Author’s response to reviews

Title: Measurement of Sustainment of Prevention Programs and Initiatives: The Sustainment Measurement System Scale

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Response to reviewers

Reviewer #1: * The article has merit and adds a valuable component to enhance the field's knowledge about sustainability and sustainment.

* What is a Sustainment Measurement System? The article mentions a scale/components/tool of the SMS. It is not clear overall what is the relationship of the scale/component to the whole system. Use one term and stick to it for consistency or explain each word to avoid confusion.

On p. 8 of the revised manuscript, we provide a more detailed description of the Sustainment Measurement System as a process for evaluating and facilitating progress towards sustainment of funded programs and initiatives and the Sustainment Measurement System Scale as a tool for measure sustainability determinants and sustainment outcomes. The focus of this manuscript is the Sustainment Measurement System Scale.

* While pointing gaps in the existing tools, a few lines are devoted to listing the current tools, but no specific details are provided as to how those instruments are lacking and how the new instrument covers those gaps. Consider adding particular item details to demonstrate how gaps exist. Are other tools cited valid and reliable?

We note on p. 7 of the revised manuscript that none of the existing measures assess both sustainability determinants and sustainment outcomes. Validity and reliability of the PSAT, SISC and PSI for measuring sustainability have been demonstrated, but the validity and reliability of the
SIC for measuring sustainment has not. With respect to the SIC we also note that the eighth stage has been defined as program sustainment, although continued use of the EBP once competency has been attained is not assessed.

* The article did not give the definitions of sustainability determinants, outcomes, and global sustainment. Are sustainability elements the same as sustainability determinants?

On p. 5 of the revised manuscript we distinguish between sustainability determinants and sustainment outcomes. Determinants are factors that predict for whether a program or initiative continues to operate. Outcomes refer to the continued operation of the prevention program/initiative. On p. 14 we define Global Sustainment as the average of the scores for each item included in the Sustainment Outcomes subscale. As described on pp. 11-12, the elements were constructs identified in the earlier study based on the triangulation of three qualitative data sets.

* The article refers to an "earlier study," but that reference needs to be condensed in a few sentences so the reader can understand the context.

We have deleted the reference to the “earlier study” as that study is described in detail in the preceding two paragraphs. We have also edited this paragraph to clarify how the 15 elements identified in this earlier study were used to create one sustainment outcome domain and seven sustainability determinant domains.

* Spell out NIDA on page 6.

NIDA is now spelled out to refer to the National Institute on Drug Abuse

* Consider providing definitions and citations for convergent and discriminant validity.

We provide definitions and a citation for the convergent and discriminant validity on p. 16 of the revised manuscript.

“Construct validity of an instrument is typically assessed by comparing constructs or measurements that theoretically should be related to one another to determine if that is the case (convergent validity) and by comparing concepts or measurements that are not supposed to be related to determine if they are actually unrelated (discriminant validity) [49].”

* Consider using the more inclusive term "substance use" rather than substance abuse.

Our use of the term substance abuse was based on the preferences of our SAMHSA colleagues. However, we agree that substance use is a more inclusive term and have used it accordingly, except when the term is embedded in an official agency title (e.g., SAMHSA).

* The article is missing the tables (table # 1-6), which limits the reviewer's ability to provide comprehensive feedback.
We were under the impression the version of the manuscript that was loaded onto the journal website included these tables. We regret the oversight and have insured the manuscript does contain the tables at the end of the text.

* Consider providing an introduction to the tool with sub-sections and item examples.

We did include the entire tool as an appendix but have provided more of a description of the subscales with item examples in the methods section on pp. 12-13 of the revised manuscript.

* This sentence below is confusing and appears only in conclusion. This finding needs to be elaborated for clarity.

  "Second, the SMSS can be used validly and reliably across this broad array of programs, practices and initiatives with varying levels of evidence to support their effectiveness. This enable us to determine whether the extent to which a program or practice is evidence-based or evidence informed determines whether it can be sustained."

We have revised the sentence as follows in an effort to clarify its intent:

  “Second, although we did not assess the effectiveness of the various programs, practices and initiatives participating in this study, a measure like the SMSS offers the potential to determine whether the extent to which a program or practice is evidence-based or evidence-informed determines whether it can be sustained. Such information would be invaluable to determining whether the program or practice merits initial or continued funding.”

* Some instruments are mentioned for comparison throughout the paper, but readers are not oriented towards them, for example, Stages of Implementation. The author is assuming that readers have this knowledge but need to explain the tools in a few sentences.

We now provide more detail on the Stages of Implementation Completion (SIC) scale, Program Sustainability Assessment Tool (PSAT), and Sustained Implementation Support Scale (SISC) on pp. 5-6 of the revised manuscript.

Reviewer #2: In the manuscript entitled "Measurement of Sustainment of Prevention Programs and Initiatives: The Sustainment Measurement System Scale", authors conducted a reliability and validity study to examine the factor structure, reliability, and validity of a Measurement System Scale for the Sustainment of Prevention Programs and Initiatives. The methodology used seems rigorous but some methodological points need to be clarified. The main results have been reported and well discussed. This work has a good chance to be useful to stakeholders involved in the implementation of health program or health intervention. Here are my comments/suggestions for the improvement of manuscript.

We thank the reviewer for the overall positive comments regarding the manuscript and its contribution to the literature.

Title

* Suggestion for the title of manuscript:
Measurement System Scale for the Sustainment of Prevention Programs and Initiatives: a reliability and validity study

We are willing to adopt the reviewer’s suggestion for changing the title of the manuscript. However, after our initial attempt to upload the revised manuscript, we received a message that the title must exactly match on the tracking system, manuscript file and supplementary information. We will therefore leave the title as it and leave it to the discretion of the editor as to whether it should be changed or not.

Abstract

This section needs to be rewritten.
* In the background subsection, authors have to: 1) justify the relevance of the tool development (one sentence); 2) reformulate the study objective of study stating if the study aimed to develop and/or evaluate the reliability and validation of the tool, and the population targeted (one sentence)
* In the method subsection, authors reported some results and less information on the methods used. Therefore, I suggest to authors to succinctly report: 1) the study design and/or approach used for the development, evaluation of reliability and/or validity of the tool; 2) the qualitative and statistical methods used for the data analysis. All results generated by the study and reported in the method subsection have to move from method to results subsection.
* In the results subsection, authors poorly reported the results. I suggest to authors to report relevant results responding to the objective stated. the main values of relevant statistical parameters have to be reported.
* In the conclusion subsection, authors stated: The SMSS is easy to use and demonstrates good reliability and convergent and discriminant validity in assessing likelihood of sustainment of SAMHSA funded prevention programs and initiatives upon termination of original funding. Authors did not evaluate the ease of use, and did not report how the reliability, the convergent and discriminant validity were done in the method subsection. Therefore, authors need to guarantee a consistency between the different subsections of abstract.

We have revised the abstract in accordance with the suggestions and observations provided by the reviewer. We revised the background section along the lines of the two sentences suggested by the reviewer, reported the study design and statistical methods and moved results into the results subsection, report relevant results with range of p values, and removed the description of ease of use in the conclusion subsection.

Introduction
No comments

Methods
At the beginning of this section, authors had to state the study design and/or approach used for the development and validation of tool as well as the sustainability framework if used.
* Participant Subsection - This subsection needs to be redrafted. Authors described the flow of participation results and characteristics of participants. I suggest to transfer this descriptive
information in the results section, and report the eligibility criteria of participants in the participant subsection.

As suggested, we have moved the descriptive information to the beginning of the results section on p. 10 of the revised manuscript. We describe study eligibility as follows:

“Program Officers representing the 7 SAMHSA funding initiatives provided names and email addresses of all project directors and key personal for each organization currently or previously funded under these initiatives. Researchers identified other people to contact from information provided by project directors of all PPS grantees funded by RFA SM-10-017. Names and email addresses for two to three contacts (i.e., director, coordinator, local evaluator) per GLS grantees site were obtained from ICF international, the GLS contracted evaluators of the grant program, for grantees belonging to Cohorts 8 through 12, per recommendation of SAMHSA program officers.”

* Measure subsection: Why did authors use a template of CFIR but not the one of sustainability framework? Can they clarify their choice?

We now note the following on p. 11 of the revised manuscript:

“The CFIR template was used to determine whether the constructs believed to be associated with successful implementation are also associated with successful sustainment. Templates of the PSAT and SIC sustainability measures informed the semi-structured interview questions and analysis of the free-list exercise.”

* Covariate subsection: Authors reported the inclusion of two covariates sets in the analysis. What are the analyses in which theses covariates were included? Please, clarify this points and report more information on how these variables were measured and collected.

The variables mentioned in this subsection were not treated as covariates in the sense that they were adjusted for in other analyses. Rather they describe characteristics of the funded program or initiative to determine if associations between sustainability determinants and sustainment outcome were invariant across four characteristics: type of program, focus of program, whether currently funded under the original SAMHSA initiative, and whether the program currently exists in the same form. We have clarified this on p. 14 of the revised manuscript.

* Statistical analysis: Why did authors choose CFA as structure analysis? What were the assumptions studied for the CFA and how were they checked? How were the assumptions tested for the discriminant validity? Please, clarify these elements with relevant justification in the statistical analysis subsection.

Our rationale and assumptions for the use of CFA to confirm the factor structure developed through our preliminary efforts to construct the measure is provided on p. 15 of the revised manuscript.

“To evaluate the psychometric properties of the SMSS, confirmatory factor analyses (CFA) with maximum likelihood estimation were conducted using EQS statistical software [43, 44]. The aim of the CFA was to determine if the data fit the hypothesized model of sustainability determinants and sustainment outcomes based on the qualitative research conducted in earlier study described above [40, 45]. CFA is commonly used to confirm a hypothesized model based on theory or prior
empirical research, as well as evaluate the reliability and validity of measures employed in implementation research [15, 17, 18, 46-48].”

We also clarify how the discriminant validity of the SMSS was tested on p. 16 of the revised manuscript.

Results

In this section, the information reported had to be consistent with the one reported in the subsection of statistical analysis.

* In the first paragraph of this section, authors had to describe the characteristics of participants considered for each of analyses stated in the subsection of statistical analysis. This was not the case. Therefore, I suggest to authors to: 1) provide a flowchart describing the participation of representatives from their recruitment to data analyses performed; 2) describe the characteristics of participants.

As suggested by the reviewer, we describe the characteristic of study participants at the beginning of the results section and include a flow chart showing the numbers of participants from recruitment to data collection to the different data analyses.

* Authors reported results on an exploratory factor analysis. This analysis was not stated in the subsection of statistical analysis. I suggest to authors to do that and clarify their choice.

We now provide more detail on the exploratory factor analysis performed on p. 15 of the revised manuscript.

“Principal axis factoring (PAF) with Promax oblique rotation was also conducted to provide guidance on item reduction and construct reclassification. Principal axis factoring was selected for factor extraction because it allows for consideration of both systematic and random error [49], and Promax oblique rotation was utilized as we assumed that the derived factors would be correlated [50]. Three criteria were used to determine the number of factors to retain: 1) examination of the oblique rotated factor pattern matrix, 2) parallel analysis [51], and 3) interpretability of the factor structure as indicated in the rotated solution. Examination of the rotated factor structure included identification of eigenvalues above 1.0 and Scree test results, as well as absence of multicollinearity and presence of outliers [52].”

Discussion

* For this section, I suggest to remove the following sentence (end of page 17): The internal consistency of the constructs was uneven, ranging from .93 to a minimally acceptable Cronbach’s alpha of .70

We have removed the sentence as suggested