Author's response to reviews

Title: A systematic review of interventions to increase awareness of mental health and well-being in athletes, coaches and officials.

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Author’s response to reviews:

Dear Dr Grant,

We write to confirm that the authors have read the reviewers’ feedback, and the manuscript has been revised. We would like to take this opportunity to thank the reviewers for their comments, and believe the manuscript is now much improved.

As requested, we have included a response to the reviewers’ comments below and detailed our changes in the manuscript using ‘track changes’ and highlighted text.

We hope you find our changes adequate, and our revised article suitable for publication in Systematic Reviews.

We look forward to hearing back from you.

Yours sincerely,

Dr. Gavin Breslin, Stephen Shannon, Tandy Haughey, Paul Donnelly and Gerry Leavey.

Reviewer 1:

Q: Reviewer #1: The authors have provided a timely and thorough review of the literature. Athlete mental health is an area that is gaining increasing research and clinical attention. This
paper makes a new contribution via synthesising the exiting literature relative to sport-specific awareness campaigns for athletes, coaches and officials. All three of these population groups are important to research. The paper is clearly written and enjoyable to read. A good review of the literature is provided in the introduction, and the methodology is well described and rigorous. The recommendation regarding the importance of integration of theory is a point well made.

Overall the reporting of the results in the tables seemed sufficient, however the narrative section of the results section seemed quite brief. A substantial portion of the results section rightly focused on describing the quality / risk of bias aspect of the study, however a richer discussion of the 10 included studies would be useful. In effect, the descriptive narrative of the results was limited to a single paragraph (Pg 13; Lines 293-308). The authors may consider expanding this section, and it may assist to use some subheadings to guide the reader, and they may also want to comment on the clinical meaningfulness of some of the results reported in included studies (this also relates back to the discussion section; Pg 16, Line 348).

A: We thank the reviewer for the positive and constructive feedback on our manuscript. Having now addressed each of reviewer’s comments, we believe the reporting of the results is more rigorous, clear, and subsequently has more clinical and theoretical significance. We have also adopted the reviewer’s proposal to use subheadings for the key mental health constructs analysed in both the results and discussion sections. As such, we now believe the reader has richer and more coherent information to review. Detailed responses to each of your comments are provided below.

Q1: Pg 4 - there is discussion that gender is a factor in help seeking, but there is increasing evidence that gender may alter symptom presentation of common mental health disorders; given the high numbers of men involved in elite sport (and associated role expectations related to masculinity) reference to this literature may be warranted, some interesting examples can be found at:

DOI: 10.1001/jamapsychiatry.2013.1985

DOI: 10.1016/j.cpr.2016.09.002

DOI: 10.1097/HRP.0000000000000128

A1: Based on this comment, we have now made gender a standalone paragraph in the background section. We acknowledge that gender is a key moderating factor in both help seeking and symptom expression, and research with athletes supports this perspective. Our revised paragraph is highlighted on page 4 (lines 121-125)

Q2: Pg 5 - The reference to elite athlete Brief Counselling Support programs would benefit from a citation.

A2: We have provided a reference to this programme (see line 130), and linked this revision with our summary of the broader objectives of mental health awareness programmes for athletes.
Q3: Pg 12 - Should the box in the PRISMA diagram for "records excluded" read 1029?

A3: Our diagram had an error as we had originally included another box accounting for the 106 titles and abstracts that underwent a further detailed screening (see Results page 11, lines 307-317). However, in keeping with the PRISMA reporting methods we removed this box and have now updated our PRISMA flow diagram to read ‘records excluded = 1109.

Q4: Pg 13 - Is it correct that of the 1,994 participants gender was only identified for 302 males and 386 females? I'm not sure the comment in the discussion (Pg 18, line 389) that the sample mainly consisted of females is accurate given the number of gender unknown cases.

A4: Yes these figures are correct as two studies did not report gender. We revised our information on the gender estimates, and made clear the number of participants for which gender was not detailed. We have revised our discussion to now read that prior evidence regarding a gender effect for help-seeking behaviours remains inconclusive in our current review (page 20, lines 528 onwards).

Q5: Pg 13 - Line 300, sentence seems incomplete.

A5: Line 300 was subsequently removed following our manuscript’s revision.

Q6: Pg 14 - Line 313; I think some words are missing - i.e., should 'risk of bias' be in this sentence?

A6: Yes this error has been corrected, and the line (see page 15, line 447) is now updated to include ‘risk of bias’.

Q7: Pg 18 - perhaps omit the term 'evidence based' prior to case study, as it is not commonly seen.

A7: We agree and have now omitted the term ‘evidence based’ before ‘case study’.

Q8: Pg 18 - Line 401/402; poor expression and needs rewording.

A8: We agree that this sentence was long-winded and required revision. We edited this sentence to now read: ‘The current review excluded non-peer reviewed articles, whereas a review on grey literature (e.g. programs published by government, national public health agencies, sport bodies, and mental health charitable organisations) could be considered’.

Reviewer #2: This article has the potential to provide useful information to those working in this area. However, several items need to be addressed, particularly with regards to the synthesis of findings across studies.

A: We thank the reviewer for the positive and constructive comments on the utility of our article for those in the field of mental health promotion. Specifically, having addressed the reviewer’s
the methodological suggestions the article is much improved. We have provided a response and revision to each of the proposed changes.

Q1-5. Abstract:

1- Per PRISMA for Abstracts, the authors need to provide the eligibility criteria: "Study and report characteristics used as criteria for inclusion."

2- The authors should report the specific risk of bias tools used.

3- "number and type of included studies and participants and relevant characteristics of studies".

4- "results for main outcomes (benefits and harms), preferably indicating the number of studies and participants for each. If meta-analysis was done, include summary measures and confidence intervals."

5- "direction of the effect (i.e. which group is favored) and size of the effect in terms meaningful to clinicians and patients."

A 1-5: We have referred to the PRISMA for Abstracts checklist and revised our abstract for accordingly in line with the reviewer’s suggestions. For the abstract methods (lines 10-14) we specify our inclusion criteria for studies, and identify the risk of bias tools used. For the results, we now indicate the number of included studies and participant characteristics (see lines 15-16). Our abstract also now details the results for the outcomes used (lines 17-20), and also outlines that seven of the ten studies did not report effect sizes, limiting clinically meaningful interpretations (see lines 20-21).

Q6. Abstract, conclusion: The conclusions section should also include a statement relevant to future practice/policy (rather than just to future research).

A6: Our abstract conclusion now highlights that further well-designed research studies are required, and we indicate that researchers, practitioners and policy makers should adhere to available methodological guidance.

Q7. Background: The background section would benefit from at least one paragraph specifically dedicated to what was known prior to this review about sport-specific mental health awareness programs and how they are thought to work.

A: We have now extended our paragraph on the outcomes and processes that mental health awareness programmes intend to have their effects (see page 4, lines 128). We have linked this revision with Reviewer 1’s comment on referencing one particular programme for elite athlete counselling.

Q8-11. Methods, eligibility criteria:
Q8- The authors should provide an operational definition for quasi-experimental studies, as this is an umbrella term for many different types of designs.

A8: We have now updated our methods section to include an operational definition of quasi-experimental (lines 179 onwards) based on the Cochrane definition.

Q9- Please provide a reference/empirical support to substantiate the claim that dissertations are of lower methodological quality.

A9: In our manuscript we now refer to grey literature broadly (e.g dissertations, government reports, unpublished material), rather than just dissertations. Our original point regarding methodological quality intended to convey that little methodological guidance exists for systematically retrieving, analysing, and screening grey literature. In keeping with the focused aims of our work, we decided to exclude grey literature. We have updated our methods section (see lines 148-153) to make this point more coherently. Furthermore, as we recognise the potential contributions that grey literature can make to the overall body of evidence for mental health awareness in athletes, our discussion section (lines 632 onwards) outlines a recommendation that further work could consider a review of unpublished work.

Q10- The authors need to include a sub-section on the eligibility criteria for comparators in RCTs and QEDs.

A10: Our inclusion criterion has been updated which now specifies our eligible comparators (see page 6, lines 161 – 163).

Q11- The authors should specify whether the used quality criteria for measures to be included, and if so what these were (e.g., specific psychometric properties).

A11: We refer the reviewer to page 10 and 11 (see lines 299-onwards) wherein we describe the quality criteria applied for deeming outcome measures valid.

Q12: Methods, search: Present reported a full electronic search strategy for at least one database, including any limits used, such that it could be repeated.

A12: We have uploaded a full electronic search for the psycinfo database, and in text we refer the reader that this search can be accessed in the supplementary material.

Q13: Methods, study selection: Please clarify whether (1) each included article had its data independently extracted by each of the two reviewers or (2) each article had its data extracted by only one of the two reviewers. If the latter, this single data extraction should be mentioned and its potential impact on the results interpreted in the discussion section.

A13: Our methods section now clarifies that two authors were involved in the data extraction phase of the review (line 255), wherein one author extracted the data and a second reviewed the extraction and cross-verified for inclusion in the manuscript.
Q14-15. Methods, data items:

Q14: Please provide more details on the "significant study design methods that may influence the generalisability of study effects" and how these methods were determined (e.g., a priori set of methods).

A14: Our section on study design generalisability in the results table was informed from prior research (Biddle & Asare, 2011), and includes a narrative summary of the studies. We have updated this method on line 263.

Q15: Given that the authors only describe Cohen's d in the methods section, please describe how binary outcomes were handled.

A15: We revisited each of the included ten studies to determine the outcome measures used and the corresponding effect sizes. In each study the measures used derived from scales and as such, other effect sizes such as Cohen’s w (for binary outcomes) were not relevant for the included articles. Our methods section now includes a brief line to justify why p values and Cohen’s D were applied to each measure (line 264-266).

Q16. Methods, study quality: The authors need to add sub-sections to the methods section addressing PRISMA items 14-16:

A16: We have now extended our subsection on data items to include PRISMA items 14 and 25.

Q17: Synthesis of results Describe the methods of handling data and combining results of studies, if done, including measures of consistency (e.g., I²) for each meta-analysis.

A17: We have now included information on how we analysed each study individually and collectively. We indicate that we collectively report on the studies in accordance with a number of key mental health constructs (based on the Rice et al., 2016 review, see lines 269). We also inform the reader that we did not conduct a meta-analysis because substantial heterogeneity was found for construct measurement and operationalisation (e.g. stigma to help others vs stigma about disorders; or intentions to offer others help vs intentions to help oneself), and many studies did not report statistical tests for significance.

Q18: Risk of bias ACROSS studies (the authors currently only discuss this study by study): Specify any assessment of risk of bias that may affect the cumulative evidence (e.g., publication bias, selective reporting within studies).

A19: We have now indicated in our methods than we include additional analyses for the cumulative bias across the studies. In accordance with the Cochrane recommendations (Higgins et al) we summarised the cumulative risk of bias for each respective outcome (now detailed in methods, line 294). The updated findings are reported in an additional row in the Tables in the Cochrane and QATSQ tools, and summarised in text (see lines 451-455 and 465-469).
Q20: Additional analyses: Describe methods of additional analyses (e.g., sensitivity or subgroup analyses, meta-regression), if done, indicating which were pre-specified.

A20: We now indicate (line 273) that we did not conduct any additional sub-group or sensitivity analyses, as these were not in with our study aims.

Q21: Results, study characteristics: The authors should provide a few statements giving a clearer picture of characteristics across the body of evidence (e.g., how many studies were of each design, what types of sports participants were most frequent).

A: We refer the reviewer to the study characteristics section in text (page 12, lines 331-onwards) and Table 2. We have now provided a coherent summary in text for the sample characteristics, study design and delivery methods.

Q22: Please describe the measures in more detail rather than just stating "a range of measures were used".

A22: We have now updated our results (see page 13, lines 475 onwards) and indicated the discrepancies among the measures used to assess mental health knowledge, stigma and referral efficacy.

Q23: Methods, study results:

- The major weakness of this manuscript is a lack of synthesis of findings across studies. The narrative and tables read as a laundry list of findings study by study, with little-to-no information about the clinical significance of the results (i.e., the size of the effects) as well. The authors need to better synthesize results across studies to make it clearer what this body of evidence does and does not say about the effects of these mental health programs on outcomes of interest. Specifically, the authors at a minimum should report meta-analytic effect estimates for outcomes of interest using data from RCTs — or if not, provide a very strong rationale for why this was not done. The authors should also consider visual methods for summarizing their results for any narrative summaries (e.g., harvest or albatross plots).

A22: In accordance with reviewer 1 and 2’s comments on the synthesis of findings across the studies, we have substantially revised our methods, results and discussion. Specifically, we went back and inspected each study’s outcomes and categorised them accordance with the following key mental health constructs: stigma, mental health knowledge, referral efficacy/confidence, help-seeking intentions and behaviour, and well-being (see description in methods page 11). We then reported the results in tandem with these categories and also in the discussion section. By applying this revised approach we were able to conclude a lack of clinical significance across the studies, substantial heterogeneity and limited validity for the measures used to assess mental health awareness indices, and no actual behaviour change was achieved for mental health help-seeking. We have also addressed the reviewer’s point regarding meta-analyses and plots in our methods by indicating that we did not conduct a meta-analyses or plots as many studies did not report statistical tests for significance, and the operationalisation and measurement of the constructs lacked consistency and methodological rigour. Furthermore, having addressed the
reviewer’s comments regarding synthesising the risk of bias across the studies, we believe that the manuscript is now detailed in a more coherent manner.

Q23. Lines 291-292: The authors should double check the numbers in this sentence, or make clearer that number of participants for which gender was not reported.

A23: We have now calculated the total of amount of participants for which gender was not reported and clarified this in our results (see line 331).

Q24: Lines 299-300: This sentence ends abruptly.

A24: We have revised this sentence as a word was missing.

Q 25: Line 309: Table 3 is never referenced in the text

A25: Following our revised manuscript, Table 3 is referenced four times in the text.

Q26: Results, risks of bias: The authors should provide statements synthesizing the nature of (lack of concerns) about each specific bias across the entire body of evidence. As phrased/presented, it's not clear whether the reader should be concerned that selection, detection, performance, or other biases are a concern or not when making inferences about confidence in results on intervention effects.

A26: The risk of bias assessment for the randomised and non-randomised (see lines 446-onwards) is now coherent in that we specify a high risk of bias and concerns across the studies for blinding (participants and outcome accessors), and outcome measurement validity. We also indicate that bias was low across the studies for selection bias and unclear for follow-up rates and treatment of missing data. These findings have informed the discussion section (see page 19 onwards) wherein we urge caution the included articles because of the lack of methodological rigour. Furthermore, we recommend several ways to overcome these limitations in the future (see page 22).

Q27: Results, outcome measures: Which results have strong versus poor outcome measures? As phrased/presented, the reader cannot connect information about intervention effects with information about whether those findings are from studies with risks of bias or low-quality outcome assessment. The authors should revise to make clear which results the reader should and should not place their confidence.

A27: We have no substantially revised this section and described (i) the overall verdict for the study based on our pre-defined validity criteria; and (ii) the validity for the most widely applied mental health awareness outcomes of knowledge, stigma, help-seeking intentions and referral efficacy/confidence (see page 15). This evidence has been used to inform our narrative discussion on the methodological quality of the articles, in which we advise caution on the interpretation of the programs’ effects.
Q28: Discussion: The authors should update this summary of evidence section of the discussion after the above-mentioned recommendations for the synthesis methods/results are addressed.

A28: We have comprehensively updated the summary of evidence in our discussion in line with the further analyses conducted. Our discussion now comprises a critical synthesis of the individual and collective effectiveness of the programs on the key constructs, the methodological quality across the studies, and the program delivery modalities. In each subsection of the discussion we provide critical comments and follow these with recommendations with areas for future research and practice. We conclude that because of the design limitations found, there is a clear lack of evidence to draw confidence on the existing programs, and that future research should consider adhering to available methodological guidance.

Q29: Limitations: The limitations section mostly speaks to limitations of the body of evidence, whereas this section is supposed to focus on limitations of the review methods (e.g., single data extraction).

A29: The limitations section has been re-titled ‘limitations and recommendations’. We now detail the key limitations of our review, and follow these up by providing recommendations for further research.

END