Author's response to reviews

Title: Psychosocial and other Working Conditions in Relation to Body Mass Index in a Representative Sample of Australian Workers

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Author's response to reviews: see over
Reviewer number 1
Job Strain, Effort -Reward Imbalance and Work Life Balance in Relation to Body Mass Index
Title: in a Representative Sample of Australian Workers
3 12 August 2005 Version: Date:
Tores Theorell Reviewer:
Reviewer's report:
General
This work is valuable for researchers who are aiming at increased understanding of associations between work environment and cardiovascular disease. They have a good study sample and their methods are adequate for this goal.

Major Compulsory Revisions (that the author must respond to before a decision on publication can be reached)
1. There is probably more published literature on these associations. For instance I lack reference to Melamed’s work in Israel where they have published extensively about relationships between psychosocial factors and life style factors including BMI. But it is difficult to find this so the authors have done a reasonable literature search.

THIS WAS ALSO NOTED BY OTHER REVIEWERS. WE HAVE FOUND 3 MORE PAPERS AND ADDED THESE TO OUR LITERATURE REVIEW.

2. Why only "similar" cut-off for women as for men? Give the numbers instead.
USE OF CUTOFFS IS NOT NECESSARY NOW AS, WE HAVE TAKEN THE ADVICE OF REVIEWER #2 AND CONDUCTED LINEAR REGRESSION ANALYSIS.

3. I feel that the authors are overstating some of their findings. It is true that the reader could use own judgment in refuting or accepting statements about odds ratios with lower confidence limits below 1. However both in the crude and the fully adjusted model the only safe work environment finding (which is quite interesting in its own right) is that low control is associated with low BMI in women. I feel that the authors should focus more attention to this main finding instead of making lots of descriptions of findings that may be random or borderline random findings. FINDINGS ARE NOW SOMEWHAT DIFFERENT, BECAUSE WE’VE USED LINEAR REGRESSION MAKING SOME OF THESE CONCERNS MOOT. BUT, IN PRESENTING OUR TABLES AND DISCUSSION WE HAVE FOCUSED MORE ATTENTION ON MAIN FINDINGS AS THIS REVIEWER HAS SUGGESTED.

4. The full model certainly overadjusts and it would actually be interesting to know what happens to the associations in a more stepwise fashion. The relationships are attenuated by the adjustment variables but one wonders for instance about hostility and work-home balance. Hostility could be part of a chronic illness problem (NB underweight) and therefore adjusting for hostility could lead to underestimation. Likewise long working hours lead to adverse home-work balance and therefore adjusting for this variable is likely to lead to underestimation of that association. I think the authors should develop more discussion along these lines and I also feel the manuscript would benefit from less presentation of findings that could be random findings. WE HAVE DROPPED WORK/LIFE BALANCE FROM THE ANALYSIS BECAUSE THE QUESTIONS USED WERE NOT GROUNDED IN THE LITERATURE.
AS WELL, WE LEFT HOSTILITY IN THE UNIVARIATE ANALYSES TO SEE IF IT WENT INTO THE MODEL. IT DID NOT SO WAS DROPPED FROM THE MULTIVARIATE MODELS.

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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) THESE HAVE BEEN FIXED.
A couple of minor spelling errors were found. THESE HAVE BEEN FIXED.
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Discretionary Revisions (which the author can choose to ignore)
Accept after minor essential revisions What next?:
An article of importance in its field Level of interest:
Acceptable Quality of written English:
No Statistical review:
Declaration of competing interests:
I declare that I have no competing interests

Reviewer number two
Job Strain, Effort -Reward Imbalance and Work Life Balance in Relation to Body Mass
Index Title:
in a Representative Sample of Australian Workers
3 31 August 2005 Version: Date:
Johannes Siegrist Reviewer:
Reviewer's report:
General
This study analyses the relationship between psychosocial work conditions, in terms of the two work stress models demand/control and effort-reward imbalance, and overweight/underweight. In addition, work-life balance is assessed. Gender-specific analyses reveal no associations among men, but in women, low occupational status and low control at work were related to underweight. Additional associations with work stress were either weak or non-existing. The study is of interest as it has the potential of filling a gap in occupational epidemiology. However, in its current form, several shortcomings are obvious.
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Major Compulsory Revisions (that the author must respond to before a decision on publication can be reached)
1. The Introduction describes the state of the art. This is useful, but authors should describe their strategy of literature search as there exists at least one important study on the topic which was missed. Kivimäki et al. (2002) documented a strong association of effort-reward imbalance at work and weight gain over a 10 year observation period. WE HAVE CONDUCTED A THOROUGH LIT REVIEW AND OBTAINED, AS OUTLINED IN THE OUR RESPONSE TO THE FIRST REVIEWER, 3 PAPERS AND ADDED THESE TO OUR LITERATURE REVIEW.

2. The Introduction should also make more explicit the potential links between work stress and weight change (eating behaviour? lack of physical exercise? stress hormones and metabolism?). THIS HAS BEEN DONE.
3. Sample: Sampling was done with White Page listings of phone numbers. We know from other countries that this is a risky strategy as specific population groups (young people, low status groups) are systematically underrepresented. This issue might be
discussed if it exists in Australia as well. In addition, response rates should be given separately for each quota group. **THIS HAS BEEN DONE**

4. For me it is not quite clear how response rates were calculated.

**INDEED THE SAME ISSUE AFFECTS TELEPHONE SURVEYS IN AUSTRALIA. TO ADDRESS THE TENDENCY OF YOUNGER PEOPLE TO BE HARDER TO REACH IN TELEPHONE SURVEYS, WE ASKED TO INTERVIEW THE YOUNGEST WORKING PERSON IN EACH IN-FRAME HOUSEHOLD. OUR SAMPLE LIKELY UNDERREPRESENTS LOW STATUS GROUPS, SUCH AS PEOPLE WORKING MULTIPLE LOW STATUS JOBS. WE HAVE ADDED THIS LIMITATION TO THE DISCUSSION SECTION.**

IN FRAME HOUSEHOLDS ARE DEFINED AS THOSE CONTACTED THAT SAY THEY HAVE ONE OR MORE WORKING RESIDENTS AGED 18 YEARS OR OLDER.

RESPONSE/PARTICIPATION RATES WERE CALCULATED AS THE PERCENTAGES OF IN-FRAME HOUSEHOLDS COMPLETING THE INTERVIEW.

REASONS FOR IN-SCOPE NON-COMPLETIONS WERE AS FOLLOWS: SELECTED RESPONDENT TEMPORARILY UNAVAILABLE TO CONTINUE (107), SELECTED RESPONDENT REFUSED TO CONTINUE (46), PHONE ANSWERER REFUSED TO PASS ON TO ELIGIBLE RESPONDENT (27), APPOINTMENT MADE, BUT NOT ACHIEVED (228), SELECTED RESPONDENT AWAY FOR DURATION OF CALL-BACK PERIOD (157). **TOTAL IN-SCOPE CONTACTS = 1666. INTERVIEWS COMPLETED = 1101. PARTICIPATION RATE = 1101/1666 = 66%**

WE DO NOT HAVE PARTICIPATION RATES FOR THE THREE QUOTA GROUPS SEPARATELY. WHAT WE DO KNOW IS THAT THE UPPER WHITE COLLAR GROUP FILLED FIRST, THE LOWER WHITE SECOND, AND THE BLUE COLLAR GROUP LAST. THIS RESULTED IN 363 CONTACTS WITH UPPER WHITE COLLAR WORKERS THAT WERE DISCONTINUED DUE TO QUOTA FULL, AND 89 CONTACTS WITH LOWER WHITE COLLAR WORKERS DISCONTINUED DUE TO THAT QUOTA BEING FILLED.

5. Measures: The original demand/control scale contains more items. Authors should describe their measure more precisely. Concerning effort-reward imbalance, authors should indicate how they dichotomised the continuous variables.

**DCM AND ERI SUBSCALES WERE DICHOTOMIZED AT THE SAMPLE MEDIANS.**

6. Results: No description of the exposure variables is given (e.g. percentage of subjects with a ratio >1.0 on the effort/reward measure). This information is important when interpreting the odds ratios.

**THIS HAS BEEN DONE.**

7. No convincing reason was given why authors used logistic regression instead of linear regression. BMI is essentially a continuous variable, and all available information should be explored. Furthermore, choosing a BMI 25 cut point may be misleading as a majority of the sample exhibits values beyond this cut point. Again, dose-response associations might be explored. **WE THINK THE REVIEWER IS CORRECT IN PARTICULAR THAT**
USE OF LOGISTIC REGRESSION HAS LED US TO UNDER-UTILIZE ALL THE DATA. WE HAVE, ACCORDINGLY, TAKEN THIS REVIEWERS ADVICE AND CHANGED OUR ANALYSIS TO LINEAR REGRESSION MODELLING OF CONTINUOUS BMI OUTCOME.

8. In the Discussion, the meaning of the negative findings should be discussed, in full recognition of the limitations of the study. THIS HAS BEEN DONE.


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)

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

major compulsory revisions
An article of importance in its field Level of interest: Acceptable Quality of written English: No Statistical review:

Declaration of competing interests:
I declare that I have no competing interests.

Reviewer number three
Job Strain, Effort -Reward Imbalance and Work Life Balance in Relation to Body Mass Index

Title:
in a Representative Sample of Australian Workers

3 7 September 2005 Version: Date:
Jussi Vahtera Reviewer:

Reviewer's report:
General

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

TITLE, ABSTRACT, ELSEWHERE

1. According to the title, the focus is on body mass index (a continuous variable) and according to the abstract on overweight, obesity and underweight. The results, however, are based on the differentiation of those with BMI<18.5 (underweight) and those with BMI>25 (overweight and obesity combined) from those with a normal weight, nor exactly matching the title or the abstract. THIS POINT IS NOW MOOT AS WE HAVE MOVED OUR ANALYSIS TO LINEAR REGRESSION.

INTRODUCTION
1.A description of the job strain and the effort-reward imbalance models should be given. HAS BEEN DONE.

2. The literature review could give a more concise summary of the findings so far instead of listing separately earlier studies on this subject. THIS HAS BEEN DONE.
3. The authors identified 11 studies which used some measures of job stress. At least the following two studies are missing:
Kouvonen et al. Relationship between work stress and body mass index among 45,810 female and male employees. Psychosomatic Medicine 2005;67:577-583. THESE STUDIES, AND ONE OTHER, HAVE BEEN ADDED TO OUR LITERATURE REVIEW.

METHODS
1. The number of items used to measure job demands was 3, much less than in the Job Content Questionnaire (ref. 21). Why, which items were used?
THE PSYCH DEMAND ITEMS USED WERE:
   a. I am not asked to do an excessive amount of work.
   b. I am free from conflicting demands that others make
   c. I have enough time to get the job done.

2. The measure for work life balance should be described in more detail as there is no reference for this measure. WE HAVE CUT OUT WORK/LIFE BALANCE AS THE QUESTIONS USED WERE NOT FROM THE LITERATURE.

3. Statistical analysis was based on logistic regression using two separate binary variables derived from body mass index: <18.5 vs 18.5-25 (underweight) and >25 vs 18.5-25. A more recommendable strategy would be to apply multinomial logistic regressions to model the associations between work stress and BMI as a variable with three values: underweight, normal weight or overweight (see, eg., Hosmer DW Jr, Lemeshow S. Applied logistic regression. New York: Wiley, 1989).

WE HAVE CONFLICTING RECOMMENDATIONS FROM DIFFERENT REVIEWERS AND HAVE CHOSEN TO MODEL CONTINUOUS BMI OUTCOME USING LINEAR REGRESSION IN ORDER TO OPTIMISE POWER (GREATER ABILITY TO SEE ASSOCIATED DIFFERENCES FOR CONTINOUS OUTCOME) AND INTERPRETABILITY OF RESULTS (EASIER TO PRESENT AND INTERPRET LINEAR REGRESSION RESULTS THAN MULTINOMIAL LOGISTIC)

RESULTS
4. According to table 1, the number of male and female participants is not 526 and 575, respectively, as argued in the abstract and in the text (p.11). TABLE 1 SHOWS 519 MALES AND 531 FEMALES BECAUSE BMI INFORMATION WAS MISSING FOR 7 MEN AND 43 WOMEN. THIS IS EXPLAINED IN THE TEXT ON PAGE EIGHT. A NOTE HAS BEEN ADDED TO THE BOTTOM OF THE TABLE INDICATING THIS. THE ORIGINAL SAMPLE CONSISTED OF 526 MEN AND 575 WOMEN. BMI INFORMATION WAS MISSING FOR 7 MEN SO THIS TABLE SHOWS DATA ONLY FOR (526-7)=519 MEN. BMI INFORMATION WAS MISSING FOR 43
WOMEN AND ONE WOMEN WITH BMI >60 WAS DROPPED FROM THE ANALYSIS SO THIS TABLE SHOWS DATA ONLY FOR (574-43-1)=531 WOMEN.

5. The authors should focus on the research question (ie. the relationship between job strain, effort-reward imbalance and work life balance, and body mass) rather than describe the adjusted associations between the various covariates and BMI (eg. p.13, 1st paragraph). YES, AS NOTED BY OTHER REVIEWER, WE HAVE FOCUSED MORE ON PRESENTATION AND DISCUSSOIN OF MAIN RATHER THAN PERIPHERAL RESULTS.

6. A table showing the number (percentages) of participants with underweight, normal weight and overweight by the background variables should be given.
TABLE 1 NOW PRESENTS MEAN BMI BY CATEGOREIS OF VARIOUS COVARIATES, AS APPROPRIATE FOR CHANGE TO CONTINUOUS BMI OUTCOME..

7. The result tables for the association between work stress and BMI would be easier to follow, if the background variables were excluded from them. THIS HAS BEEN DONE.

8. The number of participants with underweight is small (7 men and 33 women!). Thus, instead of giving separate tables for men and women, the analyses should be based on a combined sample and the sex differences could be analysed by interaction tests. MOOT NOW THAT WE ARE DOING LINEAR REGRESSION.

9. The number of participants should be added to these tables, too. THIS HAS BEEN DONE.

DISCUSSION

1. This is not the first study two utilize the effort-reward model (p.14). See the Kouvonen et al. (2005) study among 46,000 Finnish employees. YES, THIS HAS BEEN RECTIFIED.

2. The discussion is more a summary of the results than a discussion on the findings. YES, THE DISCUSSION HAS BEEN MADE MORE INTERESTING AND MORE THAN A SUMMARY.

3. Because there were only 33 women with underweight, the findings regarding underweight should not be highlighted (p. 15, 1st paragraph). This small number is rather something that should be added to the limitations. WITH THE MOVE TO LINEAR REGRESSION ANALYSIS THIS ISSUE IS NOW MOOT.

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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)
Reject because too small an advance to publish What next?:
An article of limited interest Level of interest:
Needs some language corrections before being published Quality of written English:
No Statistical review:
Declaration of competing interests:
I declare that I have no competing interests