

## PEER REVIEW HISTORY

BMJ Open publishes all reviews undertaken for accepted manuscripts. Reviewers are asked to complete a checklist review form (<http://bmjopen.bmj.com/site/about/resources/checklist.pdf>) and are provided with free text boxes to elaborate on their assessment. These free text comments are reproduced below.

### ARTICLE DETAILS

<b>TITLE (PROVISIONAL)</b>	How do iLead? Validation of a Scale Measuring Active and Passive Implementation Leadership in Swedish Healthcare
<b>AUTHORS</b>	Mosson, Rebecca; von Thiele Schwarz, Ulrica; Hasson, Henna; Lundmark, Robert; Richter, Anne

### VERSION 1 – REVIEW

<b>REVIEWER</b>	Alejandro C. Arroliga Baylor Scott and White Health, Temple, Texas, USA
<b>REVIEW RETURNED</b>	26-Feb-2018

<b>GENERAL COMMENTS</b>	The reviewer provided a marked copy with additional comments. Please contact the publisher for full details.
-------------------------	--

<b>REVIEWER</b>	Erick Guerrero University of Southern California, USA
<b>REVIEW RETURNED</b>	06-Mar-2018

<b>GENERAL COMMENTS</b>	<p>This is a well-written manuscript proposing and testing the psychometric properties for measuring active and passive implementation leadership. Authors provide a thorough explanation for the need to examine both active and passive leadership behaviors to support employee implementation efforts. The introduction provided is thoughtful and grounded on key leadership styles. But, it needs a stronger connection with the extant leadership literature on mechanisms of change, particularly for passive leadership. Authors discuss two main leadership models with leadership styles (transformational and transactional as active behaviors and laissez-faire and active management-by-exception as passive behaviors). But authors miss opportunities to distinguish managers from leadership behaviors early on and demonstrate the discriminant validity between those two behaviors. This is apparent in the use of management-by-exception scale. Another issue is to take note of the characteristics of the population – 90% women in the interpretation of results. For generalizability purposes, what are the implications of this sample and relation to leaders, who may be mainly of the opposite gender? The statistics and reporting of psychometric properties is clear and well executed. Please refer to specific comments below to improve the distinctions raised above and the interpretation of findings considering limitations.</p> <p>Page: 4 Abstract: Given the 90% female respondents, what is the implication for findings?</p> <p>The model fit statistics provided show an RMSEA of .059. How</p>
-------------------------	--

	<p>acceptable is the model?</p> <p>Authors should provide the gender of the managers to characterize the leadership-followship sample.</p> <p>Page: 6 Please distinguish managers and leaders' behaviors related to the implementation process.</p> <p>Please define "quality of the actions" leaders take.</p> <p>Authors may want to first define managerial behaviors supporting implementation and then add how leadership behaviors enhance/contribute/add to manager's implementation behaviors.</p> <p>Page: 7 The description and use of passive leadership is confusing. If it is denominated leadership, what are the positive attributes of passive leadership?</p> <p>Authors refer to laissez-faire leadership but then later refer to it as "type of non-leadership", please clarify.</p> <p>Page: 8 It is important to distinguish management from leadership in definition and in operationalization using the active management-by-exception, and relating it to transaction leadership.</p> <p>Page: 9 I wonder if the study is better conceptualized as managers' leadership behaviors and passive behaviors.</p> <p>Page: 12 The process to validate the measure is comprehensive and thoughtful.</p> <p>Page: 13 Please clarify differences between college and University degrees.</p> <p>Page: 16 Analytical approach is well executed and clearly described.</p> <p>Authors need to provide more details on the process of validating content validity</p> <p>Page: 23 Excellent work!</p>
--	--

**VERSION 1 – AUTHOR RESPONSE**

Dear editors and reviewers,

Thank you for your valuable comments on how we can improve our manuscript. The manuscript has been revised and we have addressed the comments we received. All changes made to the manuscript has been highlighted using track changes. We have responded to your helpful comments

below and are looking forward to your response.

**Editors comments:**

**Comment 1:** Please revise the title of your manuscript to include the research setting (Swedish healthcare).

**Author's response:** We have added the research setting to the title.

**Comment 2:** Please revise the 'Strengths and limitations' section of your manuscript (after the abstract). This section should relate specifically to the methods of the study.

**Author's response:** This section has now been revised to only relate to the methods section.

**Reviewer(s)' Comments to Author:**

**Reviewer: 1**

Reviewer Name: Alejandro C. Arroliga

Institution and Country: Baylor Scott and White Health, Temple, Texas, USA

Please state any competing interests or state 'None declared': None declared

Comment 3: I read with enthusiasm the article titled: How do iLead? Validation of a Scale Measuring Active and Passive Implementation Leadership by Mosson et al. It was well written and serves as both an article about validation for a new tool (the iLead) and as an excellent background regarding leadership theory. The paper validates a scale that captures behaviors of managers during implementation of different projects in a major health care system. The paper anchor the scale and for that matter the hypothesis of the paper is positive behaviours (active leadership including positive behaviors in leaders (transformational leadership, a factor of active leadership and contingent reward, a different dimension of active leadership) are better than neutral or negative behavior (passive

leadership including passive management by exception and the so-called laissez-faire leadership, both dimensions of passive leadership). This work is well within the framework of positive organizational behavior and offer a valid instrument that improves the knowledge in the field, specifically in the health care industry. The active implementation leadership behavior basically creates an environment that fosters positive behavior, creating a psychological space that is safe and the scale measures the behavior in the implementation process. The authors adapted previous scales to reflect active and passive implementation behaviors within the structure of the Full Range Leadership Model. Although this model (FRLM) has been extensively studied, some authors may consider it incomplete. The iLead scale was developed as a part of an implementation leadership training intervention as described by the authors and they followed a well described, structured process to validate the content.

The sample was predominantly female (90%), high level of education with a mean age of 47, which is representative in the region of study. The instrument performed well and active leadership behavior predicted good implementation climate and passive implementation behavior in the leadership was neutral or negative. The limitations of the experiment were as well covered by the authors.

Measuring implementation leadership in this way is novel in health care and is needed, as the authors are correct that many of the inventories focus on positives and do not account for things like passive leadership that may negate the positive progress of active or transformational aspects of leadership.

**Author's response:** Thank you very much for your positive feedback.

**Comment 4:**

I have only a few recommendations regarding this paper. The paper is too long and is written in the style of Leadership Journals and Psychometrics or Psychology journals. It does not read as a medical paper. Because I believe it is an important topic, the authors may consider a couple of suggestions: 1) the overarching larger trial 2) making the background of leadership theory more succinct.

**Author's response:** We agree that this paper does not follow the style of a typical medical paper, by having a more extensive introduction and theory part as well as providing extended information on the different analyses used to validate the iLead scale. As we hope that the iLead scale will be broadly used in the future by other researchers, we decided that it is necessary to provide them with the essential details and information on how this scale has been constructed and evaluated to make the use of iLead as convenient as possible for other researchers. Unfortunately, this has resulted in a slightly longer paper than usual. We hope that the reader views it as an advantage that the whole process is thoroughly described and that it supports the decision to use the iLead scale in their research.

**Comment 5:** Lines 76, 268, 297 all reference the intervention, but 297 seems to have the most clarity, so the first time I read the manuscript, I was expecting there to be some report, results or discussion about the actual intervention. Therefore, I recommend that the abstract be a bit more clear or even use the language from 297 to help the reader understand that the intervention is not going to be part of this report.

**Author's response:** We have rephrased the first sentences under methods in the abstract to clarify that the data that we used in our validation study is collected from a leadership intervention. In addition, when the intervention is first mentioned in the methods section, we have clarified that more information about the iLead intervention can be found in the study protocol (lines 277-279). A reference for this study protocol that describes the intervention in detail is included throughout the paper.

**Comment 6:** The second issue, I would consider making the background regarding leadership theory a bit more succinct (113-190). Although I enjoyed this and it was well written, I don't think that amount of detail is needed to set up the validation study.

**Author's response:** We have made amendments to make this section more succinct. We do however believe that it is important to clearly emphasize the different leader behaviours of the FRLM to help the reader understand why we test the different models and why not all leader behaviours were included.

**Comment 7:**

Some additional thoughts:

75-77 – make this a bit cleaner see above comment for some direction as the first time I read it I was thinking that the intervention was going to be a part of the manuscript.

**Author's response:** Please see our answer to comment 5.

**Comment 8:**

79 – is extant supposed to be existent?

**Author's response:** We have changed extant to existent in line with your recommendations.

**Comment 9:**

89 – Consider a descriptor rather than saying "implementation process"

**Author's response:** This is a good point. The nomenclature in the implementation field is certainly not as distinct as one would wish for. We have therefore made sure to add a description of how we define 'implementation process' (as the process through which implementation occurs – from needs assessment, preparation, implementation/testing and sustainability of the implementation) in the beginning of the paper (lines 121-122). Thus, we would like to stick to using the term implementation

process since it is frequently used in the implementation science field and we would therefore prefer to continue to use this term to be consistent with previous research. We hope the definition will remove any obscurities as to what we mean when we use this term.

**Comment 10:**

162-163 – Motivational research may not support contingent rewards...

**Author's response:** Thank you for your attentive remark. Contingent reward triggers most likely employees' extrinsic motivation, however contingent reward has also the important function of creating clarity for employees what is expected from them, which is one important factor to secure a healthy work environment. To increase employees' intrinsic motivation transformational leadership can be used. This is why we have highlighted in the article that a combination of transformational leadership and contingent reward is recommended in the literature (lines 167-168).

**Comment 11:**

236 – insert rather before than?

**Author's response:** Thank you, 'rather' has been added.

**Comment 12:**

264 – This is the first and only time authors mention change leadership – should you expand on how it may have parallels to implementation leadership?

**Author's response:** This is a much valid point! We have rephrased this sentence to improve readability of the paper (lines 270-271).

**Comment 13:**

268-269 – Consider changing to: The iLead scale was developed to provide feedback for managers on their leader behaviours.

**Author's response:** We have rephrased this sentence (lines 276-277).

**Comment 14:**

302-304 – Consider changing to: All employees whose managers participated in the larger trial and who were not on leave of absence... (I recommend talking about the larger trial rather than the intervention to avoid confusing the reader)

**Author's response:** We have rephrased this sentence with anticipation that it increases readability. As for changing 'intervention' to 'trial', we struggled with this, being well aware that different words are used in different disciplines whom all resides in the health care context. Thus, whereas 'trial' is more common in the medical literature, intervention is used in other health care disciplines (psychology, nursing, physiotherapy etc.). In the end, we would like to stick to the term 'intervention'. The main reason for this is to be consistent with the study protocol and other upcoming publications for the intervention. Another reason would be that some would argue that the term 'trial' is associated with certain designs (RCTs), which has not been used for this intervention. In the methods section, we have clarified what we mean with the 'intervention' (line 277-279), and have removed the word 'trial' from the manuscript as we realized that we had used the this term in a sentence (line 311). We hope that this improves clarity throughout the paper.

**Comment 15:**

308-316 – first and last sentence have some redundancy, so it seems there is a more succinct way to get these points across.

**Author's response:** Thank you for pointing this out. We have revised these sentences to be more succinct.

**Reviewer: 2**

Reviewer Name: Erick Guerrero

Institution and Country: University of Southern California, USA

Please state any competing interests or state 'None declared': None declared

Please leave your comments for the authors below

**Comment 16:** This is a well-written manuscript proposing and testing the psychometric properties for measuring active and passive implementation leadership. Authors provide a thorough explanation for the need to examine both active and passive leadership behaviors to support employee implementation efforts. The introduction provided is thoughtful and grounded on key leadership styles.

But, it needs a stronger connection with the extant leadership literature on mechanisms of change, particularly for passive leadership.

**Author's response:** Many thanks for your positive feedback!

We share your view of the importance of the mechanisms behind leadership. Particularly concerning passive leader behaviours that are typically highly correlated to each other and related to negative employee and organizational outcomes, and negatively associated with active leadership. Yet, as you mention, this literature is extensive. Given the word limits and minding that reviewer 1 has asked us to shorten the introduction in general and the leadership theory in particular, in combination with the fact that this line of reasoning would go beyond the immediate scope of our paper, we see no other way out than leaving this line of inquiry to future studies.

**Comment 17:** Authors discuss two main leadership models with leadership styles (transformational and transactional as active behaviors and *laissez-faire* and active management-by-exception as passive behaviors). But authors miss opportunities to distinguish managers from leadership behaviors early on and demonstrate the discriminant validity between those two behaviors. This is apparent in the use of management-by-exception scale.

**Author's response:** Depending on the research field, differences have been made between managerial behaviours (which would signify primarily the transactional leadership part of the FRLM) and leadership behaviours. This is now clarified at the beginning of the introduction. However, we would like to choose to not make this differentiation in this paper based on the research showing that the combination of transactional and transformational leadership behaviours has the best effects for organizational and individual outcomes.<sup>1-4</sup> Therefore, both components, the managerial behaviours that try to maintain the status quo and the more proactive leadership behaviours aiming for change are needed.

**Comment 18:** Another issue is to take note of the characteristics of the population – 90% women in the interpretation of results. For generalizability purposes, what are the implications of this sample and relation to leaders, who may be mainly of the opposite gender?

**Author's response:** This is an important point since it has some implications for the generalizability of the results. However, the high percentage of females is representative of the Swedish health care context, both in regards to employees as well as line managers. You raise an interesting point in how the ratings of other-sex leader may differ from rating a same-sex leader. This should be something future studies should look at more closely.

**Comment 19:** The statistics and reporting of psychometric properties is clear and well executed. Please refer to specific comments below to improve the distinctions raised above and the interpretation of findings considering limitations.



**Author's response:** Many thanks for your useful and constructive feedback!

**Comment 20:**

Page: 4

Abstract:

Given the 90% female respondents, what is the implication for findings?

**Author's response:** Please see our answer to comment 18.

**Comment 21:** The model fit statistics provided show an RMSEA of .059. How acceptable is the model?

**Author's response:** According to Hu and Bentler, RMSEA values under .06 indicate that the model fit is acceptable.<sup>5</sup> However, with that said, research indicates that it is difficult to use a universal cut-off point for the RMSEA value.<sup>6</sup> Therefore, the RMSEA value is applied in combination with other goodness-of-fit measures to assess model fit, such as the chi-square, CFI and TLI, to ensure a sufficient test of the model fit.

**Comment 20:**

Authors should provide the gender of the managers to characterize the leadership-followship sample.

**Authors response:** This information has been added on page 13 (line 340) in the paper. Referring also to your comment 18, it can be shown that healthcare as a female dominated sector also has primarily female leaders.

**Comment 21:**

Please distinguish managers and leaders' behaviors related to the implementation process.

**Author's response:** Thank you for raising this important point. Please see our response to comment 17. As we define in our aim, the iLead scale focuses specifically on line managers implementation-specific leader behaviours, although this scale may still be used to capture leader behaviours of other key individuals for implementing change in organizations, such as informal leaders and change agents.

**Comment 22:**

Please define "quality of the actions" leaders take.

**Author's response:** We have rephrased the sentence in which this was stated, which is now formulated as: Implementation research has seldom relied on leadership theory to study the actions managers take to lead implementation.

**Comment 23:**

Authors may want to first define managerial behaviors supporting implementation and then add how leadership behaviors enhance/contribute/add to manager's implementation behaviors.

**Author's response:** We have added information about this on pages 4-5, where we emphasize that both managerial and leadership behaviours are important when implementing change, and that these sometimes, however, overlap.

**Comment 24:**

Page: 7

The description and use of passive leadership is confusing. If it is denominated leadership, what are the positive attributes of passive leadership?

**Author's response:** In regards to implementing change, there are no positive attributes to being a passive leader. Rather it will be expected that managers being high on passive leadership, which means abdicating responsibility and avoiding to take initiative, will not promote an implementation. Although we argue that it is also important to capture passive leader behaviours as these may negatively influence an implementation process and by identifying these, managers may become aware of their dysfunctional leadership which is the first step of being able to change.

**Comment 25:**

Authors refer to laissez-faire leadership but then later refer to it as "type of non-leadership", please clarify.

**Author's response:** Laissez-faire leadership is a style where a leader avoids taking action and making decisions. It is therefore perceived as a hands-off style of leading or a "type of non-leadership" that is considered the most passive and ineffective form of leadership. We understand that this phrasing might be causing confusion and have now rephrased this sentence (lines 177). We hope this increases the readability!

**Comment 26:**

Page: 8

It is important to distinguish management from leadership in definition and in operationalization using the active management-by-exception, and relating it to transaction leadership.

**Author's response:** Active management-by-exception can be argued to be an active way of managing in comparison to the passive leader dimensions. However, in comparison to the active leadership dimensions, active management-by-exception is more reactive than proactive and cannot be considered an effective leadership style. This is the reason for not including active management-by-exception in the iLead scale.

**Comment 27:**

Page: 9

I wonder if the study is better conceptualized as managers' leadership behaviors and passive behaviors.

**Author's response:** We defined active leadership behaviours as those behaviours that are transformational or fall into the group of contingent reward. Passive leadership behaviours, which might sound contradictory at first, are those behaviours that either represent laissez-faire leadership or passive management by exception. Even for those types of leadership that have negative effects, it is important to call them leadership to signify that the managers uses them with the aim to influence, even though this in the end results into other than expected effects. We have re-phrased the aim slightly to make it more readable.

**Comment 28:**

Page: 12

The process to validate the measure is comprehensive and thoughtful.

**Author's response:** Thank you for your positive feedback.

**Comment 29:**

Page: 13

Please clarify differences between college and University degrees.

**Author's response:** Thank you for pointing this out! We realize that “college” and “university” are used interchangeably in the US and that “college” should be replaced with high school (secondary education). Changes have been made on page 13 (lines 342-343) in the paper.

**Comment 30:**

Page: 16

Analytical approach is well executed and clearly described.

**Author's response:** Thank you for your positive feedback.

**Comment 31:**

Authors need to provide more details on the process of validating content validity

**Author's response:** We have provided more detail on how the Co-created program logic was carried out on page 11. A reference to a chapter focusing specifically on how the describing the Co-created program logic is also provided.

**Comment 32:**

Page: 23 Excellent work!

**Author's response:** Thank you for your positive feedback!

**FORMATTING AMENDMENTS** (if any)

Required amendments will be listed here; please include these changes in your revised version:

1.No Figure legend

- Please include Figure legends at the end of your main manuscript.

**Author’s response:** The following figure title and legend is provided at the end of the main manuscript, after the references.

**Figure 1. Standardized factor loadings for the iLead scale.**

Notes: n=336; All confirmatory factor analysis factor loadings are for Model 1 ( $\chi^2_{(99)}=382.864^{**}$ , CFI=.935, TLI=.911, RMSEA=.059) with four first-order factors under one second-order factor for active implementation leadership, which is intercorrelated with a passive implementation leadership factor.

2. Figure Resolution

- Please provide another copy of your figures with better qualities and please ensure that Figures are of better quality or not pix-elated when zoom in. NOTE: They can be in TIFF or JPG format and make sure that they have a resolution of at least 300 dpi. Figures in PDF, DOCUMENT, EXCEL and POWER POINT format are not acceptable.

**Author’s response:** Another copy of ‘Figure 1’ has been provided, which is in a JPG format with 300 dpi.

**References**

1. Judge TA, Piccolo RF. Transformational and transactional leadership: a meta-analytic test of their relative validity. *The Journal of applied psychology*. 2004;89(5):755-768.
2. Bass BM, Avolio BJ, Jung DI, Berson Y. Predicting unit performance by assessing transformational and transactional leadership. *J Appl Psychol*. 2003;88(2):207-218.
3. Rafferty AE, Griffin MA. Dimensions of transformational leadership: Conceptual and empirical extensions. *The Leadership Quarterly*. 2004;15(3):329-354.
4. Clarke S. Safety leadership: A meta-analytic review of transformational and transactional leadership styles as antecedents of safety behaviours. *Journal of Occupational and Organizational Psychology*. 2013;86(1):22-49.
5. Hu Lt, Bentler PM. Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling: A Multidisciplinary Journal*. 1999;6(1):1-55.
6. Chen F, Curran PJ, Bollen KA, Kirby J, Paxton P. An Empirical Evaluation of the Use of Fixed Cutoff Points in RMSEA Test Statistic in Structural Equation Models. *Sociological methods & research*. 2008;36(4):462-494.

**VERSION 2 – REVIEW**

<b>REVIEWER</b>	Erick Guerrero University of Southern California, USA
<b>REVIEW RETURNED</b>	01-May-2018

<b>GENERAL COMMENTS</b>	Authors have effectively addressed all issues raised. Only a thorough proof of the narrative may be necessary. I identified a few typos, e.g. "participants discussed these behaviours together in groups..."
<b>REVIEWER</b>	Alejandro C. Arroliga Baylor Scott and White Health, Temple, Tx. USA
<b>REVIEW RETURNED</b>	03-May-2018
<b>GENERAL COMMENTS</b>	The only recommendations not accepted was to cut the length of the paper. I am fine with that, will need the decision of the Editor-in-Chief. Otherwise I am fine with changes.