Author’s response to reviews

Title: Is involvement in school bullying associated with increased risk of murderous ideation and behaviours among adolescent students in China?

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Author’s response to reviews:

Response to the comments

Dear Editor,

We are very pleased to have your comments for our manuscript titled “Are adolescent students involved in school bullying associated with increased risk of murderous ideation and behaviors?” submitted to BMC Psychiatry, (#ID BPSY-D-18-00216). We have carefully considered the comments and revised the manuscript.

Below are our point-to-point responses to Reviewers’ comments. The relevant changes have made in the original manuscript according to the comments provided by reviewers. We have highlighted the changes to our revised manuscript within document in blue. In addition, some grammar and spelling errors have also been corrected.
Technical Comments:
Comments: Please include 'Declarations' heading in the Declarations section.
Responses: Thank you for your kind concern. We include 'Declarations' heading in the Declarations section.

Editor Comments:
Comments: Although the manuscript has its merits as noted by the reviewers, the investigators need to address several limitations before reconsideration for publication, in particular specifying the model/hypotheses they’re testing on the associations among bullying, homicidal ideation, and actual killing of people.
Responses: Thank you for kind concern. We have add more literature review and list out the three study hypotheses in the revised manuscript.

Reviewer 1:
Point 1: I suggest including "China" or "Chinese" somewhere in the title.
Responses to point 1: Thank you for your suggestion. We have included China in the title in the revised manuscript.

Point 2: In the "Emerging evidence has indicated that involvement in bullying is associated with physical health problem, conduct problem, internalizing or externalizing problems, and even suicide ideation and behaviors [3,18-22]" part, I suggest citing the following:


Responses to point 2: Thank you for your kind suggestion. In the revised manuscript, we cited this reference to this statement.

Point 3: Please include a definition and prevalence rate of bullying perpetration in China.
Responses to point 3: Thank you for your kind suggestion. The prevalence of self-reported traditional bullying experience is 2% to 66% for being bullied, and 2% to 34% for conducting bullying. The prevalence of self-reported cyberbullying is higher, which is 14% to 57% for being bullied and 3% to 35% for conducting bully [1]. Data were collected from different Chinese studies. We have added the prevalence in the introduction section of the revised manuscript.


Point 4: Please also cite some studies conducted in China in the Introduction. The authors should also discuss early on that the focus of the study is on China.

Responses to point 4: Thank you for your kind comments. We cited some studies in China and discuss early on that the focus of the study on China in the revised manuscript.

To our knowledge, there is a lack of study that has quantitatively examined adolescent murderous ideation and behaviors in China. However, adolescent murders occur continuously in China. The “Ma Jiajue case” is a breaking example of murders among adolescents. In that case, a college student named Ma Jiajue murdered his four classmates due to a trivial issue. Another example is that an 18-year-old boy poisoned 41 people with food. The impact of adolescent murder can be profound and long-lasting.

The studies conducted across the mainland China showed that the prevalence of self-reported bullying victimization and perpetration ranged from 2% to 66% and 2% to 34%, respectively, whereas the prevalence rate of self-reported cyberbullying victimization and perpetration ranged from 14% to 57% and 3% to 35%, respectively.

This study can provide a scientific evidence for further research and prevention of murder among adolescents in China.

Point 5: The authors included sociodemographic information, such as gender and age. What about other sociodemographic information that may be relevant, such as family composition and socioeconomic status?

Responses to point 5: Thank you for your comment. We included the variable “self-estimated family economic status” in this revised manuscript and found that “self-estimated family economic status” was significantly associated with murderous ideation. During model fitting, we also considered the “family type” (i.e. single-parent, live with grandparents, and so on) as a
confounder variable. However, no significant association was found for family type. So we didn’t include family type in the final model.

Point 6: In the Study Design and Participants section, please describe a bit more about how data were collected. Who administered the surveys, etc.

Responses to point 6: Thank you for your suggestions. In this study, an anonymous questionnaire was administered by trained interviewers in the absence of all the teachers to protect every student’s privacy. Each student sat on a separate table and asked to independently complete the questionnaire. All the students were required to finish the questionnaires during 20 minutes. We stated that in the Data Collection and Ethical Statement section in the revised manuscript.

Point 7: Please report on missing values and how they were handled, if any.

Responses to point 7: Thank you for your kind concern. We didn’t report missing value directly in the manuscript. However, we provided the number of students cannot participate and the completion rate of questionnaire in the manuscript. Participants with missing values were not included in analysis. The relevant text is:

All of the 6,032 students in selected classes were invited to participate in this study. Of these students, 205 refused to participate and 67 were absent from those schools at the time of survey; thus, 5,760 students completed the questionnaires, with the participate rate of 95.5%.

Point 8: Please revisit the hypotheses in the Results and Discussion sections.

Responses to point 8: Thank you for your kind concern. In the revised manuscript, we revisit the hypotheses in the Results and Discussion sections.

Point 9: The authors stated that a large, diverse sample was acquired. Then why didn't they report on the race/ethnicity/religious affiliation of the study sample?

Responses to point 9: Thank you for your kind suggestions. In China, the distribution of race/ethnicity/religion within a city is not as diverse as in western countries. The majority (>90%) of Chinese adolescents in our study cities are Han Chinese, no religious belief. In the revised manuscript, we deleted the word (diverse).

Although our study has many advantages such as the random sampling approach and a large sample size, a few limitations exist in our study design.
Reviewer 2:

Point 1: What is the general explanation model for the association between bullying (perpetrator and victims) and murderous ideation and behaviors? Do authors expect that victims of bullying develop violent rage fantasies - to take revenge? This would not explain why also perpetrators have higher rates in murderous ideation etc. Thus, to my opinion, authors have to start with a more rigorous literature review and develop hypotheses - on the basis of theories, empirical results etc. - WHY (and in which direction) they expect to find relations between variables investigated.

Responses to point 1: Thank you for your kind suggestions. In the introduction section of the revised manuscript, we included a more rigorous literature review and develop three hypotheses based on previous results.

A growing body of studies has reported the associations between school bullying and adolescent violent behaviors, including physical violence, teen dating violence and suicide. School bullying was previously found to be a predictor of violence in later life. Further, studies have indicated that homicide may be caused by school bullying. Involvement in bullying as a victim, bully, or bully-victim is associated with weapon carrying, which increase the likelihood of death during conflict issues. Previous studies have found that adolescences involvement in bullying shared several risk factors of developing homicide. For example, childhood adverse experiences, such as childhood maltreatment, have been reported as a risk factor for both bullying and homicide. Additionally, adolescences involvement in bullying may have mental health or neurodevelopment problems that make them be susceptible to homicide. For example, elevated and uncontrolled anger/aggression can increase the risk of homicide/attempted homicide. Camodeca and Goossens found that both bullying performers and victims scored higher in hostile aggression, anger, retaliation, and easy to get aggression. Similarly, adolescences involvement in bullying was associated with increased risk for drug and alcohol abuse, as well as mental disorders; thus, more likely to commit homicide. However, few studies examined the relationship between school bullying and adolescent murder.

In this study, we hypothesized that school bullying may be significantly associated with murderous ideation and behaviors. Firstly, we aimed at studying the association between each type of school bullying (including traditional and cyberbullying) and murderous ideation and behaviors. Previous study has found that the impact of cyberbullying on victims is comparable with that of traditional bullying on victims. Therefore, it is hypothesized that involvement in both tradition and cyberbullying was associated with increased risk for adolescent murder ideation and behaviors. Secondly, we further examined the physical or behavior change due to school bullying and their association with murderous ideation and behaviors, due to that previous studies showed factors like depression and poor sleep quality occurred more frequently after experienced certain types of school bullying. Additionally, we hypothesized that there is a dose-response relationship between school bullying and murderous ideation and behaviors. Thirdly,
we aimed to investigate the role of adolescents played in school bullying and their murderous ideation and behaviors. We hypothesized that involvement in school bullying as a victim, bully, or bully-victim is related to murderous ideation and behaviors.

Further, we also revisit the hypotheses in the Results and Discussion sections.

Point 2: Authors for example found that 7.2% of their sample reported about attempts to murder another person - how can authors make sure that this is really true and not a reporting bias (e.g. students incriminating themselves) - I would expect that at least some of these attempts must have been notified? Maybe authors did not measure attempts etc. but violent fantasies only which served as emotion regulation strategy?

Responses to point 2: Thank you for your kind concern. We have described the “attempt” in the questionnaire given to the students.

The questions for measuring adolescent murderous ideation and behaviors (i.e. ideation, plan, preparation, and attempt) were as follows: (a) “Have you ever thought to end someone’s life in the past six months (i.e. have the thoughts to take someone’s life)?” (b) “Have you ever planned to end someone’s life in the past six months (i.e. carefully thought some specific way or step to take someone’s life)?” (c) “Have you ever prepared to end someone’s life in the past six months (i.e. have prepare some specific tool or goods to end someone’s life)?” (d) “Have you ever attempted to end someone’s life in the past six months (e.g. poisoning, stabbing with a sharp knife, strangling)?”

However, this question is also related to a limitation of our study. We admitted that the self-reported data are yield to recall bias. In future study, we will use a method combined the registered-based and self-reported data sources to understand the problem of murderous ideation and behaviors among adolescents.

Point 3: Due to the high prevalence of bullying and the low frequency of homicide in adolescence, bullying can NOT be a causal risk factor - especially not in prospective longitudinal studies (e.g. see Mulvey & Kaufmann, 2001). In retrospective case analyses e.g. of school shootings, scholars found: in nearly 90% of cases the future perpetrator experienced social conflict within the school environment. A minority of perpetrators (29.9%) were physically bullied, while 53.7% experienced peer rejection, verbal and otherwise. Romantic rejection was only found in 29.9% of cases. Conflicts with teachers (43.3%) proved a decisive factor. (see Sommer et al., 2014). Thus, although in cases of severe forms of homicidal violence some evidence exists that perpetrators reported negative social experiences in their lives, this kind of social experiences is very common, highly prevalent and thus can not be a causal risk factor or
can be used to predict this kind of homicidal violence. Additionally, anti-bullying programs won't have an impact of these kind of very, very rare cases of homicidal violence. (see authors' conclusion "Prevention towards school bullying might have an impact on reducing adolescent murder intention and behaviors").

Responses to point 3: Thank you for your kind comments.

Taken together, our study found a positive link between school bullying and adolescent murderous ideation and behaviors. This finding was partly supported by previous study found that involvement in bullying as a victim, bully, or bully-victim is related to weapon carrying. However, due to the high prevalence of school bullying and the rare cases of homicide among adolescences, bullying was not considered as a causal factor of adolescent murder. Nevertheless, we cannot conclude a causal relationship between school bullying and murderous ideation and behaviors in this study due to its cross-sectional design. In addition, the culture differences might influence the relationship between school bullying and murderous ideation and behaviors. In the United States, a murder often causes deaths due to the use of guns. In China, guns are regulated and murderous attacks have low rate of death. Therefore, the adolescent murder maybe underreported in China due to that social media tend to report murder only with deaths. Additionally, China has different cultures and shares different beliefs with Western countries. The Chinese cultures are also diverse greatly across the country. Future studies will investigate the role of culture difference played in school bullying and adolescent murders.

Further, we deleted the sentences that prevention towards school bullying might have an impact on reducing adolescent murder intention and behaviors.

Point 4: Authors analyzed nested data (students nested in school classes) and thus have to control for bias due to clustering at the classroom-level - authors should check the ICCs.

Responses to point 4: Thank you for your kind suggestions. We have checked the ICCs. We fit the two-level logistic regression mixed models in which classrooms were treated as clusters used the Package “lme4” in R version 3.5.1. The results were remained robust. We enclosed those results in the Supplement Materials.

Some minor issues:

Point 5: Authors should add "in China" to the title

Responses to point 5: Thank you for your suggestion. We included “China” in the title in the revised manuscript.
Point 6: Additionally, one can expect cultural differences - thus, the situation/results in/for China may be different from results in other cultures/nations. Authors should discuss this issue.

Responses to point 6: Thank you for your suggestion. We further discuss the cultural differences in the Discussion section in the revised manuscript.

Taken together, our study found a positive link between school bullying and adolescent murderous ideation and behaviors. This finding was partly supported by previous study found that involvement in bullying as a victim, bully, or bully-victim is related to weapon carrying. However, due to the high prevalence of school bullying and the rare cases of homicide among adolescents, bullying was not considered as a causal factor of adolescent murder. Nevertheless, we cannot conclude a causal relationship between school bullying and murderous ideation and behaviors in this study due to its cross-sectional design. In addition, the culture differences might influence the relationship between school bullying and murderous ideation and behaviors. In the United States, a murder often cause deaths due to the use of guns. In China, guns are regulated and murderous attacks have low rate of death. Therefore, the adolescent murder maybe under-reported in China due to that social media tend to report murder only with deaths. Additionally, China has different cultures and shares different beliefs with Western countries. The Chinese cultures are also diverse greatly across the country. Future studies will investigate the role of culture difference played in school bullying and adolescent murders.

Point 7: The manuscript needs a language check

Responses to point 7: We have revised our manuscript carefully for many times, at the same time we asked a native speaker to revise the article.