Author's response to reviews

Title: Incremental health expenditure and lost days of normal activity for individuals with mental disorders: results from the Sao Paulo Megacity Study

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Author's response to reviews: see over
Dear Editors,

We are very grateful for the important corrections and suggestions given by the two reviewers. Each of the concerns are addressed below:

Reviewer's report: Annette Bauer
Major Compulsory

Mention in the abstract the questionnaire that was used to collect health expenditure and normal activity data;

We added to the abstract: The instrument used for obtaining the individual results, including the assessment of mental disorders, was the WMH version of the Composite International Diagnostic Interview 3.0 (WMH-CIDI 3.0) that generates psychiatric diagnoses according to the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV) criteria.

Some of the terminology is inconsistent and misleading in particular terms such as ‘incremental’ and ‘increase’; instead of ‘increase’ it is more accurate to say that costs are higher in certain groups (e.g. with a particular disorder) compared to groups without this particular disorder

We fixed this issue, substituting “increase” with “higher health expenditure” throughout the article.

The background section contains text that are not relevant (e.g. 96-103). Instead this section should explain the research question and rational for it in more detail; this includes in particular the choice of the costs included in the analysis; the focus on private health expenditure and loss of days of normal activity needs to be explained in the context of other possible cost components (e.g. emergency hospital use, unpaid care)

We excluded the paragraph and added a new one to better explain the research rationale: “There is a growing interest in identifying the individual and environmental factors associated with depression and anxiety, but the socioeconomic consequences of mental
disorders are still unclear, especially in developing regions [5]. Recent international studies have shown that mental disorders are associated with both higher direct health expenditures and lost days of normal activity [6,7]. These unexpected private costs could accentuate distress and worsen overall health, leading to a higher psychosocial burden than emergency visits and unpaid care [8].”

104-107 it is not clear what the authors mean by 'final'; health care costs and lost days of normal activity are the measurable impact of mental disorder on individuals, government and society; I would advise to remove these two sentences.

The two sentences were removed.

113-117: this argument is not useful; there is a lot of literature that explain the challenges of comparing public expenditure/cost data for health care between countries; the authors might cite those instead.

We excluded the previous argument and added: “Despite the consistent results found for the US on mental disorders and higher financial costs, it is a complex challenge to extrapolate these findings directly to developing countries due to the different nature of their healthcare systems, income distribution and demographic structure [11].”

173-189 – this paragraph needs to be rewritten: only the section of the questionnaires that are relevant for the analysis should be explained and those needs to be explained in more detail; this needs to contain a clear description of health expenditure, what this consisted of and how it was calculated and what was the rational for the method they chose; it is not clear to me why the authors did not analyse service use data (which were collected as part of the study) The discussion section contains findings that need to go into ‘findings’ section;

We excluded the sentences not directly associated with the analysis. We also included details on how health expenditure was measured: “Direct health expenditure excludes payments of healthcare plans and was assessed by the sum of total payments for medications, hospitalizations, medical and other health professional visits, nursing home care, health exams, orthopedic and other medical supplies and other health services and supplies. The questionnaire for health expenditure referred to the last three months, but the results were standardized for annual values to allow comparability with other studies and with the annual values of lost days of normal activity.”

Health service use was already analyzed for this sample by a previous study, we added this information: “Despite previous studies that showed that the presence of mental well-being is strongly correlated with higher use of health care services in São Paulo [23], there is a possibility that the prevailing stigmas against mental disorders and the low accessibility to specialty care could push a large number of individuals to prefer self-medication instead of formal clinical visits [24].”

334-338: instead of total amounts it would be a lot more useful to compare the proportions of expenditure with US data or to identify a more suitable comparator to avoid a high-income to low-income country comparison; the authors need to show that they are also
aware that differences in cost often occur because ‘health expenditure’ might consist of different elements (and dependent on how data have been collected)

Given the previous suggestion from the reviewer regarding the difficulties of performing international cost comparisons, and after reading the available literature on the subject, we decided to exclude any direct cost comparisons between the US and our findings.

351-359: the authors did not analyze the use (and costs) of formal (publicly funded) health care so that it is not possible to come to this kind of conclusion

We agree that we were making conclusions that were not directly measured by our analysis. We re-wrote the paragraph to make this clearer: “Despite previous studies that showed that the presence of mental was strongly correlated with higher use of health care services in São Paulo [23], there is a possibility that the prevailing stigmas against mental disorders and the low accessibility to specialty care could push a large number of individuals to prefer self-medication instead of formal clinical visits [24]. Although both anxiety and any mental disorders were significantly associated with higher health expenditure and lost days of normal activity, our analyses showed that depression was associated with higher direct health costs. Its independent effect on health expenditure surpassed hypertension and diabetes by US$80.55 and US$130.26, respectively.”

Minor Essential
In the abstract, consider mentioning the confounding factors; consider different terms for normal activity and health expenditure

Fixed.

80- relative to what

In relation to chronic diseases. Fixed.

82-replace ‘associated with’ with ‘found (or prevalent) in’

Fixed.

85-suggest to reword into something like that international action is taken to reduce social and economic disparities which are the cause as well the consequence of mental disorders

Fixed as suggested.

89- suggest to replace ‘care and diagnosis’ with ‘diagnosis and care’

Fixed.

102- replace ‘social determinants’ with ‘environmental factors’ as this is a broader, more comprehensive concept
113 – examples would be helpful; what did they control for in this study

143-149- this should not be in the method section; I am not sure what the purpose of the paragraph is and I would suggest to remove it

155-157-this needs to be reworded and explained e.g. multi-stage sample involving both clustering and stratification; living in privately owned home or excluded were people who lived in institutions

160-172- this is too much detail about sampling especially and the authors then refer to study that provides this information anyways; a rational for the method chosen would be helpful

196-suggest to say: Individuals were identified a having any mental disorder...

203- is this approach following a recommended standard? If yes the authors should refer to it or otherwise explain why they chose these diagnosis.

Yes, we followed the same validated standards as the other WMH studies. We included a reference.

207-218- I suggest to shorten this as this has been discussed in the literature; instead a short reference to the discussion about how to deal with skewed cost data would be sufficient

324- this needs to be ‘higher’ incremental expenditure

327- this should be ‘depression was associated with’
We changed it to: “One important strength of our study was that it did not simply ask individuals if they had ever been diagnosed with a mental disorder, but used the WMH-CIDI, a fully structured lay interview, to identify its presence. The use of self-referred data on mental disorders could significantly underestimate its prevalence due to poor access to mental healthcare in Brazil, but even a validated questionnaire such as WHM-CIDI has its limitation due to local cultural differences in admitting some of the emotional symptoms and substance use problems [26].”

Reviewer's report
Reviewer: Chan Shen

Minor essential revisions.
A few clarifications would be helpful. 1. It seems like the health expenditures are only out-of-pocket costs for patients excluding health system payments. It would be good to further clarify this and discuss it so that readers can be better informed about the comparison with U.S. Most US studies distinguish out-of-pocket patient costs and insurer payments (e.g. Medicare payments).

We added more details on how health expenditure was calculated: “Direct health expenditure excludes payments of healthcare plans and was assessed by the sum of total payments for medications, hospitalizations, medical and other health professional visits, nursing home care, health exams, orthopedic and other medical supplies and other health services and supplies. The questionnaire for health expenditure referred to the last three months, but the results were standardized for annual values to allow comparability with other studies and with the annual values of lost days of normal activity.”

Given the concerns about the complexity of international comparisons of health costs, which was also mentioned by reviewer #1, we decided to exclude any direct cost comparisons with the US.

2. The inclusion of hypertension and diabetes need to be better justified. It would be good if the authors could further explain the rationale. It is possible that these would be correlated with mental conditions and interacts with mental illness as well.

Yes, we included these two chronic diseases because they are frequently associated with both mental disorders and health expenditure, which could confound the results. Another
reason was to compare the incremental costs of these chronic diseases with mental disorders. We added: “Hypertension and diabetes (the two most frequent chronic diseases in the study) were included for two reasons: to control for its confounding effect, as previous studies have shown its association with both mental disorders and health expenditures [19], and to compare its effect on health costs with the effect of mental disorders.”

Some minor issues:
Line 121, some reference for this would be helpful.

Added.

Line 125, "access" should be "access to".

Fixed.

Line 178 "which" should be "who".

Fixed.

Line 327, "association" should be "associated".

Fixed.