Reviewer’s report

Title: BURNOUT IN MEDICAL STUDENTS: A SYSTEMATIC REVIEW OF EXPERIENCES IN CHINESE MEDICAL SCHOOLS

Version: 0 Date: 17 Aug 2017

Reviewer: Angelo Dante

Reviewer’s report:

Dear authors,

below you can find my reflection and suggestions.

Background

The authors propose an interesting topic for the medical education in China: to understand the magnitude of burnout in Chinese medical students and the possible evidence-based solutions. However, in order to improve the internal consistency and make the study interesting for an international audience, authors should describe more in depth, the possible consequences of burnout on academic career of medical students (e.g. on learning, exam performance, Master Degree completion rate) which may require a contrast action by Universities.

Study aims:

The associated constructs of emotional exhaustion, depersonalisation and personal accomplishment should be considered in the aims of the review.

Methods

The PRISMA statement was used to guide the reporting of the systematic review. However, the contents of several items have not been described adequately. More details should be provided in relation to:

1. protocol: indicate if a review protocol exists and if it can be accessed

2. eligibility criteria: I suggest to provide a specific paragraph and to give the rational for the chosen time interval from January 1989 to July 2016. In addition, it is necessary to state how studies conducted on mixed populations (e.g. nursing students and medical students) have been considered.
3. Information sources: I suggest authors to specify in the following sentence (Page 6 - line 17-20) "Hand searching of relevant journals and reference lists of published papers ensured that relevant published material was captured": a) the relevant journal cited (giving an example) and b) reference lists of published papers (giving an example). Please also note that this information has been omitted in the PRISMA Flow-chart. Why?

4. Search: although databases have been declared, there is no evidence of used keywords and their combination strategies (e.g. AND, OR, NOT). Furthermore, no search strings are available, making it difficult to reproduce the electronic search in the databases.

5. Summary measures and synthesis of results: Authors stated (page 7 - line 22-25): "Findings were analysed using a narrative synthesis in stages based on the study" and subsequently (page 7 - line 25-30): "A narrative approach was utilised to synthesize the findings as given the heterogeneity of the outcome measures used, a quantitative approach was not considered appropriate as the measures were not directly comparable." However, there are no description of the methods used to evaluate the heterogeneity of the included studies and it is difficult to understand the reasons for non-comparability of results although table 1 shows results measured with the same instrument and on the same population (e.g. Chen, 2011 and Di, 2014 and Fu, 2012 or Jin, 2010 and Li, 2009 and Zhu, 2012 etc.) Why?

Results

Also in the results section the content of some items have been omitted and should be reported.

1. Study selection: in the "Search results" paragraph (page 8 - line 27), authors recall "Figure 1" (PRISMA Flow-Chart) which however should be completed with data on "other search strategies" (e.g. hand searching and reference lists screening)

2. Study characteristics: According to the data shown in table 1, "Characteristics of included studies" paragraph (Page 8 - line 37), should be completed with the description of: a) participants and b) burnout measuring instrument. Furthermore the following sentences (Page 9 - line 3-23) should be inserted in the above paragraph and removed from "Study Quality": "There was no randomized controlled experiment study design among the articles. Seven were non-randomized two group studies while one was a single group pre and post-test design. The remainder were single group cross-sectional or single group post-test only. Response rate of all the studies were over 75%. Data analysis of all the articles included were appropriate for study design and type of data. However, the outcome of the articles are mostly satisfaction, attitudes, perceptions, opinions and general facts according to MERSQI. Only two articles developed knowledge or skills as outcome based on the study".

I suggest finally to cite references in phrases like the following (Page 8 - line 47-55): "seven studies divided participants into two or three groups to compare; 10 studies recruited students from more than two institutions." or "There were 25 studies analysing the present situation, seven studies were retrospective control studies and only one prospective cohort study."
3. Synthesis of results: According to general aim "to identify the extent to which medical students in China are experiencing burnout" I suggest to synthesize the results using a population-based (undergraduate - post-graduate - internal) criterion and considering the measuring tools identified. This ensures clarity in the results and allows for their better understanding.

4. According to the other aims of the review (2 - 3 and 4, Page 5 - line 30-40) I suggest to provide a specific paragraph to the factors that contribute to burnout (maintaining the planned organization: demographic, social and psychological factors) as well as for the potential solutions to reduce and prevent burnout in China and for the extent to which experiences in China reflect the international literature.

**Discussion and Abstract**

Discussion and abstract should be modified according to the changes made in methods and results sections.

**References**

I suggest to check the references list. There are some refusal. For example n. 8 (page 17 line 24) Zeitschrift Für Medizinische Ausbildung 2012; 29(1), Doc10. Or n. 11 (page 17 line 36) The Clinical Teacher 2013; 10(4), 242-245.

**Are the methods appropriate and well described?**
If not, please specify what is required in your comments to the authors.

No

**Does the work include the necessary controls?**
If not, please specify which controls are required in your comments to the authors.

Unable to assess

**Are the conclusions drawn adequately supported by the data shown?**
If not, please explain in your comments to the authors.

Unable to assess

**Are you able to assess any statistics in the manuscript or would you recommend an additional statistical review?**
If an additional statistical review is recommended, please specify what aspects require further assessment in your comments to the editors.

Not relevant to this manuscript
Quality of written English
Please indicate the quality of language in the manuscript:

Acceptable

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