Author’s response to reviews

Title: A Cross-Sectional Study Exploring the Relationship Between Burnout, Absenteeism, and Job Performance among American Nurses

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Author’s response to reviews:

The Relationship Between Burnout, Absenteeism, and Job Performance among American Nurses

Karen Domínguez-Cancino, MPH, BSN, RN (Reviewer 1, Statistics Expert): I consider that the topic is extremely important for the analysis of the issues related to the workforce in nursing, so I encourage the authors to improve the methodological aspects mainly to publish this article of great interest.

Response: We thank the reviewer for this comment.

- It is suggested to base all the variables included in the manuscript at the beginning (background).

Response: We have clarified the definition of burnout in the introduction. Furthermore, we have added information to the background providing a rationale for why we included depression and fatigue as adjustment variables.

- Explicit study design.

Response: We conducted a cross-sectional exploratory study and have added this information to the method section.

- The management of the variables is very confusing, it is suggested to explain how the variables were worked for the descriptive analysis and for the multivariate inferential analysis.
Response: We regret this confusion and have clarified the method section.

- It is requested to explain the use of bivariate statistics since the results are not presented.

Response: We have added a new table 2 showing results from the bivariate (unadjusted) analysis.

- Figure 1 was not available, neither tables 2 and 3, only table 2 that in the manuscript appears as 4. This table is the new table 2.

Response: It is unknown to us why the reviewer was unable to see Figure 1. There must have added some confusion. We mislabeled table 2 in the text as table 4. We regret this error. As we have added a bivariate table (table 2) we have relabeled the tables. We have corrected the text.

- Review the topic of crude and adjusted analyzes for each variable analyzed as a predictor.

- There are certain points that are not methodologically based. Review attachment.

- It is suggested to add strengths and projections for future research.

Response: We have also reviewed the comments on the PDF made by the reviewer and have edited the methods to improve clarity. We agree with the reviewer and have added a strengths and suggestions for future research paragraph.

- It is suggested to check completeness of references and their publication date. More than 50% exceeds 5 years of publication.

Response: We have reviewed the citations. Some of them are older, as many studies conducted on nurse absenteeism, work performance, and burnout were done more than 5 years ago. Several of the instruments we used have been used for decades, providing further evidence of their psychometric properties. We have, however, reviewed the reference list for completeness and removed some of the dated references that were less necessary.

Nina Granel Gimenez, PhD, MsC, RN (Reviewer 2): Thank you for the opportunity to review this study. Overall, the manuscript is well-written and addresses a very interesting topic. However, the manuscript should be revised in order for me to recommend publication.

Response: We thank the reviewer for this comment.

I would like to make the following recommendations.

Abstract:
1. The abstract is well written and organized. OR and CI is not provided for" high performer". Could you please add it if considered by the author(s)?
Response: The “high performer” is the referent group; hence, there is no OR or CI.

Methods:
2. Line 77. The sentence starting with "as previously reported" is slightly confusing, could you please rephrase it?

Response: We have rephrased the opening line in the method section.

3. Line 84. Sentence needs punctuation revision.

Response: We have added a comma to the sentence in line 84.

4. The survey included items about demographics, fatigue, and validated instruments to measure burnout, absenteeism, and poor work performance in the last month. Could you please mention why this period was established and no longer? The author(s) should elaborate here.

Response: We assessed burnout using the Maslach Burnout Inventory (response options: never, a few times a year or less, once a month or less, a few times a month, once a week, a few times a week, every day). The fatigue item asks individuals to rate their level of fatigue during the past week (0 to 10 scale, with 0 = as bad as it can be and 10 = as good as it can be). We used the World Health Organization Health and Work Performance Questionnaire which asks individuals to report their absenteeism and rate their work performance over the past month. The time periods were established by the original authors of these standardized scales. We have clarified the time periods in the method section of the manuscript.

5. Could you please explain how you calculated the sampling size? Were you based on any author? Why 3147 nurses were included? The final sample size (n=637) was sufficient to generalize the results?

Response: We purchased a random sample of 3,150 nurses’ email and mailing addresses from Redi-Data, a company that maintains over 5.8 Million postal addresses and over 1.8 million email addresses for U.S. Nurses obtained from state licensing data. Three of these email and mailing addresses were invalid. We selected the 3,150 number out of necessity due to cost. As detailed in the results and discussion, our n=637 responders were fairly typical of US nurses with respect to age, sex, highest academic degree related to nursing, and work hours. Furthermore the prevalence of burnout in this cohort was similar to that found in previous studies of nurses. These findings suggest, as pointed out by Reviewer 1, that our findings may be comparable.

6. None exclusion criteria are described. Could you please include them, if it is the case?

Response: Inclusion and exclusion criteria are provided in the last two sentences of the method section, participants. Nurses who indicated they had an associate degree or higher and were not advance practice providers were included in this analysis.

7. Has the HPQ been validated in the USA and psychometric properties being tested? Could you please clarify this?
The HPQ has excellent reliability and validity, and is sensitive to change (see https://www.hcp.med.harvard.edu/hpq/ and J Occup Environ Med. 2004;46(6):S23–37; J Occup Environ Med. 2003;45(4):349–59). It has been validated in multiple occupational samples in the USA (J Occup Environ Med 2004;46;S23-37; J Occup Environ Med 2003; 45:156-174), as well as abroad (Med Decis Making 2014;34:127–137), and in samples of individuals employed in the health sector (Med Decis Making 2014;34:127-137). It has been translated into 29 languages for use by the WHO in 25 countries (J Occup Environ Med. 2003;45(4):349–59). In samples of US workers, good concordance has found between HPQ self-reported absenteeism with employer payroll records in multiple occupations (Pearson correlations of 0.66 to 0.71 for 28 day recall). In a study of reservation agents, in comparisons to individuals with a HPQ work performance rating of 9 or higher, those with a with HPQ work performance ratings of 7 or lower had a 3.2 increased odds of poor supervisor ratings and individuals with a HPQ work performance rating of 8 had a 2.4 increased odds of poor supervisor ratings. The area under the ROC curve for HPQ work performance rating and archival supervisor ratings of low work performance in this sample was 0.63. We have added additional details regarding the psychometric properties of the HPQ to the method section. We have also clarified that the two publications by Kessler et al. are the original development papers.

8. Line 153: "Among the responders, 175 were advanced practice nurses and were excluded from this analysis, resulting in a final sample size was 637 nurses". I believe there is a typo.

Response: We regret this typo. The error has been corrected.

9. Line 175: The sentence contains a typo. (Extra bracket)

Response: We regret a bracket was missing. This has been corrected.

10. Line 176: OR and CI is not provided for "high performer". Could you please add it if considered by the author(s)?

Response: The “high performer” is the referent group; hence, there is no OR or CI.

11. Line 183: The sentence contains a typo. Table 2, not table 4.

Response: We regret this error. The titles of the tables have been corrected.

Discussion:
12. Few previous results of other studies have been discussed in this section. One study among non-health care employees and another from the US is mentioned. Could you include details associating your results with other studies made outside US?

Response: We have added additional text to the introduction and discussion highlighting findings from outside the US. Unfortunately, few comparable studies have been conducted in recent years.
Conclusion:
13. The section should be more elaborated.

Response: We have elaborated on the concluding remarks.

References:
14. At least 22 references are more than 10 years old, with some of them being 15-20 years old. These need to be updated.

Response: We have updated the references. Please see our response above to Reviewer 1.

Tables:
15. Table 1 contains some typos. (No. (%) not included in some described variables).

Response: We have added “No. (%)” to the table. There were also some missing “mean, (SD)” and these have been added as well. We regret this oversight.

I hope my suggestions will strengthen the manuscript. Thank you for your important work.

Response: We thank the reviewers for their time, and appreciate their comments.