Author's response to reviews

Title: The Relationship between Social Capital in Hospitals and Physician Job Satisfaction

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Author's response to reviews: see over
Dear Editor,

Dear reviewer,

In the name of all authors, I would like to thank the reviewer for his very constructive critical remarks as well as for the valuable advices. All recommendations were incorporated in the manuscript and documented in the following revision note.

We hope that we accurately considered the recommendations. We are available at any time for further inquiry or incorporation of additional changes of the manuscript.

Yours sincerely

Oliver Ommen

Comments Editor:

- Please clarify ethical approval. Experimental research that is reported in the manuscript must have been performed with the approval of an appropriate ethics committee.

The following paragraph was inserted on page 8: “This study was approved by the Research Ethics Board at the University of Cologne. All participants provided informed consent for the survey.”

Comments Reviewer 2

- In the introduction, the authors describe the various factors that may affect physician job satisfaction (e.g., workload, growing patients’ needs, autonomy, salary, vocational training). However, a formal definition of job satisfaction is missing. The authors should provide such a definition.

The following definition of job satisfaction was included in the main document on page 5: “Job satisfaction is defined as a global attitude that individuals have towards their jobs [35]. It is an extent to which one feels positively or negatively about different facets of the job e.g. job conditions, co-workers and working time [36-39] and is a complex set of interrelationships of tasks, roles, responsibilities, interactions, incentives and rewards [40].”

- The authors should update their literature review on physician social capital, including some additional recent references (e.g., Salvatore, 2006; DiCicco-Bloom et al., 2007; Waisel, 2005).

The literature review on physician social capital was updated - including the recommended references - (see page 6/7 in the main document).
- **The gap in the knowledge base should be identified and a description of how the present study might contribute to the existing body of knowledge should be given.**

The following sentences were included in the main document on page 14: “To our knowledge, there is no existing literature to date that has explicitly examined the relationship between social capital in hospitals and physician job satisfaction. Therefore, this article extends prior research of social capital in the health care industry by examining the relationship between social capital at the workplace and job satisfaction of clinicians.”

- **A description of sampling criteria (inclusion/exclusion criteria) and the sampling method used should be presented.**

The following sentence was included in the main document on page 8: “A total of 2,644 employees representing four German hospitals received an anonymous questionnaire by post. These employees had been working full-time or part-time in one of the four hospitals during the survey period. Further inclusion and exclusion criteria were not defined.”

- **The total number of physicians who responded to the poll (N=277) should be clearly stated in the Abstract.**

Done.

- **In the Methods section the authors should clarify whether all 277 physicians provided complete questionnaires.**

Almost all physicians provided complete questionnaires. The proportion of missing values among the items used in this analysis amounts only to max n=5.

- **The authors should note that the reported response rate (i.e., 62.2%) does not refer to that of the physicians. The response rate corresponding to the present study should be presented, instead.**

The following sentence was included in the main document on page 8: “Of the 2,644 employees, 454 were clinicians. 277 clinicians responded to the poll, for a response rate of 61%. This population made up the sample for the present study.”

- **Ethical issues (e.g., informed consent obtained, ethical approval granted) should be presented in the Methods section.**

The following paragraph was insert on page 8: “Ethics: This study was approved by the Research Ethics Board at the University of Cologne. All participants provided informed consent for the survey.”
Details regarding the psychometric properties (reliability and validity) of the instruments used to measure job satisfaction and social capital should be reported.

Prior factor analysis confirmed validity of all used scales (Pfaff et al. 2004). Internal consistency - measured with Cronbach's alpha - is presented in the text.

In measuring job satisfaction, the authors used a single item, covering satisfaction from working conditions, colleagues, working time, etc. The authors should justify their choice and decision, given that literature reviews (e.g., van Saane et al., 2003) suggest that multi-item, multi-dimensional instruments measuring job satisfaction are preferable.

Following Scarpello and Campell (1983), Wanous et al. (1997) and Nagy (2003) we decided to measure overall job satisfaction taking a single item approach. The most frequently argued advantages of single item measures in contrast to multi-item, multi-dimensional instruments measuring overall job satisfaction are the following: single item measures are much shorter and take up less space, are more cost-effective, may contain more face validity, appear to be correlated fairly with multi-item measures of overall satisfaction and may be better to measure changes in job satisfaction. Furthermore, the problem to operationalize job satisfaction – similar to patient satisfaction - is to integrate all factors influencing job satisfaction in one comprehensive instrument according to their individual weighting. In particular due to the lack of knowledge of the completeness of all potential influence factors and the lack of empirical and theoretical information about their individual weighting, a single item approach seems to be the more appropriate method. Highhouse and Becker (1993) e.g. found that facets such as company loyalty, enjoyment of work, and job significance were not captured by a composite facet measure, but were considered in making a global judgement about job satisfaction.

References:

Regarding collinearity diagnostics, the magnitude of the intercorrelations among variables, is just one of the indicators for this problem. However, multicollinearity can exist even when none of the correlation coefficients is very large. Thus, the authors should examine presenting additional indicators such as the tolerance of the variables and the variance inflation factor.
The following sentences were included in the main document on page 12:
“Regarding collinearity diagnostics, the magnitude of the intercorrelations among variables, is just one of the indicators for this problem. Therefore, additional indicators such as the tolerance of the variables and the variance inflation factor (VIF) are presented in table 6. The tolerance value shows the extent to which the independent variable in the corresponding line is predictable by other variables included in the model or whether it correlates with them. Tolerance values not lower than 0.1 or VIF-values up to 10 (VIF= reciprocal of tolerance value) [58] may be accepted. In this regression model no problems of collinearity arise, as all tolerance values are higher than 0.1 and all VIF-values are significantly lower than 10.”

- In order for a multiple linear regression analysis to be appropriate, it is important to conduct a search focused on residuals to look for evidence that the necessary assumptions are not violated. For example, if the assumptions of linearity and homogeneity of variance are met, there should be no relationship between the predicted and residual values, and the residuals should be randomly distributed in a band about the horizontal straight line through zero. If the assumption of normality is met, then the cumulative probability plot of the residuals (observed vs expected under the assumption of normality) should result in a straight line. Thus, the authors should report results on the possible violation of assumptions.

The following sentences were included in the main document on page 13: “In order for a multiple linear regression analysis to be appropriate, it is important to conduct a search focused on residuals to look for evidence that the necessary assumptions - i.e. normality and homogeneity of variance (homoscedasticity) - are not violated. Figure 1 shows the frequency of certain residuals. The value “0” indicates that no prediction error occurs. Negative values are corresponding to errors of overestimation, and positive values to errors of underestimation. If the residuals appear at random – as it is the case in this study -, the distribution of their frequency of occurrence should converge to a normal distribution. Furthermore there should be no relationship between the predicted and residual values in the cumulative probability plot of the residuals. The residuals should be randomly distributed about the horizontal straight line through zero. Figure 2 shows the cumulative probability plot of the residuals and confirms the assumption of homoscedasticity.”

- The authors should present research findings of other investigators that fail to support or provide support to their own findings.

The following sentences were included in the main document on page 14: “To our knowledge, there is no existing literature to date that has explicitly examined the relationship between social capital in hospitals and physician job satisfaction. Therefore, this article extends prior research of social capital in the health care industry by examining the relationship between social capital at the workplace and job satisfaction of clinicians.”

- Regarding the implications of the present research for practice, the authors
should consider suggesting interventions implemented or designed not only on the individual level (physicians/leaders) but also on the organizational level. For example, hospital settings should be designed so that there is ample interaction and cooperation among health professionals, emphasizing trust, reciprocity, alliances, bonding, and shared understanding, while promoting organizational justice and conflict resolution.

The following sentences were included in the main document on page 16: “Furthermore we suggest interventions implemented or designed not only on the individual level (i.e. physicians/leaders) but also on the organizational level. For example, hospital settings should be designed so that there is ample interaction and cooperation among health professionals, emphasizing trust, reciprocity, alliances, bonding, and shared understanding, while promoting organizational justice and conflict resolution.”

- Tables 1 and 2 may be redundant and their content could be included in the text.

Table 2 and Table 3 were deleted and the whole information was included to the text.

- Regarding Table 3, the reported percentages should be corrected. For example, the percentage that corresponds to visceral and vascular surgery should be 20.6, while that corresponding to neurology should be 14.4.

Done.

- Table 5: Since gender is a nominal variable, Pearson correlation coefficient between this variable and the rest of them is not the appropriate statistic.

Table 5 was revised.

- Table 6: The column named “non-standard. coefficients” should change to “unstandardized coefficients”. Moreover, the R2 changes should be corrected: .093 should change to .091, and .185 should change to .186. Finally, the title of this table should change from “…stepwise multivariate..” to “…hierarchical multiple…."

Table 6 was revised.