PEER REVIEW HISTORY

BMJ Open publishes all reviews undertaken for accepted manuscripts. Reviewers are asked to complete a checklist review form (see an example) and are provided with free text boxes to elaborate on their assessment. These free text comments are reproduced below. Some articles will have been accepted based in part or entirely on reviews undertaken for other BMJ Group journals. These will be reproduced where possible.

ARTICLE DETAILS

| TITLE (PROVISIONAL) | PSYCHOSOCIAL ADJUSTMENT AND PSYCHOPATHOLOGY IN |
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| | ADOLESCENTS AND YOUNG ADULTS WITH CONGENITAL |
| | HEART DISEASE |
| AUTHORS | Areias, Maria Emília; Freitas, Isabela; Castro, Marta; Sarmento, |
| | Sofia; Moura, Cláudia; Viana, Victor; Areias, José Carlos |

VERSION 1 - REVIEW

| REVIEWER | Dr. Frank Casey Consultant Paediatric Cardiologist Royal Belfast Hospital for Sick Children Belfast BT12 6BE Northern Ireland |
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| | I have no competing interests. |
| REVIEW RETURNED | 02-Oct-2012 |

| | population with congenital heart disease is a patient group that warrants detailed study from the psychological and educational |
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| | view-point. In the title of the paper the words "Proneness to" should be omitted. The English in the article is generally good but there are |
| | number of gramatical errors and words used inappropriately. INTRODUCTION SECTION |
| | Paragraph 3, first sentence, the word "were" should be replaced by |
| | are. |
| | Paragraph 5, the words "in European studies" should be replaced by some European studies". |
| | Last paragraph, the phrase" that leading to", should be replaced by" which can lead to" |
| | Last paragraph, the word "proneness" should be replaced by" prevalence of" |
| | METHODS SECTION |
| | The sentence that states," in many of our participants the main CHD was combined with other heart diseases" needs to be clarified as to what the other heart diseases were. |
| | The next sentence is also confusing. The word |
| | "chromosomopathies" should be replaced by genetic disorders. The |
| | sentence also states that patients with associated cardiac |
| | malformations were excluded from the study. This seems surprising and needs to be clarified. The remainder of this paragraph listing the |
| | various cardiac defects would be much more clearly presented in the |
| | form of a table. |
| RESULTS & CONCLUSIONS | RESULTS SECTION, this would be much more easily understandable if much of it were presented in table form. This |
| | section should be presented as at least two tables summarising the |
| | results. |

| | DISCUSSION SECTION Paragraph 2, last sentence, the word" contrarywise" should be replaced by the word "conversely". In the discussion section the paragraph describing the prevalence of psychiatric disorders in other studies, again would be best summarised as a table, showing the statistical prevalence of psychiatric disorder in populations in each country and include the current study figures for comparison. The main concern about the validity of the results was that the data is all collected on a one-off assessment of the young people at a time when they were attending for a hospital appointment. This may have skewed the results if they were assessed at a time when they were in their own home environment. In the third box below reporting ethics could you type in I cannot find any reference in the manuscript |
|--------------------|---|
| | ethics could you type in I cannot find any reference in the manuscript to the study having received formal ethical approval. |
| REPORTING & ETHICS | It would not be possible to recommend publication of the paper if ethical approval was not obtained for the study |

| REVIEWER | David C. Bellinger Professor of Neurology Harvard Medical School Boston Children's Hospital Boston, MA |
|-----------------|--|
| | United States of America I have no competing interests. |
| REVIEW RETURNED | 13-Oct-2012 |

| RESULTS & CONCLUSIONS | 1. The sentence that forms the "Conclusions" of the Abstract seems as if it belongs in the "Results" section. The conclusion sentence should be much more inclusive in terms of the findings of this study. 2. In line 11 of the Article Summary, the word "contribute" implies that the study will provide information on causation, but the cross-sectional design prevents the authors from drawing inferences about the direction of influence. In my opinion, "contribute" should be replaced with a term such as "correlate with." 3. Given what is summarized in lines 40-45, where it is stated that studies are mixed in terms of the rates of problems among CHD patients and norms, it is puzzling that lines 46-47 state that, "It is believed that children with CHD have a higher risk of developing behavioral and emotional problems when compared to healthy children." Is this simply the author's belief, because the evidence summarized does not clearly lead to this conclusion. 4. The information provided in the "Participants" section of Methods is hard to interpret in light of the wide age range of the CHD patients (12-26 years). For example, the number that had completed their secondary education is only meaningful if viewed in light of a denominator consisting of the number of individuals who had reached the age at which this accomplishment would be expected. Perhaps these analyses should be presented stratifying by age. 5. It would be helpful to describe the physical limitations experienced by the 41 patients. How severe were these? 6. Patients with "associated cardiac malformation" were excluded from the study but the following sentences describe patients who had multiple cardiac malformations. What "associated cardiac malformation" therefore resulted in a patient being excluded? |
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| | malformation" therefore resulted in a patient being excluded? |
| | 7. A reference should be provided for the other report from this study |
| | that describes the additional questionnaires used (p.6, line 41). |
| | 8. The difference found in the gender difference in the rates of |

psychiatric disorder is difficult to interpret unless patient age is taken into account given that late adolescence and early adulthood is the time when many disorders are first diagnosed. Was the age distribution of male and female patients similar?

9. It would helpful to the reader to have presentation of the results in the form of tables that show all of the comparisons made. It seems as if perhaps only the significant findings are described in the text, but the reader doesn't have a sense of how many comparisons were not significant.

10.P.8, lines 34-35 refers to "pharmacological therapy." Does this refer only to psychoactive medicines for psychiatric disorders or to cardiac medicines as well?

11. P.9, line 4. In my opinion, the author should not tell a reader that a study is "important" but rather should leave this to the reader to decide

12.P.10, line 39: I think that "more unlikely" should be replaced with "more likely."

13. P.10. The last paragraph lists the rates of psychiatric diagnoses in various studies and countries but does not come to any conclusion with regard to the current study. The manuscript then ends rather abruptly. In my opinion, a concluding sentence or two is needed that briefly captures the major findings.

VERSION 1 – AUTHOR RESPONSE

Reviewer 1:

- I ommitted the words "proneness to" in the title, therefore, the title is now "Psychosocial Adjustment and Psychopathology in Adolescents and Young Adults in Congenital Heart Disease".
- Introduction: Paragraph 3: I changed "were" to "are". Paragraph 5: I chenged "in European studies" to "some European studies". Last paragraph: we replaced "leading to" by "which can lead to" and "proneness to" by "prevalence of".
- "Methods": "In many participants the main CHD is combined with other heart diseases" the other combined heart diseases are described below in the manuscript; for example, transposition of the great arteries (9, two of them had also ventricular septal defect and aortic stenosis)... We replaced that for a table.

We replaced the word "chromossomopathies" by "genetic disorders".

The sentence were we state that "we excluded associated cardiac malformations" is replaced by "we excluded associated extracardiac malformations".

- "Results": I included three tables summarising the main results.
- "Discussion": Paragraph 2: we replaced "contrarywise" by "conversely". I included a table with statistical prevalence of psychiatric disorders in other studies and current study.

Dr. Casey suggested that the results may be affected by the fact the participants were interviewed at a time when they were attending for a hospital appointment. I consider that this may be one of the limitations of our study but I believe that we wouldn't have the possibility to make appointments at home for the majority of those patients, because they are busy with studies and/or job, many of them are from distant places (the hospital is receiving patients from all the north of the country) and some are reluctant to bring the "disease at home" as far as they can. Theoretically, the conditions for communication and interview will be better at home, but I am not sure if this won't introduce another bias, sellecting patients that will accept these appointments.

The study was submitted to the hospital's ethical committee and received formal approval. That we state in sub-section "Procedures", "... when they accept to participate they completed an informed consent form approved by the hospital's ethical committee, which followed international conventions garanteeeing the rights of the patients."

Reviewer 2:

- 1. Abstract: I replaced the sentence for conclusions by "Our study emphasizes the need for evaluating the psychosocial adjustment of adolescents and young adults with CHD."
- 2. I wasn't able to find in the manuscript the word you referred, "contribute", to replace by "correlate with"
- 3. "It is believed that children with CHD have a higher risk of developing behavioral and emotional problems when compared to healthy children" was replaced by " some studies (6) found that children with CHD have a higher risk of developing behavioral and emotional problems when compared to healthy children"
- 4. I am not sure if I understood this question but I believe that this denominator can be given by the number of participants that didn't repeat any year at school (55/110), as it is referred in Methods (line 59/60) that "Of these patients, 55 had repeated at least one year at school (mean 1.49 year +- 0.50 year).
- 5. A new sentence was added in "Methods"-"Participants", to explain the source of categorization and the criteria used.
- 6. It was written by mistake that "Patients with associated cardiac malformations were excluded from the study", instead of "Patients with associated extracardiac malformations were excluded from the study". This mistake was already corrected in the manuscript.
- 7. I provided a reference (11) for the other report from this study that describes the additional questionnaires used.
- 8. The gender differences in the rates of psychiatric disoder still mantain (p=0.049) when we consider separately the age-range 19 years old and above, but they are not significant in the other age groups.
- 9. I included three tables in the "Results", summarizing the main findings. I would like to include more detailed results but I had to deal with the limitations of the BMJ Open, for the maximum of 5 tables. If you think it is useful and possible, I can supply additional tables with results in Supplementary files.
- 10. The sentence "Pharmacological therapies" doesn't refer to psychoactive medication, but only to medication for CHD.
- 11. I removed the sentence ".... is important because ..."
- 12. I replaced the sentence "more likely to have dependent lifestyles" by "more unlikely to have independent lifestyles".
- 13. I included a table (table 5) summarizing the comparison between our findings and the international studies on lifetime prevalence of psychiatric disorders and included a sentence for conclusion.

VERSION 2 - REVIEW

| REVIEWER | David C. Bellinger |
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| | Professor of Neurology |
| | Harvard Medical School |
| | Boston Children's Hospital |
| | United States |
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| | I have no competing interests. |
| REVIEW RETURNED | 21-Dec-2012 |

- The reviewer completed the checklist but made no further comments.