Author’s response to reviews

Title: Attitudes and intended behaviour to mental disorders and associated factors in catalan population, Spain: cross-sectional population-based survey.

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Author’s response to reviews:

Dear Dr. Wang,

Please, find enclosed a revised version of our manuscript entitled “Attitudes and intended behaviour to mental disorders and associated factors in catalan population, Spain: cross-sectional population-based survey.”

The manuscript has been revised and we hope that in the present form it fulfils the comments made by the reviewers.

We have formatted all revisions with track changes to allow easy recognition of modifications. We also would like to express our thanks to the reviewers for their careful review of the manuscript and kind comments about the quality of our study.

Yours sincerely,

Ignacio Aznar-Lou, on behalf of all the authors.

Reviewer 1:

Reviewer #1: This is a well-designed study, describing attitudes and behaviors to people with mental disorders in a representative large sample. The descriptive studies about stigma and discrimination toward mentally ill people have a good tradition, and there are many papers (including systematic reviews) in this field. This paper can be included into this tradition. The study of discriminatory behaviour is always a social and scientific interesting topic.

The manuscript is well-written and it is easy to follow it.
Analyzing the manuscript, I have some doubts about it, that can be seen as 'minor revisions':

We thank Dr. Peñate for his kind comments.

1. In 'background' section authors state "It is estimated that about 38% of Europeans experience a MD every year." They support this sentence in a reference, but I consider they can also take into account some references of European epidemiological studies where data of prevalence and incidence are quite different (and, also, less dramatics).

Another data of prevalence has been added to reflect variability among European epidemiological studies:

"Mental Disorders (MDs) have a huge impact on the European population. It is estimated that between 9% and 38% of Europeans experience a MD every year [1, 2]..."

2. In 'methods' section, authors point out 'CAMI items were dichotomized'... 'in order to avoid excess of data a case data interpretation'. Three doubts: (i) in which criteria they support this decision? (ii) Why they consider data will be excessive if they take direct scores? and (iii) Data in tables 3 are from those dichotomic data or direct scores?

Data in table 3 and 4 show summed scores of the three constructs of the CAMI (continuous data). However, independent items of the CAMI only have 5 categories and do not follow a normal distribution. Thus, for descriptive analyses (Table 2) we preferred to give proportions of positive/negative attitudes (one column instead of five). To decide how to dichotomize, we followed a previous paper approach1. This has now been clarified in the text and we have added a reference:

In order to avoid excess of data and ease data interpretation in the descriptive analyses, CAMI items were dichotomized as in previous studies1: score 1 to 3 were considered as people who disagree or are neutral while score 4 and 5 were considered people who agree. Then, CAMI items were distributed into 3 subscales based on a factor analysis conducted in a previous study2: Authoritarianism (7 items), Benevolence (6 items) and Support for community mental health care (SCMH) (10 items).


3. I would like to know the criteria used in 'age' grouping. The range 15-45 represents almost 50% of sample.
We used the criteria of the Catalan Department of Health. However, in Table 1, we also presented mean age and we used age as a continuous variable in the multivariate regression models.

4. The variable 'contact with MD' includes different categories, but they do not consider them in data analysis.

We decided to create a global variable of contact with MD because previous analyses showed that there were little differences among types of contact.

5. I think the significant 'nationality' variable can be confused, because 'non spaniards', knowing the procedence of total sample, can be very different among them. An explanation is needed in 'discussion section' (or remove this analysis).

We thank the reviewer for noticing this. We decided to test the different nationalities to explore the impact of the nationality on stigma. We grouped nationalities by continent, as we have few participants from foreign nationalities, and tested differences between them in bivariate and multivariate linear regression models. We introduced changes in the Methods, Results and Discussion sections:

METHODS

Nationality was treated as a categorical variable: Spanish (anyone having Spanish nationality), European, American, African or Asian-Oceanian. People with dual nationality (including Spanish) were treated as Spaniards.

RESULTS

In bivariate analysis, Asian-Oceanian population showed less favourable attitudes than Spanish population in all the subscales between the Spanish and Asian-Oceanian population; these differences were larger in this population than in the rest of nationalities. In addition, less favorable attitudes were found in people from America and Africa in authoritarianism. Less favorable intended behaviour was found in the American population. However, after adjustment, only authoritarianism and intended behaviour subscales maintained significant differences between groups. In authoritarianism, differences between Spanish and Asian-Oceanian population disappeared despite of the high mean difference (β=−3.8). Differences existed between Spaniards and other European, African and American. In intended behavior, differences were observed between Spaniards and African, American and Asian-Oceania (16.5; 76th percentile, 15.5; 69th percentile, 15.3; 69th percentile and 13.7; 57th percentile, respectively).

DISCUSSION

Less favourable attitudes in authoritarianism and intended behaviour in non-Spanish population could be explained by stigma levels on their country of origin. Stigma levels are moderate-high in countries located in Africa or Asia, this is in line with the results of other studies that showed higher levels of stigma among immigrant from Turkey and China.
6. I am confused with the 'bivariate regression model' used to contrast different subgroups (according both sociodemographic ad contextual variables) in attitudes and intended behavior. I think statistics such as t-test or ANOVA could be more pertinent for group contrasts.

Bivariate linear regression models produce the same results as t-test (for dichotomic independent variable) and ANOVA (for categorical independent variable).

7. Also, authors used a multivariate regression analyses (which method?) to analyze factors associate to both attitudes to mentally ill persons and intended behavior. Two questions: (i) why authors do not use attitudes to predict intended behavior? (ii) Because they introduce categorical / nominal variables, it is possible there are some threats to the validity of those procedures. Perhaps, taking percentiles for grouping participants in to extreme groups, a logistic regression analysis will be more useful.

We used a linear regression analysis; we have now clarified this in the text (page 8, line 194). We aimed to describe the stigma levels among Catalan population and evaluating the relationship between the different stigma constructs assessed is beyond the scope of the paper. In the regression analysis we did not used categorical variables but summed scores of the three constructs of the CAMI and the RIBS. We think that dichotomizing total summed score we would lose information.

8. In general, it is a well-designed research, but my main doubt is what this manuscript provides. In general, results are concordants with several data found previously. It will be interesting to know stigmatization and discrimination toward different major mental disorders and the variables associated to them (but I am not sure that the survey questions include it).

This paper is the first to explore the levels of stigma and discrimination in a representative sample of a region in Spain. Unfortunately, we did not assessed levels of stigma for specific mental disorders because of the survey time constraint. However, this is a good point and we will take it into consideration in the future.

REVIEWER 2

The manuscript aimed to evaluate the level of attitudes and intended behaviour to mental disorders and analyze associated factors in the non-institutional residents of Catalonia. This study is interesting and worthy exploring, as it is an attempt to explore factors associated with better attitudes and intended behaviour in the South of Europe. However, in its current form, it does not seem ready for publication. I think that the overall structure of the manuscript could be improved considerably. In addition, I have many concerns about the Introduction and Method part. I also suggest a proofreading of the manuscript by an English mother tongue, as this could help a better readability of the paper.
We thank Dr. Liang’s kind comments. The manuscript has already been reviewed by a native English editor.

Abstract:

1. Results: In the last of this part, the author wrote "(4 vs 15%)". I suggest you had better delete it, as it is hard to understand when others read the paper for the first time.

   We deleted it.

2. Keywords: The study were to assess the level of attitudes and intended behaviour regarding mental health among a representative sample of the general population in Catalonia (Spain). Also most of the samples were Spanish in this survey. So I think you have used the keyword "Southern Europe" for a mistake. I suggest you should delete it or use Catalonia instead.

   We replaced “Southern Europe” by “Spain” which is indexed as a Mesh term.

Introduction:

This section is difficult to read and it does not present adequately the background for the study. Please, consider the following comments to improve this section.

3. One question for the title of this section. I think you should use "Introduction" instead of "Background".

   In section "Instructions for authors" of the BMC public health webpage, it is stated that this section must be named Background.

4. Page 5. I suggest add more information about CAMI and RIBS scales.

   We considered the reviewers suggestion, however, both scales have been introduced in the Background section (Page 3 Line 66-71) and then described again in the methods section (Page 6-7, Line 144-164). The paper is not specifically focused on the scales and thus we think more information is not necessary.

5. Page 5. I am confused that why did you say that the study conducted in the community of Madrid was carried out in an non-representative sample. Please give more references.

   As described in the cited paper, Crespo and colleagues used a small convenience sample. Participants were selected from the places of residence of the students of Psychology and Occupational Therapy from the Complutense University of Madrid. We clarified this in the text

   However, the study was carried out in a small (n=439) non-representative sample of the population that was selected from the places of residence of the researchers team.
6. Page 5. I think the author should give more references about the previous studies. Is there any studies concerning about the levels of stigma and factors associated with attitudes and intended behaviour in other areas, such as Northern Europe and Asia?

We have included some papers from other worldwide areas in the Background section. Studies developed in non-European countries showed that mental illness is also highly stigmatized in Asia, Africa and Latin-America.

Method:

7. Page 6. It should be "survey of" instead of "survey of".

We changed this.


We used a simple randomization method performed with SAS and the randomization procedure was Proc Survey. We have clarified this in the text (Line 153).

9. Page 6. In this paragraph could help in understanding what this manuscript adds to previous studies. It could also improve the rationale for the research question.

A rationale of the study has been already included at the end of the Background section:

"Little is known about the levels of stigma and factors associated with attitudes and intended behaviour in the Spanish population. A study conducted in the autonomous community of Madrid found significant associations between higher stigma (measured with the Attribution Questionnaire-27) and older age, being married, living in the city of Madrid (in contrast with those living in the metropolitan area) and having lower knowledge about the MD[19]. However, the study was carried out in a small (n=439) non-representative sample of the population that was selected from the places of residence of the researchers team.

There is little evidence of stigma levels associated with MDs in Southern European countries. Studies in this area have been focused on specific diseases such as schizophrenia. To the best of our knowledge, this is the first study which evaluates stigma levels toward non-specific MDs in a representative sample of the population in Catalonia, region situated in Spain."

10. It is not clear to me how previous model will be used in the analysis. Please, could you expand this part? I think there should be an additional paragraph related to the statistical analysis in the previous study. This paragraph could help in understanding what this manuscript adds to previous studies. It could also improve the rationale for the research question.
The statistical methods do not differ from those used in previous studies. The results of the bivariate analyses were used to decide which variables were finally included in the multivariate analyses so that all the variables that predicted the dependent variable \( (p<0.20) \) in bivariate regression analysis were introduced in a multivariable linear regression model. This method of confounder selection criteria was suggested by Mikey and Greenland.1 We included this information at the end of the Statistical analysis section.


11. I think you can add a comparison with the previous studies's results. This will improve the findings of the present study.

This has already been done along discussion section. We compared our results with those of studies developed in Europe, the United States and Canada. We also compare stigma levels of immigrant population with stigma levels on their origin country of origin.

12. It should be "MD does not" instead of "MDdoesnot"

We changed this.

REVIEWER 3:

Reviewer #3: very interesting paper. One a very important topic. well written. with useful and applied results.

I have one major comment that will change the paper:

The study has looked at the main effects on outcomes. This also includes attitudes such as and stigma. For instance, we know how gender, age, ethnicity (Spanish) and SES influence the outcome. but we do not know how associations vary based on gender, presence of a psychiatric disorder, or SES. In addition, in the same conceptual model, stigma can interact with other factors on outcomes. for instance, gender and stigma may have multiplicative effects on the outcomes. Or ethnicity and gender may change the dynamic of relations reported in this study.

Thus, I invite authors to go beyond checking the main effects and test interactions that are important.

We thank Dr Assari for his kind comments as well as for this interesting suggestion. We tested all potential interactions of the variables that have been suggested in the literature to interact. We have included your proposal in our paper, please find below different section where we included interactions concepts or results. For clarity, all changes are marked in the new version of the manuscript.

METHODS:
Interactions between gender, nationality (a dichotomic variable –Spanish vs non-Spanish population– was used because interactions excessively stratified participants), social class and presence of MD with the rest of variables were examined. Statistically significant interactions were reported in multivariate regression models.

RESULTS:

Interactions

An additional table shows the models with statistically significant interactions (see Additional Table 1). In the authoritarianism subscale, social class interacts with education level. Remarkable interaction is the modulation of education level in high social class. People with university education have more favourable attitudes when they are located in high social class regarding to low social class (27.1 vs 22.7). On the other hand population with primary studies has less favourable attitudes independently of social class. The effect of social class in people with primary studies is negative when social class is increased, however this effect is positive in people of high social class. In benevolence subscale we found statistically significative interactions between social class and having a MD, however this interaction is small (the larger difference is 0.6). We found similar situation in the interaction between gender and nationality (the larger difference is 0.8). There are not statistically significative interactions in SCMH subscale. In intended behaviour, we found interactions between age and having a MD and between age and gender; in both interactions younger population had better intended behaviour although coefficient was higher in the interaction with having had a MD (-0.3 vs -0.02).

DISCUSSION:

Higher scores in secondary or university studies could be explained by higher health literacy[18, 34]. Similarly, people located in a low social class are, also, supposed to have lower knowledge about MD[35]. Difference in nationality could be explained by cultural and ethnic factors, which influence stigma levels[36]. These differences are particularly relevant for benevolence subscale. In this subscale Spanish population have better attitudes independently of gender despite of men showed less favourable attitudes in general population.

Distinctions between different social classes are not sufficiently clear and some authors suggest that education level would be a more precise socioeconomic variable. In our study we observe how differences between education levels are maintained in all subscales in multivariate analysis while social class only shows differences in intended behaviour scale. In line with this, when interactions are tested in authoritarianism subscale we observe education level as the main variable which determines attitudes. Although social class, also, impacts on attitudes, it is pushed into the background.

The impact of being young in intended behaviour is even higher if it is modulated by having a MD or gender. Being male and younger are strengthen each other as it is shown in multivariate regression model without interactions while younger people with a MD seem to have a wider perspective regarding to mental health. This could be explained by living on a less stigmatizing society because the improvement in social policies.