Letter to the Editor

Author reply – Letter to the editor "The challenges of quantifying the psychological burden of COVID-19 on heathcare workers"

A R T I C L E   I N F O

Dear Editor

In their letter to the Editor, Rashid & Katyal raised a number of interesting points regarding our article 'Prevalence of depression, anxiety, and insomnia among healthcare workers during the COVID-19 pandemic: A systematic review and meta-analysis' (Pappa et al., 2020) which we would like to address.

Regarding Table 2 detailing the Modified Newcastle-Otawa Scale quality assessment scores, some inaccuracies were noted by the correspondent. Huang J.Z. et al had been, indeed, taken into account during the quality assessment process and included in the original submission. However, one study was replaced by the word "Author" and some studies have changed order in the table during the production process. Unfortunately, this was not picked up during proof-reading. Furthermore, Du et al and Zhang et al have not been assigned a star; with an additional star, Du et al becomes low risk of bias whereas Zhang et al. remains low risk of bias. No star had been allocated in the original table for the response rate of Du et al., therefore no change is needed as shown in the corrected table below.

The changes in the quality assessment score will also affect the pooled estimates of low bias risk studies as Du et al becomes low risk of bias. The adjusted low risk of bias values are 23.78% (instead of 24.06%) (95% CI 16.95% – 31.34%, $I^2 = 99$%) for Anxiety and 21.75% (instead of 22.93%), (95% CI 12.72%–32.34%, $I^2 = 99.62$%) for Depression. These changes alongside Table 2 will be re-published as corrigendum.

Regarding the Newcastle-Ottawa scale, a modified version was used that appeared to better serve the needs of our study. The original scale has a maximum award of 9 stars (4 stars for selection, 2 for comparability, 3 for outcome) and is mainly used for cohort or case control studies (Wells et al., 2012). However, several studies have used modified versions awarding a lower number of stars. For example, a highly-cited study by Rotenstein et al. (2016) with a similar subject to ours utilized a modified version with scores ranging from 0 to 5, as seen in the supplementary material.

Furthermore, the authors argued that we included the study by Qi et

al (2020) that only evaluated insomnia using AIS and PSQI scale and only provided the AIS prevalence estimate. Indeed, we included studies that reported on depression and/or anxiety and/or insomnia in the systematic review. AIS and PSQI both assess sleep but PSQI evaluates quality of sleep in general whereas AIS is more specific to insomnia and more comparable to the ISI scale used by the other studies. Therefore, only AIS was taken into account in the final calculations.

Finally, the point was raised that we included studies in our subgroup analysis that used the same rating scales but different cut-off scores. We agree that the different cut-offs have been one of the major limitations of our study, although not uncommon for this type of systematic reviews and meta-analysis. In addition, this issue has been thoroughly mentioned in the discussion section where we highlighted that "One major drawback that merits consideration is the inherent heterogeneity across studies. Different assessment scales were utilized for population screening and different cut offs set even though several studies used the same tests. Thus, threshold criteria for case definition varied with some investigators intentionally using more lenient criteria in order to capture milder or subsyndromal cases; hence our subgroup analysis by severity."

We would like to thank Rashid & Katyal for their interest in our work and helpful feedback.

References

Pappa, S., Ntella, V., Giannakas, T., Giannakoulis, V.G., Papoutsi, E., Katsaounou, P., 2020. Prevalence of depression, anxiety, and insomnia among healthcare workers during the COVID-19 pandemic: a systematic review and meta-analysis. Brain Behav. Immun. 88, 901–907. https://doi.org/10.1016/j.bbi.2020.05.026.

Wells, G. A., Shea, B., O'Connell, D., Peterson, J., Welch, V., Losos, M., Tugwell, P., 2012. The Newcastle-Ottawa Scale (NOS) for assessing the quality of nonrandomized studies in meta-analyses. http://www.ohri.ca/programs/clinical_epidemiology/oxford.asp.

Table 2

Modified Newcastle-Ottawa quality assessment scale and total score of each study.

Studies	Year	Modified Newcastle-Ottawa quality assessment scale					Score
		1	2	3	4	5	
Du J. et al.	2020	*	–	–	*	*	3
Guo J. et al.	2020	*	*	–	–	–	2
Huang J.Z. et al.	2020	–	–	*	*	–	2
Huang and Zhao	2020	–	*	*	*	*	4
Lai J. et al.	2020	*	*	–	*	*	4
Liu C. et al.	2020	–	–	*	*	*	3
Liu Z. et al.	2020	*	*	–	–	*	3
Lu W. et al.	2020	–	*	*	*	–	3
Qi J. et al.	2020	–	*	*	*	*	4
Tan B. et al.	2020	*	–	*	*	*	4
Zhang C. et al.	2020	*	*	–	*	*	4
Zhang W. et al.	2020	*	*	–	*	*	4
Zhu Z. et al.	2020	–	*	–	*	*	3

1. Representativeness of sample (no HCWs' subgroup ≥65% of total sample); 2. Sample size >600 HCWs; 3. Response rate >80%; 4. The study employed validate measurement tools with appropriate cut-offs; 5. Adequate statistics and no need for further calculations.

Rotenstein, L.S., Ramos, M.A., Torre, M., Segal, J.B., Peluso, M.J., Guille, C., Sen, S., Mata, D.A., 2016. Prevalence of depression, depressive symptoms, and suicidal ideation among medical students: a systematic review and meta-analysis. JAMA 316 (21), 2214. https://doi.org/10.1001/jama.2016.17324.

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