

PEER REVIEW HISTORY

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ARTICLE DETAILS

TITLE (PROVISIONAL)	The effect of medical student debt on mental health, academic performance, and specialty choice: A systematic review
AUTHORS	Pisaniello, Monique; Asahina, Adon; Bacchi, Stephen; Wagner, Morganne; Perry, Seth; Wong, Ma-Li; Licinio, Julio

VERSION 1 – REVIEW

REVIEWER	Andrew Sayampanathan National University of Singapore, Singapore
REVIEW RETURNED	04-Mar-2019

GENERAL COMMENTS	<ol style="list-style-type: none">1. The findings in this review are mainly descriptive. Regardless, the findings are important and should be published.2. The authors performed the search in early 2017. The authors should consider including more updated articles within their review.3. The authors should comment on whether at least 2 investigators reviewed each article through the article selection process, with the intention of reducing selection bias.
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REVIEWER	Craig Webster University of Auckland, New Zealand
REVIEW RETURNED	06-Mar-2019

GENERAL COMMENTS	<p>This is an interesting, well-written and worthwhile systematic review. I have only a few minor points as below.</p> <p>Page 4, strengths and limitations – I am not sure the format of BMJ Open allows double bulleted points?</p> <p>Page 6, line 35: “enrolled in doctoral studies” – it seems a little unclear here whether you mean enrolled in a PhD programme or studies to become a doctor.</p> <p>Page 8, line 12: Can we have a manufacturer and place for Excel, and I don’t think “for Mac” is relevant.</p> <p>Page 9: In a number of places you say that debt is correlated with something else – I presume these are significant correlations ($p < 0.05$)? Also, line 60, you say “accounted for additional variance”, but how much additional – what were the variances?</p> <p>Page 10, line 12: the comparisons to Quebec – can you indicate the direction of the effects here, rather than just saying they are “consistent” – I presume stress etc are lower in areas where tuition fees have remained stable?</p>
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	<p>Page 11, line 23: “a progressive decrease in the percentage of students” – what were the percentages? Also this cites reference 25 which actually isn’t in table 2, despite this statement being under the heading for table 2? Am I missing something here?</p> <p>Page 14, line 10: general practice, not practise.</p> <p>Page 14, line 45: while I agree further investigation of the interaction of resiliency with these other factors is interesting, I don’t think the announcement of your new study belongs here – maybe just say further work could investigate...</p> <p>Tables 1-3: The full list of author names is not needed in the table, surely et al would suffice.</p>
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VERSION 1 – AUTHOR RESPONSE

Reviewer 1: Andrew Sayampanathan

1. The findings in this review are mainly descriptive. Regardless, the findings are important and should be published.

Thank you. We also believe that these findings are important.

2. The authors performed the search in early 2017. The authors should consider including more updated articles within their review.

Thank you for this suggestion. We have now updated our search to April 2019, and incorporated more recent publications into our analyses and discussions where appropriate. Furthermore, now in the Discussion, we also acknowledge the 2017 date of our initial comprehensive search and meta-analysis as a potential limitation of this study. However, we highlight that the now updated search results support and strengthen our existing conclusions. Please see highlighted text in Results and Discussion.

3. The authors should comment on whether at least 2 investigators reviewed each article through the article selection process, with the intention of reducing selection bias.

Thank you for this helpful suggestion. To clarify and add detail to how articles were selected and reviewed at each step, including by multiple investigators to help reduce selection bias, we have added the following text to the Methods ("Selection of Studies") section:

"The titles and abstracts of the included publications were examined by one author (MP), and consensus achieved in cases of uncertainty through discussion with a second author (SB), to determine if they met inclusion criteria. Those publications that were likely to meet the eligibility criteria were reviewed in full-text before being included or excluded by one author (MP). To further reduce any possible selection bias, the suggested included studies were then reviewed again by a second author (AA) with respect to eligibility."

Reviewer 2: Craig Webster

Page 4, strengths and limitations – I am not sure the format of BMJ Open allows double bulleted points?

As suggested, we have corrected the formatting to single bullet points.

Page 6, line 35: “enrolled in doctoral studies” – it seems a little unclear here whether you mean enrolled in a PhD programme or studies to become a doctor.

Thank you for pointing this out. The original source (a Canadian governmental website) and other sources were rather ambiguous on this point (i.e. whether "doctoral studies" includes Canadian medical school, with regard to the 400 week lifetime limit), thus we modified this sentence as follows:

“Canada offers grants and student loans to those with financial need studying at least part-time, which vary by province and with stated lifetime limits up to 400 weeks (or 520 weeks for those with a permanent disability).”

Page 8, line 12: Can we have a manufacturer and place for Excel, and I don't think “for Mac” is relevant.

We have removed “for mac” and added “Microsoft Excel ® (Microsoft Corporation, Redmond, Washington, USA).”

Page 9: In a number of places you say that debt is correlated with something else – I presume these are significant correlations ($p < 0.05$)? Also, line 60, you say “accounted for additional variance”, but how much additional – what were the variances?

Yes, this is correct. Further detail has been added to the last sentence in the first paragraph of Results subsection A) Effect on Mental Health with respect to statistical significance. The correlations were only reported if statistically significant ($p < 0.05$).

Page 9, line 15: We have added further detail with an odds ratio to the Rohlfing et al. study in Table 1 “Each \$50,000 increase in medical student loan debt was associated with increased stress, mainly financial. (adjusted OR 1.55, 95% CI:1.34, 1.81).”

Page 9, line 17-19: The discussion of a study by Marci (reference 18) has been edited to include further detail in Table 1 “Comfort with debt was rated from -3 (not comfortable) to +3 (very comfortable) on a Likert scale. For 1997 graduates with debt projections over \$75000, comfort level was rated significantly lower (-1.86 vs 0.89, $P < 0.001$).”

Page 9, Line 24: We have modified this sentence to include further specifics on the variance: “. . . accounted for an additional 11.5% variance in reported stress levels when added to current debt, over that predicted by current debt alone.”

Page 10, line 12: the comparisons to Quebec – can you indicate the direction of the effects here, rather than just saying they are “consistent” – I presume stress etc are lower in areas where tuition fees have remained stable?

Thank you. In response, we have revised this sentence to: “. . . lower stress levels were experienced by students in Quebec (where medical school tuition had remained stable)” to make the direction of the effect clearer.

Page 11, line 23: “a progressive decrease in the percentage of students” – what were the percentages? Also this cites reference 25 which actually isn’t in table 2, despite this statement being under the heading for table 2? Am I missing something here?

Our apologies for this oversight, which was due to a referencing error which we have now corrected. The correct reference was #27 not #25.

We have now also provided greater specificity in the body of the text regarding the “progressive decrease in percentage,” as follows: “90.1% of students with no debt achieved a passing score on their first-attempt at a high stakes examination, while only 76.4% of those with debt >\$50,000 passed on their first-attempt.”

Page 14, line 10: general practice, not practise.

Thank you, we have corrected this.

Page 14, line 45: while I agree further investigation of the interaction of resiliency with these other factors is interesting, I don’t think the announcement of your new study belongs here – maybe just say further work could investigate...

We agree, and have therefore modified this section of the text to: “In addition, future work could aim to prospectively investigate the interactions between resilience, debt, and psychological distress in medical students.”

Tables 1-3: The full list of author names is not needed in the table, surely et al would suffice.

The tables have been updated as suggested.