Author’s response to reviews

Title: Depression is associated with longer emergency department length of stay in acute coronary syndrome patients

Authors:

Donald Edmondson (dee2109@columbia.edu)
Jonathan D Newman (jn2169@mail.cumc.columbia.edu)
Melinda J Chang (mjc2205@columbia.edu)
Peter Wyer (pwyer@att.net)
Karina W Davidson (kd2124@mail.cumc.columbia.edu)

Version: 2 Date: 12 October 2012

Author’s response to reviews: see over
October 12, 2012

Jigisha Patel
Series Editor
*BMC Emergency Medicine*

Dear Dr. Patel:

We are pleased to submit our revised manuscript entitled *Depression is Associated with Longer Emergency Department Length of Stay in Acute Coronary Syndrome Patients*. Please find a detailed list of our revisions below.

Thank you,

Donald Edmondson, PhD
Corresponding Author
Assistant Professor of Behavioral Medicine
Columbia University Medical Center

**Response to reviews:**

*Editorial Comments:*

As you will see from the referees' reports, several queries have been raised that we would like you to address in a revised manuscript.

It is very important that a cover letter accompanies your revised manuscript submission. This should provide a detailed point-by-point response to each of the referees' concerns, describing exactly how you responded to each point and where you can find the amendment in your revised manuscript (e.g. document line and/or page numbers). Please also highlight (with 'tracked changes'/coloured/underlines/highlighted text) all changes made to the revised manuscript to make it easier for the Editors to give you a prompt decision on your manuscript.

In addition to the Referees' comments, could you please also address the following editorial points:
1. Missing information
Can you please ensure that all 'XXXXXXXXXXXXXXXX' are removed and replaced with the relevant information.

We have now inserted the relevant information.

2. Ethical approval
Can you please list the full name of the ethical committee that granted approval.

We now include this information in lines 132-136.

3. Names of Hospitals
Can you please ensure that you include the names of the hospitals in your revised manuscript.

The names of the hospital are now included.

4. Competing Interests and Acknowledgements
In addition to the Authors' Contribution section, can you please also include a Competing Interests and Acknowledgements section.

We have now included these sections at the end of the manuscript.

5. Line Numbering
Can you please insert line numbers into your manuscript. Please use these to specifically state in your cover letter where any changes have been made to your text.

We have now numbered the lines and referred to revisions by line number.

6. General Formatting
Please can you ensure that your revised manuscript conforms to the journal style (http://www.biomedcentral.com/bmcemergmed/authors/instructions/researcharticle). It is important that your files are correctly formatted.

We have now ensured that the manuscript conforms to the journal style.

Reviewer: Andrew Steptoe

Reviewer's report:
This study is an analysis of the time that patients with NSTEMI/UA forms of acute coronary syndrome stay in a hospital emergency department (ED). The analysis shows that depressed patients spend longer in the ED than others, after controlling for covariates. The study has been carried out well.

There are two general issues concerning this paper about which I am not certain. First, why is length of stay in the ED an important issue? I can understand the concern about overall length of stay following an ACS, but there does not seem a strong rationale provided here for the importance of the ED stay in itself. This needs to be addressed more clearly.
Thank you for this comment. We have now clarified and explained our interest in ED LOS in the introduction with the sentences below (lines 52-57):

Emergency department length of stay (LOS) is a key marker of ED performance, and longer ED LOS may be associated with adverse clinical outcome for some conditions [7], in particular those with an ACS. Indicators of ED performance have been associated with adverse cardiovascular outcomes in patients who present with chest pain [5], and with worse psychiatric outcomes in ACS patients [6], so we sought to determine whether depressed ACS patients experienced different ED care than non-depressed ACS patients.

The second is the generalizability of the findings. The authors note that length of stay in the emergency department is influenced by a number of factors. They have done a good job in controlling statistically for individual-level factors such as ethnicity, income, etc. But the fact remains that the study was done in a single hospital. This institution may have different rules and conventions about length of stay than others, depending on factors such as the ED size and intake of patients, policy on bed occupancy, the geographic location of the Cath Lab, etc. Can readers be confident that the findings would apply in other institutions?

This is an excellent point that we did not address well in the first draft. We have now included the following sentences in the limitations (lines 243-248).

Finally, these results are based on a single ED in a large urban teaching hospital with substantial safety net obligations and a long average ED LOS for ACS patients. As such, it is difficult to know the extent to which these results would generalize to the population of EDs in the United States and around the world. However, we believe these results suggest the need for future research into the possibility that the medical system functions differently for those with psychiatric disorders than for those without, even in acute care for ACS.

In addition, there are some specific points:
1. It’s not clear how many potentially eligible patients were not included in the study because they refused to participate or for some other reason. Presumably during the 15 month recruitment period in a large hospital, more than 139 NSTEMI/UA patients were admitted. How many were there overall, why could they not be included, and what implication might this have for the results?

We have attempted to address this comment with the added limitation below (lines 225-230).

Third, it is difficult to know how our sample may differ from the larger population of all potential (but not confirmed) ACS patients treated in the NYP ED. Since the parent study’s recruitment strategy relies on a confirmation of an ACS diagnosis before approach for consent, our participants may have characteristics that differ from those who do not meet criteria for ACS. The parent study’s participation rate is 85% which gives us confidence
that these participants are fairly representative of at least of those approached with a confirmed ACS.

2. It’s also not clear exactly when the depression measures were administered. I understand that the participants underwent a diagnostic interview 3-7 days post ACS, but they also completed the BDI and PHS. When were these done? At the time of the interview, or while in hospital? Did all the current depression assessments refer to the two weeks before ACS, or the period both before and after ACS (for example, if the interview took place 7 days after ACS)?

We have now attempted to clarify our depression classification strategy in the Methods using the language below (lines 106-116):

Depression. Participants were classified as meeting criteria for current depression (i.e., past two weeks), past depression (i.e., evidence of previous depression episodes, but no current depression), or never having had clinical depression based on results of clinical interview which queried for depression history, as well as lifetime prescription for anti-depressant medications for depression.

We assessed depression using the Diagnostic Interview Schedule-Hamilton interview conducted by a licensed clinical social worker in the 3-7 days post-ACS [13, 14]. However, if a participant missed the clinical interview (due to death, rehospitalization, or continuing hospitalization), we used Beck Depression Inventory (BDI) and Patient Health Questionnaire-9 (PHQ) scores that participants completed during their initial enrollment during hospitalization, as well as additional screening items added to that hospitalization session about past depressive episodes and lifetime antidepressant medication use in the medical chart, to estimate their past and current clinical depression status.

3. The SD of the length of stay is very large, suggesting wide variation. Is it legitimate to analyze length of stay as a continuous variable? Might some categorical procedure not be more appropriate?

This is a good point. Since there are no clinically relevant cutoffs for ED LOS, we opted to address it with a sensitivity analysis in which we analyzed a substantially more normally distributed log transformed ED LOS variable. Since the results changed little, we opted to leave the untransformed analysis in for interpretability of the B coefficient. We have included the sentence below in the manuscript (lines 161-163).

We conducted a sensitivity analysis with a log transformed ED LOS variable, and the results were nearly identical.

Reviewer: Aristomenis Exadaktylos
Reviewer's report:
Minor essential revisions
Thank you for giving me the opportunity to comment on your article which covers some novel aspects of behavioral health problems in emergency medicine.
The article itself is compact and well written. Anyhow the conclusion and the translational aspect of this research could be strengthened.

Why did you pick patients with ACS, which represent only a small number of ED?

Thank you for your kind words. We have now clarified our interest in specifically ACS patients in the text, using the sentences below (lines 52-57).

Emergency department length of stay (LOS) is a key marker of ED performance, and longer ED LOS may be associated with adverse clinical outcome for some conditions [7], in particular those with an ACS. Indicators of ED performance have been associated with adverse cardiovascular outcomes in patients who present with chest pain [5], and with worse psychiatric outcomes in ACS patients [6], so we sought to determine whether depressed ACS patients experienced different ED care than non-depressed ACS patients.

The number of depressed patients (I actually dislike this term) in ED's is increasing. What role do relatives play? What role does the ED staff play? This is an excellent point, and one that we’ve been interested in previously. We now include the sentences below to address them (lines 254-258).

Further, future research should focus on social and interpersonal factors in the ED that may interact with psychiatric symptoms. It has been hypothesized that the presence of supportive family or friends, and the quality of communication between patients and ED staff, may influence psychiatric outcomes after ACS [20], and they may also moderate the association of depression and ED LOS.