Reviewer's report

Title: Relationship between Depressive Symptom Severity and Emergency Department Use Among Low-Income, Depressed Older Adults

Version: 2 Date: 6 September 2012

Reviewer: Aaron Salinas

Reviewer's report:

- Discretionary Revisions
  None

- Minor Essential Revisions
  None

- Major Compulsory Revisions

This article analyzes a relationship widely discussed in the scientific literature between depressive symptoms and use of emergency health services, particularly in low-income homebound older adults. But needs significant improvement in addressing the following areas

Abstract

1. The abstract adequately describes the objectives of the study and the results. However, the methodology and the conclusions need to be modified to properly reflect the content of the article. The methodology seems more describe the RCT that studio itself, and conclusions must be stated in the implications explored the association between depressive symptoms and use of emergency services.

Background

1. The authors clearly articulate the possible relation between depression in older adults and use of Emergency Services. They provide a clear rationale for the study. Additionally, the literature review is adequate to support the introduction and links past research to the authors proposed research showing how the current study is an extension of previous work. However, its weakness lies right there, because the relationship between depressive symptoms and use of emergency services is more than demonstrated, and it is unclear that in this study population the results have to be different.

2. The authors would have to argue why this relationship in this population (low-income homebound older adults) would be different, and to establish the magnitude of the problem in terms of the proportion of the population represented by these homebound older adults.

3. Additionally, since the relationship and depressive symptoms - use of emergency services is demonstrated, the study hypotheses seem to pose an almost obvious relationship, with an anticipated result: greater severity of
depressive symptoms involves greater use of emergency services.

4. But that's not the biggest problem, as the authors do not seem to take into account that the main outcome variable (use of emergency services) is not necessarily a negative event. This means that a reduction in the number of visits should not be taken as a positive, since for some older adults such visits could have a beneficial effect in reducing depressive symptoms. And additionally, visits to emergency services could, as the authors say, be indicated by a general practitioner.

5. Finally, in the concluding paragraph of the introduction, the authors state that also analyze visits to the emergency services “before and after their participation in an RCT of a short-term psychotherapy for depression.” This part is confusing because it is not clear whether they are analyzing the relationship depressive symptoms - use of emergency services only, or they are also interested in estimating the effect of participation in the RTC on the use of services. If this were the case, both the objective and the hypothesis would have to be modified, and the background too.

Methods

1. The empirical definition of the outcome variable has one major limitation. According to the authors the final variable is the sum of the number of visits in the three measurements: baseline, and 12- and 24-week follow-ups. But the authors seem to ignore the fact that these visits are not independent. That is, the first follow-up visits depend on the status of the baseline visits, and the second follow-up visits depend on the status at the first follow-up. This means that the definition of the outcome variable authors should take into account the probability that the elderly have a visit, in the immediately preceding measurement. I think the simple sum of the number of visits does not adequately reflect the phenomenon they are interested in analyzing.

2. HMAD description is not clear enough. The authors have not specified why they used the cutoff of 15 or higher on the scale score.

3. In bivariate analysis the authors used ANOVA to determine whether there were differences between different study groups regarding HMAD scale score. However, one of the assumptions of this procedure (ANOVA) is that the probability distribution of the outcome variable must be normal. The authors do not specify whether this assumption is fulfilled, and if not, if they used, for example, robust standard errors, or even a nonparametric procedure.

4. The authors write, in multivariate analysis paragraph " Negative binomial regression was used because the number of ED visits was a count outcome, with a large proportion of the participants having had no visits (= 0)." However this is not necessarily true. On one hand, they have a count outcome variable, and therefore the use of the negative binomial distribution is suitable. But if they also have an excessive number of zeros, then the authors should have used a zero-inflated distribution (poisson or negative binomial). In fact, what determines the use of the negative binomial is not an excessive number of zeros, but the presence of overdispersion, issue that the authors did not mention anything.
5. Another alternative analysis, which has proven to be more efficient when analyzing data on use of health services, is the two-part hurdle model; which, in the first instance, models the probability of use, and secondly, the frequency or intensity of use.

6. The authors do not mention what kind of factor depressive symptoms are: Predisposing, Enabling, or need factors.

Results
1. Paragraph 4. Delete this, is irrelevant and does not help in testing the hypotheses, and in achieving the stated objective

Discussion
1. Since it is likely that the authors must modify the analysis, conclusions about the validity of their hypotheses will have to be reconsidered.
2. As mentioned above, it is not clear why the authors attempt to reduce ED visits. Since these visits are not in themselves neither positive nor negative, then the conclusion is also unclear.
3. Even so, more direct implications based on your findings needed.