Author’s response to reviews

Title: Characterizing the Disability Experience among Adults Living with HIV: A Structural Equation Model Using the HIV Disability Questionnaire (HDQ) within the HIV, Health and Rehabilitation Survey

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Author’s response to reviews:

January 16, 2019
Dear Dr. Devoto,

Thank you for your follow-up correspondence regarding the anticipated acceptance of our manuscript entitled: Characterizing the Disability Experience among Adults Living with HIV: A Structural Equation Model Using the HIV Disability Questionnaire (HDQ) within the HIV, Health and Rehabilitation Survey, for BMC Infectious Diseases.

We appreciate the review of our revised manuscript. We uploaded a revised version of the manuscript with revisions highlighted in yellow. Our point-by-point response to reviewer comments is below. Please do not hesitate to contact me if you require any further information.

Thank you, again for considering our manuscript for publication in BMC Infectious Diseases. We look forward to hearing from you.

Sincerely,

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Reviewer 2 Comments

1. I wanted to thank you for your hard work on this and for implementing most of my comments. I do think the paper is improved as a result. However, I am not convinced that the values reported in APPENDIX 7.A (in Kline et al, Principles and Practice of Structural Equation Modeling, 3rd Edition) can be used for defining the magnitude of the effect. The APPENDIX 7.A reports start value suggestions for structural models. Therefore, this practice guideline is not intended as a source of guidance in the evaluation of the effect size. Moreover, the values reported here cannot be considered valid for different research areas. In my opinion, standardized regression coefficients are not able to determine the relative importance of individual predictors.

RESPONSE: We thank the reviewer for this point. We removed the reference to Kline et al as a definition of strength of relationships and revised our methods to indicate that in this study, for the structural model, we arbitrarily defined standardized path coefficients of >0.2-0.5 as a medium (moderate) effect and >0.5 a large (strong) effect (Methods; Page 13; Line 241-243). We subsequently highlighted this as a limitation in our discussion indicating the values were similar to those used in previous latent variable modeling investigations of disability in the context of HIV (Discussion; Page 27; Line 491-495).

2. Another issue that has to be carefully considered is the use of mean imputation of missing values.
RESPONSE: We agree and further iterate the use of mean imputation as a limitation of our study. Specifically, we highlighted that mean imputation of missing HDQ scores was a limitation as it did not account for the uncertainty of missing data, and hence may result in an overestimation of the precision of scores. To assist with interpretation of study findings, we specified the number of cases that we used imputation at the time of HDQ scoring to recover the subscale HDQ scores prior to the SEM analysis to bring the dataset from 908 complete case responses (96%) to 941 for the subscale scores, which were used in the analysis. Furthermore, we describe the severity items we used to compute subscale scores had few missing responses, ranging from 1 missing response (0.1%) for HDQ51 (I have trouble climbing stairs) to 33 missing responses (3.5%) for HDQ19 (I have problems with my hearing). Nevertheless, we highlight that our mean imputation remains a limitation; and that future SEM work should consider full implementation maximum likelihood (FIML) methods to ‘preserve’ characteristics of the data, so that parameter estimates possess minimal bias, meaning they are derived from a mean and variance as close as possible to that of the true population. Collectively, we anticipate this more detailed description of missing data and limitations of mean imputation will assist readers in their interpretation of the study findings. (Discussion; Page 26-27; Line 479-491).