Reviewer's report

Title: What are the effects of having an illness or injury whilst deployed on post deployment mental health? A population based record linkage study of UK Army personnel who have served in Iraq or Afghanistan.

Version: 1 Date: 19 March 2012

Reviewer: Lyndon Riviere

Reviewer's report:

This paper’s main goal was to examine the association of deployment illness or injury with post-deployment mental health problems. The deployment data was obtained from medical records and the post-deployment data were self-reported by survey data from questionnaires. The principal finding is that both illness and injury are associated with poor general health, probable PTSD, and common mental disorders. However, neither illness nor injury was associated with alcohol misuse. The findings of this study appear to contribute to the little that is known about deployment ill-health and post-deployment mental health.

The authors are to be commended for a well-laid out and clearly written manuscript. The rationale was clearly articulated and the objectives were clear. The figure describing the derivation of the sample from Phase 2 data of the KCHMR Military Health Study was very useful. The ability to match deployment data with post-deployment data is rare, and therefore makes this study significant. The limitations are well noted including the one that addressed how the small sample sizes for the medical evacuees affected the width of the confidence intervals. I have a few concerns that I think can be addressed relatively easily by the authors.

Major compulsory revisions:

1. One of the main independent variables was illness (sometimes referred to as physical illness). However, there was a lack of clarity whether the illnesses were solely physical or both physical and psychiatric. In the description of the OpEDAR data, which is the main record of emergency room visits, it is noted that “data were provided on data and location of attendance, diagnosis, cause (hostile or nonhostile), classification (e.g. psychiatric, musculoskeletal, respiratory)…” If emergency room visits for psychiatric reasons were included, the authors should either not use the term “physical illness” or distinguish between psychiatric illnesses and physical ones in the analyses. It is possible that the psychiatric illness constitute too small a proportion of all illnesses for separate analyses. In such a case, the authors should state what percentage of the 505 OpEDAR events were psychiatric ones. If is not possible to disentangle physical illnesses from psychiatric ones that should be noted as a limitation. It is important to clarify this because it is highly likely that soldiers who present to an in-theatre emergency room with psychiatric illnesses will have post-deployment mental
health problems.

2. The authors indicated in the last sentence of the study design section that “deployment specific factors could then be controlled for”, and the logistic regression analyses were adjusted for traumatic deployment experiences. However, no adjustments were made for in-theatre mental health problems. Further, as part of their sensitivity analyses, the authors analyzed whether adjusting for having an OpEDAR event prior to the most recent deployment altered the main study findings. However, they do not indicate whether they had (or did not have) any measures of mental health from prior deployments. Prior mental health problems/symptoms are confounders and the authors should address why they were not included in the analyses.

3. According to the section “classifying events on OpEDAR”, there were 108 individuals who had multiple events. The authors provide details on how the most severe event was selected for the analyses and ran a sensitivity analysis on whether adjusting for illness taking precedence over injury affected the main results. However, it was not reported whether individuals with multiple events had worse mental health than those with single events. Further, no information was provided on the proportion of the 108 individuals with multiple events who had both illness and injury events. It is understandable that the authors cannot include every analysis in the manuscript, but they should at least note to readers that the associations between illness or injury with mental health problems could have been affected by their choice of the most severe event.

Discretionary Revisions:

1. The authors did not find an association between having an OpEDAR event and alcohol misuse, which may be likely due to similar percentages of those with no event (17.5%) reporting alcohol misuse to those with an event who misused alcohol (18.9%). In the discussion section they discuss the lack of an association between injury and alcohol misuse, but do not mention the lack of association with illness.

Level of interest: An article of outstanding merit and interest in its field

Quality of written English: Acceptable

Statistical review: No, the manuscript does not need to be seen by a statistician.

Declaration of competing interests:

I declare that I have no competing interests.