

## PEER REVIEW HISTORY

BMJ Open publishes all reviews undertaken for accepted manuscripts. Reviewers are asked to complete a checklist review form (<http://bmjopen.bmj.com/site/about/resources/checklist.pdf>) and are provided with free text boxes to elaborate on their assessment. These free text comments are reproduced below.

### ARTICLE DETAILS

<b>TITLE (PROVISIONAL)</b>	Frequency-risk relationships between second-hand smoke exposure and respiratory symptoms among adolescents: a cross-sectional study in South China
<b>AUTHORS</b>	Chen, Zhiyao; Liu, Guocong; Chen, Jianying; Li, Shunming; Jiang, Ting; Xu, Bin; Ye, Xiaohua

### VERSION 1 – REVIEW

<b>REVIEWER</b>	Luz Huntington Moskos University of Louisville Louisville, KY USA
<b>REVIEW RETURNED</b>	02-Nov-2017

<b>GENERAL COMMENTS</b>	<p>This study adds to the literature by describing secondhand smoke exposure among Chinese adolescents in various settings including public places, indoor campuses, outdoor campuses and home. My primary concern with this study is the self-report of secondhand smoke exposure. The authors state that "self-reported SHS exposure, which was defined as non-smokers' inhalation of the smoke exhaled from smokers on <math>\geq 1</math> day a week for at least the last six months." I have concerns that adolescents would not be able to accurately recall SHS exposure in a variety of settings for the past 6 months. The study did not appear to use any assistive device to facilitate recall either, such as a calendar. I am concerned that this independent variable is not valid. In addition is the minor concern regarding the term "prestigious" school and how this is defined.</p> <p>I also have some minor edits to mention: The use of the phrase "To note,..." is unclear and appears in multiple places throughout this manuscript. On page 6 line 105, the word "coughed" should be changed to "cough". On page 13 line 252, the word "limit" should be changed to "limited".</p> <p>Thank you for this submission.</p>
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<b>REVIEWER</b>	Giuseppe Gorini ISPO Cancer Research & Prevention Institute, Florence, Italy
<b>REVIEW RETURNED</b>	24-Nov-2017

<b>GENERAL COMMENTS</b>	This is an interesting paper on the association between SHS exposure and respiratory symptoms in a representative sample of high school children in Guangzhou, China.
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	<p>1. Abstract: Please, specify that the cross-sectional survey was carried out in a representative sample of high school children in Guangzhou city.</p> <p>2. Results: please, in table 2 it is not necessary to show unadjusted ORs; cut this column. The same for table 3. Moreover, add one column in table 3 to show adjusted ORs from Table 4 (continuous frequency of SHS exposure). So, for instance, in the "SHS exposure in indoor public places" row, add 1.00 to "no exposure" as reference, and 2.30 (1.67-3.16) as the OR for continuous frequency of exposure. The cell where there is the continuous OR (=2.30) could be the union of the two cells where in the column of ordinal frequency of SHS exposure there are reported the OR for 1-4 days/week (OR=1.50 for "SHS exposure in indoor public places"), and 5-7 days/week (OR=1.87 for "SHS exposure in indoor public places"), respectively. Then, cut table 4.</p>
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<b>REVIEWER</b>	Professor Abu Abdullah Duke University and Duke Kunshan University
<b>REVIEW RETURNED</b>	27-Nov-2017

<b>GENERAL COMMENTS</b>	<p>This manuscript is well written in an important area of public health: secondhand smoke exposure and respiratory symptoms of adolescents. The methodology and the description of results is good.</p> <p>Few minor comments:</p> <ol style="list-style-type: none"> <li>1. The epidemiology of SHS exposure and its health risks (including risk of respiratory symptoms) in Chinese children/adolescents is not well elaborated. Also, updated literatures on SHS exposure and respiratory infection would benefit the intro section.</li> <li>2. it is not clear how the prestigious and non-prestigious schools were defined. The current description is vague. need further clarification.</li> <li>3. In the results, is it possible to assess the combine exposure from all the sources and then examine its relationship with respiratory infection (i.e. exposure to any sources versus none).</li> <li>4. Discussion is good, however, critical elaboration in terms of "Public health implications" is missing. Also, what will be future research questions in light of the findings from the current study?</li> <li>5. there are few recent publications in China that addresses SHS exposure at different populations. Incorporating info from those studies would benefit the paper.</li> <li>6. Further English editing would be useful.</li> </ol>
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### VERSION 1 – AUTHOR RESPONSE

**Editorial Comments:**

We appreciate that reviewer 1's comments are quite negative; however, in light of the more positive comments from the other two reviewers, we felt we should give you the opportunity to respond to the

criticisms and revise your manuscript appropriately. Please note that we may ask any or all of the reviewers to assess your revised manuscript so urge you to address all comments as thoroughly as possible. Please note that whilst we are willing to consider a revision, we will need to seek further advice on your manuscript and we cannot predict the outcome of your revision at this time.

Reply: Thank you for providing the opportunity to revise our manuscript. We have revised the manuscript point-by-point.

#### Editorial Requests:

- Please revise your title so that it includes your study design. This is the preferred format for the journal.

Reply: Thank you for your suggestions. We have revised it (Line 2).

- Please make the Abstract >> Methods section more detailed/ informative.

Reply: We have revised it (Lines 26-29).

- Please re-write the 'strengths and limitations' section on page 3. It should not be a summary of the study and its findings. As a reminder, this section should contain up to five short bullet points, no longer than one sentence each, that relate specifically to the methods/ design of the study reported (see: <http://bmjopen.bmj.com/site/about/guidelines.xhtml#articletypes>).

Reply: We have revised the 'strengths and limitations' section (Lines 44-51).

- Please thoroughly copy-edit your manuscript. The quality of English needs improving in places e.g. page 4: "To note, it was.." Do you mean "To date.."?

Reply: Thank you for your suggestions. We have thoroughly revised this manuscript and also have revised "To note" as "Notably" (Line 55).

- Please elaborate on the consent procedure. Was consent written? How old were the participants? Was parental consent required?

Reply: We have revised the ethics statement (Lines 89-92).

#### Reviewers' Comments to Author:

Reviewer: 1

Reviewer Name: Luz Huntington Moskos

Institution and Country: University of Louisville, Louisville, KY, USA

Competing Interests: None declared

This study adds to the literature by describing secondhand smoke exposure among Chinese adolescents in various settings including public places, indoor campuses, outdoor campuses and home. My primary concern with this study is the self-report of secondhand smoke exposure. The authors state that "self-reported SHS exposure, which was defined as non-smokers' inhalation of the smoke exhaled from smokers on  $\geq 1$  day a week for at least the last six months." I have concerns that adolescents would not be able to accurately recall SHS exposure in a variety of settings for the past 6 months. The study did not appear to use any assistive device to facilitate recall either, such as a calendar. I am concerned that this independent variable is not valid. In addition is the minor concern regarding the term "prestigious" school and how this is defined.

Reply: Thank you for your suggestions. We have added some comments on SHS exposure and prestigious school as following:

The main independent variable of respiratory symptoms was self-reported SHS exposure, which was defined as non-smokers' inhalation of the smoke exhaled from smokers on  $\geq 1$  day a week in the past 7 days for at least 6 months (first question: "In the past 7 days, how many days did you breathe in SHS in homes (or indoor public places, indoor campuses, outdoor campuses)"; second question for those having SHS exposure: "Did you breathe in SHS in this venue for at least 6 months?"). In order

to recall SHS exposure for at least 6 months, we use both curriculum schedules and calendars as an assistive device to facilitate recall the time (Lines 118-126).

Notably, middle schools in most part of China are generally rated by the Bureau of Education as key schools (or prestigious schools) and ordinary schools (or non-prestigious schools) according to level of education and the education quality (Lines 97-100).

I also have some minor edits to mention:

The use of the phrase "To note,..." is unclear and appears in multiple places throughout this manuscript.

Reply: We have replaced "To note" with "Notably (Line 55 and Line 166)" or "It is noteworthy that (Lines 248-249)".

On page 6 line 105, the word "coughed" should be changed to "cough".

Reply: We have replaced the word "coughed" with "cough" (Line 117).

On page 13 line 252, the word "limit" should be changed to "limited".

Reply: We have replaced the word "limit" with "rare" (Line 270).

Thank you for this submission.

Reply: Thank you for your suggestions.

Reviewer: 2

Reviewer Name: Giuseppe Gorini

Institution and Country: ISPO Cancer Research & Prevention Institute, Florence, Italy

Competing Interests: None to declare

This is an interesting paper on the association between SHS exposure and respiratory symptoms in a representative sample of high school children in Guangzhou, China.

Reply: Thank you for the positive evaluation.

1. Abstract: Please, specify that the cross-sectional survey was carried out in a representative sample of high school children in Guangzhou city.

Reply: Thank you for your suggestions. We have revised it (Line 26).

2. Results: please, in table 2 it is not necessary to show unadjusted ORs; cut this column. The same for table 3. Moreover, add one column in table 3 to show adjusted ORs from Table 4 (continuous frequency of SHS exposure). So, for instance, in the "SHS exposure in indoor public places" row, add 1.00 to "no exposure" as reference, and 2.30 (1.67-3.16) as the OR for continuous frequency of exposure. The cell where there is the continuous OR (=2.30) could be the union of the two cells where in the column of ordinal frequency of SHS exposure there are reported the OR for 1-4 days/week (OR=1.50 for "SHS exposure in indoor public places"), and 5-7 days/week (OR=1.87 for "SHS exposure in indoor public places"), respectively. Then, cut table 4.

Reply: Thank you for your suggestions. In order to compare the unadjusted ORs with the adjusted ORs, we keep the unadjusted ORs in Table 2 and Table 3. We have merged Table 3 and Table 4 into the new Table 3 (Line 432).

Reviewer: 3

Reviewer Name: Professor Abu Abdullah

Institution and Country: Duke University and Duke Kunshan University

Competing Interests: I do not have any competing interest

This manuscript is well written in an important area of public health: secondhand smoke exposure and respiratory symptoms of adolescents. The methodology and the description of results is good.

Reply: Thank you for the positive evaluation.

Few minor comments:

1. The epidemiology of SHS exposure and its health risks (including risk of respiratory symptoms) in Chinese children/adolescents is not well elaborated. Also, updated literatures on SHS exposure and respiratory infection would benefit the intro section.

Reply: Thank you for your suggestions. We have added new literatures on the epidemiology of SHS exposure and its health risks in Chinese children in the introduction section (Lines 62-66). Also, we have updated literatures on SHS exposure and respiratory infection on in the introduction section (Lines 71-75).

2. it is not clear how the prestigious and non-prestigious schools were defined. The current description is vague. need further clarification.

Reply: Thank you for your suggestions. We have added some comments on prestigious school as following: "Notably, middle schools in most part of China are generally rated by the Bureau of Education as key schools (or prestigious schools) and ordinary schools (or non-prestigious schools) according to level of education and the education quality (Lines 97-100)".

3. In the results, is it possible to assess the combine exposure from all the sources and then examine its relationship with respiratory infection (i.e. exposure to any sources versus none).

Reply: We have added the results of SHS exposure in general in the Result section (Line 156 and Line 161), Table 1 and Table 2.

4. Discussion is good, however, critical elaboration in terms of "Public health implications" is missing. Also, what will be future research questions in light of the findings from the current study?

Reply: Thank you for your suggestions. We have added some public health implications in the Discussion section (Lines 232-240; Lines 260-265; Lines 278-282; Lines 284-286).

5. there are few recent publications in China that addresses SHS exposure at different populations. Incorporating info from those studies would benefit the paper.

Reply: We have added this information in the Discussion section (Lines 214-217; Lines 233-240).

6. Further English editing would be useful.

Reply: Thank you for your suggestions. The manuscript has been checked and polished by a native speaker.

#### VERSION 2 – REVIEW

<b>REVIEWER</b>	Giuseppe Gorini Cancer Prevention & Research Institute (ISPO), Florence, Italy
<b>REVIEW RETURNED</b>	26-Dec-2017

<b>GENERAL COMMENTS</b>	Authors answered to all questions and suggestions raised by the three reviewers. Now the manuscript is ready to be published.
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<b>REVIEWER</b>	Luz Huntington-Moskos University of Louisville Louisville, KY
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<b>REVIEW RETURNED</b>	06-Jan-2018

<b>GENERAL COMMENTS</b>	<p>Thank you for addressing the suggested revisions so nicely. I am pleased with the addition of the Global and China context added in the introduction and the clarification provided on recall assistive devices and the categorization of schools.</p> <p>One point of concern and a suggested revision is the call for additional research regarding the biological mechanism for the impact of SHS. I believe this is well addressed in the 2010 US Surgeon General report:  United States Department of Health and Human Services. (2010). How tobacco smoke causes disease: The biology and behavioral basis for smoking-attributable disease: A report of the surgeon general. Atlanta, GA: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health.</p> <p>Although additional research and particularly longitudinal research adds needed evidence, I believe the cumulative research available and found in the 2010 US Surgeon General report is compelling and even sufficient. With that said, I believe this manuscript adds to the literature with its focus on Chinese tobacco control and Chinese youth along with its global context.</p> <p>On small sidenote, the authors may wish to review their use of the work "relation". Although their use of this word is appropriate, oftentimes the word "relationship" is more commonly used when discussing two variables in a research study.</p>
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### **VERSION 2 – AUTHOR RESPONSE**

Editorial Comments:

The reviewers have recommended publication, but one reviewer also suggests some minor revisions to your manuscript. Therefore, I invite you to respond to the reviewer's comments and revise your manuscript. In addition, please address the editorial request towards the end of this letter.

Reply: Thank you for the positive evaluation. We have revised the manuscript point-by-point.

Editorial Request:

Can you please thoroughly proofread the paper one more time? The quality of English still needs improving in places e.g. Page 13: “..and support that the future studies should focus more..”

Reply: Thank you for your suggestions. We have revised this sentence (Lines 258-259) and also have thoroughly proofread the paper.

Reviewers' Comments to Author:

Reviewer: 1

Reviewer Name: Luz Huntington-Moskos

Institution and Country: University of Louisville, Louisville, KY, USA

Competing Interests: None declared

Thank you for addressing the suggested revisions so nicely. I am pleased with the addition of the Global and China context added in the introduction and the clarification provided on recall assistive devices and the categorization of schools.

Reply: Thank you for the positive evaluation.

One point of concern and a suggested revision is the call for additional research regarding the biological mechanism for the impact of SHS. I believe this is well addressed in the 2010 US Surgeon General report:

United States Department of Health and Human Services. (2010). How tobacco smoke causes disease: The biology and behavioral basis for smoking-attributable disease: A report of the surgeon general. Atlanta, GA: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health.

Reply: Thank you for your suggestions. We have added it in the discussion section (Lines 262-265).

Although additional research and particularly longitudinal research adds needed evidence, I believe the cumulative research available and found in the 2010 US Surgeon General report is compelling and even sufficient. With that said, I believe this manuscript adds to the literature with its focus on Chinese tobacco control and Chinese youth along with its global context.

Reply: Thank you for your suggestions. We have revised it in the discussion section (Lines 287-288).

On small sidenote, the authors may wish to review their use of the word "relation". Although their use of this word is appropriate, oftentimes the word "relationship" is more commonly used when discussing two variables in a research study.

Reply: Thank you for your suggestions. We have replaced the word "relation" with "relationship" or "association".

Reviewer: 2

Reviewer Name: Giuseppe Gorini

Institution and Country: Cancer Prevention & Research Institute (ISPO), Florence, Italy

Competing Interests: None to declare

Authors answered to all questions and suggestions raised by the three reviewers. Now the manuscript is ready to be published.

Reply: Thank you for the positive evaluation.

**VERSION 3 – REVIEW**

<b>REVIEWER</b>	Luz Huntington Moskos University of Louisville School of Nursing Louisville, KY USA
<b>REVIEW RETURNED</b>	31-Jan-2018
<b>GENERAL COMMENTS</b>	Thank you for addressing the previous suggestions. No further revisions to suggest at this time.