PEER REVIEW HISTORY

ARTICLE DETAILS

TITLE (PROVISIONAL)	Workplace violence against healthcare professionals in multi-ethnicity area: A cross-sectional study in southwest China
AUTHORS	Jia, Haonan; Fang, Huiying; Chen, Ruohui; Jiao, Mingli; Wei, Lifeng; Zhang, Gangyu; Li, Yuanheng; Wang, Ying; Wang, Yameng; Jiang, Kexin; Li, Jingqun; Jia, Xiaowen; Ismael, Omar Yacouba; Mao, Jingfu; Wu, Qunhong

VERSION 1 - REVIEW

REVIEWER	Tianwei Xu Department of Public Health, University of Copenhagen
REVIEW RETURNED	09-Mar-2020

GENERAL COMMENTS	Thank you for inviting me to review this paper again. The paper has greatly improved, and I have some further comments to help with improving the clarification: Introduction: 1. It is better to mention the definition of workplace violence. It is important, as this paper discussed both physical violence and psychological violence at work. 2. It would be nice to rephrase the argument of why healthcare workers in the ethnical minority group will suffer from workplace violence in a different extent than Han. It is not very clear according to the current description. Whose educational level matters more to the exposure of workplace violence? Why would workplace discrimination affect workplace violence perpetration? A brief theoretical explanation is needed. 3. It would be really nice to clearly and very briefly mention the theoretical foundation of including overtime work as an indicator of the occurrence of workplace violence, or at least there needs a reference in the introduction. The authors introduced the Chinese context and argued lack of consideration of overtime work in the introduction. However, it is important to mention the word 'overtime work', making it easy to read the argument. Please add reference to the introduction of the Chinese context of the overtime work. 4. In p.5 line 103- p.6 line 114, the paragraph may be moved to the discussion as a strength of the study. Methods: 1. There needs some explanation on the purpose of using propensity matching. Is it for controlling confounders? Why do you need groups with similar demographic factors? 2. Were the analyses based on 960 participants, not 2036

	participants? Results 1. Please add the total number of participants in the title of Table 1. 2. In Table 2, it is important to mention the adjustments in the model, either in the title or in the notes; were the variables mutually adjusted? There are so many numbers presented, which is very difficult to read. P-value may not be important to present, as one can be more interested in reading the confidence interval. Also, it would be enough to present only one or two digits, instead of three digits. The authors could also consider using parentheses for the confidence interval and move OR and CI closer to each other, making it easier to read. Instead of using '-', the authors could consider to use 'reference' to show the reference level for each variable. The sequence of variables should be adjusted. The main variable in the paper is the ethnical group and therefore, it should be presented at the first place. 3. In Table 3,4,5, and also in line 238-246, why ORs and confidence intervals were not presented? It is difficult to compare the prevalence directly across ethnical groups. Discussion 1. In line 285, 'this discrepancy may be due to …' What does it mean by discrepancy here? Please clarify. 2. Anxiety can also be a consequence of workplace violence. Therefore, caution should be taken when interpreting this part of the results. 3. Other important limitations include the lack of considering the temporality between these influential factors and workplace violence, making it difficult to conclude on the causation. Another limitation is the lack of consideration of the clustering effect of workplace violence in some departments, which may affect the standard error of the results. 4. Please also talk about the strength of the findings. 5. "The WPV prevalence reported in our study is lower than that in the areas that Han mainly lives in", but "Ethnic minority healthcare professionals may be more likely to suffer WPV." It seems these two statements were contradictory. I still find it difficult to compare the prevalence of workplace violence in this study with the prevalence from other study. The difference or lower or higher prevalence could be due to different reasons and should not be concluded in this simple statement. Lastly, there are some grammar mistakes in the manuscript. A careful proofreading is needed. The manuscript has some consistency problems. Some of the consistency problems have been mentioned in the above comments. However, the authors should take efforts to thoroughly check, especially on whether some terms were used without a clear and brief pre-introduction. This will improve the readability.

VERSION 1 – AUTHOR RESPONSE

Thank you for inviting me to review this paper again. The paper has greatly improved, and I have some further comments to help with improving the clarification:

Response: Thanks for your efforts on our manuscript. I believed that your suggestions are helpful to improve our manuscript. Also, we have learned a lot from your comments. Based on our

understanding on your suggestions, we have revised our paper. If we did not fully understand your suggestions due to the language differences, please contact us and we will do our best to revise.

Introduction:
1. It is better to mention the definition of workplace violence. It is important, as this paper discussed both physical violence and psychological violence at work.

Response: Thanks for your advice. We have added the definition of WPV at the beginning of our study, including physical violence and psychological violence (p.2 line 73-79). We believe that would strengthen the description of WPV.

2. It would be nice to rephrase the argument of why healthcare workers in the ethnical minority group will suffer from workplace violence in a different extent than Han. It is not very clear according to the current description. Whose educational level matters more to the exposure of workplace violence? Why would workplace discrimination affect workplace violence perpetration? A brief theoretical explanation is needed.

Response: Thanks for your suggestions. We are sorry for not introducing the related content clearly enough before. In general, Chinese ethnic minority's education level is relatively lower than Han's [1,2]. To improve education for ethnic minority groups, there is preferential treatment in education for them, which could increase opportunities for ethnic minorities to receive high-level education. Ethnic minority may obtain the same education with lower requirements. For example, Han students need 650 score to enter a university, while ethnic minority students only need 600 score. However, it may cause the fact that ethnic minority workers' capabilities and skill may be undervalued when compared with Han workers in the same position [3-5], which may lead to customers' distrust. Since healthcare profession requires high levels of skills and is strict in personnel recruitment and capability examination, it is unknow that whether ethnic minority healthcare professionals' ability would be questioned by patients then leading to distrusted doctor-patient relationship, even WPV occurrence.

As for the work discrimination, since English is not our mother language, we used an inaccurate term for expression. Our intention is using the word "work discrimination" to describe "distrust or disapproval of one's capability". We have revised the statement to avoid confusion (p.2 line 90-100). It's really a constructive suggestion to improve our paper!

[1] Yeh E T. State Growth and Social Exclusion in Tibet: Challenges of Recent Economic Growth . By Andrew Martin Fischer. Copenhagen: Nias Press, 2005.213 pp. $55.00 (cloth)$24.00 (Paper). The Journal of Asian Studies, 2006, 65(02): 415-417.

[2] Chen, Dayun. Develop Ethnic Higher Education and Improve the Employment ability Of Ethnic Minorities. Journal of Southwest Minzu University (Humanities and Social Science), 2009, 030(012):61-64.

[3] Coate S, Loury GC. Will Affirmative-Action Policies Eliminate Negative Stereotypes? The American Economic Review 1993;83(5):1220-40.

[4] Hasmath R, Ho B. Job acquisition, retention, and outcomes for ethnic minorities in urban China. Eurasian Geography and Economics 2015;56(1):24-43.

[5] Spence, Michael Andrew. 1974. Market Signaling: Information Transfer in Hiring and Related Screening Processes. Cambridge, MA: Harvard University Press.

3. It would be really nice to clearly and very briefly mention the theoretical foundation of including overtime work as an indicator of the occurrence of workplace violence, or at least there needs a reference in the introduction. The authors introduced the Chinese context and argued lack of consideration of overtime work in the introduction. However, it is important to mention the word 'overtime work', making it easy to read the argument. Please add reference to the introduction of the Chinese context of the overtime work.

Response: Since the overtime duty on call work is a common phenomenon in China, it' necessary to make a clearer description. Workload is associated with WPV victimization [1,2]. In China, the work regulation requires that healthcare workers are responsible for their patient at any time, which makes overtime work a very common phenomenon [3]. Duty on call work is a form of overtime work, which refers to that healthcare professionals go back to work when they have already finished general work and leave workplace[4]. This is what we pay attention to in our study. We have mentioned the word "overtime" to emphasize that the duty on call work is a kind of overtime work, which did not happen during general work time. In another word, our study further examined the exact form of overtime work. Additionally, overtime duty on call work is not equal to shift work. The overtime duty on call work belongs to extra work time, while shift work is a routine work arrangement.

We have revised the description of healthcare professionals' overtime duty on call work and added related references (p.3 line 101-111). Thanks for your suggestion!

[1] Tak S, Sweeney MH, Alterman T, et al. Workplace Assaults on Nursing Assistants in US Nursing Homes: A Multilevel Analysis. American Journal of Public Health 2010;100(10):1938-45.

[2] Cai W, Deng L, Liu M, et al. Antecedents of Medical Workplace Violence in South China. Journal of Interpersonal Violence 2011;26(2):312-27.

[3] White paper on medical practice in China: Chinese Medical Doctor Association, 2017.

[4] Ji H, Tian K, Yunsen Z. Studying on the guarantee of medical professionals' right of rest and construction of harmonious doctor-patient relationship. The Chinese Health Service Management 2016;33(05):368-70.

4. In p.5 line 103- p.6 line 114, the paragraph may be moved to the discussion as a strength of the study.

Response: Thank you. According to your advice, we have moved this content into discussion as a part of the strength of our study and revised the expression accordingly.

Methods:
1. There needs some explanation on the purpose of using propensity matching. Is it for controlling confounders? Why do you need groups with similar demographic factors?

Response: Thanks for your questions. Since the number of Han (n=1711) and ethnic minority (n=325) participants was imbalance, important characteristics of ethnic minority may be covered and the analysis results may be biased if we conduct logistics regression using the original database. Using propensity score matching, we selected Han participants according to ethnic minority participants' age, gender, marriage status, educational background, and years of work experience, which have several advantages:
(1) The quantity gap between Han and ethnic minority samples was minimized, which could reduce the bias of analysis results.

(2) For better understanding, ethnic minority group could be regarded as treatment group and Han as control group. The matching process chose Han samples according to ethnic minority samples' characteristics in order to find the suitable cases, which helped to control the confounders. Finally, the main variable of our study – ethnicity was highlighted. We have made a figure for example（Figure 1）.

As for the similar demographic characteristics, it's our mistake to make an inaccurate statement. Our intention was to describe that the groups have similar characteristics for matching, including age, gender, marriage status, educational background, years of work experience. We have revised a clearer statement in "2.4 Data analysis".

[1] Li Z, Zhang L, Liu J, Ren A. Application of propensity score matching in the design of an epidemiological study. Chinese Journal of Epidemiology, 2009,(5).514-517.doi:10.3760/cma.j.issn.0254-6450.2009.05.025.

[2] Weihua An.Bayesian Propensity Score Estimators: Incorporating Uncertainties in Propensity Scores into Causal Inference.2010,40(1).151-189.

[3] Austin P C. A critical appraisal of propensity-score matching in the medical literature between 1996 and 2003. Statistics in Medicine, 2008, 27(12): 2037-2049.

[4] Wang Y, Han L, Yuan Y. Rationality Evaluation of Outpatient Glucocorticoid Prescriptions by Propensity Score Matching, China Pharmacy. 2016,27(32):4490-4493.

2. Were the analyses based on 960 participants, not 2036 participants?

A: Thanks for your question. In our study, the logistic regression (Table 2) was based on the matching data (n=960), which is aimed to minimize the bias from confounders and sample number of Han and ethnic minority in the model. As for participants' response to WPV, expected training measures and content, and evaluation of WPV interventions (Table3,4,5), we have conducted Chi-square test and Fisher's exact test to make comparison between Han and ethnic minority participants based on the whole valid data (n=2036). We have also added the case number of each analysis in the according table.

Results

1. Please add the total number of participants in the title of Table 1.

A: Thanks for your reminder. We have added the total number of participants in the title of Table

2. In Table 2, it is important to mention the adjustments in the model, either in the title or in the notes; were the variables mutually adjusted? There are so many numbers presented, which is very difficult to read. P-value may not be important to present, as one can be more interested in reading the confidence interval. Also, it would be enough to present only one or two digits, instead of three digits. The authors could also consider using parentheses for the confidence interval and move OR and CI closer to each other, making it easier to read. Instead of using '-', the authors could consider to use 'reference' to show the reference level for each variable. The sequence of variables should be adjusted. The main variable in the paper is the ethnical group and therefore, it should be presented at the first place.

Response: Thanks for your valuable suggestions on details. All the variables in Table 2 were mutually adjusted, which we have added in the table notes. In addition, we have revised the Table as your advice to improve the readability, which is much simpler and clearer than before.

3. In Table 3,4,5, and also in line 238-246, why ORs and confidence intervals were not presented? It is difficult to compare the prevalence directly across ethnical groups.

Response: Thanks for your reminder. We have added OR and confidence intervals in Table 3 and Table 4. Since there is no statistically significant difference in the result of evaluation of WPV interventions (Table 5), we didn't show OR and confident intervals.

Discussion
1. In line 285, 'this discrepancy may be due to …' What does it mean by discrepancy here? Please clarify.

Response: Thanks for your advice. The discrepancy here is refer to the difference of the stratified and unstratified analysis results, which may be caused by the quantity gap between males and females. We have clarified in line 285-287.

2. Anxiety can also be a consequence of workplace violence. Therefore, caution should be taken when interpreting this part of the results.
Response: Thanks for your reminder. Since it is difficult to conclude the casual relationship from existing analysis, we have decided not try to explain this result and revised the related content in discussion (line 336-340). Also, we have checked our manuscript to avoid this kind of statement.

3. Other important limitations include the lack of considering the temporality between these influential factors and workplace violence, making it difficult to conclude on the causation. Another limitation is the lack of consideration of the clustering effect of workplace violence in some departments, which may affect the standard error of the results.

Response: Thanks for your advice. We have added the limitations you mentioned in our text (line 427-430).

4. Please also talk about the strength of the findings.

Response: Thank you for your reminder. We have supplemented the strength of our study at the end of discussion (line 406-420).

5. "The WPV prevalence reported in our study is lower than that in the areas that Han mainly lives in", but "Ethnic minority healthcare professionals may be more likely to
suffer WPV." It seems these two statements were contradictory. I still find it difficult to compare the prevalence of workplace violence in this study with the prevalence from other study. The difference or lower or higher prevalence could be due to different reasons and should not be concluded in this simple statement.

Response: Thanks for your question. Indeed, these two statements you mentioned are two different issues. In the first sentence, WPV prevalence refers to that how many participants have suffered WPV in last 12 month at the hospital level. Compared to our previous study conducted in the areas that Han mainly lives in with same questionnaire and time period, the WPV prevalence is relatively lower [1-4]. This result reflects WPV situation of investigation hospital in multi-ethnicity area.

In another statement, it shows the logistic regression result that ethnic minority healthcare professionals may suffer more WPV when compared to Han. In the circumstances that WPV prevalence is relatively lower, this result refers to the high-risk ethnic group of WPV victimization. In

another word, the lower WPV prevalence in hospital of multi-ethnicity area did not represent ethnic minority healthcare professional would suffer less WPV.

As for the comparison of WPV prevalence, we have discussed and concluded that it's hard to compare the WPV prevalence in studies with different research tools. However, our previous studies were conducted using the same questionnaire, method and time period with this manuscript, which make the WPV prevalence comparable [1-4]. In the discussion, we have explained the difficulties to compare WPV with other studies and then compared it with our previous study. Since this comparison is limited by research tool, time period, and investigation method, we have deleted the sentence "The WPV prevalence reported in our study is lower than that in the areas that Han mainly lives in" in the part of conclusion.

[1] Liu H, Zhao S, Jiao M, et al. Extent, nature, and risk factors of workplace violence in public tertiary hospitals in China: a cross-sectional survey. International Journal of Environmental Research and Public Health 2015;12(6):6801-17.

[2] Zhao S, Liu H, Ma H, et al. Coping with Workplace Violence in Healthcare Settings: Social Support and Strategies. International journal of environmental research and public health 2015;12:14429-44.

[3] Jiao M, Ning N, Li Y, et al. Workplace violence against nurses in Chinese hospitals: a cross-sectional survey. Bmj Open 2015;5(3):e006719.

[4] Sun P, Zhang X, Sun Y, et al. Workplace Violence against Health Care Workers in North Chinese Hospitals: A Cross-Sectional Survey. International Journal of Environmental Research and Public Health 2017;14(1):96.

Lastly, there are some grammar mistakes in the manuscript. A careful proofreading is needed. The manuscript has some consistency problems. Some of the consistency problems have been mentioned in the above comments. However, the authors should take efforts to thoroughly check, especially on whether some terms were used without a clear and brief pre-introduction. This will improve the readability.
Thank you. We have improved the quality of English throughout our manuscript.

VERSION 2 – REVIEW

REVIEWER	Tianwei Xu University of Copenhagen, Denmark
REVIEW RETURNED	22-Jun-2020

GENERAL COMMENTS	The clarity of the paper has improved. I only have minor comments: 1. The digits seem wrong in "... psychological violence (OR=1.403, 95%CI=1.02-.93)...". 2. In line 190, it should be Logistic regression, instead of logistics. 3. Although this is a cross-sectional study, the ethnical group and gender should be rather stable after birth. The causal conclusion on ethnical group and gender could be strengthened by this temporality.

VERSION 2 – AUTHOR RESPONSE

Owing to your carefully review, we have revised some writing mistakes in our manuscript. In addition, we have added your comments about the strength of variables after birth in a cross-sectional study to our manuscript. Your suggestions and comments are necessary to improve our manuscript and to help us learn new knowledge.