youth Care Forum*, 51(4), 811–833. <https://doi.org/10.1007/s10566-021-09655-9>

- Lee, J., Roh, B.-R., & Yang, K.-E. (2022). Exploring the association between social support and patterns of bullying victimization among school-aged adolescents. *Children and Youth Services Review*, 136, Article 106418. <https://doi.org/10.1016/j.childyouth.2022.106418>
- Lee, J. M., Choi, H. H., & DeLarac, E. (2022). Parental care and family support as moderators on overlapping college student bullying and cyberbullying victimization during the COVID-19 pandemic. *Journal of Evidence-Based Social Work*, 19(6), 684–699. <https://doi.org/10.1080/26408066.2022.2094744>
- Leeb, R. T., Bitsko, R. H., Radhakrishnan, L., Martinez, P., Njai, R., & Holland, K. M. (2020). Mental health-related emergency department visits among children aged <18 years during the COVID-19 pandemic - United States, January 1–October 17, 2020. *MMWR: Morbidity and Mortality Weekly Report*, 69(45), 1675–1680. <https://doi.org/10.15585/mmwr.mm6945a3>
- Li, C., Wang, P., Martin-Moratinos, M., Bella-Fernández, M., & Blasco-Fontecilla, H. (2022). Traditional bullying and cyberbullying in the digital age and its associated mental health problems in children and adolescents: A meta-analysis. *European Child and Adolescent Psychiatry*. <https://doi.org/10.1007/s00787-0022-02128-x>
- Li, R., Lian, Q., Su, Q., Li, L., Xie, M., & Hu, J. (2020). Trends and sex disparities in school bullying victimization among U.S. youth, 2011–2019. *BMC Public Health*, 20(1), 1583. <https://doi.org/10.1186/s12889-020-09677-3>
- Maltoni, G., Zioutas, M., Deiana, G., Biserni, G. B., Pession, A., & Zucchini, S. (2021). Gender differences in weight gain during lockdown due to COVID-19 pandemic in adolescents with obesity. *Nutrition Metabolism and Cardiovascular Diseases*, 31(7), 2181–2185. <https://doi.org/10.1016/j.numecd.2021.03.018>
- Montero-Carretero, C., Pastor, D., Santos-Rosa, F. J., & Cervelló, E. (2021). School climate, moral disengagement and, empathy as predictors of bullying in adolescents. *Frontiers in Psychology*, 12, Article 656775. <https://doi.org/10.3389/fpsyg.2021.656775>
- Myklestad, I., & Straiton, M. (2021). The relationship between self-harm and bullying behaviour: Results from a population based study of adolescents. *BMC Public Health*, 21(1), 524. <https://doi.org/10.1186/s12889-021-10555-9>
- Mynard, H., & Joseph, S. (2000). Development of the multidimensional peer-victimization scale. *Aggressive Behavior*, 26(2), 169–178. [https://doi.org/10.1002/\(SICI\)1098-2337\(2000\)26:2<169::AID-AB3>3.0.CO;2-A](https://doi.org/10.1002/(SICI)1098-2337(2000)26:2<169::AID-AB3>3.0.CO;2-A)
- Olweus, D. (2013). School bullying: Development and some important challenges. *Annual Review of Clinical Psychology*, 9, 751–780. <https://doi.org/10.1146/annurev-clinpsy-050212-185516>
- Pfeiffer, J. P., & Pinquart, M. (2014). Bullying in German boarding schools: A pilot study. *School Psychology International*, 35(6), 580–591. <https://doi.org/10.1177/0143034314525513>
- Pocuca, N., London-Nadeau, K., Geoffroy, M. C., Chadi, N., Seguin, J. R., Parent, S., ... Castellanos-Ryan, N. (2022). Changes in emerging adults' alcohol and cannabis use from before to during the COVID-19 pandemic: Evidence from a prospective birth cohort. *Psychology of Addictive Behaviors*, 36(7), 786–797. <https://doi.org/10.1037/adb0000826>
- Raine, A., Fung, A. L., & Lam, B. Y. (2011). Peer victimization partially mediates the schizotypy-aggression relationship in children and adolescents. *Schizophrenia Bulletin*, 37(5), 937–945. <https://doi.org/10.1093/schbul/sbr082>
- Repo, J., Herkama, S., & Salmivalli, C. (2022). Bullying interrupted: Victimized students in remote schooling during the COVID-19 pandemic. *International Journal of Bullying Prevention*, 1-13. <https://doi.org/10.1007/s42380-022-00146-6>
- Ritchie, L., Cervone, D., & Sharpe, B. T. (2021). Goals and self-efficacy beliefs during the initial COVID-19 lockdown: A mixed methods analysis. *Frontiers in Psychology*, 11. <https://doi.org/10.3389/fpsyg.2020.559114>
- Sheikhan, N. Y., Hawke, L. D., Ma, C., Courtney, D., Sztamari, P., Cleverley, K., ... Henderson, J. (2022). A longitudinal cohort study of youth mental health and substance use before and during the COVID-19 pandemic in Ontario, Canada: An exploratory analysis. *Canadian Journal of Psychiatry*. <https://doi.org/10.1177/07067437221097906>, 7067437221097906.
- Shin, S. Y., & Choi, Y. J. (2021). Comparison of cyberbullying before and after the COVID-19 pandemic in Korea. *International Journal of Environmental Research and Public Health*, 18(19), 11. <https://doi.org/10.3390/ijerph181910085>
- Sikorska, I. M., Lipp, N., Wrobel, P., & Wyra, M. (2021). Adolescent mental health and activities in the period of social isolation caused by the COVID-19 pandemic. *Postępy Psychiatrii I Neurologii*, 30(2), 79–95. <https://doi.org/10.5114/ppn.2021.108472>
- Teng, Z. J., Yang, C. Y., Stomski, M., Nie, Q., & Guo, C. (2022). Violent video game exposure and bullying in early adolescence: A longitudinal study examining moderation of trait aggressiveness and moral identity. *Psychology of Violence*, 12(3), 149–159. <https://doi.org/10.1037/vio0000424>
- Turner, B. J., Robillard, C. L., Ames, M. E., & Craig, S. G. (2022). Violent video game exposure and bullying in early adolescence: A longitudinal study examining moderation of trait aggressiveness and moral identity. *Canadian Journal of Psychiatry-Revue Canadienne De Psychiatrie*, 67(5), 403–406. <https://doi.org/10.1177/07067437211036612>
- UNESCO. (2019). Behind the numbers: Ending school violence and bullying. <https://www.unicef.org/documents/behind-numbers-ending-school-violence-and-bullying>. https://www.end-violence.org/sites/default/files/paragraphs/download/UNESCO_Bullying.pdf.
- Vaillancourt, T., Brittain, H., Krygsman, A., Farrell, A. H., Landon, S., & Pepler, D. (2021). School bullying before and during COVID-19: Results from a population-based randomized design. *Aggressive Behavior*, 47(5), 557–569. <https://doi.org/10.1002/ab.21986>
- Vieno, A., Gini, G., & Santinello, M. (2011). Different forms of bullying and their association to smoking and drinking behavior in Italian adolescents. *Journal of School Health*, 81(7), 393–399. <https://doi.org/10.1111/j.1746-1561.2011.00607.x>
- Vivolo-Kantor, A. M., Martell, B. N., Holland, K. M., & Westby, R. (2014). A systematic review and content analysis of bullying and cyber-bullying measurement strategies. *Aggression and Violent Behavior*, 19(4), 423–434. <https://doi.org/10.1016/j.avb.2014.06.008>
- Wu, W.-C., Luu, S., & Luh, D.-L. (2016). Defending behaviors, bullying roles, and their associations with mental health in junior high school students: A population-based study. *BMC Public Health*, 16(1), 1066. <https://doi.org/10.1186/s12889-016-3721-6>
- Xing, J., Peng, M., Deng, Z., Chan, K. L., Chang, Q., & Ho, R. T. H. (2022). The prevalence of bullying victimization and perpetration among the school-aged population in chinese communities: A systematic review and meta-analysis. *Trauma, Violence & Abuse*. <https://doi.org/10.1177/15248380221129595>, 15248380221129595.
- Yin, X.-Q., Wang, L.-H., Zhang, G.-D., Liang, X.-B., Li, J., Zimmerman, M. A., & Wang, J.-L. (2017). The promotive effects of peer support and active coping on the relationship between bullying victimization and depression among Chinese boarding students. *Psychiatry Research*, 256, 59–65. <https://doi.org/10.1016/j.psychres.2017.06.037>
- Zhekuan, P. (2019). *School bullying KAP survey and effect evaluation of education intervention among middle school students* (Master dissertation). Shantou University <https://d.wanfangdata.com.cn/thesis/ChJUaGVzaXNOZXdTmJyMzAxMTISCUqWMTg0MTI5MBolcWhtZXNlank%3D>.