Reviewer's report

Title: Coping and back problems: Part 1. Analysis of multiple data sources on an entire cross-sectional cohort of Swedish military recruits.

Version: 1 Date: 28 November 2005

Reviewer: Eugene J Carragee

Reviewer's report:

General

This is an important paper and I enjoyed the chance to read the manuscript. There are a number of issues that can be resolved with some revision. Since I believe this can be a landmark study it will need to be better supported regarding lost subjects, the screening that apparently some subjects received and others did not, and the proper statistical analysis / presentation. Finally I hope the authors can put together a table of the raw data including the breakdown from the numbers considered for enrollment, through the screening process and the final cohort that is accepted for military service with the rates of outcomes and dependant variables at each stage. I look forward to seeing the revised manuscript.

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Major Compulsory Revisions (that the author must respond to before a decision on publication can be reached)

Abstract: The discussion of risk factors versus risk indicators does not seem germane to this study as it is a simple cross sectional study design and cannot discriminate between these issues.

Methods: The 2% of the study population rejected, some for severe illness, is an important loss. It is not clear why these were excluded and if the data still exists for this group. How many were rejected for military service at this first screening due to back problems.

It is hard to tell the impact of the progressive screening (in which not all recruits get the same battery of tests). To be clear did all the enrolled subjects take all of the tests?

It would be helpful to better understand the threshold for making diagnoses on the part of the screening doctors. Were these apparently equal at all centers? What were the instructions given to the screening doctors in making diagnoses? This reviewer has performed thousands of screening examinations of military personnel for duty, the purpose is sometimes to make a comprehensive list of all medical issues in the soldiers history. In other cases the purpose is to list only those which in the opinion of the military doctor is likely to impact performance of duty. In that case the “severity” of the disease is built into the screening.

It would be helpful to understand the ability of recruits to avoid service by feigning ill-health or exaggerating mental or copying deficiency. A young man hoping to avoid service may purposefully present as unable to cope with most past health issues...

Is it known how many subjects determined to have ill-health had back pain disorders?

Results:
The findings of only 11% of subjects with back problems (as opposed to any history of back pain which may be expected to be higher) seems to indicate that a higher degree of severity was built into the screening process than simply any back problems with not expected functional impact.

Some to the ICD 10 diagnoses used in the study should perhaps be reconsidered. It seems the authors or really interested in the risk factors for back pain / troubles association is subjects without significant structural disease. It is puzzling to see concrete structural diagnoses included in the diagnoses for analysis (scoliosis, Scheuermann’s disease, etc.) I believe the face validity of the study would be improved if these diagnoses were excluded. By far most scoliosis and kyphosis patients are without serious symptoms and are simply examination observations.

Page 9, last paragraph -- Is it correct that approximately 35% of the recruit population was rejected for military service based on health reasons. This seems to be a very high number. This paragraph seems somewhat hard to understand. If the occurrence of these outcomes is really this high, it may be that the reporting of Odds Ratios is inappropriate. As pointed out in an article in "Statistics in Medicine" by Helena Kraemer (2004,"Reconsidering the odds ratio as a measure of 2 x 2 association in the population"), the odds ratio is a baffling figure for statisticians and nonstatisticians alike. It is easily misinterpreted, unless it is used as an approximation for the relative risk of a factor. This latter interpretation is allowed only if the prevalence of the outcome under consideration is rare. As about 30-40% of the subjects have the outcomes in question, the OR may be inappropriate statistic in this setting.

Page 10: The authors state in the same paragraph that there were definite association between all five predictor variables, then the authors state at the bottom of the page there were no significant interactions between any of the predictor variables. Please clarify, this seems hard to follow.

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Minor Essential Revisions (such as missing labels on figures, or the wrong use of a term, which the author can be trusted to correct)

Discretionary Revisions (which the author can choose to ignore)

What next?: Unable to decide on acceptance or rejection until the authors have responded to the major compulsory revisions

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

Quality of written English: Not suitable for publication unless extensively edited

Statistical review: Yes

Declaration of competing interests:

I declare that I have no competing interests'