

PEER REVIEW HISTORY

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ARTICLE DETAILS

TITLE (PROVISIONAL)	Evidence for the effects of Viewing Visual Artworks on Stress Outcomes: A Scoping Review
AUTHORS	Law, Mikaela; Karulkar, Nikita; Broadbent, E

VERSION 1 – REVIEW

REVIEWER	Claire Carswell School of Nursing and Midwifery, Queen's University Belfast, Northern Ireland, UK Mental Health and Addictions Research Group, Department of Health Sciences, University of York, York, UK
REVIEW RETURNED	08-Sep-2020

GENERAL COMMENTS	<p>This is a great paper, and a well conducted and reported scoping review. The revisions I am suggesting are very minor.</p> <p>Abstract</p> <p>Eligibility criteria / Strengths and Limitations – ‘only English studies’ consider rephrasing, to me this reads as only studies from England were considered, but I think you mean only studies published in the English language. This is repeated a few times throughout the manuscript as well.</p> <p>Introduction</p> <p>Very small suggestion, I would argue that there isn’t a ‘substantial’ evidence base for active participation in the visual arts (in general visual art continues to be one of the most under-researched art forms). I don’t think you need this statement here to justify the review. There is a good pragmatic argument for passive arts-based interventions relating to accessibility, ease of delivery and cost, that you touch on.</p> <p>Due to the broad readership of the journal, and inconsistencies in the use of the terms in the literature, it would be good to provide a very brief statement illustrating the difference between arts-based interventions and art therapy.</p> <p>Methods</p> <p>You mention that you deviated from the registered protocol, but I think that is well justified.</p> <p>Why was photography excluded from the review? I would be interested in how that decision was made as photography appears</p>
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	<p>to fit the core components of visual art that you outline for inclusion. The references provided that relate to that definition also don't preclude photography as a visual art (in fact, the Lacey reference highlighted this issue in relation to their control images).</p> <p>Results</p> <p>You refer to the geographical location of the studies at the start of your results but It would be helpful to provide the country where each study took place within the overview of studies table to give an idea of the potential generalisability and if there are geographic disparities in the research base.</p> <p>Your discussion and conclusion pulled out important issues in the evidence base and considerations for future research, especially specific to passive visual arts-based interventions, but doesn't overstep the limitations of a scoping review. This article also highlights some of the inherent difficulties of conducting reviews in this field considering the heterogeneity of the literature combined with the paucity of literature. Again, great article.</p>
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REVIEWER	J. Yoon Irons University of Derby, UK
REVIEW RETURNED	04-Jan-2021

GENERAL COMMENTS	<p>Thank you for the opportunity to feedback on this scoping review. It is a generally well-written and well-designed scoping review. I made the following suggestions to improve this review.</p> <p>Introduction</p> <ul style="list-style-type: none"> - 1st paragraph: 1st sentence "A number of studies suggest..." needs to have references. - 1st paragraph: 2nd sentence "This has resulted in ..." also needs some references or examples to support the claim. - 1st paragraph: 4th sentence "However, there is little evidence...[2,3]" I am unsure whether the referenced papers support the Authors' claim. In fact, the reference #2 did suggest that there IS evidence that creative activities can promote health and wellbeing in children and young people. - In my opinion, whether it would be better to combine the 1st and 3rd paragraphs. Both paragraphs discuss that there is a lack of high-quality evidence, thus the authors conducted a scoping review. Perhaps, the authors could write about how viewing artworks works for promoting health and wellbeing (e.g., reducing stress) in the 1st paragraph, paying attention to both physiological and psychological stress manifestations. - Last sentence in Introduction: It seems a bit odd to say this in Introduction. The last paragraph of Introduction needs to state the review questions/objectives only. This is a justification of that no scoping review has yet been conducted on the topic. This sentence seems to be misplaced. Perhaps, this can be added in the 1st para in Methods, in relation to developing the review protocol. <p>Methods</p> <ul style="list-style-type: none"> - Eligibility criteria: "conference proceedings were included" Please clarify and add which conference proceedings were searched and how. - Eligibility criteria: "Due to the small and heterogenous nature of this research" This seems to be already given. In my opinion, it would be better to say that as per the scoping review objectives, there was no
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	<p>restrictions in terms of etc.</p> <ul style="list-style-type: none"> - Screening and Study Selection: “using the programme Covidence” please include a reference for this programme? - Screening and Study Selection: “Any disagreements related of eligibility of...” I wonder whether the authors could report the ratio (percentage) of agreements between two reviewers (i.e., inter-rater reliability). <p>Results</p> <ul style="list-style-type: none"> - Throughout the Results Section, please include references when reporting the characteristics of included studies in the text. This would help the readers. Here, I include a few examples: on page 7, “Eight studies came from Europe [reference].”, “Only nine studies used a between groups design [references]”, “Six studies were conducted in an art gallery [references]”. On page 8, “the remaining two studies did not report...” – which two studies? - Summary of study methodologies – viewing directives. Would the authors consider including who facilitated the art viewing sessions/programmes? Would the facilitators have/need any therapeutic training? Or someone, e.g., gallery curators can provide “viewing directives”? Or is there any technique/approach that may be important using artworks for stress reduction? - Summary of key findings: It might be better to present what are the qualitative, and quantitative data; what are the data from RCTs? Currently, Table 2 contains data, but this is unreadable. I would suggest to re-arrange Table 2, synthesising qualitative and quantitative data. Table 2 should be mentioned in PRISMA-ScR item #12 regarding data synthesis. https://knowledgetranslation.net/wp-content/uploads/2019/05/PRISMA-ScR_TipSheet_Item18.pdf - this might be useful for scoping review data synthesis. - Page 9, Summary of Methodological Quality: please could the author include the quality assessment method e.g., Downs & Black checklist or CASP etc. This is also a requirement on PRISMA-ScR #12 Critical Appraisal: “describe the methods used and how this information was used in any data synthesis” - Summary of Methodological Quality: 1st para, last sentence. This is a little bit problematic. There are two issues: (a) When studies reported a power calculation, have they recruited the numbers needed? Please include more details on the two studies with a power calculation. (b) In some cases, a power calculation is not possible, especially there is no previous data on the specific outcome measures. Pilot/feasibility studies normally don’t conduct a power calculation. So, I would like to suggest that they authors consider the context (pilot study or feasibility) and assess the quality accordingly using a quality appraisal Checklist. - Summary of Methodological Quality: please discuss blinding issues: blinding participants and assessors. - Page 9: Four RCTs – I am surprised to see there are four RCTs on this topic. A meta-analysis might have been possible. However, I appreciate the authors conducted a scoping review. Perhaps, please add this in the Discussion, especially when discussing the evidence. What evidence is from RCTs and what are from non-controlled studies? Page 9, 2nd para in Discussion, “Overall, the evidence suggest...” Please clarify is this RCT evidence or non-controlled study evidence? - Results: please report the methods used to measure stress in the included studies. <p>Discussion</p> <ul style="list-style-type: none"> - 1st paragraph: Please summarise accurately the findings of the scoping review, answering the review questions stated in the
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	<p>Introduction. The authors have already acknowledged the heterogeneity in the Introduction, hence a scoping review.</p> <ul style="list-style-type: none"> - 1st paragraph, last sentence; “However, there is still a paucity of studies...” Do the authors mean a paucity of high-quality evidence? Haven’t they just said that the research is increasing? Further, there are four RCTs on this topic, which is rather encouraging. Please revise this para. - Page 10, 2nd para: regarding the content and aesthetic qualities of artwork, I’d like to recommend checking out this systematic review on visual arts for PTSD. This paper offers two useful theories on artwork contents and its therapeutic effects (p.379) https://journals.sagepub.com/doi/abs/10.1177/0013916510361874 - I would like to suggest that the authors discuss the methods of measuring stress in the included studies. Reporting that the methods were heterogenous is not sufficient, please include some discussions on both physiological and psychological measures which were used in the included studies. - Page 11 paragraph “Finally,,,,”, last sentence regarding best artwork viewing duration and number of works, I just wonder whether this is relevant or meaningful. If I was a study participant and was told to view only 3 artworks within 30 minutes, I might find that too restrictive. Could we possibly ‘overdose’ ourselves on artworks? I think viewing artwork works differently from taking medication, or exercise, where we know how many tablets to take and how long/how often to exercise. - Please, could the authors add a paragraph on evidence-based practice? What can/should practitioners do in their practice? Can anyone adopt viewing arts as a self-help method? Would the author have any advice? Also, can viewing artworks digitally be effective too? https://pubmed.ncbi.nlm.nih.gov/26675353/ <p>Limitations</p> <ul style="list-style-type: none"> - “not including anxiety or mood measures” – I would suggest that anxiety and moods are related to stress, however, they were not the scoping review focus. Please re-word the last sentence? <p>Minor things:</p> <ul style="list-style-type: none"> - Headings and subheadings: some headings are underlined, while some aren’t. Please be consistent with the presentations of headings. Please follow the Journal’s requirements. - I also wonder whether there should be a space before reference numbers? E.g., self-reported stress[7, 10, 27] – space between stress and [7, 10, 27] <p>In summary:</p> <ul style="list-style-type: none"> - I am curious about why the authors did not conduct a systematic review with a meta-analysis, as there are four RCTs. The included studies seem to have interesting data. - More discussion needs to be included on the evidence that this scoping review has discovered, highlighting the evidence from the RCTs. - Data Synthesis and Study appraisal need to be included. The conclusion says “with consistent reductions in self-reported stress” – data synthesis needs to clearly present this finding in the main text and Tables.
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VERSION 1 – AUTHOR RESPONSE

Reviewer: 1

Abstract

Eligibility criteria / Strengths and Limitations – ‘only English studies’ consider rephrasing, to me this reads as only studies from England were considered, but I think you mean only studies published in the English language. This is repeated a few times throughout the manuscript as well.

This has been changed in the abstract and throughout the manuscript.

Introduction

Very small suggestion, I would argue that there isn’t a ‘substantial’ evidence base for active participation in the visual arts (in general visual art continues to be one of the most under-researched art forms). I don’t think you need this statement here to justify the review. There is a good pragmatic argument for passive arts-based interventions relating to accessibility, ease of delivery and cost, that you touch on.

This sentence has been removed from the text based on your suggestion.

Due to the broad readership of the journal, and inconsistencies in the use of the terms in the literature, it would be good to provide a very brief statement illustrating the difference between arts-based interventions and art therapy.

A brief sentence on this has been added to the text; “This includes art therapy (where an art therapist directs the creation of artworks to achieve a particular goal and foster improved mental health and wellbeing), as well as other arts-based interventions that are not goal-driven and do not require a trained professional.”

Methods

Why was photography excluded from the review? I would be interested in how that decision was made as photography appears to fit the core components of visual art that you outline for inclusion. The references provided that relate to that definition also don’t preclude photography as a visual art (in fact, the Lacey reference highlighted this issue in relation to their control images).

Photography was excluded because of the many studies that use non-artistic photographs as an intervention. For example, the use of photographs of family or familiar places as memory aids to reduce stress in patients living with dementia. Although viewing these photographs can reduce stress, this cannot be considered “artwork” under the definition used within the scoping review (“For the purpose of this review, artwork was defined as two-dimensional artistic works made primarily for their aesthetics, rather than any functional purpose.”) Therefore, all photographs were excluded as it would be too difficult to determine whether the photographs in the studies were made primarily for their aesthetic purpose (thus defined as “artwork”), or for another purpose (“therefore, not “artwork” under the scoping review definition). This explanation has been added in brief to the introduction; “Photographs were only included if they depicted artworks, as it was deemed too difficult to determine the difference between “artistic” photography and “non-artistic” photography based on the definition of artworks provided for this review.”

Results

You refer to the geographical location of the studies at the start of your results but It would be helpful to provide the country where each study took place within the overview of studies table to give an idea of the potential generalisability and if there are geographic disparities in the research base.

A column on the country where the studies took place has been added to Table 3.

Reviewer: 2

Introduction

- 1st paragraph: 1st sentence “A number of studies suggest...” needs to have references.

We have added some references to reviews on this topic as examples.

- 1st paragraph: 2nd sentence “This has resulted in ...” also needs some references or examples to support the claim.

This sentence has now been removed as the sentences before and after have been edited to include this information and references.

- 1st paragraph: 4th sentence “However, there is little evidence...[2,3]” I am unsure whether the referenced papers support the Authors’ claim. In fact, the reference #2 did suggest that there IS evidence that creative activities can promote health and wellbeing in children and young people.

Both of these cited references do indicate that there is some evidence supporting this. However, they both also state that this evidence is limited, narrow and often low quality; hence we use these references to support the statement that there is “little evidence” and that there is a need “for a high-quality evidence base”

- In my opinion, whether it would be better to combine the 1st and 3rd paragraphs. Both paragraphs discuss that there is a lack of high-quality evidence, thus the authors conducted a scoping review. Perhaps, the authors could write about how viewing artworks works for promoting health and wellbeing (e.g., reducing stress) in the 1st paragraph, paying attention to both physiological and psychological stress manifestations.

The first paragraph refers to the evidence available on the participation in arts programmes in general (both active and passive); whereas the second and third paragraphs refer specifically to passively viewing artworks only. Therefore, these paragraphs refer to a different evidence base and have different references. We have tried to change the wording in these two paragraphs to make this distinction more apparent.

- Last sentence in Introduction: It seems a bit odd to say this in Introduction. The last paragraph of Introduction needs to state the review questions/objectives only. This is a justification of that no scoping review has yet been conducted on the topic. This sentence seems to be misplaced. Perhaps, this can be added in the 1st para in Methods, in relation to developing the review protocol.

This sentence has been moved to the methods section

Methods

- Eligibility criteria: “conference proceedings were included” Please clarify and add which conference proceedings were searched and how.

Conference proceedings were not specifically searched for, but were included if they were identified by the overall search. This has been added to the text; “Unpublished research, including working papers, theses/dissertations and conference proceedings were included if they were identified by the search.”

- Eligibility criteria: “Due to the small and heterogenous nature of this research” This seems to be already given. In my opinion, it would be better to say that as per the scoping review objectives, there was no restrictions in terms of etc.

This sentence has been changed as suggested.

- Screening and Study Selection: “using the programme Covidence” please include a reference for this programme?

The Covidence website address has been added in text.

- Screening and Study Selection: “Any disagreements related of eligibility of...” I wonder whether the authors could report the ratio (percentage) of agreements between two reviewers (i.e., inter-rater reliability).

The percentage of agreement between the two reviewers has been added in this section.

Results

- Throughout the Results Section, please include references when reporting the characteristics of included studies in the text. This would help the readers. Here, I include a few examples: on page 7, “Eight studies came from Europe [reference].”, “Only nine studies used a between groups design [references]”, “Six studies were conducted in an art gallery [references]”. On page 8, “the remaining two studies did not report...” – which two studies?

References have been added throughout the results section.

- Summary of study methodologies – viewing directives. Would the authors consider including who facilitated the art viewing sessions/programmes? Would the facilitators have/need any therapeutic training? Or someone, e.g., gallery curators can provide “viewing directives”? Or is there any technique/approach that may be important using artworks for stress reduction?

The facilitators of these viewing directives have now been added to this section of the results. All but one study used researchers with no specified training, the other study had a trained art educator to facilitate the discussions.

- Summary of key findings: It might be better to present what are the qualitative, and quantitative data; what are the data from RCTs? Currently, Table 2 contains data, but this is unreadable. I would suggest to re-arrange Table 2, synthesising qualitative and quantitative data. Table 2 should be mentioned in PRISMA-ScR item #12 regarding data synthesis.

https://knowledge translation.net/wp-content/uploads/2019/05/PRISMA-ScR_TipSheet_Item18.pdf - this might be useful for scoping review data synthesis.

As detailed in the methods section, qualitative studies and data were not included within this scoping review; therefore, all the data provided are quantitative, making us unable to synthesise qualitative and quantitative data. However, to make Table 2 clearer, we have split the “study design and key findings” column into two columns, to make the findings more discernible to the reader.

- Page 9, Summary of Methodological Quality: please could the author include the quality assessment method e.g., Downs & Black checklist or CASP etc. This is also a requirement on PRISMA-ScR #12 Critical Appraisal: “describe the methods used and how this information was used in any data synthesis”

As described in the Joanna Briggs Institute methodology for scoping reviews, “scoping reviews generally should not conduct a formal process of methodological appraisal to determine the quality of the evidence. Rather, scoping reviews aim to provide an overview or map of the evidence. Due to this, an assessment of methodological limitations or risk of bias of the evidence included within a scoping review is generally not performed.” We decided to include a brief, descriptive summary of some important methodological quality aspects, in order to summarise any key problems in the research and therefore estimate whether or not more high-quality evidence is needed in this area of research before full systematic reviews could be conducted. Therefore, our methodological analysis is descriptive, rather than a comprehensive quality analysis. This information has been added to the method and results section for clarity.

- Summary of Methodological Quality: 1st para, last sentence. This is a little bit problematic. There are two issues: (a) When studies reported a power calculation, have they recruited the numbers needed? Please include more details on the two studies with a power calculation.

This information has now been added in text.

(b) In some cases, a power calculation is not possible, especially there is no previous data on the specific outcome measures. Pilot/feasibility studies normally don't conduct a power calculation. So, I would like to suggest that they authors consider the context (pilot study or feasibility) and assess the quality accordingly using a quality appraisal Checklist.

We agree with the points raised. However, as discussed above, a full quality assessment is not recommended for a scoping review. Therefore, we only provided a brief descriptive summary of the power analyses for the studies. We purposefully did not state that a lack of power analyses represents poor quality, only that this indicates that, “it is difficult to determine if all studies were adequately powered.” Only one study (Law et al., 2020) was reported as a pilot study, and therefore this has been added as an exception into this section.

- Summary of Methodological Quality: please discuss blinding issues: blinding participants and assessors.

This section has been edited to include more details about the blinding.

- Page 9: Four RCTs – I am surprised to see there are four RCTs on this topic. A meta-analysis might have been possible. However, I appreciate the authors conducted a scoping review. Perhaps, please add this in the Discussion, especially when discussing the evidence. What evidence is from RCTs and what are from non-controlled studies? Page 9, 2nd para in

Discussion, “Overall, the evidence suggest...” Please clarify is this RCT evidence or non-controlled study evidence?

A section on the results from the four RCTs has been included in the discussion on page 10.

- Results: please report the methods used to measure stress in the included studies.

The methods used to measure stress for each individual study are already briefly provided in Table 3, with more detailed explanations of the measures in Table 2. As well as this, the self-report and physiological measures used are also summarised in text under the “outcomes” section of the results.

Discussion

- 1st paragraph: Please summarise accurately the findings of the scoping review, answering the review questions stated in the Introduction. The authors have already acknowledged the heterogeneity in the Introduction, hence a scoping review.

The first paragraph of the discussion acts as an overall summary of the main research question (“what research has been conducted on the effects of viewing visual artworks on stress outcomes in any populations and settings?”), rather than specifically answering every secondary review question, as there are too many findings to succinctly summarise in this first paragraph. A sentence has therefore been added to the end of this paragraph to explain this to the reader.

Paragraph 2-10 in the discussion provide a detailed overview of the findings of the scoping review and answer the review questions, including all the secondary questions, stated in the introduction.

- 1st paragraph, last sentence; “However, there is still a paucity of studies...” Do the authors mean a paucity of high-quality evidence? Haven’t they just said that the research is increasing? Further, there are four RCTs on this topic, which is rather encouraging. Please revise this para.

This paragraph has been re-written to reflect these suggestions.

- Page 10, 2nd para: regarding the content and aesthetic qualities of artwork, I’d like to recommend checking out this systematic review on visual arts for PTSD. This paper offers two useful theories on artwork contents and its therapeutic effects (p.379) <https://journals.sagepub.com/doi/abs/10.1177/0013916510361874>

[These theories have been added to discussion of artwork content and aesthetic qualities on page 9.](#)

- I would like to suggest that the authors discuss the methods of measuring stress in the included studies. Reporting that the methods were heterogenous is not sufficient, please include some discussions on both physiological and psychological measures which were used in the included studies.

As reviewed in response to the comments about the results section, the methods of measuring stress are described in both Tables 2 and 3, as well as in text in the results section. This section and the tables demonstrate the heterogenous nature of the measures and therefore we feel it is redundant to describe each individual measure again in the discussion. Rather than repeating the results, we have kept the discussion to summarise the main findings and gaps found from the results.

- Page 11 paragraph “Finally,,,,”, last sentence regarding best artwork viewing duration and number of works, I just wonder whether this is relevant or meaningful. If I was a study participant and was told to view only 3 artworks within 30 minutes, I might find that too restrictive. Could we possibly ‘overdose’ ourselves on artworks? I think viewing artwork works differently from taking medication, or exercise, where we know how many tablets to take and how long/how often to exercise.

One of the secondary questions of the scoping review was, “What was the duration of the artwork viewing and how many artworks were viewed?” Therefore, we feel it is appropriate to summarise this in the discussion. We agree with your discussion points about how too little artworks could be “restrictive” and too many could be an “overdose.” However, as none of the studies in this review measured these factors, we cannot make a conclusion about this. Hence, this paragraph discusses the difficulties in determining this dose-response relationship and why more research is needed in this area so these conclusions can be made.

- Please, could the authors add a paragraph on evidence-based practice? What can/should practitioners do in their practice? Can anyone adopt viewing arts as a self-help method? Would the author have any advice? Also, can viewing artworks digitally be effective too? <https://pubmed.ncbi.nlm.nih.gov/26675353/>

Sentences about evidence-based practice have now been added to the relevant sections throughout the discussion. As well as this, a section on digital artworks has been provided in the second paragraph of the discussion.

Limitations

- “not including anxiety or mood measures” – I would suggest that anxiety and moods are related to stress, however, they were not the scoping review focus. Please re-word the last sentence?

This sentence has been re-worded to now say, “This review did not include anxiety or mood measures or studies using qualitative methodology, as these outcomes were considered outside the scope of the review.”

Minor things:

- Headings and subheadings: some headings are underlined, while some aren’t. Please be consistent with the presentations of headings. Please follow the Journal’s requirements.

The headings and subheadings have been changed to be consistent with the journal’s requirements.

- I also wonder whether there should be a space before reference numbers? E.g., self-reported stress[7, 10, 27] – space between stress and [7, 10, 27]

BMJ Open requires authors to insert in text reference numbers with no word spacing.

In summary:

- I am curious about why the authors did not conduct a systematic review with a meta-analysis, as there are four RCTs. The included studies seem to have interesting data. More discussion needs to be included on the evidence that this scoping review has discovered, highlighting the evidence from the RCTs.

We felt like a systematic review of four studies would be too restrictive to answer our broad research questions on the available evidence in this research area. A scoping review allows for a more general overview of the existing research and research gaps, as it does not restrict study designs, and therefore it prevents the omission of important research (even if this research is not of high methodological quality). A scoping review therefore allows for a more detailed descriptive analysis of what evidence exists (irrespective of the research design and methodology) and allows for a more general overview and suggestions for what is needed in future research. Therefore, we did not split the evidence based on whether the studies were RCTs or not, as we wanted to review all available evidence on this topic. Additionally, we considered that the methods of the 4 RCTs were too heterogeneous to combine in a meta-analysis. However, we have added a paragraph in the discussion that describes the findings from the RCTs alone.

- Data Synthesis and Study appraisal need to be included. The conclusion says “with consistent reductions in self-reported stress” – data synthesis needs to clearly present this finding in the main text and Tables.

As discussed above in response to a previous question, Table 2 has been edited to make the results from each study clearer.

VERSION 2 – REVIEW

REVIEWER	Claire Carswell School of Nursing and Midwifery, Queen's University Belfast, Northern Ireland, UK Mental Health and Addictions Research Group, Department of Health Sciences, University of York, York, UK
REVIEW RETURNED	09-Mar-2021

GENERAL COMMENTS	Thank you for making the suggested changes, my original suggestions were minor and there are no other outstanding issues from my perspective.
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REVIEWER	J. Yoon Irons University of Derby, UK
REVIEW RETURNED	12-Mar-2021

GENERAL COMMENTS	<p>Thank you, the authors, for addressing the issues raised by the reviewers and making amendments accordingly in their revision. However, there are some remaining issues, which in my opinion are rather crucial. I understand that this manuscript is a scoping review according to the Joanna Briggs institute methodology guidance. My main concern is that the manuscript is not doing what a scoping review should do: i.e.,</p> <ul style="list-style-type: none"> - To identify the types of available evidence in a given field - To clarify key concepts/ definitions in the literature - To examine how research is conducted on a certain topic or field - To identify key characteristics or factors related to a concept - As a precursor to a systematic review - To identify and analyse knowledge gaps <p>The authors discuss “high-quality research” in Discussion and Conclusion. However, given in the absence of quality ratings (as per the scoping review), the discussion around quality of evidence and quality of research in the manuscript is irrelevant. Instead, the discussion should focus on types of available evidence (both qualitative and quantitative) and key concepts, key characteristics/factors related to art-viewing for stress reduction.</p>
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	<p>I also found current data reporting confusing, as the authors discussed 'significant effects', 'increases' or 'decrease' in Table 2 and main text. To fulfil the scoping review's job, I'd like to suggest that they authors need to focus on identifying knowledge gaps and what type of available evidence on the topic, so that this scoping review could serve as a precursor to a systematic review. Therefore, I strongly recommend amending data reporting.</p> <p>Other issues:</p> <p>Results section:</p> <ul style="list-style-type: none"> - "Although the remaining two studies had comparator groups, the viewing directives given to the groups[16] and the art experience of the participants in each group[14] were different, rather than the artwork viewed": This sentence is unclear to me in the comparator context. - Summary of Key Findings: "a significant decrease after viewing artwork": without presenting the actual data (means, SD, effect size etc.), it is problematic to report significance, effect etc. Plus, is it what a scoping review should do? - Summary of Methodological Quality: "Only four studies[9, 10, 16, 20] were RCTs, which are the gold-standard of research.": RCTs are desired, however, again, without quality assessments or risk bias assessment, we don't know yet whether these four RCTs are really the gold-standard research. <p>Table 2: I found the table 2 is less helpful because it does not help me:</p> <ul style="list-style-type: none"> - To identify the types of available evidence in a given field, - To examine how research is conducted on a certain topic or field, - As a precursor to a systematic review, - To identify and analyse knowledge gaps. <p>Please see some examples on the JBI guidance on presenting data:</p> <ul style="list-style-type: none"> - <p>https://wiki.jbi.global/display/MANUAL/11.2.9+Presentation+of+the+results</p> <p>Figure 11.1: Example of data presentation</p> <p>Figure 1. PRISMA-ScR flow diagram of the study selection process was empty.</p> <p>Conclusion: "More robust research, using standardised methods and RCTs, is needed before strong conclusions can be made about the effects of viewing visual art on stress outcomes": I think this needs to be amended according to the scoping review questions and aims. Scoping reviews are not to evaluate effects.</p> <p>PRISMA-ScR Checklist: item #12 <input type="checkbox"/>: "critical appraisal methods and included sources of evidence": The authors included page numbers, but I don't think they have done these.</p>
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VERSION 2 – AUTHOR RESPONSE

Reviewer: 1

Dr. Claire Carswell, Queen's University Belfast

Comments to the Author:

Thank you for making the suggested changes, my original suggestions were minor and there are no other outstanding issues from my perspective.

Thank you for your comments.

Reviewer: 2

Dr. J. Yoon Irons, University of Derby

Comments to the Author:

Thank you, the authors, for addressing the issues raised by the reviewers and making

amendments accordingly in their revision. However, there are some remaining issues, which in my opinion are rather crucial.

I understand that this manuscript is a scoping review according to the Joanna Briggs institute methodology guidance.

My main concern is that the manuscript is not doing what a scoping review should do: i.e.,

- To identify the types of available evidence in a given field**
- To clarify key concepts/ definitions in the literature**
- To examine how research is conducted on a certain topic or field**
- To identify key characteristics or factors related to a concept**
- As a precursor to a systematic review**
- To identify and analyse knowledge gaps**

Thank you for your comments. According the Joanna Briggs Institute Guidelines, a scoping review does not need to answer all of the bullet points you have listed above, but at least one. As described in the manuscript on page 5, “The aim of this scoping review was to systematically examine the extent of existing research available on the effects of viewing visual artworks on stress outcome measures and identify knowledge gaps to aid future research.”

This aim (combined with the research questions detailed in the methods section) aligns with bullet points 1 and 6 above.

Although not necessary for a scoping review, the current review also answered a series of secondary questions to provide further details on the available evidence in this area and to further identify any research gaps and methodological limitations that need to be addressed in future research. Identifying these methodological gaps and limitations also allows for the current scoping review to be a precursor for a systematic review (bullet point 5 above).

The authors discuss “high-quality research” in Discussion and Conclusion. However, given in the absence of quality ratings (as per the scoping review), the discussion around quality of evidence and quality of research in the manuscript is irrelevant. Instead, the discussion should focus on types of available evidence (both qualitative and quantitative) and key concepts, key characteristics/factors related to art-viewing for stress reduction.

As discussed previously, rather than doing a full methodological appraisal (which is not recommended in a scoping review), we instead provide a descriptive summary of important methodological information for each study. Although not required in a scoping review, we believe that this information is important to provide a basic overview of possible methodological issues within this research area. This helps readers to identify possible gaps and limitations that need to be addressed in future research. It also provides useful information about the kinds of research that are needed in this area before a full systematic review can be conducted. Therefore, a discussion about this information is important to address the overall goals of the scoping review (to present the existing available evidence and to identify research gaps).

I also found current data reporting confusing, as the authors discussed ‘significant effects’, ‘increases’ or ‘decrease’ in Table 2 and main text. To fulfil the scoping review’s job, I’d like to suggest that they authors need to focus on identifying knowledge gaps and what type of available evidence on the topic, so that this scoping review could serve as a precursor to a systematic review. Therefore, I strongly recommend amending data reporting.

Although many scoping reviews do not specifically report the results of the included studies, this was a specific secondary question in the current review; “Were the interventions effective in changing the outcomes?” Therefore, the key findings for each included study were summarised in the results section and Table 2 to answer this secondary review question. Even though this is not a full systematic review, we believe it is important to summarise the key findings of the studies in order to provide readers with an overview of what has been found so far. In this way, the review is better able to summarise the available evidence, as well as identify knowledge and research gaps.

Other issues:

Results section:

- **“Although the remaining two studies had comparator groups, the viewing directives given to the groups[16] and the art experience of the participants in each group[14] were different, rather than the artwork viewed”:** This sentence is unclear to me in the comparator context.

This has been rewritten for better clarity;

“Of the nine between groups designs, six used a no artwork control group as a comparator[9, 10, 17, 20, 22, 23], and one used scrambled versions of the artworks[25]. Krauss et al.[16] gave different viewing directives to each group and de Jong[14] had groups with different art experience levels.”

- **Summary of Key Findings: “a significant decrease after viewing artwork”: without presenting the actual data (means, SD, effect size etc.), it is problematic to report significance, effect etc. Plus, is it what a scoping review should do?**

To provide a brief summary of the overall results, we provided a descriptive summary of the key findings for each study in Table 2 and an overall summary in the key findings section of the results. As discussed above, this was to answer our secondary review question about whether the interventions were effective in changing the outcomes. As this scoping review was not a systematic review, detailed statistics are not required. Instead, the descriptive summary of the key findings allows readers and future researchers to obtain a general summary of the findings so far. This helps to summarise the available evidence and identify research gaps.

- **Summary of Methodological Quality: “Only four studies[9, 10, 16, 20] were RCTs, which are the gold-standard of research.”: RCTs are desired, however, again, without quality assessments or risk bias assessment, we don’t know yet whether these four RCTs are really the gold-standard research.**

We agree that because a full methodological assessment was not conducted, we cannot conclude that these RCTs were the “gold-standard of research.” Therefore, the second part of this sentence has been removed from the manuscript.

Table 2: I found the table 2 is less helpful because it does not help me:

- **To identify the types of available evidence in a given field,**
- **To examine how research is conducted on a certain topic or field,**
- **As a precursor to a systematic review,**
- **To identify and analyse knowledge gaps.**

Please see some examples on the JBI guidance on presenting data:

- <https://wiki.jbi.global/display/MANUAL/11.2.9+Presentation+of+the+results>

Table 2 is provided as a succinct way to summarise the designs, methodology and key findings for each study, without taking up much space in the manuscript text itself. Although not necessarily a key

part of a scoping review, we believe that Table 2 provides readers with a succinct overview of each study. Without this Table, it may be difficult for the reader to understand each study as a whole.

Figure 11.1: Example of data presentation

Figure 1. PRISMA-ScR flow diagram of the study selection process was empty.

We are unsure of why this may have been. We have checked this figure file ourselves on the BMJ Open Manuscript Central, and the Figure opened fine as a PDF. We have re-uploaded the PDF just in case.

Conclusion: “More robust research, using standardised methods and RCTs, is needed before strong conclusions can be made about the effects of viewing visual art on stress outcomes”: I think this needs to be amended according to the scoping review questions and aims. Scoping reviews are not to evaluate effects.

We have rewritten this statement to be more directed to future research, rather than as a conclusion of this scoping review;

“Before a systematic review is conducted, more robust research is recommended that uses standardised methods and RCTs to investigate the effects of viewing visual art on stress outcomes.”

PRISMA-ScR Checklist: item #12 : “critical appraisal methods and included sources of evidence”: The authors included page numbers, but I don’t think they have done these.

As discussed previously, although we have not completed a full methodological appraisal, we have still completed a descriptive appraisal of the methods and therefore we have met this criterion in the checklist. This has been explained in the “data extraction and analysis” section on page 6.

VERSION 3 – REVIEW

REVIEWER	J. Yoon Irons University of Derby, UK
REVIEW RETURNED	05-May-2021

GENERAL COMMENTS	<p>I’m afraid that I think the manuscript is not still satisfactory. Please see attached my comments on the manuscript. It seems that the authors haven’t accepted my view that a scoping review cannot determine the effectiveness of an intervention. In my opinion, according to the JBI scoping review guidelines (please see below), the authors need to amend aims and discussion around “effects” and “high-quality”.</p> <p>https://wiki.jbi.global/display/MANUAL/11.2.8+Analysis+of+the+evidence “It is important to point out that scoping reviews do not synthesize the results/outcomes of included sources of evidence as this is more appropriately done within the conduct of a systematic review. In some situations scoping review authors may choose to extract results and descriptively (rather than analytically) map them. For example, a scoping review may extract the results from included sources and map these but not attempt to assess certainty in these results or synthesize these in such a way as we would in systematic reviews.”</p> <p>The reviewer provided a marked copy with additional comments. Please contact the publisher for full details.</p>
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VERSION 3 – AUTHOR RESPONSE

Reviewer: 2

Dr. J. Yoon Irons, University of Derby

Comments to the Author:

I'm afraid that I think the manuscript is not still satisfactory. Please see attached my comments on the manuscript.

It seems that the authors haven't accepted my view that a scoping review cannot determine the effectiveness of an intervention.

In my opinion, according to the JBI scoping review guidelines (please see below), the authors need to amend aims and discussion around "effects" and "high-quality".

<https://wiki.jbi.global/display/MANUAL/11.2.8+Analysis+of+the+evidence>

"It is important to point out that scoping reviews do not synthesize the results/outcomes of included sources of evidence as this is more appropriately done within the conduct of a systematic review. In some situations scoping review authors may choose to extract results and descriptively (rather than analytically) map them. For example, a scoping review may extract the results from included sources and map these but not attempt to assess certainty in these results or synthesize these in such a way as we would in systematic reviews."

We agree with the reviewer that scoping reviews cannot assess the effectiveness of an intervention, and this is not what we have done in this paper. In this scoping review, we have presented the key findings from each study descriptively in order to identify what preliminary evidence exists, but we have not synthesised these in such a way as we would in a systematic review (e.g. a meta-analysis). We have considered the reviewer's recommendation to amend the aims and discussion around 'effects' and 'high-quality' and have made changes to reflect this throughout the manuscript.

We have read the JBI guidelines that the reviewer provided, along with further material on the same link (see below).

"In terms of quantitative data, scoping review authors may choose to investigate the occurrence of concepts, characteristics, populations etc with more advanced methods than simple frequency counts. Whilst this in-depth type of analysis is not normally required in scoping reviews, in other scoping reviews (depending on the aim), review authors may consider some form of more advanced analysis depending on the nature and purpose of their review. It is unlikely that a meta-analysis or interpretive qualitative analysis will be required in scoping reviews.

The way data is analysed in scoping reviews is largely dependent on the purpose of the review and the author's own judgement. The most important consideration regarding analysis is that the authors are transparent and explicit in the approach they have taken, including justifying their approach and clearly reporting any analyses, and as much as possible planned and stipulated a priori."

We have also looked at recent scoping reviews published in the BMJ Open, that have reviewed the effects of interventions, such as:

Pascoe M, Bailey AP, Craike M, et al Physical activity and exercise in youth mental health promotion: a scoping review *BMJ Open Sport & Exercise Medicine* 2020;6:e000677. doi: 10.1136/bmjsem-2019-000677

Palsson TS, Boudreau S, Høgh M, et al Education as a strategy for managing occupational-related musculoskeletal pain: a scoping review *BMJ Open* 2020;10:e032668. doi: 10.1136/bmjopen-2019-032668

Ingstad K, Uhrenfeldt L, Kymre IG, et al Effectiveness of individualised nutritional care plans to reduce malnutrition during hospitalisation and up to 3 months post-discharge: a systematic scoping review *BMJ Open* 2020;10:e040439. doi: 10.1136/bmjopen-2020-040439

Looking at these papers, there appears to be a wide range of ways scoping reviews are conducted and reported and we think that our review falls within the accepted parameters. We have limited our analyses to frequency counts.

We have considered the comments made by the reviewer throughout the manuscript. In response we have removed quality assessments and instead simply reported the methodological details of studies conducted to date. We have also amended the wording of the aim and discussion to better reflect the approach taken.