Author's response to reviews

Title: Evidence-based practice implementation: The impact of public vs. private sector organization type on organizational support, provider attitudes, and adoption of evidence-based practice

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

Please accept our revised manuscript “Private and Public Sector Organization Influences on Organizational Support, Provider Attitudes, and Use of Evidence-Based Practice” for consideration for publication in “Implementation Science.” Reviewers were positive about this manuscript. Reviewer 1 noted that the manuscript is “important to those with closely related research interests” and Reviewer 2 noted that it is a “solid effort” and “an interesting enjoyable and well written paper that makes a solid contribution to current work in EBP implementation.” Along with these comments were some insightful, practical, and helpful concerns and recommendations for revision of the manuscript. Below we address reviewer concerns and note where in the manuscript changes were made. In some cases reviewers were at odds regarding changes and we note these instances and the rationale for our response. Please contact me if you have any questions or concerns about this manuscript.

Sincerely yours,
Gregory A. Aarons, Ph.D.

Reviewer 1

1. COMMENT: The introduction is basically clearly written and easy to follow. However, it is lengthy and could be reduced about to half of its current length. Especially the hypothesis about the differences between private and public sector organizations could be tuned down and some of could be transferred to discussion.

   RESPONSE: While Reviewer 1 suggested that the introduction be reduced in length, Reviewer 2 stated that the introduction was “concise and the purpose of the study clearly defined” and that “The length was appropriate…” After re-reading the manuscript we concur with Reviewer 2 regarding the length of the manuscript. While we made some cuts based on Reviewer 1 comments, we believe the revised manuscript to be of appropriate length to describe the theories at play and provide an appropriate background for the hypotheses, analyses, and results.

2. COMMENT: I am not familiar with the ways mental health services are organized in US, and thus more information, however, is needed on this. At least Europe there are some fundamental differences in case mix, resources and organizational size between private and public organizations that may affect the possibilities in adopting new practices.

   RESPONSE: We agree that there may be case-mix differences between private and public institutions. In considering this issue we are uncertain that differences in case-mix would impact organizational support for innovation, provider attitudes, or provider adoption of evidence-based practice. Because the survey design did not include case mix data, analyses to explore these issues is beyond the purview of the present study. We have, however, addressed this issue as a limitation of the present study, and an important issue to be examined in future studies.
3. COMMENT: In this study, organizational type is basically a black box (not much to about the characteristics the make private and public different). Because of the importance of the factors behind the differences between the different types of organizations, I recommend that the authors present (in table 1) all the variables (frequencies or means and p-values for difference) in groups working in public and private organizations.

RESPONSE: As suggested, we have revised Table 1 to include between group tests of frequencies and means for study variables to provide more information about potential differences between organization types.

4. COMMENT: Instead (or in addition to) of path analyses, I'd like to see analyses of variance (or multilevel regression) using EBP attitudes and EBP use as dependent variables and organization type as independent variables. Then the role possible confounders or mediators could be tested by hierarchically adding other variables in the models.

RESPONSE: Reviewer 1 suggested conducting regression analyses instead of, or in addition to the path analyses. However, Reviewer 2 noted that the analytic approach was sound with the exception of testing an additional meditational path. We have elected to conduct additional analyses as suggested by Reviewer 2. As suggested by Reviewer 1, our analyses did control for the nested data structure.

5. COMMENT: All of the associations that are not statistically significant in correlations become significant in path models. Possible reasons for this could be discussed more (if path analysis is used).

RESPONSE: We noted this on page 15 in the results and specified that they would also be examined in the context of the path analyses. We added another analysis (Model 3) that is more consistent with the zero-order and helps to explain the previous results (i.e., Models 1 and 2).

6. COMMENT: (1) Again evident sources of residual confounding (case mix, resources, workload etc) that should be discussed and some of the (2) conclusions may be tuned down. This is a small scale study, with self-reported measures and limited number of explanatory variables

RESPONSE: We do control for individual provider characteristics in our analyses. This was not clearly evident as it was not represented in the figures. In this revision we are explicit that we are controlling for these factors. Also, as suggested we discuss some potential limitations of the study on pgs. 19-20. As suggested, we have moderated our conclusions to better reflect the design and findings of the study.

7. COMMENT: There is some inconsistency in references in text.

RESPONSE: We have reviewed all previous and new references and believe that we have made all pertinent corrections.
**Reviewer 2**

We respond to the item numbers from Reviewer 2 where revision or explanation was requested. Note that many of the numbered statements did not request changes.

1. **COMMENT:** The two theoretical models on which the study is based should be made explicit in the abstract and subsequent discussion of findings

   **RESPONSE:** In the abstract we refer to general theories but have not included citations (as is the common rule for abstracts). Because we draw from multiple theories, we wait until the body of the introduction to identify the theories upon which we draw.

4. **COMMENT:** However it is not clear to me to which theories the author is referring. The authors link theories of context influences and theories of attitudes and beliefs and suggest both impact behaviors. However, more clarity and statement of the theories and theorists is required to ground the study and provide the framework for the paper. Moreover, the authors may wish to consider alternative theories that could conceivably influence the relationship between context (type and support), attitudes and behavior. Theories that may be considered are for a) Agency Type – Institution theory holds that type of institution affects social norms and actions of the members. b) Theory of Planned behavior describe the interaction between attitudes and behavior; c) Interactionist theory explains the interaction of context and individual differences; d) Social exchange theory (Blau) explains possible reasons for individuals to act in exchange for something the organization has done under the Norm of Reciprocity. Specifically, Perceived Organizational Support (Eisenberger) holds that individuals will act in favorable ways if they feel there organization is providing the support they need.

   **RESPONSE:** We have clarified that our theories are based in part on our previous published work. We have added references to and discussion of Institutional Theory and the Theory of Planned Behavior that is particularly relevant for the link between provider attitudes and use of EBP. Norms of Reciprocity refers more to global support or a supportive environment while our model focuses on a specific type of organizational support, that is, support for EBP. Still this latter theory appears to apply and we have cited it on pages 8-9.

5. **COMMENT:** The method section was clearly described and given access to tools used could be replicated by another investigator reproduce the study. The authors should justify any choices available to them in their study design (e.g., choices of data collection techniques, analytic tools, or statistical methods. The hypotheses were effectively derived from a review of research and the statistical analyses were appropriate for their testing.

   **RESPONSE:** In the method section we justify choices where such choices were available. We also note that the data collection methods were developed with the CCMHS evaluation team and data collection was carried out by the national evaluation team for the project. In the Analyses section we now provide a rationale for the use of path analysis in preference to hierarchical regression.
6. COMMENT: (a) the authors could discuss other possible methods that could reasonably allow their hypothesis to be tested. (b) Furthermore, moderation may be appropriately considered here, i.e., does support for EBP moderate the relationship between agency type and attitudes to EBP. (c) Similarly, inclusion of the measure or scales for assessing these variables would be helpful. (d) Justification for using these tools in comparison to more standard measures of innovation or support (adapted ecologically) could be considered. (e) Next, psychometric properties or rationale for the development of the predictor (Agency Type), mediator (Support for EBP) and criterion scales is warranted (Use EBP). (f) Finally, arguably, the Training for EBP component of the measure of USE of EBP could serve as both a mediator and antecedent to Use of EBP. So separating these concepts and measures might be considered.

RESPONSE:

a) In the analysis section we contrasted path analysis and hierarchical regression, outlining a rationale for our choice of path analysis.

b) Moderation is one approach that might provide an additional perspective but would require dichotomizing the support variable based on some criteria (e.g., median split). We elected to examine the relationship between organizational support and attitudes toward evidence-based practice as a mediational relationship because we believe that organizational support for EBP would lead to more positive attitudes toward adopting EBP. While this cohort study will not allow us to definitively test the temporal mediation, the design allows for a theoretically driven assessment of the mediation hypothesis. Thus we elected to use the mediation approach.

c) The Evidence-Based Practice Attitude Scale is copyrighted and available free of charge from the first author so it is not included in the appendices. We did however include the items for the organizational support variable in the paper and the list of evidence-based practices in an appendix.

d and e) The EBPAS is a validated and standard measure of attitudes towards adopting evidence-based practice. Psychometric properties are listed on page 12. As described in the text, the measure of agency support for innovation was constructed from data originally designed to yield information about the frequency of different types of organizational supports throughout the organizational study population. From this data we developed an indicator of organizational support to explore potential relationships. We note the limitations of this measure on pages 19-20. Kuder-Richardson reliability is noted on page 12. Use of EBP is a count variable of specific EBPs utilized within the past year (respondent indicate yes/no to 31 specific EBPs). To our knowledge there is not a standardized scale that measures EBP use across many specific EBPs relevant to child mental health treatments. Additionally there are no appropriate psychometric properties to report for a count variable of this nature. Agency type is not a scale, but a yes/no variable indicating whether the respondent worked in a public or private organization (self-report). Again, no psychometric properties are appropriate.
f) We used having formal training in each identified EBP in order to qualify use of EBP. That is, we would only accept a positive EBP use response, if EBP training had been received. We believe that this is the most reliable way to assess use of EBP in the present study. While we would have preferred a better way to validate provider self-report other means were not available in this data set. We believe that because there were no inherent checks on training, that it was more important to use the EBP use variable. In addition, EBP use is a much more important outcome when considering adoption of evidence-based practice in usual care settings.

8. COMMENT: Two questions arise for me in this section. (a) First, the paper needs to make more explicit the rationale for testing two models, though intuitively conceivable that the mediation could be partial or full. A clear statement of the theoretical and empirical reasoning for this argument is required in this section. (b) Second, the authors should include steps taken in the analysis described this section to overcome the effects of common source error. Specifically, the author should source and take appropriate action as referenced in the seminal work on this topic by (Podsakoff et al 2003) to manage common method variance.

RESPONSE:

a. Previous studies have found that characteristics of the organization are associated with attitudes toward evidence-based practice (Aarons, 2004). Thus it was unclear whether we would find such a direct effect, or if we would find the effect of agency type would be fully mediated by agency support for EBP. In addition, we posited that provider attitudes toward evidence-based practice would predict EBP use. We also hypothesized in this revision that organizational support would be associated with EBP use (see Klein, Conn & Sorra). As can be seen in the revised results and the final model, organizational support had a direct association with EBP use and attitudes did not significantly predict EBP use.

b. As noted on pages 14-15, we engaged in several procedures to minimize the common method bias of only utilizing self-report from one source. Following recommendations by Podsakoff et al 2003 we attempted to estimate latent variable models that controlled for the effects of common method but such models experienced convergence problems, likely due to the different variable types (continuous, count, categorical) in the same model. However, consistent with Podsakoff et al (2003), the items that may potentially exhibit common source bias in this study have proximal and methodological separation in that they are measured in very different manners in different substantive sections of the survey. One set of questions relates to respondent attitudes as measured on a Likert-like scale, another set assesses their specific usage of individual EBPs through a battery of 31 questions related to different EBPs, and the third set of questions concerns the specific presence or absence of nine different organizational behaviors in the past year. Each of those sets of questions are embedded within a series of questions with a different substantive focus, respectively, general perceptions of EBPs, actual usage of EBPs, and organizational characteristics related to EBPs. Additionally, several of the study’s primary hypotheses involve objectively measured criterion, such as whether working in a
public or private agency, which should exhibit minimal potential for systematic bias. Finally, to promote accurate and unbiased responses and minimize any social pressures or expectations the survey was conducted voluntarily, confidentially, and online Podskaff et al (2003).

9. COMMENT: One edit only; page 10 –Second last sentence “missing data were low (rather than was).

RESPONSE: We have corrected the sentence.

11. COMMENT However, the authors do not fully discuss nor reference the limitations of the study. More attention should be placed on same source bias and means to overcome this in the current and future studies. There additional limitations that should be noted with reference to the criterion and mediator variables. Importantly, consideration of alternative theoretical models, the role of individual differences such as personality or proactivity (Frese, Crant) of the clinician could be an important moderator of and influence on attitudes and behavior. The opportunity to collect the criterion data at a different time should be considered along with improvements in study design by including a longitudinal element and alternative measures of individual differences eg proactive personality, or context eg perceived organizational support.

RESPONSE: We have more completely discussed limitations (see limitations section). In particular we address “same source bias” for this study.

12. COMMENT: Links to theory should be explained here and the way in which this paper endorses or extends the theories the authors suggested underpinned their reasoning for the study and its design/methods etc.

RESPONSE: The relationship of the theoretical perspectives to the findings has been more thoroughly addressed in the discussion section.

13. Optional COMMENT However, in both Figures 1 and 2 according to the structure of the figures, there are two mediators; however, only one has been assessed and reported. Specifically, Attitudes to EBP is being shown to mediate the relationship between Agency Type and EBP Use. Though clear in the text that the relationship analyzed in the model was a direct effect from Attitudes to Use (behavior), the manuscript should make clear that Attitudes to EBP was not assessed as a mediator.

RESPONSE:

Our new analysis of an additional model tested not only the mediational path but also a direct association of organizational support with EBP use. While we did find support for attitudes toward EBP being associated with EBP use in Figure 2, this path became non-significant in our final model and this is reflected in the revised model and results section.