PEER REVIEW HISTORY

ARTICLE DETAILS

TITLE (PROVISIONAL)	Material, psychosocial, and socio-demographic determinants are associated with positive mental health in Europe: a cross-sectional study
AUTHORS	Dreger, Stefanie; Buck, Christoph; Bolte, Gabriele

VERSION 1 - REVIEW

REVIEWER	Noriko Cable University College London, United Kingdom
REVIEW RETURNED	25-Mar-2014

GENERAL COMMENTS	Authors emphasised about significance of positive mental health. Yet they never discussed how 'positive mental health' is different from well-being, quality of life, happiness, or life satisfaction. Indeed well-being studies have been conducted a lot. They cannot claim their study is the first unless they identify what is this concept and how it is measured. Their choice of well-being index to capture 'positive mental health' is not very convincing. Moreover they originally regarded positive mental health as continuum; yet they dichotomised (lowest 25%) the total score from the well-being index scale and called the case as 'poor positive mental health'. They contradicted themselves. Their understanding of multilevel modelling is poor and results should be presented more thoroughly by presenting levels 2 & 3 variation. Their English is acceptable, but they tend to put phrases in brackets in the finding section. This should be avoided at all cost. The work is innovative which looked at correlates of positive mental health across European countries. However, authors did not fully capitalise the study by failing to think through their research design or methods. The work has to be significantly revised to meet the standard of BMJ open to be considered for publication. Here is my detailed feedback. Abstract: Writing sounds quite disjointed and rhetorical. If the opposite of positive mental health is poor positive mental health, I believe it is almost identical to ‘mental distress’ which depression is an example of such state. Authors need to state clearly what is ‘positive mental health’ to start with and how this is different from happiness, life satisfaction or quality of life. Authors stated ‘multilevel logistic regression’. If that was what they

	used, they need to identify what are individual (level 1) and group (level 2+) levels. They also need to present OR with 95%CI. Strengths & limitation I hardly see a 'face to face' interview as a strength. In terms of the response rate, authors need to present actual percentage which is higher than similar surveys across Europe countries. Background: I see that authors preferred to treat mental health in a continuum sense as proposed by the definition of health by WHO. Authors claim there are no studies done in 'positive mental health'; yet their definition of 'positive mental health' is equivalent of 'well-being' research which has been done for a long time. In this sense, poor psychological well-being may include a disease state that authors mentioned such as depression. It is not necessary a cause. Authors used Keyes' study as a central theme of their study; yet they have not fully elaborated in what they meant by 'positive mental health'. How is this different from 'well-being', life satisfaction, quality of life or happiness? Their definition of 'positive mental health' must be reflected on the measure of their choice. Methods: Authors contraindicated themselves by treating the scores on the Mental Well-being Index binary (lowest 25%tile as a case). Authors could have used a total score, which corresponds with their view to capture a continuum sense of 'positive mental health'. Authors need to explain why they chose to have made a binary category out of this index. Authors used multilevel analysis which is appropriate for their dataset. However, fixed or random effects are reflected on slopes or intercepts, not levels (i.e. country, region). Authors need to describe how they see the effects in each level. Once again their choice of logistic regression should be re-considered. Findings: Tables are not conventional and difficult to follow, especially table 2. It is because each model is presented in columns and rows. Please see typical table presentations in other journals and format them accordingly. In table 1 descriptive findings should be by country, separately presented by men and women. This is crucial to see all determinants are varied across countries or not. Treating cross-country distribution is same from each other is misleading. In multilevel analyses, authors need to report if the variation across levels 2 and 3 are significantly different or not. Authors do need to report variation in levels 2 and 3. This is again crucial to see how each country is different from each other. Discussion: Authors also need to describe whether all countries are comparable to each other to support their findings or not.

REVIEWER	Teresa Lluch-Canut University of Barcelona (Barcelona, Spain)
REVIEW RETURNED	27-Mar-2014

GENERAL COMMENTS	The study is very interesting and as the authors point " This study gives a first overview on determinants of positive mental health on a European level and could be used as a first basis for preventive policies in the field of positive mental health in Europe" I think the article can be published without any changes. But I think it would be interesting, if it is possible, to present the values of positive mental health of the 34 countries studied. Or indicate if there are any document of the overall results of the project to consult. In the results section (Page 6 lines 5-8) Refers to the results of PMH in some countries but don't explain more about all 34 countries.

VERSION 1 – AUTHOR RESPONSE

Reviewer: 1
Reviewer Name Noriko Cable
Institution and Country University College London, United Kingdom
Please state any competing interests or state 'None declared': None declared

-We would like to thank Ms. Cable for her comprehensive and very helpful comments to our manuscript. We revised the manuscript thoroughly.-

1.) Authors emphasised about significance of positive mental health. Yet they never discussed how 'positive mental health' is different from well-being, quality of life, happiness, or life satisfaction. Indeed well-being studies have been conducted a lot. They cannot claim their study is the first unless they identify what is this concept and how it is measured. Their choice of well-being index to capture 'positive mental health' is not very convincing.
-We changed that in the manuscript and explain the differences between positive mental health and other concepts more clearly (see second paragraph in background section). Moreover, we also explain in the manuscript why we chose the WHO-5 mental wellbeing index. We agree that there are more comprehensive measures of positive mental health, and we also discuss this as a limitation in the discussion. Yet, we are restricted to instruments used in the European Quality of life Survey. The Mental wellbeing index has been proven to study well-being rather than distress and has been reported as a valid measure of positive mental health in population based studied. Albeit there are more comprehensive measures of positive mental health, these instruments have not been used in large cross country survey. Thus, although the WHO-5 is not perfect, it gives a good overview of positive mental health and it's determinants in a Europe wide sample.-

2.) Moreover they originally regarded positive mental health as continuum; yet they dichotomised (lowest 25%) the total score from the well-being index scale and called the case as 'poor positive mental health'. They contradicted themselves.
-We thought about this, when conducting the study and had a look at the distribution of the mental well-being index. Because of the irregular distribution of the outcome variable we cannot model a linear relationship between determinants and outcome. Therefore we chose a logistic regression model to investigate the relationship between poor positive mental health and determinants of it.
We decided to take the lower 25% and not the highest 25 %, because the majority of determinants, as operationalized in the questionnaire of the EQLS, can be regarded as risk factors and ORs are traditionally interpreted as risk. To look at the lowest 25%, in this case, is easier to read and understand for the reader.
We do see positive mental health as a continuum, but more importantly we see positive mental health

on a different continuum than mental disease. Positive mental health is influenced by different factors than mental illness. In this sense we do not investigate those that report mental disease but those that have low levels of mental well-being. In a public health sense, we regard it important to investigate determinants of poor positive mental health, so that these determinants can be addressed and changed. In a health promotion perspective, firstly determinants that are associated with poor positive mental health need to be identified in order to change them and ensure higher levels of positive mental health for these people.
We changed the manuscript accordingly to make this point more clear (see first paragraph in background section).-

3.) Their understanding of multilevel modelling is poor and results should be presented more thoroughly by presenting levels 2 & 3 variation.

-We included level 2 & 3 variation (see table 2 in manuscript) in the manuscript and also discuss country level variation particularly based on the median odds ratio (MOR) as proposed by Merlo et al..-

4.) Their English is acceptable, but they tend to put phrases in brackets in the finding section. This should be avoided at all cost.
-We changed that in the manuscript.-

The work is innovative which looked at correlates of positive mental health across European countries. However, authors did not fully capitalise the study by failing to think through their research design or methods. The work has to be significantly revised to meet the standard of BMJ open to be considered for publication. Here is my detailed feedback.

Abstract:
5.) Writing sounds quite disjointed and rhetorical. If the opposite of positive mental health is poor positive mental health, I believe it is almost identical to 'mental distress' which depression is an example of such state. Authors need to state clearly what is 'positive mental health' to start with and how this is different from happiness, life satisfaction or quality of life.
-We adjusted the Abstract to create a more fluent writing style, and explain what positive mental health is and how it is different from concepts such as happiness or life satisfaction (see background section in abstract).-

6.) Authors stated 'multilevel logistic regression'. If that was what they used, they need to identify what are individual (level 1) and group (level 2+) levels. They also need to present OR with 95%CI.
-We extended the description of our multilevel analyses and included this in the manuscript. Moreover, we included detailed results of individual level determinants in the abstract.-

7.) Strengths & limitation
I hardly see a 'face to face' interview as a strength. In terms of the response rate, authors need to present actual percentage which is higher than similar surveys across Europe countries.
-We adjusted the summary of strengths and limitations-

8.) Background:
I see that authors preferred to treat mental health in a continuum sense as proposed by the definition of health by WHO. Authors claim there are no studies done in 'positive mental health'; yet their definition of 'positive mental health' is equivalent of 'well-being' research which has been done for a long time. In this sense, poor psychological well-being may include a disease state that authors mentioned such as depression. It is not necessary a cause. Authors used Keyes' study as a central

theme of their study; yet they have not fully elaborated in what they meant by ‘positive mental health’. How is this different from ‘well-being’, life satisfaction, quality of life or happiness? Their definition of ‘positive mental health’ must be reflected on the measure of their choice.
-We changed that in the manuscript. We did not want to stress the fact, that positive mental health is a continuum, but the fact that positive mental health and mental disease are two different continua, in fact that they are determined by different factors. Therefore, it is meaningful to study determinants of mental disease and determinants of PMH separately. To facilitate comprehension we adjusted this accordingly in the manuscript.-

9.) Methods:
Authors contraindicated themselves by treating the scores on the Mental Well-being Index binary (lowest 25%tile as a case). Authors could have used a total score, which corresponds with their view to capture a continuum sense of ‘positive mental health’. Authors need to explain why they chose to have made a binary category out of this index. Once again their choice of logistic regression should be re-considered.
-Because of the irregular distribution of the outcome variable we cannot model a linear relationship between determinants and outcome. Therefore we chose a logistic regression model to investigate the relationship between poor positive mental health and determinants of it. (Also see answer to comment 2).-

10.) Authors used multilevel analysis which is appropriate for their dataset. However, fixed or random effects are reflected on slopes or intercepts, not levels (i.e. country, region). Authors need to describe how they see the effects in each level.
-We extended the description of our multilevel analyses and included this in the manuscript. We also included that we used random intercept to account for country- and regional level variation. (Also see answer to comment 2).-

11.) Findings:
Tables are not conventional and difficult to follow, especially table 2. It is because each model is presented in columns and rows. Please see typical table presentations in other journals and format them accordingly.
-We changed the presentation of table 2 in the manuscript.-

12.) In table 1 descriptive findings should be by country, separately presented by men and women. This is crucial to see all determinants are varied across countries or not. Treating cross-country distribution is same from each other is misleading.
-We chose this way of presenting the findings in table 1, because the focus of the study was to identify determinants of positive mental health on a European level not to analyze the 34 countries separately. To show determinants per country would make the table 34 times as big as it is now. We assume that the title of the paper might have been misleading, and adjusted it accordingly. Moreover, while the national sample of the EQLS allow for general population profile to be drawn in each country, they are generally too small to enable detailed analysis of specific subgroups in individual countries.-

13.) In multilevel analyses, authors need to report if the variation across levels 2 and 3 are significantly different or not.
-Since the focus of this paper was not specifically on country differences of determinants of positive mental health, we did not include detailed information of significant differences between 34 countries and 330 regions within countries. To present an overall estimate of level variation, we considered the median odds ratio and discussed the variation in general.-

14.) Authors do need to report variation in levels 2 and 3. This is again crucial to see how each

country is different from each other.
-We adjusted that in the manuscript. We included information on level 2 & 3 variation in our results. In particular, we described country level variation based on the median odds ratio to give an overall interpretation of country differences and to support the use of multilevel modelling.-

15.) Discussion:
Authors also need to describe whether all countries are comparable to each other to support their findings or not.
-As explained in the answer to comment 12 and 13 we aimed to analyze determinants of positive mental health on a European level. Comparing countries and differences between countries would have been beyond the scope of this paper.
Multilevel modeling was used to account for the the between- and within variability of the hierarchically organized data. We aimed to examine the relationship between determinants and positive mental health on a European level.-

Reviewer: 2
Reviewer Name Teresa Lluch-Canut
Institution and Country University of Barcelona (Barcelona, Spain)
Please state any competing interests or state 'None declared': No conlict of interest

The study is very interesting and as the authors point "This study gives a first overview on determinants of positive mental health on a European level and could be used as a first basis for preventive policies in the field of positive mental health in Europe"

1.) I think the article can be published without any changes.
But I think it would be interesting, if it is possible, to present the values of positive mental health of the 34 countries studied. Or indicate if there are any document of the overall results of the project to consult. In the results section (Page 6 lines 5-8) Refers to the results of PMH in some countries but don't explain more about all 34 countries.
And also in the title referenced 34 countries but no differential information is provided

-Thank you very much for your comments. We agree that prevalences of positive mental health are interesting; however presenting them in the paper was beyond the scope of this paper. We included a reference of the report of the EQLS, where prevalences of positive mental health are reported for each country.

The focus of the study was to identify determinants of positive mental health on a European level not to analyze the 34 countries separately. We assume that the title of the paper might have been misleading, and adjusted it accordingly.-