

PEER REVIEW HISTORY

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ARTICLE DETAILS

TITLE (PROVISIONAL)	Relationship between sleep duration and hypertension in Northeast China: a cross-sectional study
AUTHORS	Li, Meng; Yan, shoumeng; Jiang, Shan; Ma, Xiaoyu; Gao, Tianyu; Li, Bo

VERSION 1 – REVIEW

REVIEWER	Renata Kuciene, PhD, Dr The Lithuanian University of Health Sciences Lithuania
REVIEW RETURNED	13-May-2018

GENERAL COMMENTS	<p>Thank you for inviting me to review this manuscript titled “Relationship between sleep duration and hypertension in Northeast China: a cross-sectional study”. Meng Li et al. investigated the association between sleep duration and hypertension among adults. I consider that the study hypothesis and findings are interesting, although there are previous studies on this topic but it is relevant to publish the demonstrated results. This manuscript is important for potential strategic public health programs. However, it could be more impactful after some revisions.</p> <p>In the introduction, are there more recent papers describing prevalence of hypertension? (Page 2, Lines 41-46)</p> <p>Appropriate references should be quoted to explain that hypertension was risk factor for diseases. Authors please mention the appropriate references for different studies. (Page 2, Lines 46-50)</p> <p>Page 2, Lines 50-52 sentence “Epidemiological studies have shownwith hypertension” should be acknowledged with appropriate references (7 Reference is the review of the epidemiological and clinical studies).</p> <p>The statistical analysis of continuous variables should be described in methods section.</p> <p>In methods (Page 4, line 30), change to „previous study“ (reference 12).</p> <p>In results, Please check table 1. Each row should have 100%.</p> <p>P values with odds ratios (95% CI) can be included in Table 2.</p> <p>In results, in footnote in table 2, (model 2) include comma “sex, education”.</p>
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	<p>Table 3, Figure 1, and Figure 2 present logistic regression analyses of the association between sleep duration and hypertension. It is too crowded. Figure 1 and Figure 2 can be removed.</p> <p>Table 3: What were the significance levels of the logistic regression models?</p> <p>The discussion is adequately supported by the data.</p>
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REVIEWER	Takashi Kohno Keio University School of Medicine, Division of Cardiology
REVIEW RETURNED	28-Jun-2018

GENERAL COMMENTS	<p>In this study, Li et al revealed a significant association between short sleep duration (less than 7 hours per day) and hypertension among people aged 18-44 years in a population based cross-sectional study from Jilin province in Northeast China.</p> <p>Additional comments;</p> <p>Detection of sleep duration by original questionnaire can only provide somewhat vague information. Therefore, the result that should be carefully drawn from the study results with some limitations. Why did the authors not mention about the objective sleep duration such as actinography?</p> <p>In addition to sleep quantity, there is accumulating evidence that sleep quality or insomnia could affect the incidence of hypertension. Does this dataset record sleep quality?</p> <p>Sleep-disordered breathing (i.e. sleep apnea) is also established risk factors for hypertension. Please discuss this point. Does this dataset also record past history or symptoms of sleep apnea?</p> <p>It is well known there is strong association between sleep duration and mental health, as authors group reported previously (J Clin Sleep Med 2017; 15(3): 377-384). I am curious whether mental health modify the relationship between short sleep duration and hypertension. Furthermore, whether adjustment with mental health could affect the conclusion need to be evaluated.</p> <p>Minor comment;</p> <p>There is repeated description in introduction and discussion (e.g. reports from SHHS and NHNES). Please avoid these redundancies.</p> <p>Page 9; 1st paragraph; The data in Table 3 was described in this paragraph. Please describe "Table 3" in this paragraph.</p> <p>Please correct the positon of "(Figure 2)" correctly in page 9, 1st paragraph.</p>
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REVIEWER	Sogol Javaheri Brigham and Women's Hospital, Harvard Medical School, United States of America
REVIEW RETURNED	06-Jul-2018

GENERAL COMMENTS	<p>This cross-sectional study shows an association between short sleep duration (< 7 hours) and hypertension among adults aged 18-44 years old in a large sample of individuals from North East China. The content of the article, namely methods and results, is of interest to the research community at large but I strongly recommend that a native English speaker edit the paper for grammatical errors and improved word selection and clarity.</p> <p>Major comments;</p> <p>1 - The discussion is lacking. No reasons for the age interaction are provided. Previous epidemiologic studies such as Sleep Heart Health, NHANES, and Whitehall are mentioned but differences between the results of this study and those cohorts are not described. Additionally, the pathophysiologic mechanisms underlying the association between short sleep duration and hypertension could be better detailed, particularly the role of increased sympathetic nervous system activity.</p> <p>2 - In the results, additional comments would be useful when describing Table 1. Specifically, which sleep duration category had elevations in smoking, alcohol use, salt intake, BMI or reduction in exercise relative to the other categories?</p> <p>Minor comments:</p> <p>1 - on page 3, line 10, please change NANES to NHANES, change nation to National, and capitalize the letters of research study</p> <p>2- On page 4, line 30, either change "studies" to "a previous study" since only one citation is listed, or add to the citations if using "studies" since this is plural and signifies more than one study.</p> <p>3 - On page 4 line 47 would change "diet habit" to salt intake and would do so throughout the paper</p> <p>4 - On page 4, line 52 change "accumuatively" to cumulatively</p> <p>5- On page 4, line 54 change "quitted" to quit</p> <p>6 - I would remove the paragraph on "patient involvement" on page 5 unless required by the journal</p> <p>7 - On page 7 would add that table 2 is stratified by hypertension</p> <p>8 - On page 8 the following line "The sleep duration was 7.0 (6.0, 8.0) h/d and 7.0 (6.5, 8.0) h/d for hypertensive and non-hypertensive individuals respectively." does not makes sense. Please clarify.</p> <p>There are further grammatical errors and corrections in language but again would recommend a native English speaker edit the paper to correct further changes</p>
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VERSION 1 – AUTHOR RESPONSE

Reviewer #1

1. In the introduction, are there more recent papers describing prevalence of hypertension? (Page 2, Lines 41-46)

Authors' answer: Review's comments are helpful and valuable to improve our manuscript. Therefore, we have added more recent information about the prevalence of hypertension in the introduction

accordingly:

“Data from National Health and Nutrition Examination Survey (NHANES) 2011-2012 estimated the overall prevalence of hypertension among U.S. adults aged 18 and over was 29.1% (men 29.7% and women 28.5% respectively) in 2011–2012. The latest data from the Global Burden of Disease Study 2015 show that high systolic blood pressure continues to be the largest contributors to global disability-adjusted life-years (DALYs), causing 211.8 million global DALYs each year.”

2. Appropriate references should be quoted to explain that hypertension was risk factor for diseases. Authors please mention the appropriate references for different studies. (Page 2, Lines 46-50)

Authors’ answer: We are very grateful to the reviewers for their comments. We have revised this part according to the reviewer’s comments.

3. Page 2, Lines 50-52 sentence “Epidemiological studies have shownwith hypertension” should be acknowledged with appropriate references (7 Reference is the review of the epidemiological and clinical studies).

Authors’ answer: Thanks for the referee’s suggestion. We are very sorry for our negligence, and we have revised this mistake in the manuscript according to the reviewer’s comments.

4. The statistical analysis of continuous variables should be described in methods section.

Authors’ answer: Thanks for the reviewer’s suggestion. In our study, continuous variables such as age and sleep duration have been re-coded into categorical variables, no continuous variables were involved in this study.

5. In methods (Page 4, line 30), change to „previous study“ (reference 12).

Authors’ answer: Thanks for the reviewer’s attention. We have revised this sentence and made it more concise.

6. In results, Please check table 1. Each row should have 100%.

Authors’ answer: Thanks for the reviewer’s carefulness. Table 1 has been revised according to review’s comments.

7. P values with odds ratios (95% CI) can be included in Table 2.

Authors’ answer: The manuscript has been revised according to review’s comments.

8. In results, in footnote in table 2, (model 2) include comma “sex, education”.

Authors’ answer: Thanks for the reviewer’s carefulness. We have made correction according to the Reviewer’s comments.

9. Table 3, Figure 1, and Figure 2 present logistic regression analyses of the association between sleep duration and hypertension. It is too crowded. Figure 1 and Figure 2 can be removed.

Authors’ answer: Reviewer’s comments are profound to improve our manuscript. Figure1 and Figure 2 have been removed, and the manuscript has been revised accordingly.

10. Table 3: What were the significance levels of the logistic regression models?

Authors’ answer: Thank you for your careful work. We have added detail information in methods section accordingly: “After preliminary univariate analyses, we used logistic regression models to examine the effect of sleep duration on the risk of hypertension, and the odds-ratio (OR) and 95% confidence intervals (CI) were calculated.”

Reviewer #2

1. Detection of sleep duration by original questionnaire can only provide somewhat vague information. Therefore, the result that should be carefully drawn from the study results with some limitations. Why did the authors not mention about the objective sleep duration such as actinography?

Authors’ answer: Thank you for your valuable suggestion. It is really true as Reviewer mentioned that objective sleep duration was not detected in our study. Sleep duration was self-reported in a subjective manner that may only be correlated modestly with objectively recorded sleep in our study. We have illustrated this point in the “Strengths and limitations” section.

2. In addition to sleep quantity, there is accumulating evidence that sleep quality or insomnia could affect the incidence of hypertension. Does this dataset record sleep quality?

Sleep-disordered breathing (i.e. sleep apnea) is also established risk factors for hypertension. Please discuss this point. Does this dataset also record past history or symptoms of sleep apnea?

Authors' answer: Reviewer's comments are profound to improve our manuscript. Unfortunately, sleep quality, sleep insomnia or sleep-disordered breathing were not recorded in our study. We will try to take sleep quality into account in our future investigations. Besides, we have discussed this point in the discussion part accordingly.

3. It is well known there is strong association between sleep duration and mental health, as authors group reported previously (J Clin Sleep Med 2017; 15(3): 377-384). I am curious whether mental health modify the relationship between short sleep duration and hypertension. Furthermore, whether adjustment with mental health could affect the conclusion need to be evaluated.

Authors' answer: Reviewer's comments are positive and constructive. In the initial analysis process, we used model 5 (adjusted for factors in model 4 plus mental health) to examine whether mental health modify the relationship between sleep duration and hypertension. The result was almost the same as of model 4. No significant associations between sleep duration and hypertension had been found in middle-aged, elderly, male or female population. Short sleep duration had been associated with an increased risk of hypertension among subjects aged 18 to 44 years (OR=1.25, 95%CI: 1.05-1.47). And this result was very close to the result of model 4 (OR=1.24, 95%CI: 1.05-1.46). Moreover, considering that previous studies (i.e. J Clin Sleep Med 2017; 15(3): 377-384. Sleep Med. 2014 February ; 15(2): 203–208.) had not take mental health into account, we did not show model 5 in our manuscript.

Minor comment;

4. There is repeated description in introduction and discussion (e.g. reports from SHHS and NHNES). Please avoid these redundancies.

Authors' answer: Thank to reviewer's carefulness. We have checked the manuscript and deleted those redundancies. The manuscript has been revised accordingly.

5. Page 9; 1st paragraph; The data in Table 3 was described in this paragraph. Please describe "Table 3" in this paragraph.

Authors' answer: The manuscript has been revised according to reviewer's comments.

6. Please correct the position of "(Figure 2)" correctly in page 9, 1st paragraph.

Authors' answer: Thanks to reviewer's attention. Table 3, Figure 1, and Figure 2 present the results of logistic regression analyses repeatedly, so Figure 1 and Figure 2 have been removed, and the manuscript has been revised accordingly.

Reviewer #3

Major comments;

1 - The discussion is lacking. No reasons for the age interaction are provided. Previous epidemiologic studies such as Sleep Heart Health, NHANES, and Whitehall are mentioned but differences between the results of this study and those cohorts are not described. Additionally, the pathophysiologic mechanisms underlying the association between short sleep duration and hypertension could be better detailed, particularly the role of increased sympathetic nervous system activity.

Authors' answer: Reviewer's comments are valuable to improve our manuscript. We have added detailed discussion about age interaction and potential mechanism. The differences between studies mentioned and our study have been described.

2 - In the results, additional comments would be useful when describing Table 1. Specifically, which sleep duration category had elevations in smoking, alcohol use, salt intake, BMI or reduction in exercise relative to the other categories?

Authors' answer: Thanks for the reviewer's suggestion. The manuscript has been revised according to reviewer's comments.

Minor comments:

Authors' answer: We are very sorry for the grammatical errors in the manuscript. Considering the Reviewer's suggestion, the paper has been edited by AJE (American Journal Experts, AJE), and we tried our best to improve the manuscript. Once again, thanks for the reviewer's comments and suggestions.

1 - on page 3, line 10, please change NANES to NHANES, change nation to National, and capitalize

the letters of research study

Authors' answer: Thanks for the reviewer's carefulness. The manuscript has been revised according to reviewer's comments.

2- On page 4, line 30, either change "studies" to "a previous study" since only one citation is listed, or add to the citations if using "studies" since this is plural and signifies more than one study.

Authors' answer: Thanks for the reviewer's carefulness. "studies" have been changed to "a previous study" in our revised manuscript.

3 - On page 4 line 47 would change "diet habit" to salt intake and would do so throughout the paper

Authors' answer: The comment of review is very reasonable. We have checked throughout the manuscript and revised the manuscript according to reviewer's comments.

4 - On page 4, line 52 change "accumuatively" to cumulatively

Authors' answer: The manuscript has been revised according to reviewer's comments.

5- On page 4, line 54 change "quitted" to quit

Authors' answer: The manuscript has been revised according to reviewer's comments.

6 - I would remove the paragraph on "patient involvement" on page 5 unless required by the journal

Authors' answer: Thanks to reviewer's attention. The paragraph of 'Patient involvement' is required by the journal.

7 - On page 7 would add that table 2 is stratified by hypertension

Authors' answer: Thanks to reviewer's comment. The manuscript has been revised according to reviewer's comments.

8 - On page 8 the following line "The sleep duration was 7.0 (6.0, 8.0) h/d and 7.0 (6.5, 8.0) h/d for hypertensive and non-hypertensive individuals respectively." does not makes sense. Please clarify.

Authors' answer: Thanks to reviewer's comment. We have revised this sentence and the manuscript has been revised accordingly.

VERSION 2 – REVIEW

REVIEWER	Renata Kuciene, PhD, Dr The Lithuanian University of Health Sciences; Lithuania
REVIEW RETURNED	06-Sep-2018

GENERAL COMMENTS	It was a pleasure to read this revised manuscript which I think has been greatly improved.
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REVIEWER	TAKASHI KOHNO Division of Cardiology, Department of Medicine, Keio University School of Medicine, Japan
REVIEW RETURNED	15-Sep-2018

GENERAL COMMENTS	I could not find the discussion on sleep quality, insomnia, or sleep-disordered breathing in the revised manuscript, although response to reviewer's comment says "Besides, we have discussed this point in the discussion part accordingly." Please identify the sentences.
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VERSION 2 – AUTHOR RESPONSE

The reviewer's comment:

1. I could not find the discussion on sleep quality, insomnia, or sleep-disordered breathing in the revised manuscript, although response to reviewer's comment says "Besides, we have discussed this point in the discussion part accordingly." Please identify the sentences.

Authors' answer: Review's comments were helpful and valuable to improve our manuscript. Sleep quality related issues were not addressed in our study, so sleep quality, insomnia or sleep apnea

were not discussed in the first draft. More specific discussion about sleep quality, insomnia and sleep-disordered breathing will achieve a better understanding of the aim of our study. Therefore, we have added more information (which marked in yellow in the revised manuscript) to the discussion part accordingly.

“In addition to short sleep duration, sleep disorders such as sleep insomnia, obstructive sleep apnea and other sleep quality problems have also been shown to be to be risk factors for hypertension. Sherwood et al reported that poor sleep quality was associated with non-dipping blood pressure and the potential mechanism may be heightened sympathetic activity. Thomas et al proposed other potential mechanisms including activation of the hypothalamic–pituitary–adrenal (HPA) axis and the stress-diathesis model. Unfortunately, sleep quality or sleep quality related issues were not recorded in our study, and we will try to take sleep quality into account in our future investigations.”