PEER REVIEW HISTORY

ARTICLE DETAILS

TITLE (PROVISIONAL)	The hypertension prevalence alteration in 92815 nurses based on the new standard by 2017 ACC/AHA hypertension guideline: an observational cross-sectional study from China
AUTHORS	zhao, bin; li, jing; liu, jie; hao, yuming; zhen, yanjie; feng, di; xu, menghui; chen, ximin; yang, xiulan; zuo, aifang; jia, rufu; zhang, ruiqin; fan, ailing; wang, yun; yuan, meijin; tong, li; chen, shuling; cui, jing; zhao, meizhu; cui, wei

VERSION 1 – REVIEW

REVIEWER	Luxia Zhang Peking University First Hospital, China
REVIEW RETURNED	18-Nov-2018

GENERAL COMMENTS	Overall: The topic is interesting. This study described the changes in prevalence, awareness, treatment and control rate of hypertension in Chinese nursing staffs based on the 2017 ACC/AHA guideline and the 2010 Chinese guideline, using large sample from 13 cities in Hebei province. It is important to evaluate the impacts of 2017 ACC/AHA guideline in different populations in China. I read the manuscript with great interest and would recommend a number of revisions to make it less confusing and more focused on the objective. 1)Please correct the nonstandard writing format of abstract and full text, e.g. , abbreviations and spaces. 2)Line 45-53, page 6, it is repeated with the previous sentence. 3)Line 12-17, page 7, abbreviations should be defined at first mention in the text and in each table and figure. 4)In fact, there have been some recent studies to explore the potential impacts of the updated guideline on Chinese population. Suggest to add them in the introduction. 5)Line 26, “an investigation”. 6)What are the specific quality control measures to ensure accuracy of reporting and measurement of blood pressure data? 7)Line 53, page 10, the average of the last two readings or three readings (as described in the limitation)? 8)Statistical analysis, a multiple logistic model was also used in table 5. Suggest to provide more description regarding the model and variable selection strategy. 9)Table 1, what is the distribution of SBP and DBP? Has any normal test been conducted? 10)Table 3, suggest to remove the results of Chi-square test and P value. They are not applicable to this comparison. 11)2.3 Multi-dimensional Comparative Analysis of hypertension prevalence among nursing staff, the description of results is

	redundant. Please simplify the descriptions as some numbers could be found in table 3. 12)Table 5, this table only shows variables with P <0.001 and I understand that the authors only put the variables with statistically significant difference in univariate analysis into the multi-factors model. Suggest to incorporate more factors including variables mentioned above and others that might affect outcomes into the model. 13)Suggest to briefly summary the results of this study and its significance in the first paragraph of discussion. 14)The discussion is not very well written. The authors compared the results with other previous studies but did not explain underlying causes or discuss the impacts of the changes in the 2017 ACC/AHA guideline and future implications. Suggest to rewrite it. 15)English language needs to be improved.

REVIEWER	Gulam Muhammed Al Kibria University of Maryland, Baltimore, MD, USA
REVIEW RETURNED	09-Mar-2019

GENERAL COMMENTS	This is a well-written manuscript but needs major revision. 1. In the definition of hypertension as per the 2017 ACC/AHA (Page 11, Line 18) guideline, did it include the proportion of respondents who were also reported that they were taking antihypertensive during the time? Needs clarification. 2. I think Table 4 is unnecessary, the main message should be that the new guideline would reclassify a substantial proportion of people as hypertensive and need more awareness about prevention, treatment, and control. This could be a supplemental table. 3. Table 5 and all tables should also mention all the used abbreviations in footnotes. 4. In Statistical Analysis section, multiple logistic regression was not mentioned though Table 5 reported it. Table 4 says, p-value <0.1 was significant while Statistical Analysis section says it was considered <0.05. 5. Better to compare the prevalence with the 2017 ACC/AHA prevalence in other Asian countries. 6. The authors should pay more attention to proofread the document. Better to check the manuscript by a professional English language editing agency. 7. This prevalence change looks substantial compared to changes in other countries. I would recommend the authors to show about the blood pressure distributions similar to Table 2 from Muntner et al (Circulation 2018, PMID: 29133599). That study found the overall change as only 14% in the US, some other countries like Bangladesh or Nepal, it was similar but this study found huge changes, that I think that will be bolstered by some additional data. 8. Discussion: I think the authors should pay more attention towards implications of the findings. Only few sentences discussed this. Better to remove first two sentences from the Limitation section. The authors could follow some papers that used the guideline to estimate the prevalence of hypertension in other countries. 9. The study group contains a small proportion of males, that should be discussed as a limitation. Also, a small proportion of people from older age group, that should be a limitation.

VERSION 1 – AUTHOR RESPONSE

Response to Reviewer 1:
Thank you very much for the comments,which are all valuable and very helpful for revising and improving our paper. We have tried our best to revise our manuscript point by point according to your comments. The main corrections are as followings:
1)Please correct the nonstandard writing format of abstract and full text, e.g. , abbreviations and spaces.
We have corrected the nonstandard writing format of abstract and full text word for word.
2)Line 45-53, page 6, it is repeated with the previous sentence.
The previous sentence has been removed.
3)Line 12-17, page 7, abbreviations should be defined at first mention in the text and in each table and figure.
We have defined all abbreviations at first mention in the text and in each table and figure.
4)In fact, there have been some recent studies to explore the potential impacts of the updated guideline on Chinese population. Suggest to add them in the introduction.
We have added the recent studies that explore the potential impacts of the updated guideline on Chinese population in the introduction(see Line 28-52, page 7).
5)Line 26, “an investigation”.
The nonstandard writing has been corrected.
6)What are the specific quality control measures to ensure accuracy of reporting and measurement of blood pressure data?
The specific quality control measures have been reported(see Line 37-60, page 10 and Line 1-17, page 11).
7)Line 53, page 10, the average of the last two readings or three readings (as described in the limitation)?
The correct description is “the average of the last two readings”, we have corrected the description in the limitation(see Line 23, page 30).
8)Statistical analysis, a multiple logistic model was also used in table 5. Suggest to provide more description regarding the model and variable selection strategy.
More description regarding the model and variable selection strategy have been provided in the Statistical Analysis section(see Line 40-51, page 13).
9)Table 1, what is the distribution of SBP and DBP? Has any normal test been conducted?
In this revised manuscript, the normality of the continuous variables has been assessed, and variables with a skewed distribution are reported with medians and interquartile ranges.
10)Table 3, suggest to remove the results of Chi-square test and P value. They are not applicable to this comparison.
It is really right as you suggested that the results of Chi-square test and P value are not applicable to this comparison and we have removed them.
11)2.3 Multi-dimensional Comparative Analysis of hypertension prevalence among nursing staff, the description of results is redundant. Please simplify the descriptions as some numbers could be found in table 3.
The description of results has been simplified(see page 18).
12)Table 5, this table only shows variables with P <0.001 and I understand that the authors only put the variables with statistically significant difference in univariate analysis into the multi-factors model. Suggest to incorporate more factors including variables mentioned above and others that might affect outcomes into the model.
We have removed the univariate analysis and incorporated all variables mentioned in the text into the multiple logistic regression model, and the result is the same as the previous one. Variables without statistically significant difference have been shown in Table 5.

13)Suggest to briefly summary the results of this study and its significance in the first paragraph of discussion.
We have summarized the results of this study and its significance briefly in the first paragraph of discussion(see Line 14-30, page 25).
14)The discussion is not very well written. The authors compared the results with other previous studies but did not explain underlying causes or discuss the impacts of the changes in the 2017 ACC/AHA guideline and future implications. Suggest to rewrite it.
We have rewrite the discussion.Underlying causes have been explained and the impacts of the changes in the 2017 ACC/AHA guideline and future implications have been discussed .
15)English language needs to be improved.
To improve the quality of language in our manuscript, we edited the writing with the assistance of an English teacher named Cui Ling,who had been teaching graduate students medical English for 9 years in Hebei Medical University and was good at English thesis writing.

Response to Reviewer 2:
Thank you very much for the comments,which are all valuable and very helpful for revising and improving our paper. We have tried our best to revise our manuscript point by point according to your comments. The main corrections are as followings:
1.Please allow us to answer this question in comment 7.
2.I think Table 4 is unnecessary, the main message should be that the new guideline would reclassify a substantial proportion of people as hypertensive and need more awareness about prevention, treatment, and control. This could be a supplemental table.
It is really right that Table 4 is unnecessary and we have removed it.
3.Table 5 and all tables should also mention all the used abbreviations in footnotes.
All the used abbreviations have been mentioned in footnotes in all tables.
4.In Statistical Analysis section, multiple logistic regression was not mentioned though Table 5 reported it. Table 4 says, p-value <0.1 was significant while Statistical Analysis section says it was considered <0.05.
We have added the description of multiple logistic regression in the Statistical Analysis section(see Line 40-51, page 13). Additionally, we intended to only put the variables with statistically significant in univariate analysis into the multiple logistic regression model in the previous manuscript, so P value<0.1 was significant in univariate analysis (as the previous Table 4, which has been removed,sayed) to avoid type II error. According to the comments of the other reviewer, we have removed the univariate analysis and incorporated all variables mentioned in the text into the multiple logistic regression model, so avoiding type II error is unnecessary and P value<0.05 is significant.
5.Better to compare the prevalence with the 2017 ACC/AHA prevalence in other Asian countries.
We have compared the prevalence with the 2017 ACC/AHA prevalence in other Asian countries(see Line 25-60, page 27).
6.The authors should pay more attention to proofread the document. Better to check the manuscript by a professional English language editing agency.
To improve the quality of language in our manuscript, we edited the writing with the assistance of an English teacher named Cui Ling,who had been teaching graduate students medical English for 9 years in Hebei Medical University and was good at English thesis writing.
7.This prevalence change looks substantial compared to changes in other countries. I would recommend the authors to show about the blood pressure distributions similar to Table 2 from Muntner et al (Circulation 2018, PMID:29133599). That study found the overall change as only 14% in the US, some other countries like Bangladesh or Nepal, it was similar but this study found huge changes, that I think that will be bolstered by some additional data.
We understand that the reviewer think the change looks so substantial compared to changes in other countries that it should be bolstered by some additional data. It should be clarified that the screening criteria for people with hypertension in this research was SBP≥140 mm Hg, or DBP≥90 mm Hg, and/or self-reported having an existing diagnosis of hypertension per the 2010 Chinese guideline and

it was SBP≥ 130 mm Hg or DBP≥ 80 mm Hg and/or self-reported having an existing diagnosis of hypertension on the basis of the 2017 ACC/AHA guideline.So we showed about the blood pressure distributions in the form shown in Table 4, which is similar to Table 2 from Muntner et al. We think this huge change was resulting from the relatively low baseline hypertension prevalence which was characterized by this young and female cohort.

8. Discussion: I think the authors should pay more attention towards implications of the findings. Only few sentences discussed this. Better to remove first two sentences from the Limitation section. The authors could follow some papers that used the guideline to estimate the prevalence of hypertension in other countries.

The first two sentences have been removed from the Limitation section.We have read a lot of papers that used the new guideline to estimate the prevalence of hypertension in other countries and added more implications of the findings of our research in the Discussion section.

9.The study group contains a small proportion of males, that should be discussed as a limitation. Also, a small proportion of people from older age group, that should be a limitation.

These two points has been discussed as limitations.

VERSION 2 – REVIEW

REVIEWER	Luxia Zhang Peking University First Hospital, China
REVIEW RETURNED	28-Apr-2019

GENERAL COMMENTS	The authors have made many revisions to this manuscript compared with the previous version. However, there is still much to be improved, especially in the section of results and discussion. I would recommend a few corrections to make it less confusing and more practically valuable. 1)Line 60, Page 5, the authors mentioned that the large representative sample of individuals from 13 cities in Hebei province enhanced the generalizability of the findings. However, the sampling methods for 512 medical institutions in 13 cities are not described in the Methods. The representativeness of the study objects remains to be discussed. 2)Line 49-51, Page 7, regarding the gaps of previous studies and the innovations of this study, I suggest to re-summarize them in order to highlight the significance of this study. 3)Table 1, the meaning of numbers in parentheses should be marked and it may not be necessary to show the results in two decimal places. SBP and DBP values were shown in different groups in Table 1, but the authors did not interpret them in the text. 4)Table 3, there is no need to describe the results of each group in the table. And the authors did not remove the results of Chi-square test and P values as they said. 5)What are the main findings in Table 4? I don't think it is necessary. 6)It is suggested that the overall results should be streamlined and focused rather than list all the results. 7)The authors have added the prevalence according to the 2017 ACC/AHA guideline in other Asian countries, which is valuable for comparing the impacts of the new guideline in different regions worldwide. But it also makes the discussion lengthy. Similarly, it is suggested to simplify the discussion and highlight key points. 8)Although the quality of language in this manuscript may have been improved, there is still much room for improvement.

REVIEWER	Gulam Muhammed Al Kibria

	University of Maryland, Baltimore
REVIEW RETURNED	23-Apr-2019

GENERAL COMMENTS	No specific comments. Good Job

VERSION 2 – AUTHOR RESPONSE

Response to Reviewer 1:

Thank you very much for the comments which are very valuable and very helpful for revising and improving our paper. We have tried our best to revise our manuscript point by point according to your comments. The main corrections are as followings:

1)Line 60, Page 5, the authors mentioned that the large representative sample of individuals from 13 cities in Hebei province enhanced the generalizability of the findings. However, the sampling methods for 512 medical institutions in 13 cities are not described in the Methods. The representativeness of the study objects remains to be discussed.

Response: We have deleted the sentence “The large representative sample of individuals from 13 cities in Hebei province enhanced the generalizability of the findings” .

2)Line 49-51, Page 7, regarding the gaps of previous studies and the innovations of this study, I suggest to re-summarize them in order to highlight the significance of this study.

Response:We have revised the content of the paragraph regarding the gaps of previous studies and the innovations of this study.

3)Table 1, the meaning of numbers in parentheses should be marked and it may not be necessary to show the results in two decimal places. SBP and DBP values were shown in different groups in Table 1, but the authors did not interpret them in the text.

Response: We have marked the meaning of numbers and revised the number form in parentheses. Meanwhile,we have added some explanations about table 1 in the results section.

4)Table 3, there is no need to describe the results of each group in the table. And the authors did not remove the results of Chi-square test and P values as they said.

Response: We have removed the results of Chi-square test and P values in Table 3, simplified the text description of the results and put the multiples of increased prevalence rate into the table.

5)What are the main findings in Table 4? I don’t think it is necessary.

Response: Just as suggested by another reviewer in the previous revision, Table 4 was added to show about the characteristics of the participants by blood pressure levels so that the results can be bolstered by some additional data. There were two main findings in Table 4. One was that 60.68%, 10.36%, 22.14%, and 2.90% of nurses not having an existing diagnosis of hypertension had SBP/DBP levels of <120/80 mm Hg, 120 to 129/<80 mm Hg, 130 to 139/80 to 89 mm Hg, and ≥140/90 mm Hg, respectively, and 3.91% nurses were having an existing diagnosis of hypertension. The other was that among nurses not having an existing diagnosis of hypertension, nurses with higher BP were older and were more likely to be men, be overweight or obese, having hyperlipidemia for less than 10 years, and have diabetes for less than 5 years.

6)It is suggested that the overall results should be streamlined and focused rather than list all the results.

Response: We have simplified the text description of the results in order to emphasize the key points of results.

7)The authors have added the prevalence according to the 2017 ACC/AHA guideline in other Asian countries, which is valuable for comparing the impacts of the new guideline in different regions worldwide. But it also makes the discussion lengthy. Similarly, it is suggested to simplify the discussion and highlight key points.

Response: We have sorted out the content of the discussion part. In order to make the logic clearer and the content more concise, we have removed and modified some content in the paper.

8)Although the quality of language in this manuscript may have been improved, there is still much room for improvement.

Response: To improve the quality of language in our manuscript, we have revised the language in manuscript by a native English speaker.

Response to Reviewer 2:

Thank you very much .

VERSION 3 – REVIEW

REVIEWER	Luxia Zhang Peking University First Hospital, China I received research funding from AstraZeneca.
REVIEW RETURNED	23-Jul-2019

GENERAL COMMENTS	The raised questions from my first review have been addressed by the authors.