## PEER REVIEW HISTORY

BMJ Open publishes all reviews undertaken for accepted manuscripts. Reviewers are asked to complete a checklist review form (**http://bmjopen.bmj.com/site/about/resources/checklist.pdf**) and are provided with free text boxes to elaborate on their assessment. These free text comments are reproduced below.

## ARTICLE DETAILS

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| **TITLE (PROVISIONAL)** | Moral distress amongst intensive care unit professions in the UK: A mixed methods study |
| **AUTHORS** | Boulton, Adam; Slowther, Anne-Marie; Yeung, Joyce; Bassford, C |

## VERSION 1 – REVIEW

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| **REVIEWER** | Piscitello, Gina<br>Rush University |
| **REVIEW RETURNED** | 06-Nov-2022 |

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| **GENERAL COMMENTS** | Multicenter study designed to evaluate moral distress in ICU professionals in the UK including quantitative data (MMD-HP) and qualitative data through audiorecorded interviews. The qualitative responses in this survey are strong, especially responses about support mechanisms to improve moral distress. Below are some suggestions to strengthen this manuscript.<br><br>Introduction<br><br>The knowledge gap this paper aims to assess is clearly stated, to evaluate moral distress in ICU professionals in the UK. Would recommend considering including why you may believe moral distress in the UK may differ from that in North America where more studies have been performed to help readers better understand the novelty of this manuscript.<br><br>Methods<br><br>Recommend adding description of how qualitative results were analyzed (i.e. thematic analysis?).<br><br>Was the survey provided to respondents anonymous? It is noted the NHS Health Research Authority provided approval for the study. I wonder if this may have led to some potential respondents not completing the study due to concern their responses may not be anonymous or under or overreported their moral distress levels because they believed their responses may become public. If the survey results were not anonymous, recommend including that in your methods and as a limitation.<br><br>Results<br><br>Recommend including response rate for each profession (physician, RN, physiotherapist, etc.) to the survey. |

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| | Recommend including more details in responses to moral distress scenarios. For example, it is stated 4 items had higher composite scores for physicians than nurses. What are these four items?<br><br>Discussion<br><br>Would be interesting to further explore why moral distress and consideration of leaving current job was higher for nurses than physicians, especially with the qualitative responses you obtained.<br><br>In the discussion it is mentioned this current study used the MMD-HP rather than the MMD-R which it is stated precludes direct comparison. Even though you cannot compare the items directly, aren't some questions on the MMD-HP and MMR-R quite similar and could be compared to other another? Recommend including that evaluation and interpretation here.<br><br>In the interpretation of why UK moral distress was higher than moral distress in the US, it is stated differences in health care delivery and the provision of critical care beds could contribute to these findings. Recommend elaborating on how you believe health care delivery and critical care beds would lead to the differences seen between UK and US results.<br><br>Limitations<br><br>Recommend including the low response rate of only 29.4%, low total number of participants for professions other than nurses and physicians. |

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| **REVIEWER** | Webber, Jodi<br>Algoma University, School of Social Work |
| **REVIEW RETURNED** | 23-Nov-2022 |

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| **GENERAL COMMENTS** | Thank you for the opportunity to review this work. The topic is incredibly timely and Dr. Boulton and colleagues have chosen an important issue deeply impacting health and social care providers globally. Understanding the experience and frequency of moral distress amongst healthcare professionals is crucial if we are to design better supports to cultivate moral resilience. |

**VERSION 1 – AUTHOR RESPONSE**

Reviewer: 1

Dr. Gina Piscitello, Rush University

Comments to the Author:

Multicenter study designed to evaluate moral distress in ICU professionals in the UK including quantitative data (MMD-HP) and qualitative data through audiorecorded interviews. The qualitative responses in this survey are strong, especially responses about support mechanisms to improve moral distress. Below are some suggestions to strengthen this manuscript.

Introduction

The knowledge gap this paper aims to assess is clearly stated, to evaluate moral distress in ICU professionals in the UK. Would recommend considering including why you may believe moral distress in the UK may differ from that in North America where more studies have been performed to help readers better understand the novelty of this manuscript.

*Thank you. The following has been added:*

*"Moral distress may be affected by specific contextual factors such as availability of resources and model of decision making for patients lacking capacity. In the UK the availability of intensive care provision is much less than in North America and the role of proxy decision makers is much more significant. These, and other potential differences may affect how moral distress is experienced by UK health professionals. "*

*The UK healthcare model is different to the USA and there are poorer provision of critical care beds per population.(33-35) Lack of resources/equipment/beds is a common cause of moral distress and hence the experience of moral distress in the UK may be different."*

Methods

Recommend adding description of how qualitative results were analyzed (i.e. thematic analysis?).

*Thank you. The qualitative methods have now been explained in more detail.*

*"Questionnaire respondents willing to take part in an interview included their contact details on the returned questionnaire and from those responders, potential interview participants were purposively sampled for hospital, profession, grade, and overall moral distress score using a maximum variation approach. Written informed consent was obtained prior to interview. Semi-structured interviews with an interview guide (Supplementary File 2) were conducted face to face between July 2019 and February 2020 and explored participants experience of moral distress, the situations that cause it, strategies they use to cope with it; and their views on possible interventions to alleviate moral distress. Interviews lasted approximately 30 mins and were audio-recorded then transcribed verbatim. Interviews were conducted until no new themes emerged from the data. The Framework Method of thematic analysis was used.(37) Transcripts were loaded onto NVivo and data initially organised into content areas informed by the study aims: experience of moral distress and coping with moral distress. Within each area two main categories were explored: precipitating factors/causes of moral distress and the response to distress; coping strategies and interventions to support coping. This is described in Supplementary Figure 1. Data within each content area was then re-read and coded inductively, and codes compared and grouped to develop themes and sub-themes. All transcripts were coded by AB with 30% independently coded by AMS. The codes and emerging themes and sub-themes were discussed at regular analysis meetings to improve the analysis validity and trustworthiness."*

Was the survey provided to respondents anonymous? It is noted the NHS Health Research Authority provided approval for the study. I wonder if this may have led to some potential respondents not completing the study due to concern their responses may not be anonymous or under or overreported their moral distress levels because they believed their responses may become public. If the survey results were not anonymous, recommend including that in your methods and as a limitation.

*The survey was anonymous, except for those willing in undergo an interview who left their contact details. The text now reads:*

*"An anonymous paper questionnaire using…"*

Results

Recommend including response rate for each profession (physician, RN, physiotherapist, etc.) to the survey.

*Thank you for raising this. Unfortunately we were unable to record response rates for individual professions. The response is calculated from the number of questionnaires distributed. They were distributed in communal areas and not directly to individual professionals as we didn't want to introduce undue pressure on individuals, further selection bias, and social acceptability bias.*

Recommend including more details in responses to moral distress scenarios. For example, it is stated 4 items had higher composite scores for physicians than nurses. What are these four items?

*Thank you for noting this. Since there was no commonality it was difficult to concisely describe in text the items scored more highly for doctors. To provide more detail we have now extended the table of moral distress scenarios to give information on all 27 items, as opposed to just the top 15 by composite score. This appears to be the best way to clearly communicate this information to the reader. The four items that had greater composite cores for doctors over nurses have been marked with asterisks.*

Discussion

Would be interesting to further explore why moral distress and consideration of leaving current job was higher for nurses than physicians, especially with the qualitative responses you obtained.

*We agree that it is interesting that nurses had a higher rate of considering leaving their post due to moral distress. The high rate of considering leaving the profession is concerning and hence we have highlighted this in our discussion. This finding was not unexpected, so we have revised the discussion to place the findings within the wider literature. The interviews did not explore intention to leave the profession and hence we cannot use these data to explore this finding further.*

*"Indeed, 37% of nurses included in our study indicated they were considering leaving their current post due to moral distress, compared with 15% of doctors. This is consistent with research from Canada,(20) and is a concerning finding that potentially has staff retention and workplace planning implications."*

In the discussion it is mentioned this current study used the MMD-HP rather than the MMD-R which it is stated precludes direct comparison. Even though you cannot compare the items directly, aren't some questions on the MMD-HP and MMR-R quite similar and could be compared to other another? Recommend including that evaluation and interpretation here.

In the interpretation of why UK moral distress was higher than moral distress in the US, it is stated differences in health care delivery and the provision of critical care beds could contribute to these

findings. Recommend elaborating on how you believe health care delivery and critical care beds would lead to the differences seen between UK and US results.

*Thank you for raising these two important points. We have reworded this section to improve clarity around contrasting findings to comparable USA research using the MMD-HP, as well as consistency with previous international research using the older moral distress scale versions and the wider understanding of moral distress causes.*

*"Compared to similar research in the USA also using the most up to date measure of moral distress, overall moral distress scores were higher in our study, and this was consistent across all professional subgroups.(36) Almost all highly ranked individual item composite scores were higher in our study than that in the USA. This was most notable for resource-related items, specifically compromised care due to lack of resources/equipment/bed capacity, where the composite moral distress score was substantially higher in our UK study. This was ranked the second highest item by moral distress score in our study for both doctors and nurses, but ranked fifth in the comparative USA study. This could reflect differences in healthcare delivery and poorer provision of critical care beds per population in the UK.(33-35) This high signal of moral distress raises a worrying concern that sub-optimal care may be being delivered due to resource constraints. This study is unable to determine if this is occurring, nevertheless the high levels of moral distress due to resource-related issues should be noted.*

*Our finding that moral distress occurs frequently in situations related to delivery of aggressive treatment perceived as futile or not in the patient's best interests is consistent with international research using the previous versions of the quantitative moral distress scale,(14, 25, 31). It is also supported by other qualitative studies.(18, 19, 26)"*

Limitations

Recommend including the low response rate of only 29.4%, low total number of participants for professions other than nurses and physicians.

*Thank you for drawing this to our attention. We had referred to the risk of selection bias, but have now been more explicit that the response rate could represent this. We are reluctant to include comments re. the numbers of non-nurse and non- doctor participants. Firstly, the sample's mixture of participants is representative of the ICU workforce in the UK, secondly the total of non-nurse/non-doctor participants is greater than the doctor cohort (42 vs 40), thirdly purposive sampling in the qualitative work has resulted in representation of all professions, fourthly statistically significant comparisons were found by the profession variable in both univariable and multivariable analyses and hence the sample size was powerful enough.*

*"Firstly, the study is at risk of selection bias. Those experiencing high levels of moral distress may be unwilling to participate and relive their experiences, or alternatively those with low levels of moral distress may not appreciate its value and not take part. This may be reflected in the response rate."*

Reviewer: 2

Jodi Webber, Queen's University

Comments to the Author:

Thank you for the opportunity to review this work. The topic is incredibly timely and Dr. Boulton and colleagues have chosen an important issue deeply impacting health and social care providers globally. Understanding the experience and frequency of moral distress amongst healthcare professionals is crucial if we are to design better supports to cultivate moral resilience.

Introduction

The introduction is succinct and well written; however, it could be strengthened by adding some additional detail about moral distress. Consider expanding on the description of moral distress and how it is differentiated from emotional distress. The line has been described as "blurry" by previous authors. For moral distress to be present there needs to be a compromise of one's core values. Please add a clarifying sentence. Furthermore, consider including Fourie's (2017) work in which she suggests we move from a narrow to a broad definition of moral distress. Fourie's broad definition includes both moral constraint distress and moral uncertainty distress.

*Thank you for raising this salient point highlighting the debate around the moral distress definition. The introduction has been updated to reflect this. Thank you for provided the Fourie reference, however we have referenced Morley 2020 as this identifies these conclusions from phenomenological interviews.*

> *"Some authors have suggested the definition of moral distress is broadened to fully capture its experience and recognise that it may also occur in situations of moral uncertainty.(19)"*

In the second paragraph consider including a description of the staff mix typical of an ICU. In the third paragraph you do mention RTs and students but in your participant description you also had pharmacists and physios complete the survey.

*Thank you for highlighting this. The introduction has been updated to reflect the MDT present in ICU*

> *"The intensive care unit (ICU) is a place where patients with life-threatening conditions may be treated with a variety of invasive and burdensome interventions.(21) Highly significant, complex, and difficult decisions are made on a regular basis.(22). Treatment in the ICU comprises complex interventions that require a multifaceted approach and interaction of a broad multidisciplinary team, which may include pharmacists, physiotherapists, dieticians, and other allied health professionals. This environment is highly susceptible to moral distress and hence moral distress amongst ICU professions is of concern.(14, 18, 23, 24)"*

Methods

I appreciate that in a mixed methods study word count can be very tight. That said, please expand your qualitative description in this section. There needs to be more detail of the sampling strategy as all qualitative research is purposive. Patton (2015) is a good resource. At first pass I would say you used a maximum variation strategy to ensure different voices were represented – is that correct? Also, some mention of the length of the interviews, inclusion of some sample questions, (if not a link to a supplementary file with the interview guide), and expanded detail on the coding approach (inductive/deductive) would strengthen the rigour. There are many variations of Thematic Analysis –

whose did you use? Finally, please change the language around “codes emerging” (p. 7, line 21). Codes do not emerge, they are always generated by the researchers.

Patton, M. Q. (2015a). Qualitative research & evaluation methods : integrating theory and practice : the definitive text of qualitative inquiry frameworks and options (Fourth edition. ed.). SAGE Publications, Inc.

*Thank you. The qualitative methods have now been explained in more detail.*

*“Questionnaire respondents willing to take part in an interview included their contact details on the returned questionnaire and from those responders, potential interview participants were purposively sampled for hospital, profession, grade, and overall moral distress score using a maximum variation approach. Written informed consent was obtained prior to interview. Semi-structured interviews with an interview guide (Supplementary File 2) were conducted face to face between July 2019 and February 2020 and explored participants experience of moral distress, the situations that cause it, strategies they use to cope with it; and their views on possible interventions to alleviate moral distress. Interviews lasted approximately 30 mins and were audio-recorded then transcribed verbatim. Interviews were conducted until no new themes emerged from the data. The Framework Method of thematic analysis was used.(37) Transcripts were loaded onto NVivo and data initially organised into content areas informed by the study aims: experience of moral distress and coping with moral distress. Within each area two main categories were explored: precipitating factors/causes of moral distress and the response to distress; coping strategies and interventions to support coping. This is described in Supplementary Figure 1. Data within each content area was then re-read and coded inductively, and codes compared and grouped to develop themes and sub-themes. All transcripts were coded by AB with 30% independently coded by AMS. The codes and emerging themes and sub-themes were discussed at regular analysis meetings to improve the analysis validity and trustworthiness.”*

Results

The quantitative portion of the findings is solid with sufficient detail and reporting. I can only comment generally as am considered a qualitative researcher. The statistical tests are appropriate for nonnormally distributed results. I did not recalculate. I was confused by the headings. For example, on p.10 you use Moral distress scenarios - to which scenarios are you referring? It invites confusion. Similarly, the heading Intension to leave the profession made me wonder if HCP were leaving their position or healthcare altogether. Very different implications for workforce planning.

*Thank you. We have reworded for clarification. It is now termed Moral distress items, since it refers to the items from the questionnaire. This is now consistent with the Supplementary Table title. The intention to leave relates to two questions from the questionnaire which refer to intention to leave a current post (Y/N) and intention to leave a previous post (Left/Considered but didn’t leave/Never considered). It therefore covers a spectrum of intention to leave, but cannot capture in-depth motivations and intentions from this quantitative data collection. We think this is an appropriate sub-heading and explore the intention in more detail in the results text and importantly in the discussion section where its implications are discussed.*

With regard to the findings from the interviews, starting on p. 12. The authors do well to provide the illustrative quotes but failed to define the themes they generated from the data. The tables are listed out of order, with Table 5 proceeding Table 4 and it is unclear how the quotes in the tables relate to the interview guide. The themes need to be explained and supported from quotes across the corpus. I found the secondary heading coping with moral distress confusing. I would suggest revising the qualitative section of the results significantly.

*Thank you for raising this and helping us to improve the reporting. We have made major revisions to how the results are reported, restructuring much of the qualitative reporting to clarify and explain the themes identified, including a clearer description of the key overarching theme of a lack of agency, and restructuring the tables. We have now included statements identifying the quantitative and qualitative results to make the results reporting clearer. We had inadvertently not reported that the theme of care perceived as not in the patient's best interests had three key subthemes. This is now reported more clearly. The interview guide has now been included in the supplementary material. It has been challenging reporting so much information within this article, but presenting the mixed methods findings together hopefully leads to a stronger and more robust article.*

Discussion

The discussion is well written but as it depends on the combined results it is difficult to make a firm pronouncement on the contribution of the work.

I am confident that with some revision and reworking of the qualitative portion of the research data the paper adds to the literature base.

## VERSION 2 – REVIEW

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| **REVIEWER** | Piscitello, Gina<br>Rush University |
| **REVIEW RETURNED** | 16-Jan-2023 |

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| **GENERAL COMMENTS** | The authors made significant revisions to the manuscript, addressing many of the reviewer comments satisfactorily. |

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| **REVIEWER** | Webber, Jodi<br>Algoma University, School of Social Work |
| **REVIEW RETURNED** | I have reviewed the revised manuscript. The authors have considered the previous suggestions/feedback and the paper has been strengthened with the incorporated changes. I am pleased to recommend it for publication. |

## VERSION 2 – AUTHOR RESPONSE