PEER REVIEW HISTORY

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ARTICLE DETAILS

TITLE (PROVISIONAL)	A systematic review of academic bullying in medical settings: dynamics and consequences
AUTHORS	Averbuch, Tauben; Eliya, Yousif; Van Spall, Harriette Gillian Christine

VERSION 1 – REVIEW

REVIEWER	Al-Adawi, Samir Sultan Qaboos University, Department of Behavioral Medicine
REVIEW RETURNED	11-Sep-2020

GENERAL COMMENTS	Thank you for considering me to view this manuscript ("A systematic review of academic bullying in medicine: behaviors, perpetrators, victims, and consequences). Medical literature is rife with studies suggesting healthcare workers (HCWs) are more prone to burnout, stress, and poor mental healthcare outcomes than their general population counterparts. This disheartening since those who are supposed to dispense healthcare systems may paradoxically not be functioning well. Within such a background, this is an interesting and well-written manuscript that aimed to systematically synthesize and appraise the existing literature on academic bullying. This review also extirpates some of the limitations in the existing literature. This will increase further research with more robust methodology and tangible conceptual issues. As alluded in the title, this study constitutes a systematic review as authors could not proceed to carry out metanalysis because of the existing data due to "conceptual heterogeneity between studies'. The systematic review identified 933 articles for which 44 met the inclusion criteria. The Academic bullying is rife in the medical setting, and comments manifest as overwork and is perceived as harming the well-being of the victim. The perpetrators of abuse are male consultants and the victims were female. Only a minority of victims filed a report. This submission fills an important gap in the field and will be of high interest to the BMJ-Open readership. The title "A systematic review of academic bullying in medicine: behaviors, perpetrators, victims, and consequences" appears to represent the themes covered in the manuscript. One suggestion: instead of 'in medicine' could the authors consider 'in medical settings"?

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	The authors need to highlight some of the reasons behind the rising tide of academic bullying. The 'silent epidemic' may stem from the fact that what constitutes academic bullying is characterized by the amorphous term without central features (e.g. self-reported harms). In the discussion, the authors attributed the hierarchical structure to have played a part in the trajectory of academic bullying. The emphasis is also needed for the gender issue. The sociology of such a trend is needed. In many parts of the world, there is an increased 'feminization' of healthcare settings due to the female empowerment as females are increasingly outstripping males in the entrance exam for medical schools. As a result, women have increased their presence in 'medical culture'. Many of the studies on the predicament of HCWS have focused on occupational burnout, stress, and mental health outcome rather than workplace bullying. The authors could critique such a myopic trend; that is, looking for the effect rather than the cause. Additionally, literature has suggested that there are likely to be ORGANIZATIONAL and INDIVIDUAL factors shaping the predicament of HCWs. Many systematic reviews and meta-analysis have suggested that interventions at INDIVIDUAL LEVELS bear little success. In a way, this manuscript touches on the ORGANIZATION LEVEL. I think the authors could squeeze the narration of these issues in the text. The authors have stated that 'we excluded editorials, opinion pieces, reviews, and grey literature. It appears that no effort was sought to obtain unpublished data. Is there any valid reason for this omission? If not, this could be mentioned as one of the limitations. Some of the information as a supplementary file should be simply acknowledged (cited or referred). For example, the PRISM 2009 Checklist is established protocols and hence they should be simply cited. Similarly, please consider whether this is needed ("Supplementary figure S1: Search strategy). Search strategies could simply be narrated in the text. The depiction behind "Central illustration' is not narrated in the text and its context is not elucidated. I wonder if it adds anything to the manuscript.

REVIEWER	Gillen, Patricia Institute of Nursing and Health Research, Ulster University
REVIEW RETURNED	29-Oct-2020

GENERAL COMMENTS	This is a potentially interesting paper on an important subject. However, there are a number of revisions needed. Further clarity is needed on the review question. You are trying to do too much in one review. Further clarity is needed on the exact setting- this is made clear in table 1

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	but not in the title, or objective/purpose. You should use the term objective or purpose consistently. Academic setting infers a university where as what is referred to in the paper are hospital and clinic settings where doctors train or work. You undertook a limited search with only two databases. Some further clarity on search is needed, see notes on paper. It is not clear how the definition of bullying has been developed. It is preferable to use a previously validated one or describe how the definition was reached. I think that you have tried to do too much in this paper. Interventions could be reviewed in separate systematic review. I have made a number of notes on the paper and hope they are helpful.

VERSION 1 – AUTHOR RESPONSE

Reviewer #1:

Reviewer comment: The title "A systematic review of academic bullying in medicine: behaviors, perpetrators, victims, and consequences" appears to represent the themes covered in the manuscript. One suggestion: instead of 'in medicine' could the authors consider 'in medical settings"?

Response: Thank you for your feedback and comment. Changes were applied.

Reviewer comment: "The authors need to highlight some of the reasons behind the rising tide of academic bullying. The 'silent epidemic' may stem from the fact that what constitutes academic bullying is characterized by the amorphous term without central features (e.g. self-reported harms)."

Response: We do not suggest in our manuscript that the prevalence of academic bullying is increasing. We do not present data on temporal trends, as the literature is sparse, and differences in the prevalence of bullying may be reflective of survey design, as discussed in our manuscript (page 16 paragraph 2). Within our introduction section, we highlighted factors that could facilitate bullying in academic settings which include power imbalances, subjective recruitment for career advancement, and siloed departments with few checks in place for toxic behaviours (page 4 paragraphs 1-2).

Reviewer comment: "In the discussion, the authors attributed the hierarchical structure to have played a part in the trajectory of academic bullying. The emphasis is also needed for the gender issue. The sociology of such a trend is needed. In many parts of the world, there is an increased 'feminization' of healthcare settings due to the female empowerment as females are increasingly outstripping males in the entrance exam for medical schools. As a result, women have increased their presence in 'medical culture'."

Response: We have addressed this in the updated manuscript (Page 17 paragraph 2). While enrolment of female students in medical schools is increasing, this does not translate to gender parity within specialties or within hospital or university leadership.

Reviewer comment: "Many of the studies on the predicament of HCWS have focused on occupational burnout, stress, and mental health outcome rather than workplace bullying. The authors could critique such a myopic trend; that is, looking for the effect rather than the cause. Additionally, literature has suggested that there are likely to be ORGANIZATIONAL and INDIVIDUAL factors shaping the predicament of HCWs. Many

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systematic reviews and meta-analysis have suggested that interventions at INDIVIDUAL LEVELS bear little success. In a way, this manuscript touches on the ORGANIZATION LEVEL. I think the authors could squeeze the narration of these issues in the text."

Response: We reported organizational-level interventions within our manuscript (Page 14 paragraph 2; Supplementary table S3). We agree that organization-level interventions are more likely to be successful than individual-level interventions and have clarified this in our updated manuscript (Page 18 paragraph 1).

Reviewer comment: "The authors have stated that 'we excluded editorials, opinion pieces, reviews, and grey literature. It appears that no effort was sought to obtain unpublished data. Is there any valid reason for this omission? If not, this could be mentioned as one of the limitations."

Response: We solely included peer-reviewed publications to ensure valid, reliable and higher-quality studies were included within our systematic review. We did not include editorials or opinion pieces as we focused on primary research data.

Reviewer comment: "Some of the information as a supplementary file should be simply acknowledged (cited or referred). For example, the PRISM 2009 Checklist is established protocols and hence they should be simply cited. Similarly, please consider whether this is needed ("Supplementary figure S1: Search strategy). Search strategies could simply be narrated in the text."

Response: To ensure that our search strategy is reproducible, the complete search layout and selected search terms were shared in the supplementary appendix.

Reviewer comment: "Behind 'Central illustration' is not narrated in the text and its context is not elucidated. I wonder if it adds anything to the manuscript".

Response: We provided a central illustration of our study which serves as a visual abstract to summarize the findings of our review. We have updated our discussion section (Page 16 paragraph 1) to reference the central illustration. If BMJ Open does not publish central illustrations/visual abstracts, then this can be omitted.

Reviewer #2:

Reviewer comment: "Further clarity is needed on the review question. You are trying to do too much in one review."

Response: Thank you for your comment. Our intent was to present a comprehensive review of academic bullying in medical settings. We have clearly defined our goals (page 5 paragraph 2): (1) to define and classify patterns of academic bullying, (2) assess the characteristics of perpetrators and victims, (3) report the impact of bullying on victims, (4) review institutional barriers and facilitators of bullying, and (5) identify possible solutions. We did not feel it would be appropriate to perform a separate review of anti-bullying interventions. The quality of the literature was poor, with all interventions being uncontrolled before-after studies, with limited reporting of statistical testing including effect sizes or p-values.

Reviewer comment: "Further clarity is needed on the exact setting- this is made clear in table 1 but not in the title, or objective/purpose."

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Response: We have clarified that academic settings include university-affiliated hospitals or clinics, or, in the case of pre-clinical medical students, the university at which medical instruction takes place (page 6 paragraph 1).

Reviewer comment: "You should use the term objective or purpose consistently."

Response: We have amended the manuscript accordingly.

Reviewer comment: "Academic setting infers a university where as what is referred to in the paper are hospital and clinic settings where doctors train or work."

Response: We have clarified the definition of academic setting (see response above). Among the included studies, 8 included participants in both university and non-university affiliated settings, but did not separate the results by university affiliation. As the literature on academic bullying in medicine is fairly sparse, we included these studies to provide a more comprehensive review (page 6 paragraph 1).

Reviewer comment: "You undertook a limited search with only two databases. Some further clarity on search is needed, see notes on paper."

Response: The reported three terms within our manuscript encompasses the three main themes that our 51 search terms were selected from. We included a full search strategy for more details within our supplementary appendix.

Reviewer comment: "It is not clear how the definition of bullying has been developed. It is preferable to use a previously validated one or describe how the definition was reached.

Response: As we have discussed in our manuscript (page 4, paragraph 2), academic bullying is a seldom used term within the literature, without an established definition. As there is no previously validated definition, we have developed our own definition on the basis of our literature review. Within our review, two important themes emerged in how academic bullying was defined or described. (1) Bullying in medical academic settings is qualitatively different from bullying in other settings; and (2) bullying in medical academic settings is primarily intended to be disruptive to the learning and career trajectory of the recipient. We agree that validated definitions are preferred, we have added this to the limitations section of our review (Page 19 paragraph 3). The first step in addressing academic bullying is to develop a unified definition; further research is needed to validate our definition.

VERSION 2 – REVIEW

REVIEWER	Al-Adawi, Samir Sultan Qaboos University, Department of Behavioral Medicine
REVIEW RETURNED	27-Dec-2020

GENERAL COMMENTS	Thank you for considering me to re-review the manuscript entitled, "A systematic review of academic bullying in medical settings: behaviors, perpetrators, victims, and Consequences". There are two reviewers for this manuscript including myself. I have re-examined the reveiwers' comments, plus the authors' responses or rebuttals. Overall, the authors have addressed all my

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	concerns, and in doing so, the scientific and conceptual merit of the manuscript has significantly heightened. On this ground, I have no hesitation to recommend this manuscript for publication. Thank you for considering me to participate in this initiative.

REVIEWER	Gillen, Patricia Institute of Nursing and Health Research, Ulster University
REVIEW RETURNED	22-Jan-2021

GENERAL COMMENTS	Thank you for your responses and amendments based on my previous review. This is an interesting paper. The purpose stated in your abstract does not match the one stated later in the paper. The study selection in the abstract/main paper does not include barriers to addressing bullying within organisations. This is an important reason why bullying takes place and is a category in the synthesis and analysis so should have been included. In limitations, you state that 27/44 studies had at least a moderate risk of bias but this is later reported as 17 had a low risk of bias and 15 had a medium risk of bias, so not sure how the moderate bias has been calculated. I think that the term academic bullying is not accurate as this paper relates specifically to medical academic settings which are quite different from other academic settings, as they include hospital settings. The definition omits the negative impact of bullying on the targets. The reporting of workplace reassignment only happens in the discussion and it worrying that it is perceived as a strategy to overcome bullying. The reporting of bullying making things worse should be supported by references from other literature in the area. The absence of reporting on patient safety is really important and should be included in discussion. Table 1 Summary of studies- should state in chronological order. The statistics require specialist statistical review I hope that these comments are helpful.

VERSION 2 – AUTHOR RESPONSE

Reviewer's comment to authors:

The purpose stated in your abstract does not match the one stated later in the paper.
We thank you for your feedback. We have updated the purpose in the abstract in our revised manuscript.

The study selection in the abstract/main paper does not include barriers to addressing bullying within organisations. This is an important reason why bullying takes place and is a category in the synthesis and analysis so should have been included.
We have added the barriers to addressing bullying to the study selection section of our abstract.

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In limitations, you state that 27/44 studies had at least a moderate risk of bias but this is later reported as 17 had a low risk of bias and 15 had a medium risk of bias, so not sure how the moderate bias has been calculated.
Thank you for your feedback. We have updated the risk of bias assessment after new the search. We also have updated the number of studies for each level of risk. Please note, we stated 40/68 studies had "at least a moderate risk of bias" which include moderate and high risk of bias studies.

I think that the term academic bullying is not accurate as this paper relates specifically to medical academic settings which are quite different from other academic settings, as they include hospital settings. The definition omits the negative impact of bullying on the targets.
Thank you for your comment. We are specifically referring to academic bullying in medical settings, and use the phrase "academic bullying in medical settings" throughout the manuscript. We have revised our definition to include the impact on the target (Page 8 paragraph 3).

The reporting of workplace reassignment only happens in the discussion and it worrying that it is perceived as a strategy to overcome bullying.
Thank you for your feedback. We have removed workplace reassignment from the discussion and agree with the reviewer that this would not be an appropriate strategy to overcome bullying.

The reporting of bullying making things worse should be supported by references from other literature in the area.
We have added a reference for the statement regarding patient safety in the discussion of our revised manuscript (Page 18 paragraph 5).

The absence of reporting on patient safety is really important and should be included in discussion.
In our revised search, there were articles that discuss the effect on patient safety. We have added patient safety to the results (Page 12 paragraph 2) and discussion sections (Page 18 paragraph 2) of our revised manuscript.

Table 1 Summary of studies- should state in chronological order.
We have updated table 1 to list studies in chronological order from the most recent publication date.

VERSION 3 – REVIEW

REVIEWER	Gillen, Patricia Institute of Nursing and Health Research, Ulster University
REVIEW RETURNED	20-Apr-2021

GENERAL COMMENTS	Good to see this review of bullying in academic medical settings. In order to set context- worth mentioning other reviews in this area and why this review is different e.g. Cochrane Review in 2017- looked at effectiveness of interventions to prevent bullying in workplace. Line 3 P 12- would have been interesting to know who bullied consultants- I know it is not appropriate here but could be drawn out in discussion as important. One study highlighted this.

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	Line 40 p 14-the before and after design of the intervention studies is about effectiveness of intervention- unsure what is meant by 'did not establish causality' It states that interventions are not resource intensive; this is untrue- clearly to have all staff attend takes a lot of time and resources- this is indeed one of the challenges with designing effective interventions for bullying- getting staff to take part and sustaining the change over time- one-off workshops are unlikely to change behaviour. The length of time of follow-up for before and after studies is not addressed. While quality appraisal of studies has been undertaken, there is limited reporting in text of paper. There is no mention of theoretical underpinning of interventions or the quality of their design. In the discussion, the risk of bias is not taken in account. Most of the studies were surveys and self-report which impacts on the quality of the studies. Statistical review required.

VERSION 3 – AUTHOR RESPONSE

Response to reviewers

In order to set context- worth mentioning other reviews in this area and why this review is different e.g. Cochrane Review in 2017- looked at effectiveness of interventions to prevent bullying in workplace.

Thank you for your comment. In our revised discussion, we emphasize that our review is unique in its scope – providing a definition for academic bullying, characterizing the behaviours, impacts, victims, bullies, and both strategies for and barriers against academic bullying – and unique in its population, in that we solely focus on physicians and physician trainees, across all medical and surgical specialties (Page 16 paragraph 2 – Page 17 paragraph 1).

Line 3 P 12- would have been interesting to know who bullied consultants- I know it is not appropriate here but could be drawn out in discussion as important. One study highlighted this.

We describe the sources of bullying among consultants on page 11 lines 1-2.

"Of the 1,500 consultants, perpetrators were their peers (39.2%, reported in 7 studies), senior consultants (23.7%, reported in 5 studies), and administration (17.7%, reported in 4 studies)."

Furthermore, in the discussion, we reiterate that consultants were the most common perpetrator overall, and bullying of consultants by senior consultants was common (Page 17 paragraph 3).

"We found that consultants were the most common sources of bullying at all levels of training, although residents often bullied medical students. No studies assessed the relative contribution of fellows and senior residents to resident bullying. Among studies that analyzed bullying among consultants by seniority, senior consultants were a commonly reported source of bullying."

Line 40 p 14-the before and after design of the intervention studies is about effectiveness of intervention- unsure what is meant by 'did not establish causality'

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The before-after design is not a robust methodology to establish causality as other cointerventions and temporal trends are not accounted for. We have updated the discussion section of our manuscript accordingly (Page 19 paragraph 1).

It states that interventions are not resource intensive; this is untrue- clearly to have all staff attend takes a lot of time and resources- this is indeed one of the challenges with designing effective interventions for bullying- getting staff to take part and sustaining the change over time- one-off workshops are unlikely to change behaviour. The length of time of follow-up for before and after studies is not addressed.

Thank you for your comment. We have revised the discussion of our manuscript to omit the statement regarding the resource intensity of interventions. We have also revised the discussion to include a comment on the length of follow-up in before after studies (Page 19 paragraph 1).

While quality appraisal of studies has been undertaken, there is limited reporting in text of paper. There is no mention of theoretical underpinning of interventions or the quality of their design. In the discussion, the risk of bias is not taken in account. Most of the studies were surveys and self-report which impacts on the quality of the studies.

We thank you for your comment. We have updated the discussion of our manuscript to reflect the risk of bias of included studies (Page 19 paragraph 1), and the limitations section to reflect the use of self-reported data to determine the prevalence of bullying (Page 20 paragraph 3).

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