

## PEER REVIEW HISTORY

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### ARTICLE DETAILS

<b>TITLE (PROVISIONAL)</b>	Public, health professional, and legislator perspectives on the concept of psychiatric disease: population-based survey
<b>AUTHORS</b>	Agarwal, Arnav; Tikkinen, Kari; Rutanen, Jarno; Frances, Allen; Perry, Brea; Dennis, Brittany; Maqbool, Amna; Ebrahim, Shanil; Leinonen, Janne; Jarvinen, Teppo; Guyatt, Gordon

### VERSION 1 - REVIEW

<b>REVIEWER</b>	Alyssia Rossetto Melbourne School of Population and Global Health, The University of Melbourne, Australia.
<b>REVIEW RETURNED</b>	10-Jun-2018

<b>GENERAL COMMENTS</b>	<p>Overview</p> <p>The authors report on the findings of a population-based survey which assessed whether different groups perceived particular states of being as diseases. The results indicate that few states of being were categorically perceived as diseases or not diseases by respondents, with the majority of named states having some divergence of opinion. Psychiatrists were more likely to perceive states of being as diseases compared to other groups surveyed. These results highlight the benefits and concerns around the medicalisation of particular states of being.</p> <p>What this paper did well</p> <ol style="list-style-type: none"><li>1. The paper reports on a neat, comprehensive research project, with a methodology appropriate to the research question and clearly articulated results. The study offers a good rationale for the groups chosen to participate in the study, and the study's design is simple and well-executed.</li><li>2. How states of being become perceived as illnesses is an under-researched area, but it is important to understand how perceptions change and what this means for particular social groups (e.g. people with the condition), and society more broadly. This paper furthers our understanding of differences between different social groups and the implications of categorising a state of being as a disease.</li><li>3. Overall, this paper is clearly and succinctly written. It synthesises appropriate research from the existing literature to argue for the need to conduct the current study, offers concise descriptions in the Methods and Results sections, and provides a detailed Discussion section which situates the results in the broader context of both similar research and the current trend towards increasing medicalisation.</li></ol> <p>Suggestions for improving the manuscript</p>
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	<p>1. Strengths and limitations box</p> <p>a. Point 3 which notes the similarity of the study sample to its target population would benefit from an expansion on why this is an important strength of the study (i.e. suggests that the views of study participants are likely to be representative of their particular stakeholder groups).</p> <p>2. Introduction</p> <p>a. Page 6, lines 24-29: The sentence reads ‘We therefore examined which, among a number of states of being people perceive as diseases, and to explore differences in perceptions within and between different stakeholder groups.’ This sentence does not appear to make sense – part of it may be missing, or two sentences have run together. Please revise this so that readers are clear on the aims of the research.</p> <p>b. The sentence ‘We have previously reported results for the entire set of 60 states of being included in the survey’ (lines 29-31) is not well integrated within the context of the final paragraph, perhaps because this is the first time that any reference to the FIND survey is mentioned and it is unclear at this point how the aims described in the previous sentence will be met. It may be appropriate at this point to include a sentence that briefly describes the FIND study (e.g. ‘We will use a subset of data from the cross-sectional Finnish Disease (FIND) survey, conducted in 2010, to assess perceptions of states specifically related to mental health’ or similar) to situate the current report within the context of the larger survey.</p> <p>3. Methods</p> <p>a. Page 7, lines 31-35 state ‘We randomized the 60 states into three blocks (Supplementary material, pages 9-14), each containing 20 states, and presented the blocks randomly to respondents within each sample group<sup>13</sup>.’ However, the supplementary file only contains version A of the questionnaire, not the block randomisation procedure/sets, as this sentence implies. Please consider revising this sentence to make it clear that the supplementary material contains the questions used in the survey, and that reference 13 details the randomisation of the 60 states into blocks, which were then randomly presented to respondents.</p> <p>b. Page 9, line 11 makes reference to an analysis of whether participants’ responses differed by response round. This is the first time any mention of response rounds has been made, and it is not clear what the term refers to (e.g. does it relate to whether participants responded to the survey immediately or after their first or second reminders, or some other feature of the survey methodology?). It is also not explained in the previous publication (reference 13). If the variable is going to be included in analyses and referred to throughout the remainder of the report, it should be clearly described in the Methods section, so please include more detail on this.</p> <p>4. Results</p> <p>a. Figure 1 appears to be missing two people in the final study population. The number under the ‘Eligible sample’ heading (6,164) minus the number in the ‘Non-responders’ box (2,903) equals 3,261, not 3,259 as stated under the ‘Final study population’ heading. Please check and clarify these numbers.</p> <p>b. The sentence on page 10, lines 9-14 states ‘We found no differences in participants’ characteristics to the target population in terms of age and gender distribution, education, employment and marital status or in participants’ characteristics or perceptions by response round (Supplementary material, pages 3-4).’ It is currently unclear where the data on the target population, i.e. the data used to make this comparison, has come from; the</p>
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supplementary material on pp. 3-4 only contains the demographic characteristics of each sample group, and the online version of the original paper (<http://bmjopen.bmj.com/content/2/6/e001632>) contains no links to the appendices/supplementary material which might be used to clarify this issue (which may be something to bring up with BMJ Open?). Please describe where the comparison data for each target population has come from (e.g., Census data, medical/nursing association data), either in the Methods or Results section. Please also describe in the Methods or Results what statistical tests were used to determine whether there were differences between the sample groups and their target populations, and the significance level(s) used.

c. Figure 2's heading states that non-psychiatrist physicians' results are designated as O, but the abbreviation is D in the figure itself. Please clarify this.

#### 5. Discussion

a. Page 13, paragraph 2: Another limitation of this study is that reasons for non-participation in the research cannot be determined, and so there may be potential biases in the data based on how relevant or interesting this topic is to particular sub-groups. In making this comment, I am thinking particularly about MPs, whose response rate was notably lower than that of the other stakeholder groups sampled in this research. This is interesting because one might assume that MPs would have a strong interest in participating in a study like this, given that healthcare and population health and wellbeing are important concerns for developed countries, as noted later in the Discussion. I therefore wonder what implications their reduced participation might have for both this research and broader issues such as: a) how they prioritise healthcare in relation to other national concerns; b) their capacity to make informed decisions about the health and wellbeing of the populations they serve; c) how the views of MPs (and others) who do not have a strong knowledge of, or interest in, health and illness are taken into account when making important decisions on these topics (e.g. around funding for research into particular diseases, investment in prevention vs treatment); and d) how/why they might accept or reject particular views around the medicalisation of particular states of being (e.g. do they rely more on experts' opinions, or balance the views of professionals and the public? How does this affect decisions around resource allocation?). Please consider mentioning the issue of being unable to determine reasons for non-participation as a limitation of the research, and (perhaps to a lesser extent) how this might affect the decisions or actions of particular stakeholder groups in the Discussion.

b. Page 13, lines 31-33 states '...individuals may react differently to a particular response depending on how questions were worded.' Individuals are providing a response to a question in the survey, so it is not clear why they would be reacting to their own response. Should this read '...individuals may react differently to a particular question depending on how it was worded'?

c. Table 3, column 1, row 4: It is not clear how a lack of sexual desire would result in an altered appearance, as implied by the heading. Please clarify this or remove the words 'altered appearance' if they are not relevant.

d. Page 15, paragraphs 2-3 note the positive aspects of medicalisation, but one that appears to be missing is that resourcing for states of being that are perceived as diseases increases (e.g. more healthcare jobs are created; more research funding is allocated; more support is provided, such as reasonable

	<p>adjustments in the workplace and initiatives focused on social support such as befriending programmes). Please consider mentioning this as a benefit of medicalisation in this section of the Discussion.</p> <p>e. Page 16, lines 44-46: The sentence ‘For some states (approximately 2/3 of psychiatrists see drug and gambling addictions as diseases; this is true of only 1/3 of lay people – Figure 2)’ does not make sense. Please clarify its meaning.</p> <p>f. The heading on page 15, lines 3-6 indicates that pages 15-17 will focus on situating the research within the broader context of the role of medicalisation in Western society, implications of the research for particular stakeholder groups, and future research directions. Although there is a comprehensive discussion of the benefits and disadvantages of medicalisation, there is very little space devoted to either the impact of the results for clinicians and policy makers, or the direction future research might take. For a study as unique as this one, with quite wide-ranging implications, it is crucial to explain what the research findings mean in the context of the points raised in this part of the Discussion, e.g. do we need to have a more balanced and inclusive conversation about which states of being should be considered diseases, and how these determinations are made? How can this research contribute to this discussion? How might lay people contribute their views to the development of clinical practice guidelines and diagnostic manuals? Would a follow-up survey be warranted to assess whether stakeholders’ conceptualisations of particular states of being have changed since 2010? Should future research use a different methodology (e.g. qualitative, mixed methods) to explore how conceptualising different states of being as diseases affects professional decisions around diagnosis, care and treatment? Please expand on the implications and future research sections of the Discussion to more fully explore the potential contribution of this research to the wider literature on this topic.</p> <p>6. General</p> <p>a. Please proofread the manuscript to correct minor grammatical errors, e.g.:</p> <p>i. p. 6, line 31 should read ‘Here we focus in detail on 20 states...’</p> <p>ii. p. 7, line 9 should read ‘...members of the Parliament of Finland’</p> <p>iii. p. 8, line 24 should read ‘The states of being not included in the previously mentioned categories...’</p> <p>iv. p. 13, lines 50-55 should read ‘(iii) one stakeholder groups’ attitudes toward a range of conditions, we found only one study that assessed the concept of disease over a wide range of conditions across several stakeholder groups. This survey, conducted in the 1970’s, examined...’</p> <p>v. p. 16, line 31: define GDP before using the abbreviation.</p>
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<b>REVIEWER</b>	Graham Thornicroft King's College London, UK
<b>REVIEW RETURNED</b>	27-Sep-2018

<b>GENERAL COMMENTS</b>	<p>Review of The concept of psychiatric disease: Public, health professional, and legislator perspectives</p> <p>This review includes the following strengths</p> <ul style="list-style-type: none"> <li>• The aim of this paper is rather interesting ie To assess which mental health-related states of being are perceived as diseases by</li> </ul>
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	<p>psychiatrists, non-psychiatric physicians, nurses, parliament members and laypeople.</p> <ul style="list-style-type: none"> <li>• The results show considerable areas of convergence and divergence (eg on alcoholism, drug addiction, gambling addiction, insomnia, social anxiety disorder and work exhaustion).</li> <li>• The survey methodological appears to be reasonable</li> </ul> <p>The paper could be improved by</p> <ul style="list-style-type: none"> <li>• More discussion on the implications of a 53% response rate</li> <li>• On page 6 the authors jump from the concept of disorder to disease, without saying what each means and how they differ</li> <li>• The authors to not say why the survey asked about disease rather than about mental disorder</li> <li>• Or discuss what effects this may have on the findings</li> <li>• In the survey questionnaire the authors do not seem to have explained to respondents what they mean when they write .... Is a disease – did they rely on lay understandings of this term[?]</li> <li>• How and why were the 20 particular health states selected</li> <li>• Did the study start with any particular hypotheses?</li> <li>• Re ‘We did not involve patients when designing the study.’ Why not?</li> <li>• Why did the authors not ask respondents if he/she has or has had mental illness or mental illness in a family member to see if/how this may effect results?</li> <li>• Did the authors analyse the results by age, gender or education or ethnic group?</li> </ul>
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### VERSION 1 – AUTHOR RESPONSE

#### COMMENTS FROM EXTERNAL PEER REVIEWERS

##### Reviewer #1

(Dr. Alyssia Rossetto, Melbourne School of Population and Global Health, The University of Melbourne, Australia)

Comment #1: "The authors report on the findings of a population-based survey which assessed whether different groups perceived particular states of being as diseases. The results indicate that few states of being were categorically perceived as diseases or not diseases by respondents, with the majority of named states having some divergence of opinion. Psychiatrists were more likely to perceive states of being as diseases compared to other groups surveyed. These results highlight the benefits and concerns around the medicalisation of particular states of being."

1) Thank you for this comment.

2) No changes required.

Comments #2-4: "What this paper did well

1. The paper reports on a neat, comprehensive research project, with a methodology appropriate to the research question and clearly articulated results. The study offers a good rationale for the groups chosen to participate in the study, and the study's design is simple and well-executed.

2. How states of being become perceived as illnesses is an under-researched area, but it is important to understand how perceptions change and what this means for particular social groups (e.g. people

with the condition), and society more broadly. This paper furthers our understanding of differences between different social groups and the implications of categorising a state of being as a disease.

3. Overall, this paper is clearly and succinctly written. It synthesises appropriate research from the existing literature to argue for the need to conduct the current study, offers concise descriptions in the Methods and Results sections, and provides a detailed Discussion section which situates the results in the broader context of both similar research and the current trend towards increasing medicalisation.”

1) Thank you for these comments.

2) No changes required.

Comment #5: “Suggestions for improving the manuscript

1. Strengths and limitations box

a. Point 3 which notes the similarity of the study sample to its target population would benefit from an expansion on why this is an important strength of the study (i.e. suggests that the views of study participants are likely to be representative of their particular stakeholder groups).”

1) We have revised the text as suggested.

2) Please see our response to editorial comment #2.

3) Page 4.

Comment #6: ” 2. Introduction

a. Page 6, lines 24-29: The sentence reads ‘We therefore examined which, among a number of states of being people perceive as diseases, and to explore differences in perceptions within and between different stakeholder groups.’ This sentence does not appear to make sense – part of it may be missing, or two sentences have run together. Please revise this so that readers are clear on the aims of the research.”

1) We have revised the text as follows.

2): “No previous study has compared perceptions of disease across professional groups (psychiatrists, other medical physicians, nurses), laypeople, and legislators (laypeople who can influence health policy and the distribution of resources). We therefore, in 2010, conducted the Finnish Disease (FIND) survey,<sup>13</sup> which examined the views of these stakeholder groups to determine the extent to which they considered 60 states of being to be diseases. We have previously reported results for the entire set of 60 states of being included in the survey.<sup>13</sup> Here, we focus in detail on 20 states that constitute possible mental disorders, explore differences in perceptions within and between different stakeholder groups, and look separately at responses from psychiatrists and other physicians.

3) Page 6.

Comment #7:

“b. The sentence ‘We have previously reported results for the entire set of 60 states of being included in the survey’ (lines 29-31) is not well integrated within the context of the final paragraph, perhaps because this is the first time that any reference to the FIND survey is mentioned and it is unclear at this point how the aims described in the previous sentence will be met. It may be appropriate at this point to include a sentence that briefly describes the FIND study (e.g. ‘We will use a subset of data

from the cross-sectional Finnish Disease (FIND) survey, conducted in 2010, to assess perceptions of states specifically related to mental health' or similar) to situate the current report within the context of the larger survey."

1-2) Thank you for these comments. We have revised as suggested, see our response to previous comment (Comment #6).

3) Page 6.

Comment #8: "3. Methods

a. Page 7, lines 31-35 state 'We randomized the 60 states into three blocks (Supplementary material, pages 9-14), each containing 20 states, and presented the blocks randomly to respondents within each sample group<sup>13</sup>.' However, the supplementary file only contains version A of the questionnaire, not the block randomisation procedure/sets, as this sentence implies. Please consider revising this sentence to make it clear that the supplementary material contains the questions used in the survey, and that reference 13 details the randomisation of the 60 states into blocks, which were then randomly presented to respondents."

1) We have clarified the text as suggested.

2) The revised text is as follows: "We randomised the 60 states of being into three blocks (1, 2 and 3; each containing 20 states). We created three versions of the questionnaire: version A consisted of blocks in the order 1-2-3 (Supplementary material, pages 9-14), version B in the order 3-1-2 and version C in the order 2-3-1. Within each sample group, we randomised respondents to one of the three versions (figure 1)."

3) Page 7.

Comment #9:

"b. Page 9, line 11 makes reference to an analysis of whether participants' responses differed by response round. This is the first time any mention of response rounds has been made, and it is not clear what the term refers to (e.g. does it relate to whether participants responded to the survey immediately or after their first or second reminders, or some other feature of the survey methodology?). It is also not explained in the previous publication (reference 13). If the variable is going to be included in analyses and referred to throughout the remainder of the report, it should be clearly described in the Methods section, so please include more detail on this."

1) Prompted by the reviewer comment, we have revised the text to clarify this issue as follows.

2) "We mailed the questionnaires in June 2010 (1st response round) and sent reminders in August and October 2010 (2nd and 3rd response round; questionnaires were re-sent to those who had not previously responded). We made pre-contacts with MPs by email and telephone."

3) Page 7.

Comment #10: "4. Results

a. Figure 1 appears to be missing two people in the final study population. The number under the 'Eligible sample' heading (6,164) minus the number in the 'Non-responders' box (2,903) equals 3,261, not 3,259 as stated under the 'Final study population' heading. Please check and clarify these numbers."

1) Thank you for the comment. There was a mistake in number of “Non- responders”; the correct number is 2,905, not 2,903. In more detail: 2,882 did not respond; not 2,880 as previously reported. The number of those who did not meet inclusion criteria was correct (n=23).

2) We have revised the flow chart.

3) Figure 1.

Comment #11:

“b. The sentence on page 10, lines 9-14 states ‘We found no differences in participants’ characteristics to the target population in terms of age and gender distribution, education, employment and marital status or in participants’ characteristics or perceptions by response round (Supplementary material, pages 3-4).’ It is currently unclear where the data on the target population, i.e. the data used to make this comparison, has come from; the supplementary material on pp. 3-4 only contains the demographic characteristics of each sample group, and the online version of the original paper (<http://bmjopen.bmj.com/content/2/6/e001632>) contains no links to the appendices/supplementary material which might be used to clarify this issue (which may be something to bring up with BMJ Open?). Please describe where the comparison data for each target population has come from (e.g., Census data, medical/nursing association data), either in the Methods or Results section. Please also describe in the Methods or Results what statistical tests were used to determine whether there were differences between the sample groups and their target populations, and the significance level(s) used.”

1) Thank you very much for this comment. This information is indeed mainly in the Webappendix (Table 1 and its references) of our earlier BMJ Open article, published in 2012.

2) We have emailed BMJ Open ([info.bmjopen@bmj.com](mailto:info.bmjopen@bmj.com)) on Jan 11, 2019, and asked to add the Webappendix back to the website.

We have removed the sentence “Finally, to estimate selection bias, we examined whether participants’ characteristics or responses differed by response round. ” from the Methods.

We have removed the sentence “We found no differences in participants’ characteristics to the target population in terms of age and gender distribution, education, employment and marital status or in participants’ characteristics or perceptions by response round (Supplementary material, pages 3-4).” from the Results.

We have revised the text in the Discussion as: “In addition, the sample proved similar in its characteristics to the target population in terms of age and gender distribution, education, employment and marital status.<sup>13</sup> Moreover, we found no significant differences in perceptions or participant characteristics by response round, reducing concern regarding selection bias.<sup>13</sup>” Citations #13 is our earlier BMJ Open article, published in 2012.

3) Pages 9, 10, and 12-13.

Comment #12:

“c. Figure 2’s heading states that non-psychiatrist physicians’ results are designated as O, but the abbreviation is D in the figure itself. Please clarify this.”

1) We have corrected this mistake and the revised text is as follows

2) “Proportions (divisions at 0.25, 0.5, and 0.75) to the claim “this state of being is a disease” in psychiatrists (P), non-psychiatrist physicians (D), nurses (N), parliament members (MP) and laypeople (L).”

3) Page 23.

Comment #13:

“a. Page 13, paragraph 2: Another limitation of this study is that reasons for non-participation in the research cannot be determined, and so there may be potential biases in the data based on how relevant or interesting this topic is to particular sub-groups. In making this comment, I am thinking particularly about MPs, whose response rate was notably lower than that of the other stakeholder groups sampled in this research. This is interesting because one might assume that MPs would have a strong interest in participating in a study like this, given that healthcare and population health and wellbeing are important concerns for developed countries, as noted later in the Discussion. I therefore wonder what implications their reduced participation might have for both this research and broader issues such as: a) how they prioritise healthcare in relation to other national concerns; b) their capacity to make informed decisions about the health and wellbeing of the populations they serve; c) how the views of MPs (and others) who do not have a strong knowledge of, or interest in, health and illness are taken into account when making important decisions on these topics (e.g. around funding for research into particular diseases, investment in prevention vs treatment); and d) how/why they might accept or reject particular views around the medicalisation of particular states of being (e.g. do they rely more on experts’ opinions, or balance the views of professionals and the public? How does this affect decisions around resource allocation?). Please consider mentioning the issue of being unable to determine reasons for non-participation as a limitation of the research, and (perhaps to a lesser extent) how this might affect the decisions or actions of particular stakeholder groups in the Discussion.”

1) The response rate is a half full/half empty issue: our response rate, relative to most survey was – aside from the legislators – excellent, though low enough that bias is possible. The reasons for non-response are, as the reviewer points out, speculative. It is possible that legislator’s lack of response represents lack of knowledge and interest in health issues. We think it is more likely that, in the face of many competing demands, the majority place a low priority on completing surveys.

2) We have added the following to the limitations: “Third, the response rate was substantially lower among legislators, raising issues of possible unrepresentativeness of those who did complete the survey.”

3) Page 13

Comment #14:

“b. Page 13, lines 31-33 states ‘...individuals may react differently to a particular response depending on how questions were worded.’ Individuals are providing a response to a question in the survey, so it is not clear why they would be reacting to their own response. Should this read ‘...individuals may react differently to a particular question depending on how it was worded?’”

1) Thank you for this correction.

2) Revised text is as suggested: “...individuals may react differently to a particular question depending on how it was worded.”

3) Page 13.

Comment #15:

“c. Table 3, column 1, row 4: It is not clear how a lack of sexual desire would result in an altered appearance, as implied by the heading. Please clarify this or remove the words ‘altered appearance’ if they are not relevant.”

- 1) We have revised as suggested.
- 2) Revised sub-title is: "Diminished function, often age-related"
- 3) Table 3 on page 26

Comment #16:

"d. Page 15, paragraphs 2-3 note the positive aspects of medicalisation, but one that appears to be missing is that resourcing for states of being that are perceived as diseases increases (e.g. more healthcare jobs are created; more research funding is allocated; more support is provided, such as reasonable adjustments in the workplace and initiatives focused on social support such as befriending programmes). Please consider mentioning this as a benefit of medicalisation in this section of the Discussion."

1) We covered/discussed the benefits of the medicalization of mental health problems in the Discussion and Table 3. We have increased the discussion regarding benefits of medicalization as suggested.

2) The revised sentence as follows: "On one hand, medicalisation increases public awareness of mental illness and is likely to increase the social acceptability of suffering from mental illness, may increase public funding devoted to the management of mental problems and to research addressing those problems, may increase rates of help-seeking for mental health problems, and may facilitate access to care (e.g., insurance reimbursement)."

3) Page 15

Comment #17:

"e. Page 16, lines 44-46: The sentence 'For some states (approximately 2/3 of psychiatrists see drug and gambling addictions as diseases; this is true of only 1/3 of lay people – Figure 2)' does not make sense. Please clarify its meaning."

1) There was one period/dot (".") sign where there should have been comma (",") sign. This caused confusion. We have now clarified the text as suggested.

2) The revised text of the paragraph is: "An important contribution of this study is our finding regarding the gradient of medicalisation across groups, and particularly the much greater inclination for psychiatrists to label states of being as diseases. For some states (e.g. approximately 2/3 of psychiatrists see drug and gambling addictions as diseases; this is true of only 1/3 of lay people – Figure 2), one might view this as an enlightened view by psychiatrists associated with a reluctance to blame the victim, and a desire to provide help rather than censure. For other states, in which there is a large discrepancy (e.g. social anxiety, generalised anxiety disorder), one might see the nefarious influence of the pharmaceutical industry and specialty self-interest leading to over-medicalisation resulting in approaches that do more harm than good.<sup>21,33</sup>"

3) Pages 16-17.

Comment #18:

"f. The heading on page 15, lines 3-6 indicates that pages 15-17 will focus on situating the research within the broader context of the role of medicalisation in Western society, implications of the research for particular stakeholder groups, and future research directions. Although there is a comprehensive discussion of the benefits and disadvantages of medicalisation, there is very little space devoted to either the impact of the results for clinicians and policy makers, or the direction future research might take. For a study as unique as this one, with quite wide-ranging implications, it is crucial to explain

what the research findings mean in the context of the points raised in this part of the Discussion, e.g. do we need to have a more balanced and inclusive conversation about which states of being should be considered diseases, and how these determinations are made? How can this research contribute to this discussion? How might lay people contribute their views to the development of clinical practice guidelines and diagnostic manuals? Would a follow-up survey be warranted to assess whether stakeholders' conceptualisations of particular states of being have changed since 2010? Should future research use a different methodology (e.g. qualitative, mixed methods) to explore how conceptualising different states of being as diseases affects professional decisions around diagnosis, care and treatment? Please expand on the implications and future research sections of the Discussion to more fully explore the potential contribution of this research to the wider literature on this topic.”

1-2) We have expanded as suggested in the following. “Our results therefore highlight the desirability of a more inclusive conversation regarding what states of being should be considered diseases, and the implications of these decisions, particularly around issues of medicalisation. Our findings reflect on the profound implications of attitudes regarding which health states should be seen as diseases; one could argue that this paper should be required reading for those categorising health states, and making recommendations regarding their management, both in the clinical and health policy spheres.

Lay people are now routinely included in clinical practice guideline panels.<sup>40</sup> Including them in groups that produce diagnostic manuals would also be highly desirable. In terms of future research, qualitative studies exploring the reasons for peoples' decisions regarding what states constitute diseases, and the implications they see for these decisions would likely provide additional important insights into this crucial issue.”

3) Page 17.

Comment #19: “6. General

Please proofread the manuscript to correct minor grammatical errors, e.g.:

i. p. 6, line 31 should read ‘Here we focus in detail on 20 states...’”

1) The original sentence was “Here, we focus in detail in 20 states that constitute possible mental disorders, and look separately at responses from psychiatrists and other physicians”.

2) We have revised as suggested: “Here, we focus in detail on 20 states...”.

3) Page 6.

Comment #20:

“ii. p. 7, line 9 should read ‘...members of the Parliament of Finland’”

1) We have added the lacking “the”, as suggested.

2) Revised sentence is: “We selected a random sample of 3,000 laypeople, 1,500 physicians, 1,500 nurses and all 200 members of the Parliament of Finland (MPs).”

3) Page 7.

Comment #21:

“iii. p. 8, line 24 should read ‘The states of being not included in the previously mentioned categories...’”

1) Thank you for the comment. We have revised as follows.

2) Revised sentence is: "The states of being not included in the previously mentioned categories..."

3) Page 8.

Comment #22:

"iv. p. 13, lines 50-55 should read 'iii) one stakeholder groups' attitudes toward a range of conditions, we found only one study that assessed the concept of disease over a wide range of conditions across several stakeholder groups. This survey, conducted in the 1970's, examined..."

1) We have added the lacking "a" as suggested.

2) The revised sentence is "iii) one stakeholder groups' attitudes toward a range of conditions, ..."

3) Page 13.

Comment #23:

"v. p. 16, line 31: define GDP before using the abbreviation."

1) We have defined GDP as gross domestic product.

2) Revised sentence reads as: "Finally, with healthcare consuming an ever-increasing proportion of the gross domestic product (GDP) of developed countries, ..."

3) Page 16.

Reviewer #2

(Prof. Graham Thornicroft, King's College London, UK)

Comment #1-3: "This review includes the following strengths

- The aim of this paper is rather interesting ie To assess which mental health-related states of being are perceived as diseases by psychiatrists, non-psychiatric physicians, nurses, parliament members and laypeople.
- The results show considerable areas of convergence and divergence (eg on alcoholism, drug addiction, gambling addiction, insomnia, social anxiety disorder and work exhaustion).
- The survey methodological appears to be reasonable"

1) Thank you for these comments.

2) No changes required.

Comment #4: "The paper could be improved by

- More discussion on the implications of a 53% response rate"

1) We consider a 53% response rate for this kind of survey (conducted among people who do not personally know the researchers) as strength of our study. Further, as stated in the revised manuscript "... the sample proved similar in its characteristics to the target population in terms of age and gender distribution, education, employment and marital status.<sup>13</sup> Moreover, we found no significant differences in perceptions or participant characteristics by response round, reducing concern regarding selection bias.<sup>13</sup>"

As stated in previous response (reviewer #1 comment #13), we have acknowledged that the lower response rate in the legislators may have implications in terms for representativeness.

2) We have added the following to the limitations: "Third, the response rate was substantially lower among legislators, raising issues of possible unrepresentativeness of those who did complete the survey."

3) Page 13.

Comments #5-8: "On page 6 the authors jump from the concept of disorder to disease, without saying what each means and how they differ"; The authors to not say why the survey asked about disease rather than about mental disorder"; "Or discuss what effects this may have on the findings"; "In the survey questionnaire the authors do not seem to have explained to respondents what they mean when they write .... Is a disease – did they rely on lay understandings of this term?"

1) Thank you very much for the comments. We have expanded our discussion of study limitations.

2) We have added following text to the limitation paragraph: "Finally, as this analysis is a part of larger scale FIND Survey assessing not only mental health-related states of being but states from various other specialties, we did not survey whether these states were considered as "mental health-related disorders" or "psychiatric conditions" but as "diseases". Furthermore, we did not define word disease in the survey but relied on each respondent's own understandings of this term. These aspects can also be seen as limitations of our study."

3) Page 13.

Comments #9-10: "How and why were the 20 particular health states selected"; and "Did the study start with any particular hypotheses?"

1) We have clarified these issues by adding information to the Methods.

2) Revised text in the methods say: "We selected sixty states of being that we considered to be familiar to the relevant stakeholders based on existing literature, the International Classification of Diseases (ICD-10), and iterative discussion and consensus-building processes. We anticipated that some of these states would be considered as a disease by (almost) all, some by (almost) no one, and that some states would elicit disagreement." Somewhat later the text in Methods says: "For the present study (FIND Psychiatry), we selected all 20 states of being related to mental health."

3) Pages 7 and 8.

Comment #11: "Re 'We did not involve patients when designing the study.' Why not?"

1) Involving patients in the planning of the studies was less common in 2008-2009 (that time when we planned this study) than it is today. We stated "We did not involve patients when designing the study" in our manuscript as that is expected from the BMJ journals. We did, however, pilot the study among lay people. We did not ask these questions specifically from patients but our database includes plenty of different kind of patients.

2) We revised the text as: "We did not involve patients when designing the study. We pilot tested the questionnaire with 20 laypeople and five physicians, and made minor revisions on the basis of feedback. Laypeople (as well as all physicians and nurses) were sampled at random, and we did not collect information regarding a history of psychiatric illness."

3) Page 9.

Comment #12: “Why did the authors not ask respondents if he/she has or has had mental illness or mental illness in a family member to see if/how this may effect results?”

1) We were interested in general perceptions regarding concept of disease. There were 60 conditions, of which 20 mental health related, in our questionnaire. Including questions regarding whether people had themselves or their relatives certain conditions could have been an option. However, it may have had decreased the responses as many of these conditions still remain stigmatized. Furthermore, we did not have ethical approval for asking medical history of the participants or their relatives.

2) No changes.

Comment #13: “Did the authors analyse the results by age, gender or education or ethnic group?”

1) In our models we took several variables into account: respondent group, age, and gender. We also collected/had information for many other factors, including employment, education and urbanity for laypeople and parliament members, location of primary occupation, specialization and academic training for all physicians, and current employment sector and primary task for nurses. As the factors measured for respondent groups differed between the groups, we did not compare/analyse groups by these factors. We used this information to examine if our study samples were representative of their target groups, which indeed was the case (Appendix 1 of the Webappendix). Furthermore, we used this data for non-response analyses (to examine potential selection bias).

We covered these issues in the Methods and Results.

We wrote in the Methods: “We constructed multivariable linear regression models using the composite score as the dependent variable and the following independent variables: 1) respondent group (i.e. psychiatrists, non-psychiatric physicians, nurses, members of parliament and laypeople); 2) gender; and 3) age. Because almost all nurses were female, gender, age, and respondent group could not be included in a single model. Therefore, we constructed two models both of which included age (reflecting 10-year increments). The first model also included the respondent group and the second model included gender. Finally, to estimate selection bias, we examined whether participants’ characteristics or responses differed by response round.”

We wrote in the Results: “In the multivariate linear regression, respondent group was significantly associated with disease perception composite score (Table 2). There was also a 0.37 decrease in the disease perception composite score (CI: -0.68, to -0.05; p=0.02) per 10-year incremental increase in age, indicating that older age was associated with less inclination to consider states to be diseases. In a separate multivariate linear regression, women were predicted to be more inclined to consider states of being as diseases (estimated gender difference in score 3.3, CI 2.36 to 4.21, p<0.001). The impact of age was very similar in this second model.”

2) We revised the Discussion regarding these aspects and added following sentence to the end of the first paragraph of the Discussion: “Finally, we found that that younger people and women were modestly more inclined to consider states to be diseases than were older people and men.”

3) Page 12.

#### VERSION 2 – REVIEW

<b>REVIEWER</b>	Alyssia Rossetto The University of Melbourne, Australia
<b>REVIEW RETURNED</b>	28-Jan-2019

**GENERAL COMMENTS**

I have reviewed the revised version of this manuscript and am satisfied that the reviewer comments have been appropriately addressed. I note that Figures 1 and 2 do not appear to have been included in the revised manuscript and so I was unable to check whether Comment #10 (4. a)), relating to correcting the numbers in Figure 1, had been completed. I will take the authors' word for it that the comment has been addressed.