Author's response to reviews

Title: Leading during change: the effects of leadership on sickness absence in a Norwegian health trust

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Author's response to reviews: see over
Re: Leading during change: the effects of leadership on sickness absence in a Norwegian health trust

Dear Dr. Rijk

Thank you for the opportunity to improve our paper and have it re-evaluated.

We are grateful to both of the reviewers for their excellent comments. We appreciate their advice for improvements, suggestions for further reading and request for clarifications, and believe that the revisions have strengthened the paper. In the new version of the manuscript we have clarified concepts described in the text. In addition we have provided more information about the data, how it was treated and the motivation behind the choices made. Furthermore we have to a greater extent described the change process and discussed important aspects of the study highlighted by the reviewer’s, such as the importance of ill health for sickness absence. We hope these changes adequately address the reviewers concerns.

Finally, we have looked closer at the formatting to ensure that the manuscript meets BMC requirements.

In the attachment to this letter we provide a detailed point-by-point response to the reviewers concerns. The reviewers comments are given in black, and the author’s responses are given in red.

Sincerely yours

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Authors response to Reviewers’ report

Response to Lotta Delleve’s report

Is the question posed by the authors well defined? OK, but leadership behavior might be different due to what kind of changes that has been made. Therefore you need to specify that kind of changes.

Response: We agree. The type of change is now more precisely stated in the aim of the study (see quotes below).

“This study investigates how the line manager’s behavior relates to employee sickness absence in a Norwegian health trust during major restructuring” (Paragraph 1 page 4)

“To investigate the relationship between leadership and sickness absence during organizational change, we study a large Norwegian health trust undergoing major restructuring, including a move to new premises and the implementation of a new organizational structure” (Paragraph 2 page 8)

More details about the change is also added, see section “The health trust and the change process” page 8-9.

Leadership behavior: The variable negative leadership is a poorly defined concept that could include many aspects. Try to be more precise and relate to existing theories.

Response: We have attempted to clarify the concept in accordance with descriptions in other studies.

“Negative leadership concerns the leader's display of bad behavior towards others, especially subordinates. He or she breaks the codes of what is considered good conduct towards others. Favoritism, pigeonholing, and blaming others for one’s own mistakes are examples of such bad behavior. Negative leadership is then distinct from simply the absence of positive behaviors. In comparison with previous literature, our definition of negative leadership is similar to what Higgs terms “inflicting damage on others” [5], and to some extent to the “callous leader” Kellerman describes as uncaring and unkind [36]” (Paragraph 2 page 6)

Why did you not use one of the validated instruments of leadership behavior?

Response: We have now explained the reasons for not using a validated instrument in the limitations section of the manuscripts.
“Finally, the study did not use a previously validated questionnaire to measure leader behavior; instead, we used data collected as part of a leader evaluation. Therefore, we paid extra attention to the survey’s psychometric properties, and tested the factor structure’s validity as part of the present study. The results have supported the assumption that the questionnaire is reliable and valid. In addition, because the questionnaire was developed especially for leader evaluation in a health care environment, it encompasses issues especially important for leaders in the healthcare sector and other important variables less frequently studied, such as loyalty to superiors and negative leadership. Therefore, the questionnaire provided a great opportunity to study potentially important aspects of the line manager’s behavior that have received limited attention in the literature so far.” (Paragraph 1 page 25)

Sickness absence: The outcome variable is not clearly described and motivated. Did you include the cases of long term sickness absence, pregnancy-related sickness absence and all other kinds of sickness absence that are not related to organizational changes? Please describe better and motivate the choices you made.

Response: We agree. The absence variable is now described in more detail in the method section.

“The unit of analysis was all registered sickness absence measured in days of absence. More precisely, the variable includes the number of weekdays (Monday–Friday) registered as missed due to own ill health, from day one and until the person returned or no longer qualified for sickness absence benefits. In cases of part-time sickness absence, when a full day was not missed, only the appropriate portion of the day was counted as missed (e.g., 25%, 50%, etc.).” (Paragraph 2 page 12)

The motivation for the choices to include both short term and long term absence is also stated in the result section.

“Preliminary analyses were conducted to investigate the possible gain from distinguishing between self-certified absence and medically certified absence. However, the explanatory variables seemed to explain approximately the same proportion of variance in both types of absence. To maximize data strength, all absence was therefore included in the analyses presented here.” (Paragraph 1 page 16)

Additionally a further discussion of the inclusion of all sickness absence (not differentiated on diagnosis or length) is given in the discussion under limitations.
Additionally, because the data had limited strength and lacked detail, we were unable to analyze more precisely leader behavior’s effect on different types of absence. We were unable to distinguish between short- and long-term absences because the data lacked strength. Dividing the dependent variable would have limited the variation in the variable, and it would have been harder to get significant findings with the present data’s limited sample size. Previous research has shown that many risk factors are the same for both long and short spells of absence, including several work characteristics [59]. However, that both short- and long-term absence absences are included means that a small proportion of employees with long spells of absence unproportionately affect the data and results. We were also unable to distinguish from the rest those diagnoses more likely to have been influenced by a change process and by leader behavior. Most medically certified absence is absence due to muscle and skeletal disorders and mental illness, covering 42% and 18% of all absence, respectively, in 2008 [60]. These diagnosis are both health problems typically associated with stress [61-63], which therefore is likely to be influenced by change processes and by leader behavior (as argued above). Furthermore, it is possible that a stressful work environment influences other types of sickness absence (e.g., pregnancy-related absence [64]), though the effect will likely be much smaller. Nevertheless, further analyses differentiating between diagnosis and / or length of absence might give important information about the nature of the relationship between leader behavior and sickness absence.” (Paragraph 3 page 23)

The organizational change and setting can be better explained, what did it mean for various kind of functions/positions? Motives for change (open and hidden)? Need to include aspects of traditions regarding how subordinates use to have been able to influence changes.

Response: We agree. A more in-depth description about the changes made, the motivation behind the changes, how it affected the different divisions in addition to description of how the employees were able to influence the change process is now given. The section “The health trust and the change process” is expanded with one additional page.

“To investigate the relationship between leadership and sickness absence during organizational change [...]” see page 8-9
Additionally, a brief description of how the change affected the five units investigated is given under the method section.

“As previously mentioned, the two centers were created during the restructuring by merging smaller units. The division of nursing was created by moving tasks and responsibilities relating to hospital beds from the surgical and medical units into the new division. In this way, the new organizational structure particularly affected the three divisions.” (Paragraph 2 page 10)

How was the results of leadership behavior related to the actual change, and the process of change?

Response: With respect to the relationship between the change and our findings we now argue more clearly that the change and the change process might increases the impact of leader behavior

“We also expect that the effect of leader behavior on employees will be particularly high during organizational change, making it an important time to investigate the relationship. Indeed, in the context of major restructuring, where the demands on employees are high, the employees’ available work resources are likely to become more important [24, 25], and they might be more dependent on the leader to motivate and shield them from further work demands.” (Paragraph 4 page 4)

Additionally, we now state that the results presented in the paper might also be influenced by specific parts of the change process.

“High loyalty to superiors was related to higher sickness absence at time 2. This result supports the assumption that the less loyal manager may reduce the demands experienced by employees during change by adapting the change process to employee needs. This finding is in line with the fact that several line managers indeed opposed the change process, and might have actively shielded their employees from the changes.” (Paragraph 2 page 19)

However the present study does not have the appropriate data to test these assumptions. Instead we encourage researchers to look at this in future studies.

“To what extent these behaviors’ importance is restricted to settings of organizational restructuring should be further investigated in future studies.” (Paragraph 2 page 21)

Where there differences between the studied units that could explain the variations? Had they developed the change in equally manner?
Response: Yes, as can be seen from table 1, there were some differences between the units. Additionally, as we now explain more clearly in the introduction how they were affected differently by the restructuring (see above). Therefore as we now state more clearly under limitations, we have attempted to control the differences between units by controlling for divisions and department size. However, as we point out, the limited control variables still makes casual interference difficult.

“We must be careful in interpreting casual interferences between the variables, as we lack a control group and have only a limited number of control variables. By controlling for the different divisions and department size, we attempt to indirectly control for differences between the departments could influence our results (e.g., demography, work task, and effect of change), but having a greater number of detailed control variables would have been beneficial.” (Paragraph 4 page 22)

The authors state that "literature seldom on the importance of leadership for subordinates’ health and well being". Yes, I agree, but I miss some important references in the literature review. The paper would benefit to include references from for example the nursing management literature, e.g. Avolio, Aiken, Cummings etc.

Response: Thank you for the advice. We have now taken a new look at the nursing management literature and added a few extra studies.

“Cummings, Hayduk, and Estabrooks concluded that the negative effects of hospital restructuring on employees were indeed reduced in resonant leadership environments, where the leader displays high levels of emotional intelligence [11].” (Paragraph 2 page 3)

**Response to Carin Staland-Nyman’s report**

Since the outcome is sickness absence the prerequisites for being on sick-leave have to be further recognized in the paper. A prerequisite for sickness absence is illness, disease or injury that have consequences for a person’s ability to work. However, there is very little focus in the study on the importance of ill-health in a person’s decision to be on sick-leave and sickness absence is foremost discussed from an absence behavioral point of view, including the employees’ motivation to attend work. References addressing absence or absence behavior in general are used also in relation to sickness absence without any further discussion. The importance of subjects’ ill-health for sick-leave is not addressed or adjusted for in the analysis and this needs to be considered when interpreting the findings.

Response: We agree, the role of ill health in relation to absence is an important point to make. This point is now made more clearly in the introduction under “How leaders may influence sickness absence”.
“Bakker and colleagues looked at the total amount of absence and argued that the former process affected involuntary absence and the later voluntary absence [20]. We look only at sickness absence, and therefore assume that most measured absence includes a component of ill health [22, 23]. Instead, we expect that the first process (demands) affects the employees’ ability to work and that the latter (resources) affects their choice to be absent given their present ability.” (Paragraph 3 page 4)

A more substantial discussion of the relationship between ill health, motivation and sickness absence is now included in the discussion under “Sickness absence: A measure of ill health or motivation”.

“In interpreting the findings, it is important to discuss what we measure when we study registered sickness absence. Registered sickness absence is all absence registered as absence due to ill health. As previously argued, sickness absence is not a simple function of health, but an act influenced both by the employees’ motivation to attend work and their ability to do so [17]. Research has indicated that the proportion of registered sickness absences that is unrelated to ill health is likely to be small [23]. However, while several diseases or injuries preclude the possibility of attending work, many also leave room for the individual to decide. Motivation therefore plays an important role in the individual’s decision whether to be absent or to attend work when ability to work has been reduced [22]. The relationship between leader behavior and sickness absence might therefore be mediated by both motivation and ill health.

Empirical research indicates that medically certified long-term absence is an accurate measure of ill health while self-certified absence to a greater extent is also influenced by other factors, such as job satisfaction and subjective experiences [56-58]. Our analysis shows that leader behavior explained variance of both medically certified absence and self-certified absence. These results therefore indicate that leader behavior might influence employee health as well as motivation. However, this finding should be further investigated in future research.” p. 21-22

Finally we have gone through the text to make sure that it is more clearly stated throughout the text that the focus is on sickness absence, and not absence in general.

The information about the respondents is limited. No information is given related to division level.

Response: We have added a table with more information on the respondents at division level. See table 1.
A discussion of the findings in relation to the distribution of respondents’ characteristics (i.e. gender and age) would have been interesting. In particular the importance of gender is interesting since 86 % of the respondents were female. A review by Bekker et al. (2009) Sickness absence: A gender-focused Review might be of interest.

Response: We appreciate this recommendation. We have added a discussion on the consequences of the gender distribution under “Generalizability and the uniqueness of the health sector” in the discussion.

“Finally, employee characteristics, particularly gender distribution, are an important aspect of the health sector. The vast majority of hospital employees are female. In the present study, 86% of participants were female. In Norway, females have both higher self-certified absence and higher medically certified absence, even after subtracting pregnancy-related absence [60, 70]. A literature review of the relationship between sickness absence and gender showed that the psychosocial work environment might influence women’s sickness absence somewhat differently than men’s [71]. The review indicated, though not conclusively, that women might react differently to stressors, use different resources, and to a greater extent use absence as a coping mechanism. Active jobs, with high psychological demands and high control, have been associated with increased absence among women [30, 58, 72]. However, among men active jobs were not related to absence or were associated with decreased absence [30, 58, 72]. Similarly, an autocratic leader style was related to higher sickness absence in men, but not in women. And while women seemed to be adversely affected if their leaders practiced too much or too little team integration, men were not [12]. Perhaps, therefore, the results of the present study are not generalizable to a male-dominated population.” (Paragraph 4 page 26-27)

The response rate was 40%. No information is given about the response rate for different departments/divisions although the separate divisions are taken into account in the analyses (table 3, 4). The implication of the low response rate needs to be discussed when interpreting the results.

Response: We agree that the response rate is important. We have added information about the response rate for different divisions in table 1. In addition to the wave analyses, we have now included archival analyses. The implications of the response rate and the nonresponse bias analyses have now been discussed under limitations.
“Additionally, we conducted archival analysis to investigate if respondents differed on demographic variables from nonrespondents [45]. There was no significant difference in gender distribution between respondents and nonrespondents. Chi-square tests comparing age cohorts showed that the youngest age group (below 29) had a significantly lower response rate (p < 0.05). However, among those employees aged 30 or older there were no significant difference in age between respondents and nonrespondents (p > 0.05).” (Paragraph 2 page 13)

“The response rate of the present study was 40%, which is below the average of 48% in published articles [44]. A high response rate is generally considered important because it is expected to reduce the probability of nonresponse bias [65, 66]. Nonresponse bias occurs when nonrespondents would have answered significantly different compared to the actual respondents [45]; in such cases, it can be misleading to generalize the results to the population. Attempts have been made to formulate general rules about acceptable levels of response rates (e.g., analyses done by Kramer, Schmalenberg, Brewer, Verran, and Keller-Unger showed that a response rate of 40% or more was adequate to obtain representative data [67]). However, such rules may be misleading, because data with high response rates may suffer from more nonresponse bias than data with low response rates [45, 65]. Instead, it is important to also use techniques that more directly attempt to assess nonresponse bias [45]. In the present study, we used archival analysis and wave analysis to look for possible signs of nonresponse bias. Though there is an underrepresentation of employees in the youngest age group (below 29), the results generally support the representativeness of the respondents.” (Paragraph 2 page 24)

Information about the questionnaire is limited. It is not clear if the questionnaire was new or earlier validated for other sectors. Were some of the 91 items created only for this study or did the questionnaire include validated instruments? What is meant by …“some other topics of interest during the change process”?

Response: More information on the development of the questionnaire has been included in the method section.

“Organizational questionnaire. The questionnaire used was developed in collaboration between the University of Oslo and SINTEF research institute as part of a healthcare leadership evaluation. The questionnaire was first developed as part of a top healthcare management program in Norway [42]. The leadership program participants were asked about leadership issues and were asked to grade different issues through focus group interviews. A first
version of the questionnaire was then developed with 115 statements [43]. It was then tested in a pilot study at the top healthcare management program, and was used to sort out leadership profiles. Based on a factor analysis, the statements were sorted into eight leadership competencies and the number of statements was reduced to 90 and then tested again in a large survey performed in 2005 at the largest health trust in Norway, having more than 8,000 employees [43].

Based on experiences from 2005, the questionnaire was further developed, and was then used at another university hospital in 2008. It consisted of 91 items, formulated as statements, in addition to background variables. Participants were asked to assess, on a 5-point Likert scale, to what degree they agreed with the statements, from 1 (“to a small extent”) to 5 (“to a large extent”). The respondents were also given the option to answer “do not know” or “not relevant.” The present study uses the data collected during the leadership evaluation in 2008; however, it uses only those questions relating to the line manager’s behavior towards employees.

For the analyses investigating leader behavior’s relationship to sickness absence, a scale was created for the behaviors by averaging the items included for each behavior. Aggregated department scales were created by averaging the individual scales, giving five continuous variables ranging from 1 to 5. Finally, these variables were standardized for the linear analyses.” (page 11-12)

Additional information has been provided in the discussion section.

“Finally, the study did not use a previously validated questionnaire to measure leader behavior; instead, we used data collected as part of a leader evaluation. Therefore, we paid extra attention to the survey’s psychometric properties, and tested the factor structure’s validity as part of the present study. The results have supported the assumption that the questionnaire is reliable and valid. In addition, because the questionnaire was developed especially for leader evaluation in a health care environment, it encompasses issues especially important for leaders in the healthcare sector and other important variables less frequently studied, such as loyalty to superiors and negative leadership. Therefore, the questionnaire provided a great opportunity to study potentially important aspects of the line manager’s behavior that have received limited attention in the literature so far.” (Paragraph 1 page 25)
No information is given on how the answers were distributed according to the 5-point Lickert (neither for the total study population nor regards different divisions), or how the response alternatives were treated in the analysis.

Response: To better explain how the employee’s answers were distributed, values for skewness are now added in addition to the mean and standard deviation in table 2. As can be seen from the table, the responses are not normally distributed. However, what is important for the analyses is a normal distribution of residuals.

“The residuals from both regressions showed a normal distribution.” (Paragraph 2 page 17)

More information on how the response alternatives were treated is now added under the method section.

“For the analyses investigating leader behavior’s relationship to sickness absence, a scale was created for the behaviors by averaging the items included for each behavior. Aggregated department scales were created by averaging the individual scales, giving five continuous variables ranging from 1 to 5. Finally, these variables were standardized for the linear analyses.” (Paragraph 3 page 11-12)

The description of the outcome variable needs to be further developed. The unit of analysis was the average of all registered sickness absence days. The sickness absence days were then aggregated at department level in order to protect the anonymity of the participants'. Was there any differences regards the average sickness absence rate between the divisions? More information on the average rate of sickness absence days (for the total study population and for the divisions) at the two different times of measurement would have been valuable.

Response: We have included the distribution of sickness absence in different departments at the two time points in table 1.

Furthermore, was full-time and part-time absence days treated as equal?

Response: This is now clarified in the text.

“In cases of part-time sickness absence, when a full day was not missed, only the appropriate portion of the day was counted as missed (e.g., 25%, 50%, etc.).” (Paragraph 2 page 12)

What information is available on the distribution of sickness absence? The distribution of sickness absence is usually skewed i.e. a small number of persons generate a majority of
sickness absence days. This needs to be taken into account and further be discussed in relation to the results.

Response: Yes, this is an important point. The distribution of sickness absence is now given in table 1. Additionally the problems related to including long term absence is discussed under the limitation section.

“Dividing the dependent variable would have limited the variation in the variable, and it would have been harder to get significant findings with the present data’s limited sample size. Previous research has shown that many risk factors are the same for both long and short spells of absence, including several work characteristics [59]. However, that both short- and long-term absence absences are included means that a small proportion of employees with long spells of absence unproportionately affect the data and results.” (Paragraph 3 page 23)

Information on informed consent is lacking.

Response: Information on informed consent has now been added.

“The study fully complied with known ethical standards, including the Helsinki Declaration. The participation in 2008 was based on informed consent. When the data were re-used in 2010, the authors developed a design to protect the employees’ interests, to ensure the employees’ anonymity, and to ensure that the study was in line with the informed consent from 2008. With this special emphasis on anonymity, the project was then approved by REK (Regional Ethical Committee) of Western Norway (date: 08.10.2010).”
(Paragraph 4 page 12-13)

Limitations of the study and implications for the interpretation of the result need to be further discussed. This relates in particular to the outcome variable and low response rate.

Response: We have attempted to discuss this more thoroughly in the text in general and under the limitations section. See above.

Discretionary Revisions
On page 4 the authors refer to the work by Steers and Rhodes from 1978. The Illness flexibility Model by Gun Johansson from 2007 may give valuable additional knowledge.

Response: We appreciate the recommendation. The text has inspired us while writing the section titled “Sickness absence: A measure of ill health or motivation”

Quality of written English: Needs some language corrections before being published
Response: The manuscript have now been re-sent to editing by a professional native English speaker.