Reviewer's report

Title: Unmet need and psychological distress predict emergency department visits in community-dwelling elderly women: a prospective cohort study

Version: 4 Date: 16 August 2011

Reviewer: Laura Sands

Reviewer's report:

Minor Revisions:

Background:
Page 3, para 1: Consider changing “... although Sands et al. investigated depression but did not include it in multivariable modeling.” to “... although Sands et al. investigated depression but did not include it in multivariable modeling because it was not significantly associated with hospitalization.

Page 4, para 1: In the response letter, the authors state that they fixed the first sentence to read, “Research on unmet need has so far focused exclusively on disabled individuals since it is not possible to have unmet need without disability.” However, in the current copy it still reads “with disability.”

Major Compulsory Conceptual issues:

Background:
Page 4, para 1: The authors describe Andersen’s model of health behavior but did not describe how it informed the analytic design of their study (e.g. choice of statistical model and variables to be included in statistical model). The authors should describe how the conceptual model underlying their study informed their hypotheses and the choice of variables included in their model (e.g. which variables are classified as predisposing versus enabling versus need variables).

Page 4, para 1 and Page 5, para 2 and Page 10, para 2 and page 12, para 1: The authors state that psychological distress confounds the association between unmet need and ED use. Then the authors state that unmet need and psychological distress are independent predictors of ED use. The authors then hypothesize that psychological distress interacts with unmet need to increase likelihood of visiting the ED. Within the methods sections the authors state they included three types of covariates that might ‘modify’ the association between psychological distress, unmet need, and ED visits. In the statistical methods section the authors state the associations between unmet need, psychological distress and ED visits were ‘assessed for interaction and confounding.’ These statements suggest that the authors are not clearly articulating whether psychological distress is hypothesized to be a moderator, mediator or a confounder variable. Conceptually, these are very different types of variables. Their hypothesis as to whether psychological distress either confounds, or
mediates, or moderates (as tested by an interaction) the association between unmet needs and ED use should be clearly stated a priori. This hypothesis should be driven by the conceptual framework underlying the study.

Power considerations:
Page 15, para 2: In their letter of response to the reviewers’ comments, the authors stated that they tested the hypothesis that PADL unmet is associated with ED use despite having insufficient power to test this hypothesis because they “believe the foundation of the hypothesis is sound …. even if we didn’t have the power to prove the hypothesis.” The issue at hand is not whether the hypothesis is sound, but whether valid conclusions about the association can be made in the absence of sufficient power. The authors clearly conclude that valid conclusions cannot be made regarding the association between PADL and unmet need in the second paragraph of page 15. The authors should consider presenting the hypothesis, then testing whether they have sufficient power to test the hypothesis, and then proceed with testing the hypothesis only if there is sufficient power. If there is insufficient power, state so in the results section and don’t include it in additional analyses.

Page 15, para 2: The authors suggested that lack of power might be the reason for the unexpected direction of the association between PADL unmet need and ED use seen in the multivariable model. Although this is possible, a more reasonable explanation for the unexpected association is a problem with specification of variables within the model (e.g. Simpson’s paradox). The evidence for this possibility is that the bivariate association between PADL unmet need and ED use is in the hypothesized direction in bivariate results, but is in the reversed direction in the multivariable logistic regression model.

**Level of interest:** An article of importance in its field

**Quality of written English:** Acceptable

**Statistical review:** Yes, and I have assessed the statistics in my report.

**Declaration of competing interests:**

I have received NIH funding to study the association between unmet needs for ADL disability and health outcomes. The publication of this paper will not affect this funding.