

YALE
SCHOOL OF MEDICINE

KIRSTEN WILKINS, M.D.
Associate Professor of Psychiatry



*Department of Psychiatry
300 George Street, Suite 901
New Haven, CT, USA 06511
203-932-5711 x3955
kirsten.wilkins@yale.edu*

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Editorial Staff
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Dear Editors,

It is with great enthusiasm that we submit revisions for our paper entitled “Medical Student Depression and its correlates across Three International Medical Schools” for publication in *World Journal Psychiatry*. We have endeavored to address each comment in the manuscript and also have provided explanations where necessary following the comments on the next page. We hope that you consider these changes sufficient for the article to be published in *World Journal of Psychiatry*. We are happy to address any further questions or comments as they arise throughout the review process.

We greatly appreciate your consideration of our manuscript and we welcome any questions you have regarding this work.

Respectfully,

Kirsten M. Wilkins, MD
On behalf of the authors

Editor's comments:

- **Your manuscript should be prepared with Word-processing Software, using 12 pt Book Antiqua font and 1.5 line spacing with ample margins.**

Thank you for the comment. The document has been reformatted accordingly. The Open-Access statement was also added to the title page.

- **Audio Core Tip:** Audio Core tip has been recorded and uploaded in mp3 file format.

The core tip was as follows:

Depression among medical students places them at increased risk for suicide and impacts many aspects of professional performance. Medical students around the world share common stressors, including competitive selection processes, intense coursework, and pressure for high achievement. However, differences in depression rates are influenced, in part, by burnout, exercise, stress, unmet mental health needs, and region.

- **Citation:** The citation was added at the end of first section as requested.

Reviewer Comments:

Reviewer's code: 02445267

Reviewer's country: Italy

Thanks to the Authors for this well-designed research.

Thank you for your kind words about our paper. We are glad you enjoyed it.

Reviewer's code: 00784262

Reviewer's country: Canada

The Yale response rate disqualifies this school.

We understand that the response rate at Yale was much lower than the other countries, however, we believe 39.5% is a good response rate and the data should not be disqualified.

We do mention in our limitations that we are aware there are significant differences by school and that "attenuates comparability across groups".

Yale has also had recent well publicized suicides on campus so that its mental health services have been ramped up. It is an elite school that is probably not comparable to the other selected schools.

During the time of this study there were no recent suicides that led to a shift in mental health services on Yale's campus, especially not in the medical school. We are aware that Yale is an elite school, however, we also believe that Xiangya in China and the school in the Middle East are equally elite medical schools in their respective countries. As such, we believe the schools to be comparable.

Chinese cultural factors make mental illness symptoms very difficult to admit, even anonymously. A way to get around this is to ask for physical symptoms (sleep, appetite, fatigue) or to ask students how many of their fellow students they perceive as being depressed.

Thank you for your feedback. Our limitations section already including the following sentence: "Although all students were given assurance of anonymity and confidentiality, some students may have felt reluctant to participate in a survey addressing their personal health and behaviors" and we updated it to include the following phrase "particularly in cultures that are less comfortable openly discussing mental illness."

Sleep was already asked and included in our models in this paper. While we did not specifically ask about other physical symptoms, we did also inquire about exercise which suggests behavioral activation and possibly relates to overall energy level.

Many Middle East countries have high rates of consanguineous marriages which may predispose to depression.

We did not find this in our background research and thus this was not included.

The depression rates in the local regions are needed for comparison.

Thank you for your comment. We included the rates that we could find in the specific countries, but data were not available for each specific city, region, etc., within the country. Additionally, as the Middle Eastern country chose to remain anonymous, broader Middle Eastern studies were used to prevent identification.

Reviewer's code: 02989927

Reviewer's country: Brazil

The study investigates the level of depression and burnout among medical students in three culturally diverse countries. A total of 473 participants were recruited by convenience. When compared with the US students, participants from the Middle Eastern country and China predicted higher levels of depression. However, emotional exhaustion was highly relevant among US students. Information bias might be accounted for the between-country difference of depression.

Thank you for this comment. We added a sentence to our limitations section suggesting information bias might have also affected the results.

Authors claim local strategies to prevent and treat the mental health of medical students. The starting point of the study - the mental health of medical students from different cultural backgrounds - is interesting. However, the state-of-art method in cross-cultural psychiatry recommends establishing a measurement invariance to make the comparison meaningful. This is to say, the authors have not analyzed the measurement equivalence of their tools. Confirmatory factor analysis is the gold standard method for assuring the universalist assumption of mental distress. Therefore, the reported prevalence and ANCOVA analyses might remain fundamentally invalid.

Thank you for this feedback. We believe the societal and historical complexities among these cultures would make it unrealistic to reach measurement equivalence.

Overall, the manuscript is well organized, but considerable editing is necessary to improve its argumentative flow (mainly the Discussion). The sample size is modest. I think that more refined analyses might improve the scientific soundness of this investigation.

Thank you for the feedback. Care was taken to improve the argumentative flow in the Discussion section.

Reviewer's code: 02445242

Reviewer's country: India

This was an interesting study of depression and burnout from three medical schools in the US, China and the Middle-East. The study was well designed, the manuscript well

written and easy to read, and the findings novel enough to perhaps make a significant contribution to literature in this area.

Thank you for the kind words about our work.

However, it appeared to me that to improve upon the messages that one can derive from this study certain clarifications and elaborations are required. Firstly, this was primarily a study of depression among medical students. Burnout or emotional exhaustion was one of the many factors that influenced depression (Table 4). Thus, the title "depression and burnout" was a bit misleading because it was actually a study of depression, burnout, exercise, stress and unmet mental health needs. Therefore, something like "Depression among medical students and its correlates across three medical schools" might have been more appropriate.

Thank you for this feedback. We have changed the title according to your recommendation to the following: "Medical Student Depression and its Correlates across Three International Medical Schools"

The aims/objectives of the study might have to be restated keeping the above considerations in mind.

The aim was changed to the following: "To examine rates of depression in three international cohorts of medical students and determine variables that may explain differences."

The abstract and core tip will also need to be modified to emphasize that it was primarily a study of depression with and exploration of factors influencing including burnout, exercise, stress and unmet mental health needs.

Thank you for this feedback. The abstract and core tip were modified accordingly.

Alternatively, if the authors still wish to include burnout as one of the primary variables examined apart from depression, they need to include a regression analysis where emotional exhaustion is the dependent variable.

We chose to edit the title and focus instead of including burnout as a primary variable.

Secondly, though the authors have stressed that their study was intended to be a cross-cultural comparison, very few 'cultural' variables were actually examined. Rather the environment at the three medical schools (roughly equivalent to 'work-culture'), stress, exercise, access to health-care etc. turned out to be the pertinent influences on depression. The authors have hypothesized that personality variables (perfectionism, imposter syndrome) and social factors ("societal prestige and pressure from family and friends") could account for the differences observed, but there is very little to suggest that these would be significantly different between the US school (representing Western cultural values) and the Chinese and Middle-Eastern schools (representing non-Western cultural values). To complicate matters further, their findings are somewhat mixed and do not support the Western-non-Western divide.

We added a sentence to the discussion to try to clarify this. It reads: "It might also highlight the fact that personality and societal variables don't quite account for the significant differences observed."

While the rates of depression are significantly higher in the Chinese and Middle-Eastern school schools compared to the US one, they are more conflicting regarding the results of emotional exhaustion across the three schools (Tables 2 and 3). The rather strange finding that high/low rates of depression in the Middle-Eastern and US schools did not go hand in hand with rates of burnout will have to be better explained.

In this regard certain statements like "With simple analyses without controlling for any variables, the school in the Middle Eastern country had the most severe presentation of both burnout and depression" in the Discussion were a bit confusing because I could not find any data to support this, while the statement "In our study, however, students in the Middle East were not the most emotionally exhausted after adjusting for the influence of depression." was clearly evident from the results.

Thank you for your feedback. We agree the first quoted statement above is confusing and we have removed it.

The other puzzling finding was that 'stress' was associated with lower rates of depression. The authors have stated that convenience sampling, differences in "stress" and unmet mental health needs could account for some of the discrepancies in their findings. While they have acknowledged that the assessment of "stress" by a single question was

somewhat "inadequate, it appears from table 1 that unmet needs were also assessed by a single question. This has to be accepted as a limitation.

Thank you, this was added to the discussion with the following sentence: "Our data instead suggest that unmet mental health need (which is largest in this cohort) is associated with increased depression. Even though this was accessed only with a single question and therefore does not provide a full picture of what is meant by unmet need, this may be a potential target for intervention in the future." We also added the fact that stress and unmet mental health need were measured with a single question to the survey limitations section.

The authors go on to discuss several Chinese and Iranian studies to highlight the findings on depression and burnout among medical students in these countries. I think the Chinese studies should be cited in the Introduction itself to complement the findings from the US and Middle-East. Moreover, if there is any Chinese study on burnout this should be quoted.

Thank you for this feedback. Such studies are indeed cited in the last paragraph of the introduction. We would direct the reviewer to this paragraph and to references 22-25.

One interesting finding to my mind was the very high response rates in the Chinese and the Middle-Eastern school and much lower rate in the US school despite the incentive offered. This could be suggestive of a "cultural" difference, i.e. conformity and respect for authority, between the US and the two non-Western schools. Further, the request for anonymity from the Middle-Eastern school suggests that there is difficulty in acknowledging the reality of depression and burnout among students by the authorities of this school, which could be another difference in the work cultures of these different schools accounting for the discrepant findings of this study. It is therefore encouraging to know that the "Middle Eastern site has recently launched a voluntary faculty mentorship program." It would be helpful if the authors could include a few lines on these trends.

Thank you. Both trends were added into the discussion section.

Finally, to better understand the relative contribution of different variables to depression, table 4 should include the R square values for each of the variables that were significantly associated with depression in the regression analysis.

Thank you. We have added the following sentence beneath Table 4: “Associated changes in R-square for the following independent variable last added into the model, as its unique contribution to the improvement in the model’s goodness-of-fit: Exercise: 0.01; Unmet mental health needs: 0.045; Emotional Exhaustion: 0.061; Stress: 0.006; Middle Eastern country: 0.113; China: 0.054”.