PEER REVIEW HISTORY

ARTICLE DETAILS

TITLE (PROVISIONAL)	Sexual minority status and suicidal behavior among Chinese adolescents: A nationally representative cross-sectional study
AUTHORS	huang, yeen; Li, Pengsheng; Lan, Guo; Xue, Gao; Xu, Yan; Huang, Guoliang; Xueqing, Deng; Lu, CiYong

VERSION 1 – REVIEW

REVIEWER	Martin Plöderl Christian Doppler Klinik, Paracelsus Medical University, Salzburg, Austria
REVIEW RETURNED	26-Feb-2018

GENERAL COMMENTS	This paper is important since it is the first study investigating the risk for suicidal ideation and suicidal behavior among Chinese sexual minority youth in a representative sample. The study methodology seems to be sound, and the sample size is impressive, allowing precise estimations. There are, however, several issues concerning the style of writing and the presentation and discussion of results. I suggest that a skilled, native English speaking researcher should edit the manuscript to improve the stylistic and grammatical issues. Most of the issues are minor but some are rather major, described as such below at the end of the relevant comment. Abstract: Objectives, line 29: there are at least a few studies from China, so perhaps “remains largely unknown” is more appropriate instead of “remains unknown.” Main outcome measure: sexual orientation was assessed with an item on romantic attraction, not sexual attraction (more major issue, see also below). Results, line 45 – 47: results are unnecessarily repeated for suicide ideation. Sometimes results are expressed as numbers, sometimes not – lacking consistency. Conclusion, line 52: “Sexual minority is associated” – that does not sound like proper English. Sexual minority status? Or sexual minority adolescents? Similar faulty expressions appear throughout the manuscript. Strengths and limitations: re causal relationship. It is good to point

	out limitations of cross-sectional designs, but it seems awkward to reverse the causal link for suicidality and being non-heterosexual (how should being suicidal lead to non-heterosexuality, except perhaps for those who joke with their answers)? Introduction: p. 2, lines 48-50: are the results of the YRBS past year or lifetime? p. 3, line 30: “were under great stress” - is the current situation for sexual minority individuals in China so much better now, i.e., is the situation comparable to “Western” societies? p. 3, lines 33-40. It would be informative to give the results from the three existing studies from China. p. 4. The first paragraph includes several tautologies. Furthermore, how can the detection of suicide risk provide effective suicide-related preventive interventions? Screening may be a prerequisite for suicide prevention (but it turned out not to be effective so far). In my opinion, the value of the study is to find out if the well-known increased risk of sexual minority youth can be replicated for Chinese youth, and furthermore, if the found risk is comparable to previous international findings or not. How this translates to prevention goes beyond the scope of the paper but may be discussed in the discussion section. Methods: This was a paper and pencil questionnaire survey and there are sure missing responses. How frequent was missing data and how did the authors handle missing data? As far as I understood, adolescents were only sampled from schools in cities. Are there also rural schools? If yes, is the sample then really representative? Excluding “unsure” students from the analysis is problematic, since questioning one’s own sexual orientation is typical in identity formation. Most related studies include unsure students as separate category, for example the US YRBS analysis by Kann et al (2011) (this is a more major issue). How was anonymity guaranteed? How many students (or their parents) did not give informed consent? p. 6, line 43: A definition of sexual minority status is given. However, this is not how sexual orientation was operationalized in the study! As already mentioned, sexual orientation was assessed with one item on romantic attraction (which is not included in the definition). The term “romantic attraction” may be ambiguous for adolescents. I also wonder how this was translated into Chinese. Is the term even more ambiguous in Chinese than in English? Or less ambiguous? This needs discussion, and perhaps this should be mentioned as limitation of the study. (This is a major issue). One methodological challenge in studies on adolescents are

	mischievous reports, or so called “jokesters.” This is especially problematic if study participants falsely claim to be nonheterosexual and also falsely claim to be suicidal, since this would inflate sexual orientation disparities. Did the authors run plausibility checks of responses? See this review by Robinson-Cimpian Cimpian, Joseph R. "Classification Errors and Bias Regarding Research on Sexual Minority Youths." Educational Researcher 46.9 (2017): 517-529. Results: Section 3.1.: The ordering of results could be made more clearly. Section 3.2. and 3.2 may be combined. Numbers are given in the results that can be read from the table. Usually, this should only be done for the main results. p. 10, line 3: “admitting suicide attempts” – not sure if “admitting” is appropriate Table headings should include the time-frame of suicidality (e.g., past year suicide ideation) The findings that sexual orientation differences are larger for suicide attempts than for suicide ideation (i.e., for more severe forms of suicidality) should be pointed out and discussed. Discussion Discussion, line 16-31: it is interesting that the representative sample of the study at hand resulted in larger sexual orientation disparities than the existing community samples. Usually, this is reversed and this should be discussed. See here: Hottes, Travis Salway, et al. "Lifetime prevalence of suicide attempts among sexual minority adults by study sampling strategies: a systematic review and meta-analysis." American journal of public health 106.5 (2016): e1-e12. p. 13, lines 6-21: a comparison of the study finding with one single Australian study is not very scientific. A comparison with other meta-analysis or systematic reviews is more informative. E.g., with Plöderl M & Tremblay P "Mental health of sexual minorities. A systematic review." International review of psychiatry 27.5 (2015): 367-385. p. 15, line 15: some adolescents were absent from school and could not participate in the survey. The YRBS results from the US found that LGB youth more likely skip school than heterosexual youth due to fear of being bullied. Thus, very likely LGB youth are overrepresented among those who did not take part in the survey, and perhaps they are those most at risk for suicide. This would lead to an underestimation of the sexual orientation disparities. Perhaps this needs discussion.

	As mentioned above, a more critical discussion about the consequences of the articles finding for suicide prevention would be good. What is the consequence if students are recognized as being nonheterosexual and at high risk for suicide? Are there special gay/lesbian-affirmative counselling services in China? What is the risk that somebody will receive “reparative therapy”? Can the study results be used to inform governmental public health organizations? (a more major issue).

REVIEWER	Elizabeth Hughes University of Huddersfield, UK
REVIEW RETURNED	20-Mar-2018

GENERAL COMMENTS	This is an interesting cross-sectional study examining sexual minority and risk of suicide. I have a few comments which I think if addressed will enhance the paper. I would like to see a more developed introduction. At the moment it is quite factual about prevalence in Western countries but doesn't explain why this is such an important and pressing issue to examine, nor does it offer an explanation or a theory as to why there might be a link between identiying as a sexual minority and link to suicidality. I think that some more information about the link between belonging to a sexual minority and the links to poor health and mental health would be useful, and then drill down into the specifics around suicidality. Some mention of Chinese culture and impact on stigma and self-stigma are mentioned but not conceptualised into a framework related to stigma and how stigma impacts on wellbeing. I would be really interested in more of a discussion of how minority sexuality is viewed in Chinese culture, and at the same time it is also important to avoid making sweeping statements about how minority sexuality is viewed in "Western" cultures as there is a lot of factors including cultural and religious factors that impact on how Western Society views these issues. Minority stress is mentioned in the discussion but I also think it needs to be introduced at the start as well. I am interested in why you didn't include the"unsure" in the analysis as in the UK we have a category of sexual minority which is classed as "questioning". Questioning ones own sexual identity would be a stressful issue and maybe one thats worth examining in terms of the association with suicidality. if there is any way of re-analysing this data set that would be interesting to consider including this group. the discussion should pick up the themes from the introduction and develop some discussion about how schools and services could help develop strategies to improve the mental wellbeing using a public health approach. some strategies are mentioned but there is limited discussion as to the cultural appropriateness nor feasibility of these in Chinese schools. the other issue which is alluded to but not developed is the sense of bringing disappointment and shame to the family when the duty is to continue the family line (filial duty) so i wondered if there should be a discussion about wider interventions in society that promote acceptance for people who identify as a sexual minority and family interventions fir students who identify as LBGTQ. Bisexuality and greater suicidality needs more of an exploration as to why this may be. I also note that gender orientation was not mentioned and it might be

	worth saying why this was not a part of the survey?

VERSION 1 – AUTHOR RESPONSE

Responses to Reviewer 1:

Comment 1:
This paper is important since it is the first study investigating the risk for suicidal ideation and suicidal behavior among Chinese sexual minority youth in a representative sample. The study methodology seems to be sound, and the sample size is impressive, allowing precise estimations.
There are, however, several issues concerning the style of writing and the presentation and discussion of results. I suggest that a skilled, native English speaking researcher should edit the manuscript to improve the stylistic and grammatical issues. Most of the issues are minor but some are rather major, described as such below at the end of the relevant comment.

Response 1:
Thank you for your careful review and thoughtful comments. We apologize for the stylistic and grammatical errors in our original manuscript, and we have invited a skilled, native English-speaking researcher to thoroughly revise this manuscript.

Comment 2:
Abstract:
Objectives, line 29: there are at least a few studies from China, so perhaps “remains largely unknown” is more appropriate instead of “remains unknown.”

Response 2:
Thank you for your kind suggestions, and we have revised the inaccurate expressions in our revised manuscript (please see page 1, line 21-22).

Comment 3:
Abstract:
Main outcome measure: sexual orientation was assessed with an item on romantic attraction, not sexual attraction (more major issue, see also below).

Response 3:
Thank you for your kind suggestions, and we apologize for our inappropriate expression. We have revised the words we use in measuring sexual minority status in the abstract (please see page 1, line 29-30) and in the text (please see page 6, line 13, to page 7, line 1).

Comment 4:
Abstract:
Results, line 45 – 47: results are unnecessarily repeated for suicide ideation.
Sometimes results are expressed as numbers, sometimes not – lacking consistency.

Response 4:
We are sorry that the expression of the result was not clear in our original manuscript, and we have rewritten this part in our revised manuscript (please see page 1, line 31-38).

Comment 5:
Abstract:

Conclusion, line 52: “Sexual minority is associated” – that does not sound like proper English. Sexual minority status? Or sexual minority adolescents? Similar faulty expressions appear throughout the manuscript.

Response 5:
Thank you for your kind suggestion. We have changed “sexual minority” to “sexual minority adolescents” in the revised manuscript (please see page 1, line 39-40).

Comment 6:
Strengths and limitations: re causal relationship. It is good to point out limitations of cross-sectional designs, but it seems awkward to reverse the causal link for suicidality and being non-heterosexual (how should being suicidal lead to non-heterosexuality, except perhaps for those who joke with their answers)?

Response 6:
Thank you for your question. In this study, we used a cross-sectional design to explore the associations between sexual minority status and suicidal behavior. Due to the nature of the cross-sectional data, interpretation of the direction of the observed association is limited (please see page 2, line 6-7, and page 16, line 2-3), and this study did not discuss how suicidal behavior can lead to non-heterosexuality.

Comment 7:
Introduction:
p. 2, lines 48-50: are the results of the YRBS past year or lifetime?

Response 7:
We apologize for the unclear expressions. The results of the YRBS were past-year suicidal ideation and past-year suicide attempts, and we have revised this part (please see page 3, line 1-4) and expressed it more clearly throughout the revised manuscript.

Comment 8:
Introduction:
p. 3, line 30: “were under great stress” - is the current situation for sexual minority individuals in China so much better now, i.e., is the situation comparable to “Western” societies?

Response 8:
We are sorry for our inappropriate comparison of the current situation for sexual minority individuals between China and Western societies. To our knowledge, many scholars in Western countries have addressed attitudes related to same-sex attraction and behavior, and some studies have shown that people from higher-income countries (most of them are Western countries) generally have more tolerant social policies toward homosexuality.1 Although China has witnessed rapid economic growth as well as social transformation, Chinese people still show much less tolerance for homosexuality than their counterparts in Western countries.2,3 However, economic differences may not explain the differences in attitudes toward homosexuality because there are many factors, including cultural and religious factors, that impact how people view these minority groups. Therefore, we deleted inappropriate statements about the comparison of the current situation for sexual minorities between China and Western countries in the introduction of our manuscript, and we mainly focused on how sexual minorities are viewed in traditional Chinese culture (please see page 3, line 17, to page 4, line 2).

Comment 9:
Introduction:

p. 3, lines 33-40. It would be informative to give the results from the three existing studies from China.

Response 9:
Thank you for your kind suggestions, and we have modified this part in our revised manuscript (please see page 3, line 14-17).

Comment 10:
Introduction:
p. 4. The first paragraph includes several tautologies.
Furthermore, how can the detection of suicide risk provide effective suicide-related preventive interventions? Screening may be a prerequisite for suicide prevention (but it turned out not to be effective so far). In my opinion, the value of the study is to find out if the well-known increased risk of sexual minority youth can be replicated for Chinese youth, and furthermore, if the found risk is comparable to previous international findings or not. How this translates to prevention goes beyond the scope of the paper but may be discussed in the discussion section.

Response 10:
Thank you for your kind comments and suggestions. We have revised the repetitive sentences in the introduction. Furthermore, we have made a revision in the revised manuscript according to your suggestions (please see page 4, line 2-11).

Comment 11:
Methods:
This was a paper and pencil questionnaire survey and there are sure missing responses. How frequent was missing data and how did the authors handle missing data?

Response 11:
We are sorry that this section was not clear in the original manuscript. In our study, the percentages of missing data were less than 3.1% for all relevant variables (e.g., sex and sexual orientation) and observations with missing data were eliminated in our regression analyses (please see page 8, line 19-20).

Comment 12:
Methods:
As far as I understood, adolescents were only sampled from schools in cities. Are there also rural schools? If yes, is the sample then really representative?

Response 12:
Thank you for your questions. In this study, data were collected from the 2015 School-based Chinese Adolescents Health Survey (SCAHS). The procedures for data collection have been described in detail in prior studies.4,5 In the 2015 SCAHS, we did not consider the region of the school (urban or rural), and we randomly selected 506 schools from each representative city. The large sample size and the method of a multi-stage, stratified cluster, random sampling can largely ensure that this study sample is representative.

Comment 13:
Methods:
Excluding “unsure” students from the analysis is problematic, since questioning one’s own sexual orientation is typical in identity formation. Most related studies include unsure students as separate category, for example the US YRBS analysis by Kann et al (2011) (this is a more major issue).

Response 13:
Thank you for your kind suggestions. We included the unsure students as a separate group and re-analyzed the data in our revised manuscript (please see page 22 to 25, table 1-3, and the corresponding parts of the abstract, methods, results, and discussion sections).

Comment 14:
Methods:
How was anonymity guaranteed?

Response 14:
Thank you for your question. In the 2015 SCAHS, we used a cross-sectional design to collect data. Students did not need to write their names on the questionnaire, and then they independently completed the questionnaire without the presence of the teacher or other school personnel.

Comment 15:
Methods:
How many students (or their parents) did not give informed consent?

Response 15:
Thank you for your questions. In the 2015 SCAHS, the number of respondents was 150,822 (response rate is 95.93%), and written informed consent was obtained from all participating students who was at least 18 years old, or from one of the student's parents (or legal guardian) if the student was under 18 years old.

Comment 16:
Methods:
p. 6, line 43: A definition of sexual minority status is given. However, this is not how sexual orientation was operationalized in the study! As already mentioned, sexual orientation was assessed with one item on romantic attraction (which is not included in the definition). The term "romantic attraction" may be ambiguous for adolescents. I also wonder how this was translated into Chinese. Is the term even more ambiguous in Chinese than in English? Or less ambiguous? This needs discussion, and perhaps this should be mentioned as limitation of the study. (This is a major issue).

Response 16:
Thank you for your suggestions. We have modified the definition of sexual minority status in our revised manuscript and mentioned it as a limitation. To our knowledge, many previous Add health studies (National Adolescent Health Survey) used a question on "same-sex romantic attraction" to measure sexual orientation among adolescents.6,7 Our two previous published studies also used the same method for measuring sexual orientation.5,8 In addition, the meaning of the term "romantic attraction" is very similar in Chinese and English. Therefore, we believe that the term "romantic attraction" is suitable for the measurement of sexual orientation in Chinese adolescents.

Comment 17:
Methods:
One methodological challenge in studies on adolescents are mischievous reports, or so called "jokesters." This is especially problematic if study participants falsely claim to be nonheterosexual and also falsely claim to be suicidal, since this would inflate sexual orientation disparities. Did the authors run plausibility checks of responses?
See this review by Robinson-Cimpian
Cimpian, Joseph R. "Classification Errors and Bias Regarding Research on Sexual Minority Youths." Educational Researcher 46.9 (2017): 517-529.

Response 17:
Thank you for your comments. In this study, all questionnaires were recorded independently by two experienced investigators, and if obvious logical errors were found, they would be modified. Although we have corrected most of the logical mistakes in the responses, it is difficult to check the plausibility of some items (e.g., sexual minority status) due to the sensitivity for Chinese students, and thus, we could not completely rule out the possibility of misclassification bias for these items (mentioned as a limitation in our study on page 16, line 3-6).

Comment 18:
Results:
Section 3.1.: The ordering of results could be made more clearly.

Response 18:
We are sorry for our unclear expression, and we have rearranged the order of the results and revised this part (please see page 9, line 5-14).

Comment 19:
Results:
Section 3.2. and 3.2 may be combined.

Response 19:
Thank you for your comments, but I am unsure whether I understand it correctly. The content of this section is used to describe the different prevalence of suicidality among heterosexual, sexual minority, and unsure adolescents stratified by sex. As far as we know, previous Chinese studies did not provide these data. Therefore, we believe that it is more informative and appropriate to present this content in a separate section.

Comment 20:
Results:
Numbers are given in the results that can be read from the table. Usually, this should only be done for the main results.

Response 20:
Thank you for your kind suggestion, and we have modified the results section and provided the main results in our revised manuscript.

Comment 21:
Results:
p. 10, line 3: “admitting suicide attempts” – not sure if “admitting” is appropriate

Response 21:
We are sorry for our inappropriate expression. We have changed “admitting suicide attempts” to “reported the highest rate of past-year suicide attempts” in our revised manuscript.

Comment 22:
Results:
Table headings should include the time-frame of suicidality (e.g., past year suicide ideation)

Response 22:
Thank you for your kind suggestions, and we have included the time-frame of suicidality in the table headings in our revised manuscript (please see page 24, line 1, and page 25, line 1).

Comment 23:
Results:
The findings that sexual orientation differences are larger for suicide attempts than for suicide ideation (i.e., for more severe forms of suicidality) should be pointed out and discussed.

Response 23:
Thank you for your kind suggestions, and we have added this findings and discussed it in our revised manuscript (please see page 11, line 6-8, and page 13, line 9, to page 14, line 3).

Comment 24:
Discussion
Discussion, line 16-31: it is interesting that the representative sample of the study at hand resulted in larger sexual orientation disparities than the existing community samples. Usually, this is reversed and this should be discussed. See here:
Hottes, Travis Salway, et al. "Lifetime prevalence of suicide attempts among sexual minority adults by study sampling strategies: a systematic review and meta-analysis." American journal of public health 106.5 (2016): e1-e12.

Response 24:
We are sorry that about the misunderstandings caused by our inaccurate expressions. The sample type of the study we quoted was not the community-based survey of sexual minority individuals but a cross-sectional survey that collected youth data from the community. We have modified this expression in our revised manuscript (please see page 11, line 19-21).

Comment 25:
Discussion
p. 13, lines 6-21: a comparison of the study finding with one single Australian study is not very scientific. A comparison with other meta-analysis or systematic reviews is more informative. E.g., with Plöderl M & Tremblay P "Mental health of sexual minorities. A systematic review." International review of psychiatry 27.5 (2015): 367-385.

Response 25:
Thank you for your kind suggestions. We have cited and discussed the systematic reviews you recommended in our revised manuscript (please see page 12, line 13-15, reference 37).

Comment 26:
Discussion
p. 15, line 15: some adolescents were absent from school and could not participate in the survey. The YRBS results from the US found that LGB youth more likely skip school than heterosexual youth due to fear of being bullied. Thus, very likely LGB youth are overrepresented among those who did not take part in the survey, and perhaps they are those most at risk for suicide. This would lead to an underestimation of the sexual orientation disparities. Perhaps this needs discussion.

Response 26:
Thank you for your kind comments. We agree with your opinion, and this may be a common limitation in school-based surveys, including our study; we have revised and discussed this limitation in our revised manuscript (please see page 16, line 6-10).

Comment 27:
Discussion
As mentioned above, a more critical discussion about the consequences of the articles finding for suicide prevention would be good. What is the consequence if students are recognized as being

nonheterosexual and at high risk for suicide? Are there special gay/lesbian-affirmative counselling services in China? What is the risk that somebody will receive “reparative therapy”? Can the study results be used to inform governmental public health organizations? (a more major issue).

Response 27:
Thank you for your questions.
First, in China, sexual minorities suffer from minority stressors due to discrimination, homophobia and other conditions in the social environment impacted by traditional Chinese culture (which is rooted in Confucian philosophies). Confucianism emphasizes the continuation of the family line and filial piety to protect the family’s reputation and lineage (e.g., prior to 2016, the One-Child Policy; from 2016 to the present, the Two-Child Policy). Although attitudes toward Chinese sexual minorities have become more positive in particular population (e.g., younger or highly educated people), a large proportion of the Chinese population still holds negative attitudes toward sexual minorities. Same-sex orientation is still considered to conflict with traditional value and associated with prejudice and stigma in the current Chinese social context. These negative attitudes toward sexual minorities and minority stressors that they experience have been linked to high levels of mental and behavioral problems, such as depression and suicide attempts (Please see page 14, line 13, to page 15, line 3).
Second, there are gay-affirmative counselling services in only a few Chinese developed cities (e.g., “Lingnan Partners” in Guangzhou city) but not all around the country. We have given some suggestions for preventing suicidality among sexual minority students based on the current situation of Chinese society (please see page 15, line 6-22).
Third, to our knowledge, there are no studies on “reparative therapy” for homosexuals in China, and the risk of this treatment is still unclear.
Last, the 2015 SCAHS is an ongoing study of health-related behaviors among Chinese adolescents, and many government-level or school-level interventions have been suggested for mental and behavioral health issues (e.g., substance abuse, depression, and suicidal behavior) among high-risk adolescents. Therefore, we believed that our study results may help school and public health services to develop strategies to improve the mental well-being of Chinese sexual minority adolescents (please see page 15, line 6-22).

Responses to Reviewer 2:

Comment 1:
This is an interesting cross-sectional study examining sexual minority and risk of suicide.
I have a few comments which I think if addressed will enhance the paper.

Response 1:
We truly appreciate for your careful review and thoughtful comments.

Comment 2:
I would like to see a more developed introduction. At the moment it is quite factual about prevalence in Western countries but doesn't explain why this is such an important and pressing issue to examine, nor does it offer an explanation or a theory as to why there might be a link between identiying as a sexual minority and link to suicidality. I think that some more information about the link between belonging to a sexual minority and the links to poor health and mental health would be useful, and then drill down into the specifics around suicidality. Some mention of Chinese culture and impact on stigma and self-stigma are mentioned but not conceptualised into a framework related to stigma and how stigma impacts on wellbeing. I would be really interested in more of a discussion of how minority sexuality is viewed in Chinese culture, and at the same time it is also important to avoid making sweeping statements about how minority sexuality is viewed in "Western" cultures as there is a lot of factors including cultural and religious factors that impact on how Western Society views these issues. Minority stress is mentioned in the discussion but I also think it needs to be introduced at the start as

well.

Response 2:
Thank you for your kind suggestions.
First, we have revised the structure and contents of introduction and focus on explaining the associations between sexual minority status and suicidality (please see page 2, line 25, to page 3, line 10).
Second, we apologize for our sweeping statements about how sexual minorities are viewed in Western countries. We have deleted those inappropriate statements in the introduction of our manuscript and focused on introducing how sexual minorities are viewed in traditional Chinese culture (please see page 3, line 17, to page 4, line 2).
Third, we have introduced the minority stress model at the beginning in our revised manuscript (please see page 2, line 28-31).

Comment 3:
I am interested in why you didn't include the"unsure" in the analysis as in the UK we have a category of sexual minority which is classed as "questioning". Questioning ones own sexual identity would be a stressful issue and maybe one thats worth examining in terms of the association with suicidality. if there is any way of re-analysing this data set that would be interesting to consider including this group.

Response 3:
Thank you for your kind suggestions. We agree with your opinion that unsure students should be included as a separate category, and thus, we have re-analyzed the data in our manuscript (please see page 22 to 25, table 1-3, and the corresponding parts of the abstract, methods, results, and discussion sections).

Comment 4:
The discussion should pick up the themes from the introduction and develop some discussion about how schools and services could help develop strategies to improve the mental wellbeing using a public health approach. Some strategies are mentioned but there is limited discussion as to the cultural appropriateness nor feasibility of these in Chinese schools. the other issue which is alluded to but not developed is the sense of bringing disappointment and shame to the family when the duty is to continue the family line (filial duty) so i wondered if there should be a discussion about wider interventions in society that promote acceptance for people who identify as a sexual minority and family interventions fir students who identify as LBGTQ. Bisexuality and greater suicidality needs more of an exploration as to why this may be.

Response 4:
Thank you for your kind suggestions.
First, we have revised the discussion according to the subject in the introduction (please see the discussion section, page 11, line 10, to page 16, line 22).
Second, we have given some suggestions (school-level, family-level, and public health service-level) for preventing suicidality among sexual minority students based on the current situation of Chinese culture and society (please see page 15, line 6-22).
Third, we have provided some possible reasons to explain the greater suicidality among bisexuality in our revised manuscript (please see page 13, line 12, to page 14, line 3).

Comment 5:
I also note that gender orientation was not mentioned and it might be worth saying why this was not a part of the survey?

Response 4:
Thank you for your kind comments. To our knowledge, the prevalence of transsexualism (individuals whose gender identity differ from their biological sex) is still very low, and knowledge of those individual is mainly based on individuals attending clinical services.9 The present study is a school-based study and only include students who are present at school on the day which the survey was administered. It would be very difficult for us to investigate the transsexual students through the self-report questionnaire which was written at the classroom during the normal class period, and thus, that minority group was not included in the current study (please see page 6, line 14-16).

Reference
1. Adamczyk A, Pitt C. Shaping attitudes about homosexuality: The role of religion and cultural context. Soc Sci Res, 2009, 38(2):338-351.
2. Lin K, Button D M, Su M, et al. Chinese college students' attitudes toward homosexuality: exploring the effects of traditional culture and modernizing factors. Sexuality Research & Social Policy, 2016, 13(2):158-172.
3. Chi X, Hawk S T. Attitudes toward same-sex attraction and behavior among Chinese university students: tendencies, correlates, and gender differences. Frontiers in Psychology, 2016, 7(347).
4. Guo L, Wang W, Gao X, et al. Associations of Childhood Maltreatment with Single and Multiple Suicide Attempts among Older Chinese Adolescents. Journal of Pediatrics, 2018.
5. Li P, Huang Y, Lan G, et al. Is sexual minority status associated with poor sleep quality among adolescents? Analysis of a national cross-sectional survey in Chinese adolescents. BMJ Open, 2017, 7(12):e017067.
6. Russell S T, Driscoll A K, Truong N. Adolescent same-sex romantic attractions and relationships: implications for substance use and abuse. American Journal of Public Health, 2002, 92(2):198-202.
7. Russell S, Franz B A. Same-sex romantic attraction and experiences of violence in adolescence. American Journal of Public Health, 2001, 91(6):903-906.
8. Li P, Huang Y, Guo L, et al. Sexual attraction and the nonmedical use of opioids and sedative drugs among Chinese adolescents. Drug & Alcohol Dependence, 2018, 183:169-175.
9. Arcelus J, Bouman W P, Noortgate W V D, et al. Systematic review and meta-analysis of prevalence studies in transsexualism. European Psychiatry the Journal of the Association of European Psychiatrists, 2015, 30(6):807-815.

VERSION 2 – REVIEW

REVIEWER	Martin Plöderl Christian Doppler Clinic, Paracelsus Medical University, Salzburg
REVIEW RETURNED	16-May-2018

GENERAL COMMENTS	The paper improved and I have only minor suggestions, and there is no need for a re-review from my side. Title: If the sample was representative, as claimed in the original version of the MS and in the comments, than this is a strength of the paper, and worth mentioning in the title. Abstract: The results for suicide ideation disappeared in the revision, and the results for unsure participants are lacking. Main outcome measure: Sexual attraction (other sex, same sex,

	both sex) was used as measure for sexual orientation / sexual minority status. Conclusion, first sentence: “Our study suggested that Chinese sexual minority adolescents were associated with…” – this sounds a bit awkward. Perhaps “were at increased risk…” or “had higher levels of…” Method/Results p. 33, line 21/50: “homosexuals” is perceived as stigmatizing by many sexual minority individuals. P 34, last paragraph: The study was not designed to only explore the association of suicide risk and sexual orientation; instead, the authors used data from the national study SCAHS that (for the first time?) also assessed sexual orientation. p. 37: Lacking assessment of gender dysphoria/transgender status: I suggest putting this into the limitation section of the discussion. Perhaps also include an additional sentence that the way sexual orientation was assessed assumed a binary definition of sex, which is a limitation, that is, however, common in current scientific practice. p. 40: “Missing data accounted for less than 3.1% for all relevant variables and were eliminated in the analyses” – how can missing data be eliminated? Either cases with missing data were eliminated (from the data set or in the relevant statistical analysis) or missing data was imputed. Please clarify. Section 3.3.: for suicide attempts, the results for the unsure group were not described. Discussion: The first sentence is a bit confusing. Both SSA and BSA adolescents had higher levels of suicide ideation and attempts, but unsure adolescents not always did so. The mixed finding for unsure adolescents are interesting and seem to differ from “western” countries, where unsure identified had also had increased risk, but the risk was smaller than for SSA adolescents (Plöderl & Tremblay, p. 5). This should be discussed. The percentage of unsure adolescents (17%) is much larger than in most related “western” studies (e.g., 2.5% in the YRBS of the CDC) (Kann et al., 2011). One explanation could be that many adolescents are not sure how to respond to the sexual orientation item. So the “unsure” category may consist of adolescents who truly are not sure about their sexual attraction and of adolescents who do not understand the question or do not want to declare their sexual orientation. P. 47 “In accordance with a previous systematic review37,20 the risks of past-year suicide attempts was smaller for 21 unsure adolescents than for sexual minorities in our study.” In my opinion, unsure individuals are part of the sexual minorities.

	The discussion points out that the cultural values China are in conflict with non-heterosexuality. The authors suggest that schools, gay/straight-alliances, practitioners etc. should offer LGB-affirmative interventions. Some suicidologists are critical about such strategies (Cover, 2016; McDermott & Roen, 2016). For example, bullies are only a symptom of societies homophobia, but societal/structural homophobia and rigid gender roles are the roots of homophobia. Thus, to make the situation better for sexual minorities, societal and political changes are necessary, too. There are still some language issues and the paper, some of them are highlighted in the attached pdf. References: Cover, R. (2016). Queer youth suicide, culture and identity: Unliveable lives? Surrey, England: Routledge. Kann, L., Olsen, E. O., McManus, T., Kinchen, S., Chyen, D., Harris, W. A., & Wechsler, H. (2011). Sexual identity, sex of sexual contacts, and health-risk behaviors among students in grades 9-12--youth risk behavior surveillance, selected sites, United States, 2001-2009. Morbidity and mortality weekly report. Surveillance summaries, 60(7), 1-133. McDermott, E., & Roen, K. (2016). Queer youth, suicide and self-harm. Hampshire, UK: Palgrave Macmillan UK.

VERSION 2 – AUTHOR RESPONSE

Response letter-Revision 2

Responses to Reviewer 1:

Comment 1:

Title:

If the sample was representative, as claimed in the original version of the MS and in the comments, than this is a strength of the paper, and worth mentioning in the title.

Response 1:

Thank you for your suggestions; we have changed the title to “Sexual minority status and suicidal behavior among Chinese adolescents: A nationally representative cross-sectional study” in our revised manuscript (please see page 1, lines 1-2).

Comment 2:

Abstract:

The results for suicide ideation disappeared in the revision, and the results for unsure participants are lacking.

Response 2:

We have added the results for suicidal ideation and the unsure participants to the abstract (please see page 1, lines 33-36 and lines 38-43).

Comment 3:

Main outcome measure: Sexual attraction (other sex, same sex, both sex) was used as measure for sexual orientation / sexual minority status.

Response 3:

Thank you for your kind suggestions; we have modified the expression in the abstract (please see page 1, lines 30-31).

Comment 4:

Conclusion, first sentence: “Our study suggested that Chinese sexual minority adolescents were associated with…” – this sounds a bit awkward. Perhaps “were at increased risk…” or “had higher levels of…”

Response 4:

We have changed the phrase “associated with a higher risk” to “at increased risk” in the abstract (please see page 1, line 44, to page 2, line 1).

Comment 5:

Method/Results

p. 33, line 21/50: “homosexuals” is perceived as stigmatizing by many sexual minority individuals.

Response 5:

We have changed the word “homosexuals” to “sexual minorities” and “gays/lesbians” in the revised manuscript (please see page 4, lines 3-4, and page 13, line 17).

Comment 6:

P 34, last paragraph: The study was not designed to only explore the association of suicide risk and sexual orientation; instead, the authors used data from the national study SCAHS that (for the first time?) also assessed sexual orientation.

Response 6:

Thank you for your comments. Our study is a secondary analysis of nationally representative cross-sectional data, and we mainly focused on the associations of sexual minority status with suicidal behavior in Chinese adolescents.

Comment 7:

p. 37: Lacking assessment of gender dysphoria/transgender status: I suggest putting this into the limitation section of the discussion. Perhaps also include an additional sentence that the way sexual orientation was assessed assumed a binary definition of sex, which is a limitation, that is, however, common in current scientific practice.

Response 7:

Thank you for your kind suggestions; we have added this as the fifth limitation in the discussion (please see page 17, lines 7-10).

Comment 8:

p. 40: “Missing data accounted for less than 3.1% for all relevant variables and were eliminated in the analyses” – how can missing data be eliminated? Either cases with missing data were eliminated (from the data set or in the relevant statistical analysis) or missing data was imputed. Please clarify.

Response 8:

Thank you for your questions. Missing data were eliminated from the relevant statistical analysis in our study; we have clarified this in the revised manuscript (please see page 8, line 22, to page 9, line 1).

Comment 9:

Section 3.3.: for suicide attempts, the results for the unsure group were not described.

Response 9:

In section 3.3, the odds ratios of suicide attempts were presented for “unsure” males but not for “unsure” females because no significant difference was found in the latter group (please see page 10, lines 19-21, and page 11, lines 5-6).

Comment 10:

Discussion:

The first sentence is a bit confusing. Both SSA and BSA adolescents had higher levels of suicide ideation and attempts, but unsure adolescents not always did so.

Response 10:

Thank you for your comments. In our study, sexual minorities included adolescents who reported same-sex or both-sex attraction but did not include “unsure” adolescents because individuals in the “unsure” category not only included those were truly unsure of their sexual orientation but also individuals who were unwilling to disclose their sexual orientation or who did not understand the question about sexual minority status, which was especially prevalent in younger adolescents. Confusion might arise in the findings if “unsure” adolescents were considered among the sexual minority group in our study. Therefore, we included the “unsure” category as an independent group in the study.

Comment 11:

The mixed finding for unsure adolescents are interesting and seem to differ from “western” countries, where unsure identified had also had increased risk, but the risk was smaller than for SSA adolescents (Plöderl & Tremblay, p. 5). This should be discussed. The percentage of unsure adolescents (17%) is much larger than in most related “western” studies (e.g., 2.5% in the YRBS of the CDC) (Kann et al., 2011).

One explanation could be that many adolescents are not sure how to respond to the sexual orientation item. So the “unsure” category may consist of adolescents who truly are not sure about their sexual attraction and of adolescents who do not understand the question or do not want to declare their sexual orientation.

Response 11:

Thank you for your kind suggestions. We have discussed the differences in the findings regarding the percentage of unsure adolescents and the risk of suicidal ideation in unsure adolescents between our study and the previous studies (please see page 14, lines 6-8, and lines 13-18), and we have provided an explanation for these results (please see page 14, lines 8-11, and page 14, lines 18-21).

Comment 12:

P. 47 “In accordance with a previous systematic review37,20 the risks of past-year suicide attempts was smaller for 21 unsure adolescents than for sexual minorities in our study.”

In my opinion, unsure individuals are part of the sexual minorities.

Response 12:

Thank you for your comments. In this study, the classification of “unsure” adolescents as an independent group in our Chinese sample might be more suitable because individuals in the “unsure” category included not only those who were truly unsure of their sexual orientation but also individuals who were unwilling to disclose their sexual orientation or who did not understand the question about sexual minority status, which as especially prevalent in younger adolescents. Confusion might arise in the findings if “unsure” adolescents were considered among the sexual minority groups in our study. There, we included the “unsure” category as an independent group in the study.

Comment 13:

The discussion points out that the cultural values China are in conflict with non-heterosexuality. The authors suggest that schools, gay/straight-alliances, practitioners etc. should offer LGB-affirmative interventions. Some suicidologists are critical about such strategies (Cover, 2016; McDermott & Roen, 2016). For example, bullies are only a symptom of societies homophobia, but societal/structural homophobia and rigid gender roles are the roots of homophobia. Thus, to make the situation better for sexual minorities, societal and political changes are necessary, too.

Response 13:

Thank you for your suggestions; we agree with your opinion that societal and political changes are essential to reduce distal stressors (e.g., homophobia, stigma, and prejudice) towards sexual minorities. We have added this strategy as the first intervention for sexual minority suicidality in the discussion (please see page 15, lines 16-19).

Comment 14:

There are still some language issues and the paper, some of them are highlighted in the attached pdf.

Response 14:

Thank you for your patience and careful review. We have invited a skilled, native English-speaking researcher to thoroughly revise our manuscript. Some of the language errors have been corrected in the revised manuscript, but others were not modified because we believe them to be the appropriate expression. Listed below are the modified and unmodified sections in our revised manuscript:

First we have changed “that SSA and BSA adolescents were positively associated with higher” to “that SSA and BSA adolescents had a higher risk of” (please see page 10, line 14, and page 10, line 22, to page 11, line 1).

Second, we have changed “Chinese sexual minority adolescents were associated with an increased risk” to “Chinese sexual minority adolescents had increased risk” and “Chinese sexual minority adolescents had a higher risk” (please see page 12, lines 9-10, and page 17, lines 21-22).

Third, we have changed “nationally large-scale study” to “nationally representative large-scale study” and “nationally representative and large-scale sample” (please see page 4, line 9, and page 12, lines 14-15, and page 17, lines 11-12).

Fourth, we did not modify the expressions “self-reported as sexual minorities” and “large-scale” (please see page 1, line 32, and page 4, line 9).