Author's response to reviews

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

**Authors:**

Jacqueline M Quail (jacqueline.quail@gmail.com)
Christina Wolfson (christina.wolfson@mcgill.ca)
Abby Lippman (abby.lippman@mcgill.ca)

**Version:** 5 **Date:** 14 October 2011

**Author's response to reviews:** see over
Thank you for your continued help to improve this manuscript. We respond to each of the reviewer’s comments below.

**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.

Done.

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.”

Done.

**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).

The COVARIATES section, beginning on page 12, was rewritten, and the demographic, psychosocial, and health-related characteristics were reclassified into predisposing, enabling, and need factors. The results in Table 1 were similarly reclassified:

“Based upon Andersen’s model, we included covariates in our analyses that may affect the association between psychological distress, unmet need, and ED visits. Predisposing factors included age, marital status, education, and mastery. Mastery was assessed using Pearlin’s personal mastery scale [32], a widely used scale with good construct validity [33] and internal reliability [34]. The mastery scale ranges from 7 to 28 where a higher score indicates better mastery.

Enabling factors included social support, place of residence, and income. Satisfaction with social support was assessed by first giving interviewees examples of positive emotional support and then asking them if they were satisfied with the amount they received (no, yes). Place of residence was either a private home, a seniors’ residence, or other (rent room or subsidized housing). A seniors’ residence refers to a multi-unit housing development that offers either independent living or assisted living. Residents should theoretically be either independent or have met needs, but it is possible that some residents may have developed unmet need in the years since they moved to the residence. A person was identified as having a low income using Statistics Canada’s low income cut-off points for the time period of the study [31].
Five need factors were included: body mass index (BMI), self-rated health, risk for malnutrition, burden of chronic disease, and previous use of urgent health services...”

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.

Our original hypothesis was that psychological distress modifies and/or confounds the association between unmet need and ED visits. Although effect modification and confounding are indeed conceptually very different, having no other research to formulate our hypothesis upon, we chose to investigate the possibility of both. This had no effect upon our modelling decisions as we followed the conventional approach to modelling by first testing for interaction, and when not present, then testing for confounding.

Last paragraph before the METHODS section
We removed “First, we believe that both unmet need and psychological distress are independent predictors of ED visits. We also believe that there is a bidirectional, mutually reinforcing relationship between unmet need and psychological distress.”
And replaced it with
“Based on our literature review, we know that both unmet need and psychological distress are independent predictors of ED visits, and that unmet need is likely to be associated with psychological distress. Thus, our objective is to elucidate the association of unmet need in conjunction with psychological distress upon ED visits.”

We re-inserted ‘confounds’ into the following sentence: “Finally, we hypothesize that psychological distress confounds and/or interacts with unmet need to increase the likelihood of visiting the ED.”

First paragraph in the METHODS: Covariates section
We changed the word ‘modify’ to ‘affect’, so as to refer to both interaction and confounding.

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.

We don’t understand what the reviewer wants. Does she want us to comment about the reversal in the direction of the bivariate results compared to the multivariable results because we adjusted for confounders? Or is her concern about how we specified IADL and PADL met and unmet need variables? Could you please clarify.

**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.