Author's response to reviews

Title: Musculoskeletal disorders in shipyard industry: prevalence, health care use and absenteeism

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Version: 2 Date: 6 November 2006

Author’s response to reviews: see over
Changes made in the manuscript “Musculoskeletal disorders in shipyard industry: prevalence, health care and absenteeism” in response to the reviewers’ reports

Dear Editors,
We are grateful of both reviewers’ valuable comments. The manuscript has undergone modifications in response to their comments. One by one point responses are presented below.

Reviewer: Kim K. Burton

Major Compulsory Revisions
1. We have added some text in the introduction and discussion sections to acknowledge the cross-sectional nature of this study and the apparent limitations in interpretation.

   New text, introduction:
   Although it must be acknowledged that this cross-sectional study has strict limitations with regard to causality, the results are nevertheless of importance to prioritize further research in this industry to improve occupational health care.

   New text, discussion:
   See remark 2a.

2a. Cross-sectional nature and interpretation
   We have changed all terms referring to risk factors and/or causal relations throughout the text. In addition, we have included a separate section outlining the most important limitations of the study.

   New text, discussion:
   Some limitations of the study need to be considered in the interpretation of the result. First, this cross-sectional study does not permit conclusions as to the causality of the associations. Second, this study may suffer from information bias since most data were based on self-reports. The presence of recall bias may account for the associations between chronicity and care use when subject with more short, benign episodes of MSDs underestimate their actual care utilisation. Although this effect of recall bias cannot be excluded, our observation are in line with prospective studies on determinants of health care use [10, 14]. This recall bias is less likely to play a role in the associations between work-related factors and MSDs and their consequences, since Toomingas and colleagues did not observe bias in self-reported physical exposure and pain [31]. Third, the interrelation between physical factors and psychosocial factors at work was high. As a consequence, in the multivariate analysis it is to some extent arbitrary which specific work-related determinant was included in the final model. Hence, the presented models cannot be used to target specific aspects of physical load or psychosocial load. In addition, the inclusion of correlated variables in a multivariate analysis may result in lower ORs.

2b. Self-reported workload
   We have introduced a short discussion on the limitations of self-report workload.

   New text, discussion:
   As stated before, the aspects of physical load were measured rather crudely on a four-point scale and, thus, these variables will lack discriminatory power. In addition, the patterns of physical load were distinctively different for blue-collar and white-collar jobs and for men and women. In the statistical analysis it could not be ascertained whether the
observed impact of job type and gender on sickness absence (and health care use) was partly due to differences in physical load.

2c. Comment on the generally low ORs
See remark 2a.

3. Rewrite discussion
We have rewritten the discussion with more focus on the background of the study and the two aims of the study (see abstract) and the interpretation of the results. See also remark 1 and 2 above.

4. Role of psychological factors
We have added a sentence in the study design section to state that we have not collected this type of information. In addition, we have made a statement in the discussion.

New text, methods:
Personal psychological factors were not included in this study.

New text, discussion:
In general, we found weak associations between psychosocial factors at work and subjective health complaints with absenteeism (mainly for shoulder/neck), while other studies have shown various effects [9,20,44-46]. However, one has to bear in mind that in the current study only a limited number of psychosocial aspects at work were taken into consideration. Given the importance of chronicity of complaints for care seeking and sickness absence, more attention is needed to those factors that determine the transition from acute to chronic MSDs, especially individual psychological traits. A disadvantage of this occupational study is that psychological factors were not addressed and, thus, their potential influence on absenteeism and care seeking could not be established.

5. Conclusion
We have re-phrased the conclusion in the abstract and discussion sections. See remark 1 on reviewer 2.

6. We have summarized the important findings in the conclusion section.

Reviewer: Irina Rivilis

Minor Essential Revisions
1. All abbreviations have been defined when first used.

Discretionary Revisions
1. We have decided to retain the first statements on (financial) consequences as this is part of the rationale to study sickness absence. However, we have changed the text slightly to draw attention to the fact that indirect costs are high.
New text, abstract & discussion:
In programmes aimed at preventing the unfavourable consequences of MSD in terms of sickness absence and health care use it is important to identify the (individual) factors that determine the development of chronicity of complaints. These factors may differ from the well-know risk factors for the occurrence of MSD that are targeted in primary prevention.

2. We have re-edited the manuscript carefully in order to improve the use of the English language.

3. We have added relevant information on the jobs held by white collar workers in the last paragraph of methods (study population) section.

New text, Methods:
White collars consisted mainly of office employees like accountants, designers, secretaries, telephone operators, computer experts, managers, and construction engineers.

4. The discussion has been revised thoroughly, also in response to the first reviewer.