Author's response to reviews

Title: Team climate, intention to leave and turnover among hospital employees: prospective cohort study

Authors:

Mika Kivimaki (mika.kivimaki@ttl.fi)
Anna Vanhala (anna.vanhala@ttl.fi)
Jaana Pentti (jaana.pentti@ttl.fi)
Hannakaisa Lansisalmi (hannakaisa.lansisalmi@ttl.fi)
Marianna Virtanen (marianna.virtanen@ttl.fi)
Marko Elovaaino (marko.elovaino@stakes.fi)
Jussi Vahtera (jussi.vahtera@ttl.fi)

Version: 2 Date: 14 April 2007

Author's response to reviews:

13 April, 2007

RE: Should I stay or should I go? ...(Manuscript ID 1405530616123258)

(Note that title has been changed. New title: “Team climate, intention to leave and turnover among hospital employees: prospective cohort study”)

Dear Editor,

Many thanks for the comments on our manuscript. We feel that they dealt with very important issues and therefore we have revised the manuscript in accordance. In addition to textual changes, this has affected on study design and analysis. The order of the authors has changed and one new author has been included. The new first author is Prof. Kivimaki. A list of amendments and responses to each point raised by the referees is as follows:

RESPONSE TO REVIEWER PATRICIA W. STONE

MAJOR COMPULSORY REVISIONS:

POINT 1 (Theoretical framework): This is a helpful suggestion. We have now re-designed the study and re-analysed the data. We use both individual level data (individual's perceptions) and group level data (co-workers' perceptions) to assess team climate and take into account the multilevel structure of the data in the analysis. The advantages of this approach are discussed as follows: "In addition to self reports, we used co-worker assessment of team climate, a measure based on aggregated work unit data. A high perceptual agreement provided a justification for the use of this group-level indicator in multilevel analysis that took into account the hierarchical structure of these data. The finding that both self-reported and co-worker assessed team climate were associated with intention to leave is important from conceptual, methodological, and practical point of views. First, the result demonstrates that the effects of team climate reflect influences related to shared perceptions of organizational members about the work environment -- not only the impacts of individual's subjective perceptions. Second, we were able to reduce bias arising from differences in response styles, because co-worker assessed team climate is an inferred measure independent of participant's own perceptions. The possibility that observed associations were inflated by common-method variance problems was also reduced. Third, the independent effects of self-reported and coworker-assessed team climate imply that interventions at individual and group levels might be useful in improving team climate and reducing intentions to leave." Pp. 10-11.

POINT 2 (Measures): We agree with this and have therefore excluded from the study cohort those individuals who reported that they would give up working completely. I included participants were those who either had intention to leave the job or had not this intention. To confirm the predictive validity of this intention to leave measure, we show a strong association between intention to leave at baseline and actually leaving the job by follow-up in new table 5 (note that giving up working completely was not predictive of actual leaving, a further reason to exclude this group from the study cohort). We have cited the two excellent reviews recommended by the referee. The TCI-short is commonly used as a one dimensional
measure and this is pointed out in the revised manuscript ("As in a number of previous studies,[16] [24] [25] we measured team climate as a one dimensional construct with a short version of TCI, the 14-item team climate inventory which has previously been validated,[26] [27]" p. 5), description of four factors which are not used in this study is omitted. The description of how the variables (self-reported team climate and co-worker assessed team climate) were developed is now placed in the measures section as suggested. We report Cronbach alphas for all scales and they suggest high internal consistency for these measures. Theoretical rationale for including the covariates is now provided ("Covariates were variables that have been correlated with intention to leave in previous studies: age,[30] [31] sex,[4] [32] organizational tenure (years employed by the organization),[4] [33] [34] and socioeconomic position (SES, upper non-manual, lower non-manual, manual according to the Statistics Finland Occupational Classification).[35] [36] [37] To control for the effect of health on intention to leave, we assessed minor psychiatric morbidity with the 12-item version of the General Health Questionnaire (GHQ) (Cronbach alpha 0.89; cases were those who scored 4 or higher on the questionnaire),[38] and self-rated health by the question: "What is the state of your health?" (a 5-point response scale [1 = good, 2 = rather good, 3 = average, 4 = rather poor, 5 = poor] which was dichotomized and used as an indicator of poor health [options 3, 4 and 5] vs not [options 1 and 2], as in previous studies).[39] [40] [41] [42] [43] [44] The 12-item GHQ has been validated against standardized psychiatric interviews [45] and self-rated health (dichotomised as in this study) has predicted mortality in various adult populations.[42] [43] [44] Comparisons with other health measures suggest that dichotomised self-rated health may be an even more inclusive and accurate measure of overall health status than medical records or self-reports of these records.[43] According to previous studies, poor health is strongly associated with considerations of leaving the job.[46]

POINT 3 (Statistical Analysis): As there were no statistically significant interactions between team climate and sex on intention to leave or actual leaving the post, all analyses in the revised version were based on a sample combining men and women. Use of correlation analysis is now described in the statistical analysis section.

POINT 4 (Results): All the tables have been revised. We include two cohorts: (1) all permanent employees at baseline to the study effects of team climate and intent to leave on actual turnover by follow-up; (2) all non-leavers who responded at baseline and follow-up to study the effects of team climate on intent to leave at follow-up. This provides a better understanding on the entire process from poor team climate to intent to leave and actual leaving (tables 3 to 5). We have discussed these findings as follows: "It has been hypothesized that intention to quit is a proximal precursor of turnover and that work-related factors may represent more distal causes in the withdrawal process [12]. Our findings are consistent with this general hypothesis. First, intention to leave strongly predicted actual leaving the job, a finding also reported in a number of other studies.[4] [7] [8] [9] Second, poor self-reported team climate predicted leaving the job, but this association attenuated towards the null after adjustment for intention to leave. Such an effect attenuation supports the possibility that intention to leave in part mediates the association between poor team climate and leaving the job.[49] Third, the effect of team climate on intention to leave at follow-up was stronger among those who initially did not have such an intention than among those who had. This demonstrates that team climate indeed precedes a change in intentions to leave." P. 10.

POINT 5 (Discussion): Discussion label now provided. The discussion section is completely re-written and expanded including a more careful comparison with previous studies which also points out the contributions of this study. We also note that: "Our sample was predominantly female corresponding to the sex distribution among hospital personnel in Finland and elsewhere. This study was conducted in one country, and it is therefore tied to the Finnish context. Other drawbacks of our study include homogenous sample (almost exclusively white Finns) and the restricted follow-up period (i.e., 2 to 4 years). Thus, further research is needed to confirm our results before they can be generalised to other countries, other contexts and multiple ethnic groups. A longer follow-up period would help in determining how distant a determinant of turnover team climate is. This may have practical relevance, as identifying an early determinant provides time to intervene and potentially reduce the rate of turnover." P. 11.

MINOR ESSENTIAL REVISIONS AND DISCRETIONARY REVISIONS:
POINT 1: These all have been corrected.

RESPONSE TO REVIEWER AFZAL M. RAHIM

MAJOR COMPULSORY REVISIONS:
POINT 1: We have clarified the contribution of this study in the revised discussion (please note that the study design and analyses has been revised).
First, we point out that to our knowledge, this study represents the first large-scale prospective investigation to test the importance of clear and shared goals, participation, task orientation and support for innovation in staff retention in hospitals (P. 4).

We also note that although this is probably the first study on team climate, intention to leave and turnover, there are several previous studies reporting associations of organizational climate and work group cohesion with withdrawal thoughts and behaviours.[4] [50] [51] [52] Organizational climate and work group cohesion are conceptually close to team climate, but they might provide a less practical basis for planning interventions to reduce turnover.[17] In general, our findings extend the evidence on psychosocial factors that have a significant role in people's decisions to continue working in their current workplaces. Previous studies have found that stressful aspects of work, such as high levels of job tension,[52] emotional exhaustion,[54] stress,[30] role conflict,[6] [32] [53] role ambiguity,[55] role insufficiency,[6] workplace bullying,[56] and low job control[57] are related to increased intention to leave. Career moves, rewards, and performance levels are also suggested to play a role in employee decisions about staying or leaving,[57] [58] [59] [60] In addition, empowerment, supervisor behaviour and relationships with supervisors and managers have been shown to contribute to employee retention.[14] [34] [36] [61] [62] P. 10.

Second, we point out that we use both individual level data (individual's perceptions) and group level data (co-workers' perceptions) to assess team climate and take into account the multilevel structure of the data in the analysis. The advantages of this approach are discussed as follows: "In addition to self reports, we used co-worker assessment of team climate, a measure based on aggregated work unit data. A high perceptual agreement provided a justification for the use of this group-level indicator in multilevel analysis that took into account the hierarchical structure of these data. The finding that both self-reported and co-worker assessed team climate were associated with intention to leave is important from conceptual, methodological, and practical point of views. First, the result demonstrates that the effects of team climate reflect influences related to shared perceptions of organizational members about the work environment -- not only the impacts of individual's subjective perceptions. Second, we were able to reduce bias arising from differences in response styles, because co-worker assessed team climate is an inferred measure independent of participant's own perceptions. The possibility that observed associations were inflated by common-method variance problems was also reduced. Third, the independent effects of self-reported and coworker-assessed team climate imply that interventions at individual and group levels might be useful in improving team climate and reducing intentions to leave." Pp. 10-11.

Third, we have also acknowledged use of longitudinal data. A recent literature suggests that much of the turnover research is characterized by small samples sizes and cross-sectional data.[4]. Longitudinal study design with a large cohort is a strength of this study because it enabled robust determination of the temporal order between team climate, intent to leave and actual leaving the job. Such data largely eliminate reverse causality (i.e., intention to leave affecting perceptions of team climate) as an explanation for observed associations. The response rates for the two surveys were 70% and 82%, respectively, which are satisfactory for studies of this kind.[63] P. 11.

POINT 1A: In previous studies, the short version of TCI is commonly used as a one dimensional measure and this is noted in the revised version ("As in a number of previous studies,[16] [24] [25] we measured team climate as a one dimensional construct with a short version of TCI, the 14-item team climate inventory which has previously been validated.[26] [27]\), p. 5). So, we did follow this approach and do not describe the 4-factor structure in this study. However, we have tested the structure of TCI-short in a previous study with confirmatory factor analysis and shown that the 4-factor model fits the data from hospital employees. Reference to this study is provided [26].

POINT 1B: We agree that 1-item measures are potentially unreliable. For this reason, the revised version tests the association between the 1-item intent to leave measure at baseline and actual leaving of the job by follow-up. The findings show a strong relationship between the two supporting the predictive validity of our single item measure.

POINT 1C: In the revised version, we have aggregated data at the team level to create an indicator of co-worker assessed team climate and shown that there is a high within-team (interrater) agreement justifying this aggregation (see p. 7).

POINT 1D: We have reanalyzed data with continuous measures of self-reported team climate and co-worker assessed team climate and drop analyses with categorical scales. Intent to leave is used as a dichotomy as the response options do not represent a continuum.

POINT 1E: As suggested, the revised version provides a Pearson correlation matrix (table 2).
POINT 1F: In the revised version, analyses are based on multilevel modeling that take into account of the hierarchical structure of the data. Adjustments are made as suggested (tables 4 and 5).

POINT 2: References have been updated (16 new references).

POINT 3: We preferred multilevel analysis without structural equation modeling. The strong effect may be more obvious for the majority of readers if the statistical analysis is not a very complex one (i.e., multilevel structural equation modeling).

RESPONSE TO REVIEWER BONNIE SIBBALD

MAJOR COMPULSORY REVISIONS:

POINT 1: We have included analysis of actual leaving in the revised version. This shows that team climate at baseline indeed predicts turnover by follow-up and that this effect seems to be mediated by intent to leave at baseline (table 5). We have discussed these findings as follows: "It has been hypothesized that intention to quit is a proximal precursor of turnover and that work-related factors may represent more distal causes in the withdrawal process [12]. Our findings are consistent with this general hypothesis. First, intention to leave strongly predicted actual leaving the job, a finding also reported in a number of other studies.[4] [7] [8] [9] Second, poor self-reported team climate predicted leaving the job, but this association attenuated towards the null after adjustment for intention to leave. Such an effect attenuation supports the possibility that intention to leave in part mediates the association between poor team climate and leaving the job.[49] Third, the effect of team climate on intention to leave at follow-up was stronger among those who initially did not have such an intention than among those who had. This demonstrates that team climate indeed precedes a change in intentions to leave." P. 10.

In the revised manuscript, we have also included those who declare intention to quit at baseline and shown that team climate predicts intention to quit at follow up more strongly among those who had not such intention at baseline than among those who had (table 4). In our opinion, the new analyses address all the concerns raised by the reviewer.

MINOR ESSENTIAL REVISIONS

POINT 1: 'Propensity' is replaced by 'intention'.

POINT 2: As there were no sex interactions, the revised analyses were run for men and women in combination.

POINT 3: These operationalisations have been clarified.

DISCRETIONARY REVISIONS:

POINT 1: In the revised version, only baseline information is used to define self-reported team climate with the outcome measure being intent to leave at follow-up (adjusted for baseline value). Compared to a situation where data on follow-up team climate are additionally used, the present design is less open to bias due to common-method variance which inflates association in particularly in cross-sectional data. The association between co-worker assessed team climate and intent to leave is analysed also in cross-sectional data, but this association is not vulnerable to common-method bias, because co-worker assessed team climate is independent of the participant's perceptions.

POINT 2: Results section and Discussion section have been separated as suggested.

Sincerely,

Mika Kivimaki and Anna Vanhala