

PEER REVIEW HISTORY

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ARTICLE DETAILS

TITLE (PROVISIONAL)	Education as a Strategy for Managing Occupational-related Musculoskeletal Pain: a scoping review
AUTHORS	Palsson, Thorvaldur; Boudreau, Shellie; Høgh, Morten; Herrero, Pablo; Bellosta-Lopez, Pablo; Domenech-Garcia, Victor; Langella, Francesco; Gagni, Nicolo; Christensen, Steffan; Villumsen, Morten

VERSION 1 – REVIEW

REVIEWER	Benjamin Smith University Hospitals of Derby and Burton NHS Foundation Trust; University of Nottingham
REVIEW RETURNED	16-Sep-2019

GENERAL COMMENTS	<p>Thank you for inviting me to review this manuscript.</p> <p>This is an interesting manuscript, and very well written. It contains all of the components I would expect to see in a scoping/systematic review.</p> <p>My specific comments are as follows:</p> <p>Abstract: The abstract is well written, but I wonder if the conclusions are slightly too strong, considering this is a scoping review? To my eyes, they read more like the conclusions of a systematic review looking into treatment effectiveness. I would have expected the conclusion to have been limited to the characteristics of the evidence base. E.G. the second bullet point of the Strengths and limitations.</p> <p>Introduction: I found this section the hardest to read and follow. I wonder if it would benefit from being slimmed down. For example, I think the three sentences from line 16 – 28 (first paragraph) could be cut.</p> <p>I'm not sure the second paragraph fits with the rest of the arguments of the introduction. I think this could also be cut. Unless you re-phrase "pain management" to make it clear this refers to "educational strategies"</p> <p>Methods/Results: Well written, clear and concise. No comments.</p> <p>Synthesis of findings: "In general, a map of the existing evidence indicates that an educational intervention positively affects the physical load on the musculoskeletal system at the workplace".</p>
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	<p>Are you sure 'physical load' is the correct terminology? In your introduction you make reference to "abandonment of a direct (causal) relation between work-related factors (e.g. sitting, lifting, and load) and WMSK pain."</p> <p>Discussion: First paragraph. As my comments with the abstract. Are you sure this paragraph is pitched correctly for a scoping review? I wonder if it's too strong and stepping towards the phraseology of a systematic review.</p> <p>Methodological considerations and limitations: Do you need to mention the search was limited to English only? No mention of % agreement between reviewers screening titles and full text.</p> <p>Conclusion: This reads better than the conclusion in the abstract. But still could do with adjusting slightly towards the remit of a scoping review (to my mind at least).</p> <p>Is it worth mentioning what the plan is next? Is there a gap in the research that needs to be researched? Or is it appropriate to do a systematic review next, limited to RCTs (I counted 10 RCTs included in this review).</p>
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REVIEWER	Patricia McInerney University of the Witwatersrand South Africa I declare that I a member of the scoping committee of the Joanna Briggs Institute
REVIEW RETURNED	13-Nov-2019

GENERAL COMMENTS	<p>Thank you for the opportunity to review this scoping review. I was asked to focus on the methodology and so will not comment on the discipline specific nature of the review. Overall I thought this study complied with the standards of a scoping review. There are a few questions which I have which I hope may contribute to the enhancement of this paper. In the abstract, the abbreviation WRMSK is used but thereafter WMSK is used - please choose one.</p> <ol style="list-style-type: none"> 1. the last bullet in the abstract should be excluded - this is not a systematic review and so you are not looking to determine the effect of education; a scoping review aims to determine what research has been done in this area. 2. da Costa and de Boer should be listed under 'D' in the reference list and not under "C" and "B" 3. How were the identified papers in each database managed? Were they exported to a reference management system or to a spread sheet so that duplicates could be identified? 4. Did the Arksey and O'Malley framework guide the entire review or are you just using this as a reference to explain why critical appraisal was not done? Needs clarification. 5. What types of papers were included in the review - this is not explicitly stated in the text, but in the PRISMA flow diagram it is stated that 18 papers were excluded because they were the wrong study design. In the PRISMA flow chart it is shown that 928 records were excluded - was this at title and abstract stage? Please make clear.
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	<p>6. Under 'Results', the numbers given need correction. It is stated that 87 papers were included for full text screening and 67 were excluded - this leaves 20 and not 19 as stated. This is also inconsistent with what is stated later and the PRISAM flow chart.</p> <p>7. In Table 2 - abbreviations need to be explained. eg LBP</p> <p>8. Under 'characteristics of included studies' I would have liked more information, eg in which countries were the included studies done?; which occupational groups were represented in the studies? what study designs were included? What type of pain was the focus of the study - did they all focus on LBP or were there some that focused on neck pain, for example?</p> <p>9. I am uncomfortable with the statement that in general education has a positive effect - no statistical analysis has been done, and only five papers are listed. It would be more accurate to say that X number of papers reported a positive outcome.</p> <p>10. Appendix I leaves me somewhat confused. I am not sure how this contributes to the scoping review and is inconsistent with looking at the empirical data. It may provide a useful resource for European countries but does not contribute to the body of knowledge being analysed in this review. Also how do the first two sources listed in Appendix I differ - they appear to be the same.</p> <p>11. Under 'Discussion' it is stated that 'it is inconclusive whether education as a stand-alone management strategy for WMSK may be beneficial' - more information is needed here - how many studies found that it was or was education used in combination with something else in all the studies included?</p> <p>12. Under 'methodological considerations and limitations' it is stated that results are inconclusive. A scoping review does not aim to determine whether an intervention is conclusive in its outcome but rather what is said about it.</p>
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REVIEWER	Wasifa Zarin Li Ka Shing Knowledge Institute
REVIEW RETURNED	15-Nov-2019

GENERAL COMMENTS	<p>Research Question: suggest using the PCC, PICO or any other framework to clearly define the research objective.</p> <p>Page 5, line 33: Typo - evidence on the effects of</p> <p>Page 6, lines 13-15 states that studies were excluded if "no abstract was available". Please elaborate if this was the case even if the Title of the article seemed relevant. A more conservative approach would be to retain citations with relevant Title, but no abstract and then retrieve the full-text for closer inspection during full-text screening.</p> <p>Page 6, lines 20-40: Literature Search - There is no mention whether the search strategy was peer-reviewed by another information specialist using the PRESS checklist (McGowan J, Sampson M, Salzwedel DM, Cogo E, Foerster V, Lefebvre C. PRESS Peer Review of Electronic Search Strategies: 2015 guideline statement. J Clin Epidemiol. 2016 Jul;75:40-6. http://www.sciencedirect.com/science/article/pii/S0895435616). Please state whether this was done to ensure the rigour of the search strategy.</p> <p>Page 8, line 6: This sounds like grey literature search.</p>
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	<p>Page 8: Study selection and synthesis of results - There is no mention whether a calibration exercise was done to ensure good interrater reliability during the screening process.</p> <p>Pages 9-17: Results</p> <ul style="list-style-type: none"> - Recommend providing a summary table of the study characteristics providing information of Study Design, Year of Publication, Study Duration, Geographic Region, Study Setting. For example, look of scoping reviews by Andrea Tricco on pubmed. - Suggest some thematic analysis on delivery mode, components of the educational intervention, etc. - The synthesis section of this paper needs to be further strengthened. <p>Conflicting statements between Results and Discussion:</p> <p>Page 15: "In general, a map of the existing evidence indicates that an educational intervention positively affects the physical load on the musculoskeletal system at the workplace, especially when including factors such as absence from work."</p> <p>Page 17: "The overall findings are inconclusive with regards to determining whether education as a stand-alone management strategy for WMSK pain may be beneficial. "</p>
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VERSION 1 – AUTHOR RESPONSE

Reviewer 1

#1

The abstract is well written, but I wonder if the conclusions are slightly too strong, considering this is a scoping review? To my eyes, they read more like the conclusions of a systematic review looking into treatment effectiveness. I would have expected the conclusion to have been limited to the characteristics of the evidence base. E.G. the second bullet point of the Strengths and limitations.

**

We thank the reviewer for this comment. When revising the abstract, we can also say that we agree. We have therefore made several changes to the abstract; mostly in the objectives, results and conclusion sections. The current version of the abstract now reads:

“Objective: The objective of this scoping review was to map the existing educational resources for work-related MSK (WRMSK) pain, and the effects of implementing educational strategies in the workplace on managing WRMSK pain.

Results: A total of 19 peer-reviewed articles were included and the study design, aim, and outcomes were summarized. Of the 19 peer-reviewed articles, 10 RCT studies assessed the influence of education on work-related MSK pain. Many studies provided a limited description of the education material and assessed/utilized different methods of delivery. A majority of studies concluded education positively influences work-related MSK pain. Further, some studies reported additive effects of physical activity or ergonomic adjustments.

Conclusions: There is a gap in knowledge regarding the best content and delivery of education of material in the workplace. Although beneficial outcomes were reported, more RCT studies are required to determine the effects of education material as compared to other interventions, such as exercise or behavioral therapy.”

#2

Introduction:

I found this section the hardest to read and follow. I wonder if it would benefit from being slimmed down. For example, I think the three sentences from line 16 – 28 (first paragraph) could be cut.

**

We thank the reviewer for this comment. Upon revising the introduction through the lens of the other comments provided by the reviewers, we agree. We have therefore rewritten almost all of the introduction, which now reads:

**

“The socioeconomic impact of MSK pain-related disability and associated work absenteeism affects the individual worker, the family, the worker’s organization, and society (1-4). Efforts to prevent work-related MSK (WMSK) pain by modifying the physical load seem inadequate (5, 6) and the lack of effects may pertain to the nature of MSK pain where e.g. psychological health and and lifestyle-related factors play a significant role (2, 7, 8). Therefore, strategies for addressing WMSK pain require re-conceptualization (7, 9, 10) and inclusion of multifactorial approaches. Ultimately, re-conceptualizing the understanding of WMSK pain would imply an abandonment of a direct (causal) relation between work-related activities (e.g. sitting, lifting, and load) and WMSK pain. Instead, work-related activities should be considered one of many contributors to WMSK pain (4).

By accounting for the multidimensional nature of WMSK pain and individual variability, a previous interventional study (11) demonstrated a small, but significant pain reduction where the level of pain relief was significantly associated with the number of clinician-worker interactions. A similar effect was observed on return to work when a multidisciplinary approach including a brief two-session intervention with a healthcare professional (12).

From a socioeconomic perspective, enabling individuals return or continue to work despite having episodes of recurrent pain may be beneficial for the individual worker and the organization (13). In this regard, organizations should adopt a broad approach, appreciating the multidimensional nature of pain for ensuring workability instead of solely focusing on prevention and management of WMSK pain (14). Successful rehabilitation of WMSK may depend upon better collaboration and communication between the organization, managers, and the individual worker (10, 15). Furthermore, communicating education about work-related pain and individualized advice could be essential for the management of persistent MSK pain (16-18). In fact, communication of non-threatening information about MSK pain may reduce absenteeism (19, 20). However, an overview of educational material for employees for the self-management of WMSK pain, implementation strategies for pain management within the workplace is lacking.

The objective of this scoping review was to map the existing educational resources focusing on WMSK pain. Moreover, the objective was to provide an overview of the available evidence on implementation of educational resources in occupational settings to help managing WMSK pain.”

#3

I’m not sure the second paragraph fits with the rest of the arguments of the introduction. I think this could also be cut. Unless you re-phrase “pain management” to make it clear this refers to “educational strategies”

**

Thanks for this comment. We agree and have deleted “pain management” from the sentence and feel that it reads better for it

**

#4

Methods/Results:

Well written, clear and concise. No comments.

**

We are glad to hear that

**

#5

Synthesis of findings:

“In general, a map of the existing evidence indicates that an educational intervention positively affects the physical load on the musculoskeletal system at the workplace”.

Are you sure 'physical load' is the correct terminology? In your introduction you make reference to "abandonment of a direct (causal) relation between work-related factors (e.g. sitting, lifting, and load) and WMSK pain."

**

We completely agree that this terminology is not accurate. We have changed the sentence, which now reads:

"In general, a map of the existing evidence indicates that an educational intervention may positively influence musculoskeletal pain in the workplace. Especially when including factors such as absence from work (26, 29, 33, 40, 41) and cost-benefits of staying at work despite pain (37, 39, 41)."

**

#6

Discussion:

First paragraph. As my comments with the abstract. Are you sure this paragraph is pitched correctly for a scoping review? I wonder if it's too strong and stepping towards the phraseology of a systematic review.

**

We agree with the reviewer that the wording is inappropriate with regards to the study design. We have rephrased the paragraph which now reads:

"This scoping review aimed at mapping the available educational initiatives for managing MSK pain at the workplace. The overall literature is heterogeneous and ranges between expert statements to randomized control trials. The available literature does therefore not allow for any conclusions on whether educational interventions are effective as a stand-alone management strategy for WMSK pain. Also, it is unclear whether the method of delivery is an important factor to consider and whether education needs to be combined with other interventions."

**

#7

Methodological considerations and limitations:

Do you need to mention the search was limited to English only? No mention of % agreement between reviewers screening titles and full text.

**

This is a valid point. The following sentence has been added to the "Methodological considerations and limitations" section

"Therefore, the review did not include studies evaluating the benefit of such interventions in non-occupational settings. It is conceivable that excluded studies not performed in an occupational setting would have included working individuals. On the same note, the literature search was limited to English only, which inevitably might have excluded relevant information from scientific studies and other sources. In addition to this, the search for educational and information sources for employees was confined to European countries. This inevitably limited the number of educational resources in this review."

In the results section, the following two sentences have been added to the first paragraph:

"The two investigators had an agreement of 75% after screening title and abstract. Consensus was reached in the remaining 25% without the involvement of the third investigator."

**

#8

Conclusion:

This reads better than the conclusion in the abstract. But still could do with adjusting slightly towards the remit of a scoping review (to my mind at least).

**

We agree that this section needs to be changed in consistency with the other suggested changes we implemented. The conclusion segment now reads:

"Some of the articles included in this scoping review suggest that educational resources can positively influence absenteeism and pain-related loss of workability. There is however, a gap in knowledge

regarding the best content and delivery of education of material in the workplace. Although beneficial outcomes were reported, more RCT studies are required to determine the effects of education material as compared to other interventions, such as exercise or behavioral therapy.”

**

#9

Is it worth mentioning what the plan is next? Is there a gap in the research that needs to be researched? Or is it appropriate to do a systematic review next, limited to RCTs (I counted 10 RCTs included in this review).

**

This is a good point, which we agree with. We have added the following two sentences at the end of the “conclusion” segment:

“Although beneficial outcomes were reported, more RCT studies are required to determine the effects of education material as compared to other interventions, such as exercise or behavioral therapy.”

**

Reviewer 2

#1

Thank you for the opportunity to review this scoping review. I was asked to focus on the methodology and so will not comment on the discipline specific nature of the review. Overall I thought this study complied with the standards of a scoping review. There are a few questions which I have which I hope may contribute to the enhancement of this paper. In the abstract, the abbreviation WRMSK is used but thereafter WMSK is used - please choose one.

**

We thank the reviewer for pointing out this inconsistency. We have amended this so that the abbreviation is WMSK throughout the manuscript

**

#2

1. the last bullet in the abstract should be excluded - this is not a systematic review and so you are not looking to determine the effect of education; a scoping review aims to determine what research has been done in this area.

**

We thank the reviewer for this observation and agree that this was misleading. We have deleted the last bullet

**

#3

2. da Costa and de Boer should be listed under 'D' in the reference list and not under "C" and "B"

**

We thank the reviewer for pointing this out. A mistake in the last-minute editing changes resulted in a complete re-arrangement of the reference style (including the reference list). The editor has also rightfully pointed this out and we have amended accordingly.

**

#4

3. How were the identified papers in each database managed? Were they exported to a reference management system or to a spread sheet so that duplicates could be identified?

**

We do apologize that this was not specified in the methods-section. We have now added the following sentence under the sub-heading “Study design and literature search strategies”

“All studies identified using the literature search strategies were uploaded to Mendeley (Mendeley Ltd., Elsevier, London 2019) which was used for reference management and removal of duplicates.”

**

#5

4. Did the Arksey and O'Malley framework guide the entire review or are you just using this as a reference to explain why critical appraisal was not done? Needs clarification.

**

We thank the reviewer for this comment and do agree that this statement deserves clarification. The Arksey and O'Malley paper did not guide the entire review but was cited here as an argument for not performing a critical appraisal. For clarification in the text, this section has been changed slightly and now reads:

"With this study design in mind, no attempt was made to critically evaluate the methodology or the overall confidence in the results from the included articles, as discussed by Arksey & O'Malley (25)."

#6

5. What types of papers were included in the review - this is not explicitly stated in the text, but in the PRISMA flow diagram it is stated that 18 papers were excluded because they were the wrong study design. In the PRISMA flow chart it is shown that 928 records were excluded - was this at title and abstract stage? Please make clear.

**

We agree that this is not entirely clear and apologize for that. Under the section "Study design and literature search strategies" we have made the following changes to better illustrate at which stage the respective studies were excluded:

"Studies were included if the effect of education was assessed in any way (i.e. as the primary intervention or control) and if they were i) based on peer-reviewed research articles performed on adult humans (above 18 years), ii) had full-text available in English, iii) were focused on occupational-related pain in a working population, and iv) described management strategies aimed at promoting retention or wellbeing in the work place. A Prisma diagram, divided into the categories: identification, screening, eligibility, and inclusion, was used to document and guide the screening process as recommended (24) (fig.1). After identification and removal of duplicates, studies were excluded in the screening process (title and abstract) if i) no abstract was available, ii) they were not in English, or iii) if title and abstract revealed that the focus of the article was outside the scope of the review. When screening for eligibility (full text), articles were excluded if i) the intervention was wrong (i.e. non-educational), ii) the study design was wrong (e.g. opinion papers or prevalence studies), or iii) if the study was conducted in a non-occupational context (e.g. the educational intervention was not specifically aimed at a working population)."

#6.

Under 'Results', the numbers given need correction. It is stated that 87 papers were included for full text screening and 67 were excluded - this leaves 20 and not 19 as stated. This is also inconsistent with what is stated later and the PRISAM flow chart

**

We fully agree and thank the reviewer for pointing out this inconsistency. The full text screening resulted in the exclusion of 68 papers, not 67. This has now been corrected in the first paragraph of the "Results" section.

#7

6. In Table 2 - abbreviations need to be explained. eg LBP

**

We fully agree with this lack of clarity. Instead of using abbreviations, we have written what they stand for full-out in the table where they appear.

**

#8

7. Under 'characteristics of included studies' I would have liked more information, eg in which countries were the included studies done?; which occupational groups were represented in the studies? what study designs were included? What type of pain was the focus of the study - did they all focus on LBP or were there some that focused on neck pain, for example?

**

This is a relevant point raised by the reviewer. As a response, we have added the information to table 2 which now also summarizes geographical placement, type of occupational setting and the pain condition of interest. The duration of the intervention data is likewise indicated.

**

#9

8. I am uncomfortable with the statement that in general education has a positive effect - no statistical analysis has been done, and only five papers are listed. It would be more accurate to say that X number of papers reported a positive outcome.

**

This is a valid point raised by the reviewer which we became aware of in this revision process. We have modified the sentence so that now it reads:

“The included studies were heterogeneous with regards to study design. Some studies lacked comparators (35-39) and others focused on improving physiological parameters such as aerobic capacity (28, 31) and strength (26). In general, a map of the existing evidence indicates that an educational intervention may positively influence musculoskeletal pain in the workplace. Especially when including factors such as absence from work (26, 29, 33, 40, 41)”

**

#10

9. Appendix I leaves me somewhat confused. I am not sure how this contributes to the scoping review and is inconsistent with looking at the empirical data. It may provide a useful resource for European countries but does not contribute to the body of knowledge being analysed in this review. Also how do the first two sources listed in Appendix I differ - they appear to be the same.

**

The appendix was added to present an overview of the available educational and information resources which are available for employees. This was one of the objectives of the review although it was unclear in the original version. To better illustrate this, the last sentence of the introduction states:

“The objective of this scoping review was to map the existing educational resources focusing on WMSK pain. Moreover, the objective was to provide an overview of the available evidence on implementation of educational resources in occupational settings to help managing WMSK pain.”

The findings are briefly discussed and referred to under the sub-heading “Educational and information sources for employees” in the results section. This section has been expanded and now reads:

“A number of resources were found in several European countries (appendix i). The search was confined to European countries. This was done to get an overview of the available resources in countries with similarly structured organization of the occupational and healthcare sectors. The available material was presented in writing, infographics, or video. All of these resources were uni-directional in the sense that they did not have any interactive features. The results from the literature search indicate an abundance of material. This material was available in generic and less often, occupational specific, for employees in several European languages.”

With this in mind, we acknowledge that this part of the data collection poses limitations. Therefore, we have added the following section under “Methodological considerations and limitations”:

“In addition to this, the search for educational and information sources for employees was confined to European countries. This inevitably limited the number of educational resources in this review.”

With regards to the repetition of references in the start, the reviewer is correct. The same reference mistakenly appeared twice. This has now been amended.

#11

10. Under 'Discussion' it is stated that 'it is inconclusive whether education as a stand-alone management strategy for WMSK may be beneficial' - more information is needed here - how many studies found that it was or was education used in combination with something else in all the studies included?

**

We fully agree with this comment which is in line with a comment from reviewer #1. On the basis of this feedback, the first paragraph of the discussion has been changed so that now it reads:

“This scoping review aimed at mapping the available educational initiatives for managing MSK pain at the workplace. The overall literature is heterogeneous and ranges between expert statements to randomized control trials. The available literature does therefore not allow for any conclusions on

whether educational interventions are effective as a stand-alone management strategy for WMSK pain. Also, it is unclear whether the method of delivery is an important factor to consider and whether education needs to be combined with other interventions.”

#12

11. Under 'methodological considerations and limitations' it is stated that results are inconclusive. A scoping review does not aim to determine whether an intervention is conclusive in its outcome but rather what is said about it.

**

This is a valid point and in line with the previous comments from the reviewer. We agree with this and have changed this sentence in the discussion. Now it reads:

“It is important to illustrate that findings favoring an educational intervention mainly came from non-randomized studies (26, 31, 32, 36, 42, 44).”

**

Reviewer 3

#1

Research Question: suggest using the PCC, PICO or any other framework to clearly define the research objective.

**

This is a valid point and something we had in our considerations when deciding how to approach the topic. We wanted the review to give a first-hand overview of i) the educational resources available to manage work-related MSK pain, and potentially ii) whether such interventions were in any way favorable. We used the PCC with P: Working population, Concept: Educational resources, Context: Management of work-related MSK pain. Using PICO as a guide might have resulted in exclusion of studies / literature of relevance, due to the focus on comparison and outcome. However, these elements were taken into account in creating an overview of the reported outcomes of the studies, which focused on this.

We agree that the research question would benefit from further clarification. Therefore and in line with comments from the other reviewers, we have made changes in the introduction and methods sections. In the methods section, following has been added:

“The literature search strategy was developed to consider population, concept, and context (PCC); Educational strategies to manage WMSK pain in a working population.”

**

#2

Page 5, line 33: Typo - evidence on the effects of

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We thank the reviewer for this comment and have amended

**

#3

Page 6, lines 13-15 states that studies were excluded if "no abstract was available". Please elaborate if this was the case even if the Title of the article seemed relevant. A more conservative approach would be to retain citations with relevant Title, but no abstract and then retrieve the full-text for closer inspection during full-text screening.

**

This is a valid point to consider. Papers without an abstract were excluded without full-text being retrieved. This however, was only done in a few cases (less than 10). In none of these cases did the title indicate that the content was relevant for the review.

**

#4

Page 6, lines 20-40: Literature Search - There is no mention whether the search strategy was peer-reviewed by another information specialist using the PRESS checklist (McGowan J, Sampson M, Salzwedel DM, Cogo E, Foerster V, Lefebvre C. PRESS Peer Review of Electronic Search

Strategies: 2015 guideline statement. J Clin Epidemiol. 2016 Jul;75:40-6.
<http://www.sciencedirect.com/science/article/pii/S0895435616>).

Please state whether this was done to ensure the rigour of the search strategy.

**

This is a valuable point which we thank the reviewer for highlighting. The search strategy was not peer-reviewed. To account for this discrepancy, the following statement has been added to the section “methodological considerations and limitations”:

“Subjecting the search strategy for peer-review could add rigor to the search strategy (50). However, as an initial assessment in this area of scoping review this was considered unnecessary. Nonetheless, future scoping reviews may benefit such a process.”

#5

Page 8, line 6: This sounds like grey literature search.

**

We agree and unfortunately, we were not explicit about this in the original version. The sentence has been changed slightly and now reads:

“Although the credibility of these resources cannot be evaluated in a scoping review, a mapping of such resources (grey literature) was performed to obtain a broad overview of available educational resources for employees regarding MSK pain and how to self-manage WMSK.”

**

#6

Page 8: Study selection and synthesis of results - There is no mention whether a calibration exercise was done to ensure good interrater reliability during the screening process.

**

This is a good point made by the reviewer. The two investigators did do this but unfortunately, we did not mention it in the first draft of the paper. This has now been amended by adding the following sentence under the sub-heading “Study selection and synthesis of results”:

“For calibration purposes, the two investigators compared their findings after screening the first 100 papers from the first database (Pubmed). This was done to improve the inter-rater reliability in the screening process.”

#7

Pages 9-17: Results

Recommend providing a summary table of the study characteristics providing information of Study Design, Year of Publication, Study Duration, Geographic Region, Study Setting. For example, look of scoping reviews by Andrea Tricco on pubmed.

**

We are grateful for this comment which we agree with. We have now added additional information to table 2 to accommodate this

**

#8

Suggest some thematic analysis on delivery mode, components of the educational intervention, etc.

**

We thank the reviewer for this comment. We acknowledge the lack of clarity and have tried to expand on these elements both in the revised table 2 as well as in the section Synthesis of findings:

Components of education to manage occupational-related MSK pain which now reads:

“The content of the educational setup and content varied between the included studies where three themes for methods of delivery emerged: written material in a hard copy (e.g. pamphlet or book) (25, 27, 29, 32-34, 36, 41, 43), electronic delivery (29, 30, 38, 39) or a teacher-student setting (e.g. lecture or face-to-face teaching/mentoring) (25, 26, 28, 31, 35, 37, 40, 42). Some of these included studies employed a mixed approach where education was supplemented by a more active approach (see section: Potential influence of delivery method and table 2).”

**

#9

The synthesis section of this paper needs to be further strengthened.

**

We thank the reviewer for this comment. A large part of this section has now been re-written where the overall focus was on improving clarity and reducing any bias with regards to favoring the approach that was being investigated. The section now reads:

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“Components of education to manage occupational-related MSK pain

The content of the educational setup and content varied between the included studies where three themes for methods of delivery emerged: written material in a hard copy (e.g. pamphlet or book) (25, 27, 29, 32-34, 36, 41, 43), electronic delivery (29, 30, 38, 39) or a teacher-student setting (e.g. lecture or face-to-face teaching/mentoring) (25, 26, 28, 31, 35, 37, 40, 42). Some of these included studies employed a mixed approach where education was supplemented by a more active approach (see section: Potential influence of delivery method and table 2).

The overall outcome of using education to manage occupational-related MSK pain

The included studies were heterogeneous with regards to study design. Some studies lacked comparators (35-39) and others focused on improving physiological parameters such as aerobic capacity (28, 31) and strength (26). In general, a map of the existing evidence indicates that an educational intervention may positively influence musculoskeletal pain in the workplace. Especially when including factors such as absence from work (26, 29, 33, 40, 41) and cost-benefits of staying at work despite pain (37, 39, 41). However, it needs to be acknowledged that favorable findings came from studies lacking a comparator (35-39). Also, in some of the studies the educational arm was considered the control condition where the focus was on improving physiological parameters such as aerobic capacity (28, 31) and strength (26) suggesting that the power to detect significant changes in the educational arm might have been insufficient.

Potential influence of delivery method

It is unclear from the included studies whether adding more active components to the educational intervention with (i.e., additional verbal education, exercise, or multidisciplinary rehabilitation). In this regard, adding ergonomic advice or exercise, was suggested to have additional benefits (25, 33), although inconsistent findings were evident (27). For example, combining an educational booklet with face-to-face advice resulted in little or no additive effect on low back pain as assessed by pain levels, cost, or absence from work (32, 41). A face-to-face intervention however may ensure better retention of the educational information as compared to electronic delivery, such as through email (43).

The individual workers' subjective evaluation of an educational intervention

Three of the included studies (30, 39, 43) evaluated the subjective experience of participation in the study. Hutting et al. investigated how six different online (eHealth) modules were received by the participants (30). Overall, this initiative was considered positive as it provided the participants with insight into their own condition and on how they could influence it themselves by implementing behavior changes in- and outside the workplace. Behavioral change can be facilitated by the information in the provided material regarding e.g. ergonomics and exercise (at home and in the workplace). As a result, participants felt more confident in self-managing their pain condition (39, 43). In contrast to this, many workers may find it challenging to implement changes in their workplace as this might require unavailable resources (e.g. office furniture and/or assistive equipment) (43).

Educational and information sources for the general public

A number of resources were found in several European countries (appendix i). The search was confined to European countries. This was done to get an overview of the available resources in countries with a similar structure with regards to organization of the occupational and healthcare sectors. The available material was presented in writing, infographics, or video. All of these resources were uni-directional in the sense that they did not have any interactive features. The results from the

literature search indicate an abundance of material. This material was available in generic and less often, occupational specific, for employees in several European languages.”

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#10

Conflicting statements between Results and Discussion:

Page 15: "In general, a map of the existing evidence indicates that an educational intervention positively affects the physical load on the musculoskeletal system at the workplace, especially when including factors such as absence from work."

Page 17: "The overall findings are inconclusive with regards to determining whether education as a stand-alone management strategy for WMSK pain may be beneficial. "

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We do agree with this point and have rephrased the section to better reflect what the included literature suggested:

“The included studies were heterogeneous with regards to study design. Some studies lacked comparators (35-39) and others focused on improving physiological parameters such as aerobic capacity (28, 31) and strength (26). In general, a map of the existing evidence indicates that an educational intervention may positively influence musculoskeletal pain in the workplace. Especially when including factors such as absence from work (26, 29, 33, 40, 41) and cost-benefits of staying at work despite pain (37, 39, 41).”

VERSION 2 – REVIEW

REVIEWER	Benjamin Smith University Hospitals of Derby and Burton NHS Foundation Trust; University of Nottingham
REVIEW RETURNED	17-Dec-2019
GENERAL COMMENTS	I am happy with all of the revisions made to this paper - all of the reviewers comments have been addressed. I have no concerns with publishing. This paper makes a valuable contribution to the evidence-base.