

PEER REVIEW HISTORY

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ARTICLE DETAILS

TITLE (PROVISIONAL)	The development of national physical activity recommendations in 18 EU Member States: A comparison of methodologies and the use of evidence
AUTHORS	Tcymbal, Antonina; Gelius, Peter; Abu-Omar, Karim; Foster, Charlie; Whiting, Stephen; Mendes, Romeu; Titze, Sylvia; Dorner, Thomas; Halbwachs, Christian; Duclos, Martine; Toussaint, Jean-Francois; Wendel-Vos, Wanda; Baxter, Beelin; Ferschl, Susanne; Breda, Joao

VERSION 1 – REVIEW

REVIEWER	Fiona Chun Man Ling Department of Sport, Exercise & Rehabilitation Northumbria University UK
REVIEW RETURNED	10-Aug-2020

GENERAL COMMENTS	<p>This manuscript reported a review of the process through which 18 EU member states developed their respective national physical activity guidelines utilising the HEPA platform, and five member states were described in greater detail as case studies due to the comprehensiveness of the procedure and resources adopted to develop their guidelines. I commend the authors in their effort in systematically pooling together steps taken by the member states, and, the thought-provoking questions posed to the readers with regards to what the best practice might be when developing national physical activity guidelines. These are indeed important questions that need addressing in order to produce evidence-based physical activity guidelines in the context of the respective nations while enhancing the comparability of physical activity surveillance across nations, in order to enhance the effectiveness of physical activity promotion initiatives.</p> <p>Main considerations</p> <p>While the authors have raised some important questions regarding whether there ought to be a best practice approach in developing national physical activity guidelines, or following the WHO guidelines would suffice, with some of the pros and cons of each approach articulated, the manuscript will benefit from stronger statements of 'what's next'. While the pros and cons of developing non-WHO guidelines (for national relevance) vs following WHO guidelines (for across nation surveillance purpose) are perhaps equally convincing from the manuscript, from the conclusions and the abstract, the authors seem to be in favour of the former but the stance is rather ambiguous. Understanding that there is probably no right or wrong answer to this question, it might be beneficial to the readers if the authors can provide 1) a stronger argument, with evidence if</p>
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	<p>possible, for why the authors prefer the development of guidelines despite the pros and cons (e.g. any evidence that national guidelines are more easily understood by the respective populations), and 2) clearer recommendations as to, e.g. how nations with limited resources might be able to develop their own national guidelines, despite that the manuscript does mention WHO's potential role in achieving this, but the question HOW can be elaborated.</p> <p>Other comments</p> <ol style="list-style-type: none"> 1. Pg2, line 1-5 (Objectives in Abstract) The aim, and what this manuscript is trying to achieve, needs to be made clearer. Currently, the objectives have primarily articulated what has been done in the study. 2. Pg3, line 4-6 (Conclusions in Abstract) While in the main text, the conclusions aptly portray a debate between following the WHO guidelines vs developing nation-specific guidelines, the conclusions in this section seem to suggest the latter is preferred. Please refer to the comment in Major Considerations regarding the need for a less ambiguous stance. 3. Pg6, line 2 Briefly elaborate what the 'special website' is dedicated to. 4. Pg6, line 3-4 Throughout the manuscript, it has been mentioned multiple times that a main reason for why some nations do not develop their own national guidelines is due to limited resources/capacities. It would be clearer if the authors can provide some examples of these resources so that the readers can better understand the constraints. 5. Pg6, line 24-25 A brief elaboration on the purpose of the HEPA indicators and/or indicator 1 would be useful for putting the mentioning of the indicator(s) into context. 6. Pg9, line 22-23 Check grammar in this clause. 7. Pg13, line 9 Briefly elaborate on what 'high-quality' recommendations mean. 8. Pg16, line 21-23 The logic in this sentence needs more clarity (e.g. what is the 'it' in line22 referring to). The relevance of the example (Italy vs Malta) used to illustrate the previous point also needs greater clarity. 9. Pg17, line 17-21 This sentence needs more clarity. Currently the logic and meaning is unclear. 10. Pg18, line 23 Should it read 'more efficiently'?
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REVIEWER	Paul McCrorie MRC/CSO Social & Public Health Sciences Unit, University of Glasgow, Scotland
REVIEW RETURNED	25-Aug-2020

GENERAL COMMENTS

Although a hugely beneficial idea that forms the basis of the paper my overarching concern is the explicit recognition of a strong guiding research question, appropriate rigorous methodology to answer that; and the validity of the outcomes and subsequent future recommendations. With the study timeframe being specific to pre-2018, the authors are missing significant improvement (since 2018) in processes and procedures employed to develop national guidelines and recommendations. Many of the recommendations within the discussion/conclusion have already been developed (e.g. international involvement in expert working groups, and the standardisation of methods to adapt/adopt existing guidelines or create new ones –e.g. GRADE-ADOLOPMENT). Without the inclusion of these important improvements (or even the discussion of these), I find it hard to recommend acceptance without major revision (including further data collection).

General points:

Although a hugely beneficial idea that forms the basis of the paper my overarching concern is the explicit recognition of a strong guiding research question, appropriate rigorous methodology to answer that; and the validity of the outcomes and subsequent future recommendations. With the study timeframe being specific to pre-2018, the authors are missing significant improvement (since 2018) in processes and procedures employed to develop national guidelines and recommendations. Many of the recommendations within the discussion/conclusion have already been developed (e.g. international involvement in expert working groups, and the standardisation of methods to adapt/ adopt existing guidelines or create new ones – e.g. GRADE-ADOLOPMENT). Without the inclusion of these important improvements (or even the discussion of these), I find it hard to recommend acceptance without major revision (including further data collection).

Abstract**Objectives:**

Line 2: Perhaps consider rephrasing the opening of the first sentence to.... 'To analyse the information on methodologies...'
What also seems to be missing from this section is the extension of why you are analysing the processes of EU member states. To what purpose does this objective serve? Although reviewers are not asked to comment on importance or breadth of breadth of appeal, I feel this would be a worthy and important addition that will better support the guiding research question. At present I'm not sure you do yourself justice in explaining what the actual research question is.

Outcome measures:

Line 12: typo 'From national documents *we* extracted?'

Results:

Line24: missing word? 'All of *the* five case study countries.....'

Conclusions:

Line 4: Should/could read.....' *Findings* indicate differences in methods...'

Line 5: I wonder if the final sentence addresses the overarching research question appropriately. I would suggest your work offers more than 'inspiration' but also guidance, a considered framework, and importantly – critique – of the current adopted processes. This probably loops back to the lack of clarity regarding the overarching objective and guiding research question. Both RQ and conclusion could be strengthened to address these.

Strengths and limitations of this study:

Line 5-8: This could be a valuable addition/replacement to the

	<p>current conclusion section of abstract</p> <p>Introduction</p> <p>Page 5, Line 9: final sentence starting 'Understanding the landscape....', identify differences and impact on what? It may be useful to expand on this slightly to offer more credibility to the study purpose.</p> <p>Page 5, Line 14-16: Perhaps change 'boosting' to 'increasing'? Also, although I agree that having guidelines and recommendations in and of themselves do not necessarily result in improvements in population levels of PA, I'd suggest there are more benefits than the ones you have stated. The way this sentence reads makes it seem like fostering cooperation and guiding health promotion professionals are the *only* useful end products. Perhaps edit sentence to reflect this?</p> <p>As a further few examples, they can form the foundation of behaviour change (e.g. formal or informal interventions), including important sociocognitive principles such as motivation, monitoring and feedback, goal setting, and habit formation to name a few. See paper from Martin Hagger https://doi.org/10.1016/j.psychsport.2018.12.007.</p> <p>Also, they can be (and often are) embedded into school curriculum and form the basis for knowledge acquisition and the development of positive attitudes to health behaviours such as PA.</p> <p>Page 5, Line 19: what do you mean by 'content'? Perhaps include expansion in brackets?</p> <p>Page 6, line 2: I'm not sure what you mean by 'special website'. Could you make this clearer? The following sentence would also benefit from knowing what is meant by a 'more elaborate/participatory process'. Are you referring to the list of approaches mentioned in the previous sentence (expert working groups, stakeholder consultation etc) as the more elaborate process? If so perhaps the sentence could be edited to read 'While these more elaborate and participatory processes might help.....(policy) agenda, they might also require resources....'</p> <p>Page 6, Line 5-7: would it be more appropriate to say that it may be useful to recognise the most *important*, or *optimal* elements for guideline development, especially where resources and capacities are limited? So it actually goes beyond 'just' the recognition of which ones to consider.</p> <p>Page 6, Line 10-17: I'm not convinced of the value of adding in a description of the EU Focal Points at this stage of the introduction. I'd consider moving it further up the introduction and integrating it into a wider justification of your guiding research question/aim. Why is this important an important piece of work in Europe and how does the justification of the work lead to the overarching aim presented in the last paragraph? Otherwise, it may be better suited in the first paragraph of the methods</p> <p>Methods</p> <p>General</p> <p>There is mention in the final paragraph of the introduction (page 6, line 9) that the aim of the paper is to provide a 'systematic' overview of the main methodological approaches available. Thinking through the operationalisation of this term in the review literature, the method section should be explicit in the framework used to systematise the process (e.g. search strategy, population of interest, screening, inclusion/exclusion criteria, data extraction, synthesis etc). For example, page 7, lines 10-13 speaks the data extraction for the member state's PA recommendation documents. Could you justify</p>
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why you chose, amongst other options (e.g. age groups and or special population groups included as part of the national guidelines), points a-c? and what was the process of comparatively analysing the data?

Specific

Page 6, line 23: Who is the representation behind these Focal Points? Is it a team of Academics? Single academic? Policy makers? Do they have sufficient expertise in PA recommendations and their implementation? Would benefit the reader to see this added. Perhaps add a small sentence to describe?

Page 7, Line 11: Was the information collected on participants at this stage compliant with GDPR and data protection? I see you mention anonymised information for a later case study stage (Page 7, Line 23). How did this earlier stage differ?

Results and Discussion

Page 9, line 23: Not sure 'mimicking' is the correct choice of word to use. Perhaps 'matching'? In the UK, expert working groups were created to match the population age-groups. These groups included applied expertise covering multiple health conditions, exposure type (e.g. HIIT, light activity, MVPA, muscle strengthening, bone health enhancing PA, injury prevention), measurement issues, and study design.

Page 9, line 25 – page 10, line 1-2: The UK integrated both web-based consultation (phase 1) and multiple regional face-to-face stakeholder engagement sessions.

Page 10, Line 14: You mention that 12 countries recommendations were based at least partly on WHO 2010 recommendations and follow this with an adult focused recommendation. This sentence makes me think your paper is focusing specifically on the synthesis of European adult population group recommendations. I think this needs to be become more explicit within the method section. Is it the adult age-group recommendations that this paper speaks to?

Page 12, Line 11-13. You speak to the methods employed by the French team to evaluate the 'robustness' of evidence. Could you expand, define, and provide references for this?

Page 13, line 7: could you cite and/or expand on the 23-quality criteria evaluation framework? Evidence quality is an important aspect of the guideline development so would be good resource for the reader.

Page 14, line 4: Could you cite the paper where the 'decision algorithm' is published.

UK case study and more generic point: The scientific rigour of the applied processes of the 2011 UK guidelines were inferior to the most recent update in 2019

(<https://www.gov.uk/government/publications/physical-activity-guidelines-uk-chief-medical-officers-report>). With that being the case I'm not sure of the value of including this as part of the paper. You mention this as a limitation (page 15, line 15-16) but could the authors provide justification to the value of including the earlier UK guideline process as a case study, and more generally including outdated processes that are not current best practice? I understand this is based on the documents identified as part of the 2018 exercise with Focal Points – my concern is that the 2011 UK methods and processes do not reflect current approach so miss a considerable improvement in the methodological approach of countries (e.g. integration of the Delphi method, or GRADE-ADOLOPMENT as examples).

- Schunemann HJ, Wiercioch W, Brozek J, Etzeandia-Ikobaltzeta I, Mustafa RA, Manja V, et al. GRADE Evidence to

	<p>Decision (EtD) frameworks for adoption, adaptation, and de novo development of trustworthy recommendations: GRADE-ADOLOPMENT. J Clin Epidemiol. 2017;81:101-10.</p> <p>Conclusion</p> <p>Line 17-18: My concern about using outdated data on the current development processes are highlighted here. Each expert working group of the most recent UK guideline update had representation from international expert advice – specifically from those who had been involved in recent updates within their respective countries.</p> <p>Page 19, Line 5-6: Standardised procedures for guideline development have now been created – see GRADE-ADOLOPMENT process as implemented by both UK, Canada, and Australia. This formalises the adoption and/or adaptation of an existing guideline, plus de novo development. See the following paper as an example:</p> <ul style="list-style-type: none"> • Okely AD, Ghersi D, Hesketh KD, Santos R, Loughran SP, Cliff DP, et al. A collaborative approach to adopting/adapting guidelines - The Australian 24-Hour Movement Guidelines for the early years (Birth to 5 years): an integration of physical activity, sedentary behavior, and sleep. BMC Public Health. 2017;17(Suppl 5):869.
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VERSION 1 – AUTHOR RESPONSE

Response to reviewers' comments

Manuscript ID: 2020-041710

Title: "The development of national physical activity recommendations in EU Member States: A review of methodologies and the use of evidence"

Reviewer: 1

This manuscript reported a review of the process through which 18 EU member states developed their respective national physical activity guidelines utilising the HEPA platform, and five member states were described in greater detail as case studies due to the comprehensiveness of the procedure and resources adopted to develop their guidelines. I commend the authors in their effort in systematically pooling together steps taken by the member states, and, the thought-provoking questions posed to the readers with regards to what the best practice might be when developing national physical activity guidelines. These are indeed important questions that need addressing in order to produce evidence-based physical activity guidelines in the context of the respective nations while enhancing the comparability of physical activity surveillance across nations, in order to enhance the effectiveness of physical activity promotion initiatives.

Main considerations

I.1 While the authors have raised some important questions regarding whether there ought to be a best practice approach in developing national physical activity guidelines, or following the WHO guidelines would suffice, with some of the pros and cons of each approach articulated, the manuscript will benefit from stronger statements of 'what's next'. While the pros and cons of developing non-WHO guidelines (for national relevance) vs following WHO guidelines (for across nation surveillance purpose) are perhaps equally convincing from the manuscript, from the conclusions and the abstract, the authors seem to be in favour of the former but the stance is rather ambiguous. Understanding that there is probably no right or wrong answer to this question, it might be beneficial to the readers if the authors can provide 1) a stronger argument, with evidence if possible, for why the authors prefer the development of guidelines despite the pros and cons (e.g. any evidence that national guidelines are more easily understood by the respective populations), and 2) clearer recommendations as to, e.g. how nations with limited resources might be able to develop their own national guidelines, despite that

the manuscript does mention WHO's potential role in achieving this, but the question HOW can be elaborated.

Response:

Dear Reviewer,

Many thanks for your feedback and comments. We strongly agree with your opinion that both developing non-WHO guidelines and following WHO guidelines has its pros and cons, and we did not intend to suggest that either one is better. Our main aim was only to describe the diverse range of current approaches that countries used and do not make any suggestions which one is better. The five case study countries were chosen not because of the approach they used but simply because, in these cases, the development process was better documented. We have tried to clarify this by amending the abstract, the methods, the discussion and the conclusion.

Other comments

I.2 Pg2, line 1-5 (Objectives in Abstract)

The aim, and what this manuscript is trying to achieve, needs to be made clearer. Currently, the objectives have primarily articulated what has been done in the study.

Response: Thank you very much for pointing this out. We have reformulated section "Objectives" by highlighting the aims of the study.

I.3 Pg3, line 4-6 (Conclusions in Abstract)

While in the main text, the conclusions aptly portray a debate between following the WHO guidelines vs developing nation-specific guidelines, the conclusions in this section seem to suggest the latter is preferred. Please refer to the comment in Major Considerations regarding the need for a less ambiguous stance.

Response: Thank you. We have tried to clarify the conclusion to prevent the impression that one option is generally preferable to the other (also see our comment to your Major Considerations). Indeed, recently published WHO Guidelines are produced for countries that have limited capacity and resources to follow their own development processes.

I.4 Pg6, line 2

Briefly elaborate what the 'special website' is dedicated to.

Response: Thank you very much for pointing this out. We have added an example to illustrate this point.

I.5 Pg6, line 3-4

Throughout the manuscript, it has been mentioned multiple times that a main reason for why some nations do not develop their own national guidelines is due to limited resources/capacities. It would be clearer if the authors can provide some examples of these resources so that the readers can better understand the constraints.

Response: Thank you, examples have been added.

I.6 Pg6, line 24-25

A brief elaboration on the purpose of the HEPA indicators and/or indicator 1 would be useful for putting the mentioning of the indicator(s) into context.

Response: Thank you very much for this comment. We added additional information on the purpose of the indicators and the survey as well as references to the EU Council of recommendation on HEPA across Sectors, so in case readers are interested they can find a list of all indicators.

I.7 Pg9, line 22-23

Check grammar in this clause.

Response: Thank you very much for pointing this out. We changed the wording.

I.8 Pg13, line 9

Briefly elaborate on what 'high-quality' recommendations mean.

Response: Thank you very much, we have added more information and a reference on the methodology used to identify high-quality recommendations.

I.9 Pg16, line 21-23

The logic in this sentence needs more clarity (e.g. what is the 'it' in line22 referring to). The relevance of the example (Italy vs Malta) used to illustrate the previous point also needs greater clarity.

Response: Thank you very much. "Hypothesis" is probably the more appropriate term here. We have changed this and also added an explanation to why we used Italy and Malta as examples.

I.10 Pg17, line 17-21

This sentence needs more clarity. Currently the logic and meaning is unclear.

Response: Thank you, we have tried to clarify this sentence.

I.11 Pg18, line 23

Should it read 'more efficiently'?

Response: Thank you very much for this suggestion. We have changed the wording.

Response to reviewers' comments

Manuscript ID: 2020-041710

Title: "The development of national physical activity recommendations in EU Member States: A review of methodologies and the use of evidence"

Reviewer: 2

General points:

II.1 Although a hugely beneficial idea that forms the basis of the paper my overarching concern is the explicit recognition of a strong guiding research question, appropriate rigorous methodology to answer that; and the validity of the outcomes and subsequent future recommendations. With the study timeframe being specific to pre-2018, the authors are missing significant improvement (since 2018) in processes and procedures employed to develop national guidelines and recommendations. Many of the recommendations within the discussion/conclusion have already been developed (e.g. international involvement in expert working groups, and the standardisation of methods to adapt/adopt existing guidelines or create new ones – e.g. GRADE-ADOLOPMENT). Without the inclusion of these important improvements (or even the discussion of these), I find it hard to recommend acceptance without major revision (including further data collection).

Response:

Dear Reviewer,

Many thanks for your feedback and comments. We have tried to address all of them to the best of our abilities. We would like to use the opportunity to clarify two general points: First, the purpose of this study was to showcase the full range of possible methodologies used by EU Member States; the point was to describe the approaches employed rather than to grade them or make explicit recommendations, which we feel may be difficult given the vastly different national contexts. In several places, we have therefore deliberately refrained from providing clear guidance on which methodology to use or which steps to take. Second, this paper explicitly builds on data collected from the EU PA Focal Point Network; the main benefits of this are (a) a standardized approach to data collection across countries and (b) the chance to obtain information directly from member state governments. The drawback is that data are not collected continuously but only at larger intervals. In our case, this implied either omitting some more recently developed recommendations (notably Austria, Finland, Italy and the UK) or compromising our methodology by collecting additional data using alternative methods. We discussed this issue with both the entire Focal Point Network and senior researchers/officials from Austria and the UK, five of which are co-authors of this manuscript. There was general agreement among all involved actors the general purpose of the paper was well-served using the current approach, and that it was preferable to stick to the original, systematic methodology and only mention more recent developments in the discussion. We therefore decided not to include the more recent development processes in this study. As this is the first scientific overview of methodological approaches used to develop national physical activity recommendations in the EU, we think that the results will be beneficial for the scientific society and policy makers even without additional data collection. Also, thank you very much for mentioning the GRADE-ADOLOPMENT framework, which we added to the conclusion.

Abstract:

II.2 Line 2 (Objectives):

Perhaps consider rephrasing the opening of the first sentence to.... 'To analyse the information on methodologies...' What also seems to be missing from this section is the extension of *why* you are analysing the processes of EU member states. To what purpose does this objective serve? Although reviewers are not asked to comment on importance or breadth of appeal, I feel this would be a worthy and important addition that will better support the guiding research question. At present I'm not sure you do yourself justice in explaining what the actual research question is.

Response: Thank you very much for pointing this out. We have reworded the section “Objectives” to further highlight the aims of the study. We also amended the introduction and the methods section, explaining that we focused on the EU Member States. To our knowledge, the EU Physical Activity Focal Point Network currently is the only international structure that allows for collecting data on physical activity policymaking directly from a large number of national governments in such a systematic and detailed fashion, thus making it a particularly strong case study to address our research question. This inside view of the processes of creating guidelines from policymakers rather than academic participants is unique.

II.3 Line 12 (Outcome measures):

typo ‘From national documents *we* extracted?’

Response: Thank you very much, we’ve corrected this.

II.4 Line24 (Results):

missing word? ‘All of *the* five case study countries.....’

Response: Thank you, we’ve added the missing word.

II.5 Line 4 (Conclusions):

Should/could read.....’ *Findings* indicate differences in methods...’

Response: Thank you very much for this suggestion. We’ve made additional changes to the paragraph based on the feedback by Reviewer 1 but kept your suggestion, which now appears half-way through the paragraph.

II.6 Line 5 (Conclusions):

I wonder if the final sentence addresses the overarching research question appropriately. I would suggest your work offers more than ‘inspiration’ but also guidance, a considered framework, and importantly – critique – of the current adopted processes. This probably loops back to the lack of clarity regarding the overarching objective and guiding research question. Both RQ and conclusion could be strengthened to address these.

Response: Thank you very much for sharing your impression. We believe that all approaches that countries have been using to develop their national physical activity recommendations

have pros and cons (costs, time, evidence base, legitimacy). As mentioned above (Comment II.1), our aim for this study was only to present a systematic overview of approaches, and we deliberately tried to avoid giving any guidance at this point. In fact our work may make the case that no guidelines for creating physical activity guidelines position is most appropriate in a Europe policy context.

II.7 Line 5-8 (Strengths and limitations of this study):

This could be a valuable addition/replacement to the current conclusion section of abstract

Response: *Thank you very much for this suggestion. We have made additional changes in the conclusion section to clarify this section.*

Introduction

II.8 Page 5, Line 9:

final sentence starting 'Understanding the landscape....', identify differences and impact on what? It may be useful to expand on this slightly to offer more credibility to the study purpose.

Response: *Thank you, we have made changes to clarify this sentence.*

II.9 Page 5, Line 14-16:

Perhaps change 'boosting' to 'increasing'?

Response: *Thank you very much for this suggestion. We changed the wording accordingly.*

II.10

Also, although I agree that having guidelines and recommendations in and of themselves do not necessarily result in improvements in population levels of PA, I'd suggest there are more benefits than the ones you have stated. The way this sentence reads makes it seem like fostering cooperation and guiding health promotion professionals are the *only* useful end products. Perhaps edit sentence to reflect this? As a further few examples, they can form the foundation of behaviour change (e.g. formal or informal interventions), including important sociocognitive principles such as motivation, monitoring and feedback, goal setting, and habit formation to name a few. See paper from Martin Hagger <https://doi.org/10.1016/j.psychsport.2018.12.007>. Also, they can be (and often are) embedded into school curriculum and form the basis for knowledge acquisition and the development of positive attitudes to health behaviours such as PA.

Response: Thank you very much for this comment. We share your opinion that PA recommendations are important part of PA promotion and have a wide scope of application. We have added the suggested argument and reference.

II.11 Page 5, Line 19:

what do you mean by 'content'? Perhaps include expansion in brackets?

Response: Thank you very much for your comment. We added a clarification in parentheses.

II.12 Page 6, line 2:

I'm not sure what you mean by 'special website'. Could you make this clearer?

Response: Thank you, we've provided an example to illustrate this point.

II.13

The following sentence would also benefit from knowing what is meant by a 'more elaborate/participatory process'. Are you referring to the list of approaches mentioned in the previous sentence (expert working groups, stakeholder consultation etc) as the more elaborate process? If so perhaps the sentence could be edited to read 'While these more elaborate and participatory processes might help.....(policy) agenda, they might also require resources....'

Response: Thank you very much for this suggestion. We changed the sentence.

II.14 Page 6, Line 5-7:

would it be more appropriate to say that it may be useful to recognise the most *important*, or *optimal* elements for guideline development, especially where resources and capacities are limited? So it actually goes beyond 'just' the recognition of which ones to consider.

Response: Thank you very much for your suggestion. As mentioned above (II.1, II.6), we did not aim to assess which aspects of guideline development can be considered more or less important, and consequently tried to avoid any statements regarding the quality of specific elements.

II.15 Page 6, Line 10-17:

I'm not convinced of the value of adding in a description of the EU Focal Points at this stage of the introduction. I'd consider moving it further up the introduction and integrating it into a wider justification of your guiding research question/aim. Why is this important an important piece of work in Europe and how does the justification of the work lead to the overarching aim presented in the last paragraph? Otherwise, it may be better suited in the first paragraph of the methods

Response: Thank you very much for this suggestion. We have moved the description of the Focal Point Network to the methods section.

Methods

II.16 General:

There is mention in the final paragraph of the introduction (page 6, line 9) that the aim of the paper is to provide a 'systematic' overview of the main methodological approaches available. Thinking through the operationalisation of this term in the review literature, the method section should be explicit in the framework used to systematise the process (e.g. search strategy, population of interest, screening, inclusion/exclusion criteria, data extraction, synthesis etc). For example, page 7, lines 10-13 speaks the data extraction for the member state's PA recommendation documents. Could you justify why you chose, amongst other options (e.g. age groups and or special population groups included as part of the national guidelines), points a-c? and what was the process of comparatively analysing the data?

Response: Thank you very much for your comment. We used the term "systematic" as all data were collected at the same time for all EU Member States and by the government representatives (Focal Points). We find this approach most suitable for our aim (as described in introduction). As described in methods part, we were interested in the processes employed for developing the national PA recommendations and your suggestions are more related to the content of recommendations and, as mentioned in introduction, it was already described by us in previous paper <https://bmjopen.bmj.com/content/10/2/e034045>.

II.17 Page 6, line 23:

Who is the representation behind these Focal Points? Is it a team of Academics? Single academic? Policy makers? Do they have sufficient expertise in PA recommendations and their implementation? Would benefit the reader to see this added. Perhaps add a small sentence to describe?

Response: Thank you very much for pointing this. We have provided additional information about the Focal Point Network.

II.18 Page 7, Line 11:

Was the information collected on participants at this stage compliant with GDPR and data protection? I see you mention anonymised information for a later case study stage (Page 7, Line 23). How did this earlier stage differ?

Response. Thank you very much for this comment. The first step you mention was conducted using only publicly available documents, hence not further data protection measures were taken. At a later stage, we asked Focal Points to provide additional information on the composition of the development group, but our interest was not in the individuals per se but in the overall composition of the group, hence the request to Focal Points to provide anonymized information. We have amended the text slightly to further clarify this.

Results and Discussion

II.19 Page 9, line 23:

Not sure 'mimicking' is the correct choice of word to use. Perhaps 'matching'? In the UK, expert working groups were created to match the population age-groups. These groups included applied expertise covering multiple health conditions, exposure type (e.g. HIIT, light activity, MVPA, muscle strengthening, bone health enhancing PA, injury prevention), measurement issues, and study design.

Response: Thank you for pointing this out. We've changed the wording.

II.20 Page 9, line 25 – page 10, line 1-2:

The UK integrated both web-based consultation (phase 1) and multiple regional face-to-face stakeholder engagement sessions.

Response: Thank you. We take it that you are referring to the 2019 process, while this section pertains to the previous process. Since co-authors Foster and Baxter were closely involved in both processes, we trust this section to be correct for the 2011 process.

II.21 Page 10, Line 14:

You mention that 12 countries recommendations were based at least partly on WHO 2010 recommendations and follow this with an adult focused recommendation. This sentence makes me think your paper is focusing specifically on the synthesis of European adult population group recommendations. I think this needs to be become more explicit within the method section. Is it the adult age-group recommendations that this paper speaks to?

Response: Thank you very much for this comment. Our aim was not to focus on any specific age group when discussing development processes. We critically reviewed the text and have added a clarification to the methods section.

II.22 Page 12, Line 11-13.

You speak to the methods employed by the French team to evaluate the 'robustness' of evidence. Could you expand, define, and provide references for this?

Response: *Thank you, we have expanded the description of this step and added a reference to the document that describes the development of the French recommendations.*

II.22 Page 13, line 7:

could you cite and/or expand on the 23-quality criteria evaluation framework? Evidence quality is an important aspect of the guideline development so would be good resource for the reader.

Response: *Thank you, we've added more details and a reference on the quality appraisal used for the German recommendations.*

II.23 Page 14, line 4:

Could you cite the paper where the 'decision algorithm' is published.

Response: *Thank you, we've added references to the paper about 2017 Dutch PA recommendations development methodology and to the additional background document "Methodology for the evaluation of evidence".*

II.24

UK case study and more generic point: The scientific rigour of the applied processes of the 2011 UK guidelines were inferior to the most recent update in 2019 (<https://www.gov.uk/government/publications/physical-activity-guidelines-uk-chief-medical-officers-report>). With that being the case I'm not sure of the value of including this as part of the paper. You mention this as a limitation (page 15, line 15-16) but could the authors provide justification to the value of including the earlier UK guideline process as a case study, and more generally including outdated processes that are not current best practice? I understand this is based on the documents identified as part of the 2018 exercise with Focal Points – my concern is that the 2011 UK methods and processes do not reflect current approach so miss a considerable improvement in the methodological approach of countries (e.g. integration of the Delphi method, or GRADE-ADOLOPMENT as examples).

- Schunemann HJ, Wiercioch W, Brozek J, Etzeandía-Ikobaltzeta I, Mustafa RA, Manja V, et al. GRADE Evidence to Decision (EtD) frameworks for adoption, adaptation, and de novo development of trustworthy recommendations: GRADE-ADOLOPMENT. *J Clin Epidemiol.* 2017;81:101-10.

Response: *Thank you very much for your comment. As mentioned above (II.1), our aim was to provide a systematic comparison of the development processes using data collected with the same tool for all EU Member States. We discussed the problem of omitting more recent*

guidelines (Austria, Finland, Italy, UK) with the Focal Point Network and specifically with representatives of the development groups for the 2019/2020 guidelines for Austria and the UK, five of which are co-authors to this manuscript. All agreed that, despite the innovations of these new recommendations, the purpose of this study was better served by sticking to the original methodology and only mentioning newer guidelines in the discussion. However, we have described this in the methods section and raised the issue as an important limitation in the discussion.

Conclusion

II.25 Line 17-18:

My concern about using outdated data on the current development processes are highlighted here. Each expert working group of the most recent UK guideline update had representation from international expert advice – specifically from those who had been involved in recent updates within their respective countries.

Response: Thank you very much for your comment. Please see our response above (II.24).

II.26 Page 19, Line 5-6:

Standardised procedures for guideline development have now been created – see GRADE-ADOLOPMENT process as implemented by both UK, Canada, and Australia. This formalises the adoption and/or adaptation of an existing guideline, plus de novo development. See the following paper as an example:

- Okely AD, Ghersi D, Hesketh KD, Santos R, Loughran SP, Cliff DP, et al. A collaborative approach to adopting/adapting guidelines - The Australian 24-Hour Movement Guidelines for the early years (Birth to 5 years): an integration of physical activity, sedentary behavior, and sleep. BMC Public Health. 2017;17(Suppl 5):869.

Response: Thank you very much for this important comment. We have added the GRADE-ADOLOPMENT framework to the conclusion.

VERSION 2 – REVIEW

REVIEWER	Paul McCrorie MRC/CSO Social & Public Health Sciences Unit, University of Glasgow, Scotland
REVIEW RETURNED	23-Mar-2021
GENERAL COMMENTS	Thank you for taking time to improve the manuscript and take on the comments from the initial review. My main concern was the post-2018 improvements in approaches that weren't fully appreciated in the paper but i think you have managed to address these adequately in your response/edits. There is significant value in the paper and hope it reaches a wide audience.