Published in final edited form as:

Child Indic Res. 2019 June 15; 12(3): 1023–1042. doi:10.1007/s12187-018-9570-3.

Adaptation and Validation of the Shame Questionnaire Among Ugandan Youth Living with HIV

Lynn Murphy Michalopoulos¹, Melissa Meinhart², Sam Monroe Barton², Jillian Kuhn², Miriam N. Mukasa³, Flavia Namuwonge³, Candice Feiring⁴, Fred M. Ssewamala³

¹Global Health and Mental Health Unit, Social Intervention Group, School of Social Work, Columbia University, 1255 Amsterdam Avenue, New York, NY 10027, USA

²School of Social Work, Columbia University, New York, NY, USA

³International Center for Child Health and Development, School of Social Work, Washington University in St. Louis, St. Louis, MO, USA

⁴Center for Youth Relationship Development, The College of New Jersey, Ewing, NJ, USA

Abstract

The purpose of this study was to adapt and validate a measure of HIV-related shame, the Shame Questionnaire (SQ), among Ugandan youth living with HIV. Culturally relevant, reliable and valid measurement is critical in the accurate assessment of HIV-related shame (*a painful internalized emotion encompassing feelings that the self is damaged and defective*) on psychosocial functioning, as well as the determination of the efficacy of interventions among youth living with HIV in sub-Saharan Africa. We utilized qualitative (i.e., cognitive interviews; $N = 31$) and quantitative (i.e., classical test theory and item response theory; $N = 150$) methods to establish, content, criterion and construct validity of the SQ. Cognitive interviews resulted in the revision in the wording of 2 out of 8 SQ items. Participants who endorsed having shame had statistically significant higher SQ scores than participants who did not endorse having shame ($p < 0.001$), suggesting criterion validity. We found a statistically significant positive relationship between SQ scores and average trauma symptom scores among participants ($p < 0.001$), also

Reproduced with permission of copyright owner. Further reproduction prohibited without permission.

[✉]Lynn Murphy Michalopoulos Lm2996@columbia.edu.

Authors Contributions LM designed and executed the study, conducted data analyses and drafted the manuscript. MM collaborated with the data analyses and the manuscript. SMM collaborated with data analyses and contributed to writing the manuscript. JK collaborated with the analyses and assisted with editing the manuscript. MNM collaborated with the execution of the study, data analyses and editing of the manuscript. FN collaborated with the execution of the study, data analyses and editing of the manuscript. CF collaborated with data analyses and edited the manuscript. FMS collaborated with the design and execution of the study and edited the manuscript. Funding This study was funded by the National Institute of Health, NIH: 1R01HD074949–01 to Dr. Fred Ssewamala. The funders had no role in study design, data collection and analysis, decision to publish, or preparation of the manuscript.

Electronic supplementary material The online version of this article (<https://doi.org/10.1007/s12187-018-9570-3>) contains supplementary material, which is available to authorized users.

Compliance with Ethical Standards

Ethical Approval All procedures performed in this study involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

Conflict of Interest The authors declare they have no conflict of interest.

Informed Consent Informed consent was obtained from all individual participants included in the study. Informed consent was also obtained by guardians of participants under the age of 16.

suggesting criterion validity. Finally, we found construct validity with discrimination parameters of the graded response IRT model all in the high range with a wide range of difficulty parameters across the 8 items of the SQ. Overall our results suggest that the SQ is a contextually relevant, valid and reliable assessment tool among Ugandan youth living with HIV. Findings provide support for the utilization of qualitative and quantitative methods in the adaptation of measures for cross-cultural use in order to maintain validity and contextual relevance.

Keywords

HIV-related shame; Youth; Sub-Saharan Africa; Cognitive interviews; Item response theory

1 Introduction

Among people living with HIV or AIDS (PLHA), stigma is a common experience associated with public blame and moral condemnation for contracting the infection (Bennett et al. 2016; Katz et al. 2013; Lowther et al. 2014). Although some literature focuses on the public aspects of stigma and its negative consequences (Katz et al. 2013; Lowther et al. 2014), the internalization of stigma is also a key factor in the transmission of HIV through motivating individuals to avoid medical intervention and to hide their status from sexual partners. Research has begun to examine internalized stigma, or shame, *which is a painful internalized emotion encompassing feelings that the self is reprehensible, damaged and defective* (Bennett et al. 2016; Pantelic et al. 2017). Research in western contexts among PLHA finds shame predicts depression and PTSD (Neufeld et al. 2012; Rodkjaer et al. 2010) treatment and adherence (Konkle-Parker et al. 2008; Krüsi et al. 2009; Luisa Zúñiga et al. 2007; Neufeld et al. 2012), HIV-related physical health (Dickerson et al. 2004) and HIV sexual risk behavior (Neufeld et al. 2012). As a self-conscious and individually experienced emotion, shame can be addressed through individualized treatments and programs for PLHA (Bennett et al. 2016). The development of interventions targeting shame in sub-Saharan Africa (SSA) is long overdue but the initial step in such efforts requires a reliable and valid measurement of this construct.

In western contexts, the relevance of shame for understanding health problems among PLHA is well established (Bennett et al. 2016). In contrast, there is a paucity of work on shame among PLHA in SSA, a region heavily burdened by HIV and AIDS—with 43% of new HIV infections globally (UNAIDS 2017). The limited research on shame among PLHA in SSA is qualitative and finds shame to be a characteristic pervasive emotion among persons affected by HIV and AIDS. Shame is related to: the functioning of women living with HIV in Botswana (Schaan et al. 2016) and PLHA in Cameroon (Jacobi et al. 2013); impeding HIV testing in Eastern Africa (De Jesus et al. 2015), and disclosure of positive HIV status among caregivers in Uganda (Kyaddondo et al. 2013); as well as hindering health efforts among PLHA in Zimbabwe (Duffy 2005).

In both western and non-western contexts the development and use of valid and reliable HIV-related shame quantitative scales are limited (Neufeld et al. 2012). Neufeld et al. (2012) developed the HIV and Abuse Related Shame Inventory (HARSI), which assesses

shame related to previous sexual abuse and HIV status, as well as HIV-related health behaviors. While the 31-item HARSI shows adequate reliability and validity, it has only been validated among an adult population living with HIV in the United States. In addition, our literature search located only two HIV-related shame assessment tools, as a part of a larger scale to assess stigma and discrimination in SSA. One scale was developed and validated among HIV-affected adults from Zimbabwe (Genberg et al. 2008). While the 22 item scale demonstrated good reliability and validity, the measure only assesses shame within a factor of *shame*, *blame* and *social isolation* and the items are not focused on the individual's personal experience of shame (e.g., items ask questions such as, 'people living with HIV should be ashamed' rather than 'because of my HIV status, I am ashamed'). As such, this scale seems to be more focused on stigma rather than the internalized experience of shame. Similarly, the Adolescents Living with HIV Stigma Scale (ALHIV-SS) was developed and validated among youth living with HIV in South Africa, which assesses enacted, anticipated and internalized stigma (Pantelic et al. 2016). Although the internalized stigma items are in line with feelings of shame, the different components potentially results in a lack of clarity in terms of which specific components are most strongly associated with psychosocial and health outcomes (Bennett et al. 2016). Also a lack of definitional clarity related to internalized stigma limits the understanding of the specific mechanisms in which PLHA may experience adverse outcomes, which can decrease the effectiveness of programs and interventions (Bennett et al. 2016; Bresnahan and Zhuang 2011). Previous research with sexually abused girls in Zambia (Michalopoulos et al. 2015) showed that the Shame Questionnaire (SQ) (Feiring and Taska 2005) demonstrated adequate reliability, criterion and construct validity, but did not specifically measure HIV-related shame.

To better understand the impact of HIV-related shame on psychosocial functioning and health and the potential efficacy of interventions among youth living with HIV in SSA, contextually relevant and valid measures must be developed (Bass et al. 2007). In our search of the literature, we found no studies that specifically assessed shame among youth living with HIV in SSA. Furthermore, no work adapted and validated a measure of shame among youth living with HIV in SSA. Universality of shame measurement cannot be assumed. Assessment tools and interventions must be adapted for cross-cultural use in order to maintain validity and contextual relevance (Prince et al. 2007; Shoeb et al. 2007) with adaptations necessary from region to region in some countries or territories.

This is the first study to adapt and validate the Shame Questionnaire (SQ) (Feiring and Taska 2005) among trauma-affected youth living with HIV in Uganda, critical in the accurate assessment of HIV-related shame on psychosocial functioning, as well as the determination of the potential efficacy of interventions among youth living with HIV in the region. We utilized both qualitative (i.e., cognitive interviews) and quantitative methods (i.e., classical test theory and item response theory) to assess the validity and cultural relevance of this instrument. The aims of the current study were to 1) assess content validity of the SQ through cognitive interviews; 2) examine the reliability and validity of the SQ through both classical test theory and item response theory analyses.

2 Methods

2.1 Background of Study

The current adaptation and validation study is part of a larger project, Suubi+Adherence. The project is a five-year longitudinal randomized control study examining the impact of economic strengthening interventions to increase adherence to HIV treatment for adolescents living with HIV in Uganda. Participants were included in the study if they tested HIV positive and were aware of their status, were between the ages of 10–16 years, living within a family setting, were prescribed ART therapy and enrolled in participating health centers. The goal of the treatment is to empower HIV- and poverty-impacted adolescents and their families in order to increase adherence to HIV treatment. Specifically, the family economic-strengthening approach is aimed at ensuring that there is sufficient income to meet the specific needs associated with managing HIV as a chronic illness. The adaptation and validation of the Shame Questionnaire was an “add-on” to the original intervention study, specifically aimed at developing valid and reliable scales to measure psychosocial outcomes within the economic strengthening program.

2.2 Participants

For the cognitive interviews, we sought to obtain 30 participants which we deemed sufficient based on previous research (Collins 2003; Vreeman et al. 2014). For the validation study, we based the desired sample size on the item response theory analysis. While standards for sufficient sample size vary in the literature, between $N = 100$ – 200 has been deemed sufficient for the graded response model (Nguyen et al. 2014). As such, we recruited 150 study participants all of whom completed the validation questionnaire.

The cognitive interview and validation studies took place in 2016. Participants for both studies were recruited through convenience sampling methods. Study participants were identified through the Suubi+Adherence study and were specifically recruited from the healthcare clinics associated with Reach The Youth-Uganda and the Masaka Diocese.

2.3 Procedure

Setting and Training—The cognitive interviews and validation study were conducted in the Rakai and Masaka region of Uganda. An author of the current study (LM) trained 10 Ugandan research staff to administer mental health measures (including the SQ) with youth involved in the larger intervention study (Suubi+Adherence). The items of each measure were read aloud, methods for administration were discussed and the trainer role-modeled administration for the cognitive interview and validation studies. All research staff conducted role plays with each other and the trainer to practice administration, with ongoing coaching and feedback from the trainer. In addition, as the assessment of shame, traumatic events and post-trauma symptoms could potentially lead to distress among the youth, data collectors were extensively trained on: 1) the identification and assessment of psychosocial distress among study participants; 2) the process of referral to social workers at clinic sites who could provide further assessment and referrals if necessary; and 3) the explicit explanation in both the assent and consent form that if an adolescent felt uncomfortable with

any item they could choose to not answer the item as well as withdrawal from the study at any time. Although interviewers were trained to recognize distress, in no case did this occur.

Translation—All measures for the cognitive interviews and validation study were translated into Luganda, the local language using translation-back translation and group translation. Two translators, a Ugandan certified external Luganda instructor, who resided in the study area, and a Ugandan research assistant with extensive Luganda language training completed the initial translation-back translation. The translated assessment instruments were then reviewed by the research team item by item. Each item was reviewed for conceptual understanding. In addition, each item was checked for the ability of a child with limited education to understand the language.

Consent and Ethical Approval—Both the cognitive interviews and validation study were approved by Columbia University IRB (IRB-AAAK3852) and Makerere University College of Health Sciences School of Public Health Research and Ethics Committee (IRB00011353). All procedures performed in this study involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards. Written informed consent was obtained from all participants. Written informed consent was also obtained from the guardian of participants under age 18. In the informed consent for both studies, study participants were ensured that the data collected would only be used for research purposes and would be kept confidential. All staff were trained on the protection of the participants' data and received a training certificate on good clinical practice through the Collaborative Institutional Training Initiative. Participants were ensured that information would not be shared with caregivers, classmates, friends, teachers, church leaders or public officials. Participants also received UGX 10,000 (local currency—an equivalent USD \$3.30) for the cognitive interviews and UGX 15,000 (USD \$5) for the validation study.

Cognitive Interviews—To assess face and content validity of the Shame Questionnaire, 31 youth were administered cognitive interviews. Cognitive interviewing is a research method that is utilized to understand how research participants comprehend, and answer items from questionnaires (Collins 2003; Vreeman et al. 2014). The current study utilized the *think aloud* cognitive interviewing method, which entails the participant being asked to describe each item of a questionnaire in their own words with examples (Collins 2003). For example, participants were asked to describe the following in their own words and give examples for, '*I feel shame because I think people can tell from looking at me that I am HIV positive.*' Administration included reading the 8 items of the Shame Questionnaire to the youth. All questions and responses were in Luganda and answers were recorded verbatim via paper and pencil. Each interview took between 45 and 60 min to complete. All interviews were completed in one day. None of the questionnaires were excluded.

Validation Study—For the validation study, administration included reading each item to the youth. Each response was read aloud and the response was entered, in Luganda, into Qualtrics (Qualtrics, Provo, UT 2016). All research staff spoke both English as well as the

local language, Luganda. The interviews took about 20 min to complete. All interviews were completed within 7 days. None of the questionnaires were excluded.

2.4 Measures

Demographics—For the current study, basic demographics of age and gender were assessed by self-report.

The Shame Questionnaire—The Shame Questionnaire (SQ) (Feiring and Taska 2005) is an 8-item self-report measure used to assess a child's feelings of shame. It was originally developed to assess shame related to child sexual abuse, however, the study team felt that the measure was relevant and could be adapted to assess HIV-related shame in the Ugandan context. The Shame Questionnaire has been used among children and adolescents with sexual abuse histories; in a randomized controlled TF-CBT treatment trial and longitudinal studies (Deblinger et al. 2006; Feiring et al. 2002, 2009; Feiring and Taska 2005). Among youth in the United States it demonstrated adequate reliability (alpha coefficient above 0.85) (Feiring et al. 2007; Feiring and Taska 2005). In trauma and HIV-affected youth in Zambia the measure showed good reliability (alpha coefficient of 0.87), as well as criterion and construct validity (Michalopoulos et al. 2015). In this study, youth were asked to answer how true 8 items were specifically related to living with HIV using a 5-point Likert scale. Each response was given a different point value, with '*0 = not true*', '*1 = a little bit true*', '*2 = somewhat true*', '*3 = very true*' and '*4 = always true*.' A total sum score was generated by summing the responses for the 8 items. Scores could range from 0 to 32. Before the translation process, all of the items of the Shame Questionnaire were revised by the study team to indicate specifically relating to living with HIV.

Trauma Experiences—The Life Events Checklist for DSM-5 (LEC-5) (Weathers et al. 2013) is a self-report measure which assesses potentially traumatic events in a participant's lifetime. The LEC-5 assesses exposure to 16 events (see Table 3 for a complete list of scale items) which have been established to potentially cause one distress. The scale also includes one additional item where participants are asked to name any additional potentially traumatic event experienced which is not named in the other items. For each item, youth were asked to answer if the event '*happened to them*,' '*witnessed it*,' '*not sure if it fits*' or '*doesn't apply*.' Youth could endorse both '*happening to them*' and '*witnessing*' a traumatic event. A sum score was created for potentially traumatic events that '*happened to*,' '*witnessed*' and both '*happened to and witnessed*'. Sum scores did not include the final open ended item and could range from 0 to 16 for either '*happened to*' or '*witnessed*' and 0 to 32 for the combined '*happened to and witnessed*' score.

Post-Trauma Symptoms—The Children's Impact of Traumatic Events Scale-Revised (CITES-R) (Wolfe et al. 1991) was utilized to assess post-trauma symptoms. The CITES-R is a 78-item scale developed to measure the impact of trauma on youth. The CITES-R has four main scales and 11 subscales. For the current study, the 22 items of the PTSD scale (i.e., intrusive thoughts, avoidance and hyperarousal subscales) were utilized. In the current study, internal consistency reliability of the PTSD scale was good with Cronbach's alpha 0.889. For each item of the CITES-R, youth were asked how true each of the statements

were, specifically in relation to the traumatic events assessed from the LEC-5. Response categories were '0= not true,' '1= somewhat true' and '2= very true. If the participant did not endorse either witnessing or experiencing a traumatic event from the LEC-5, then post trauma symptoms as a result of living with HIV was assessed. Total post-trauma scores were calculated which could range from 0 to 44.

Validity Question—As shame is not a clinical diagnosis, we used an established alternative method for examining criterion validity, the Bolton method (Bolton 2001), which entails asking a validity question. Specifically, we asked the youth to report the presence or absence of shame, i.e. "do you have shame?" This question formed the basis of case identification and the cross-cultural validation analysis of this study.

2.5 Data Analysis

Cognitive Interviews—Verbatim responses from the cognitive interviews of the 8 items of the Shame Questionnaire were compiled in excel and coded by authors SMB and JK for main themes of each item. Responses to the *think aloud* methods were assessed in terms of consistency with intended meaning for each item. Where the intended meaning was inconsistent, items were revised or changed for the validation study after full review from the research team.

Internal Consistency Reliability—Cronbach's alpha scores were utilized to determine internal consistency reliability of the Shame Questionnaire. A value between 0.70 and 0.79 is considered to be fair, 0.80 and 0.89 considered good, and 0.90 and above is deemed excellent (Cicchetti 1994; Nunnally and Bernstein 1994).

Criterion Validity—In the current study, we assessed criterion validity in a number of ways. First, the alternative method of exploring criterion validity, developed by Bolton (Bolton 2001) was utilized. Through a validation question (see above), youth who endorsed having shame were indicated as 'cases' and those reporting not having shame were indicated as a 'non-case.' We hypothesized that mean shame scores of 'cases' would be significantly higher than mean shame scores of 'non-cases.' Second, correlation analyses were conducted to determine the relationship between the Shame Questionnaire and the CITES-R symptom scores, as well as the LEC-5. We hypothesized that the Shame Questionnaire would be positively correlated with the CITES-R, the LEC-5 sum of traumatic events witnessed, experienced, as well as traumatic events witnessed and experienced combined. Although the Shame Questionnaire was revised specifically as a HIV-related shame measure, the meaning and concept of shame remained the same as it relates to trauma and trauma symptoms. As such, and in line with previous research (e.g., Feiring and Taska 2005; Michalopoulos et al. 2015), we hypothesized that the scale would also broadly be associated with trauma symptom scores (CITES-R) and traumatic events (LEC-5).

Construct Validity—Construct validity, or the degree to which the measure reflects the underlying latent variable, was determined using IRT analyses. Item response theory is model-based and assesses the utility of each item, based on the item's ability to differentiate among individuals at different points along the latent continuum, in our study representing

a range from low to high amounts of shame (Embretson and Reise 2013). IRT is centered on the relationship between the likelihood that a person will endorse an item in a particular way and the amount of the latent trait being measured that person has (Teresi 2006). The IRT assumptions of unidimensionality and local independence were tested (Nguyen et al. 2014). Unidimensionality was assessed through an exploratory factor analysis (EFA) using STATA 13. Local independence was determined through the discrimination parameters for each item in the IRT model. If an item did not demonstrate local independence, the slope would be very high (> 4.00) (indicating dependence) relative to other items in the Shame Questionnaire. Based on the EFA results, a unidimensional graded response model (GRM) (Samejima 1997) was assessed to determine model fit, using STATA 14 (StataCorp 2013). The underlying structure of shame was determined through item location (b or difficulty parameters) and item discrimination (a). We used the GRM as this model allows for ordered response categories. For each item, one discrimination and four difficulty parameters were estimated. Discrimination parameters are essentially factor loadings and indicate how much an item is correlated with the underlying trait (i.e. shame), as well as how the item discriminates between participants with different levels of shame. Item discrimination values of 0.01–0.34 are considered to be very low, 0.35–0.64 low, 0.65–1.34 moderate, 1.35–1.69 high and 1.70 and above, very high (Baker 2001). Item Difficulty Parameters (b , or location) indicate the amount of shame where the probability of endorsing a Shame Questionnaire item with a particular response category is 0.50. Utilizing the GRM, four difficulty parameters (b_1 , b_2 , b_3 , b_4) were estimated, corresponding with the five possible response categories of the Shame Questionnaire. The first difficulty parameter (b_1) indicates the level of the underlying latent trait of shame, where the probability of endorsing an item with a “0 or not true” instead of “1 or a little bit true”, “2 or somewhat true” “3 or very true” or “4 or always true” is 0.50. The second difficulty parameter (b_2) is for the response of <2 , the third difficulty parameter (b_3) is for the response of <3 and fourth difficulty parameter (b_4) for the response of <4 . In addition, we estimated measurement information for each item and for the scale as a whole. Measurement information represents the certainty in which an item or measure assesses the underlying latent trait (θ) and can vary as a function of the level of θ .

3 Results

3.1 Cognitive Interviews

The sample for the cognitive interviews was comprised of 31 youth, all of whom were living with HIV. The average age of participants was 15.61 years ($SD = 2.25$), ranging from 11 to 19 years. Nineteen of the participants were female (58.06%). Results from the interviews showed that 8 out of the 10 Shame Questionnaire items were in line with the intended meaning and the concept of HIV-related shame (See Table 1). For example the item “*When I think about being HIV positive I wish I were invisible*” tapped the anticipated content related to a desire to not be seen. In regard to the two items with poor conceptual fit, revisions were undertaken. The item “*Being HIV positive me makes me feel dirty*” was consistently described as the state of being physically dirty, rather than in internal feeling. To assess an internal state of feeling “dirty” and taking into account differences in meaning in translation, the US and Ugandan study team revised the item for the validation study as, “*Being HIV*

positive me makes me feel tarnished.” The item “*When I think about what happened to me I feel disgusted with myself*” was consistently described as feeling sad or unhappy. In reviewing the translation the item was changed to better reflect its intended meaning to read “*When I think about what happened to me I hate myself.*” (See Table 1).

3.2 Validation Study Results

A total of one-hundred and fifty youth completed measures for the validation study (83 females, 55.33%; age $M = 15.17$ $SD = 2.15$, range 12–20 years). Description of all of the items of the Shame Questionnaire with their means and standard deviations are shown in Table 2. The highest endorsed item was “*makes me feel tarnished*” ($M = 0.53$, $SD = 1.08$), and the lowest “*I am the only one*” ($M = 0.23$, $SD = 0.75$). The total average Shame Questionnaire score was low with $M = 2.81$, $SD = 4.90$ (range 0–24). Fourteen percent of the study sample had a score above 8 suggesting high levels of shame based on research with sexually abused youth in the USA (Feiring and Taska 2005) (See Table 2).

High internal consistency reliability was determined of the Shame Questionnaire, with Cronbach’s alpha equal to 0.84. In addition, there was no improvement in Cronbach’s alpha score for the scale with the removal of any individual item.

Table 3 shows the percent of the sample reporting having experienced and witnessed different traumatic event types. The most frequently endorsed traumatic events experienced were physical assault ($N = 112$; 74.67%) and life threatening illness ($N = 62$; 41.33%). The most frequently endorsed traumatic event witnessed was transportation accidents ($N = 85$; 56.67%) and sudden violent death ($N = 71$; 47.33%). On average youth reported experiencing 2.12 ($SD = 1.55$) and witnessing 3.91 ($SD = 3.00$) traumatic event types; Together, youth experienced and witnessed an average of 6.03 ($SD = 3.42$) traumatic event types (See Table 3). The CITES-R had an average score of 14.75 ($SD = 9.28$; range 0–39) and high internal consistency reliability with a Cronbach’s alpha of 0.89.

To explore criterion validity, we conducted an independent samples t-test and found those who endorsed having shame were 8.24 points higher in their mean Shame Questionnaire score compared to those who do not endorse having shame (endorse $M = 10.11$, $SD = 8.02$; not endorse $M = 1.88$, $SD = 3.39$; $t_{(148)} = -4.19$, $p < 0.0006$; 95% $CI = -12.39, -4.08$). A positive relationship between higher Shame Questionnaire and the CITES-R scores, indicated acceptable criterion validity with a moderate effect size ($r = 0.40$ $p < 0.0000$). Although effect sizes were very small, Shame Questionnaire scores and trauma experienced ($r = 0.07$), trauma witnessed ($r = 0.05$) and trauma experienced or witnessed ($r = 0.08$) were significant (all values $p < .01$).

To assess construct validity, we first conducted an exploratory factor analysis, to determine unidimensionality. A simple factor solution with one initial factor was obtained using Varimax rotation and a factor loading cutoff of .4. Kaiser Myer Olkin (KMO) measure of sampling adequacy was excellent with a score of .85 (Hutcheson and Sofroniou 1999) and a significant Bartlett’s test of sphericity ($\chi^2_{(28)} = 378.52$, $p < .000$) suggesting a factor analysis was appropriate to conduct with the data. One factor was suggested from initial Eigenvalues over 1. The first factor indicated 47.14% of the variance. All factor loadings

were above 0.4 in Factor 1 (Table 2). Using STATA 14 (StataCorp 2013), a unidimensional graded response model (GRM) was estimated to examine individual item properties and examine the dimensional structure of shame with the data. The IRT analysis indicated excellent model fit, with all items with discrimination parameters in the very high range (Table 4). Item difficulty parameters (for b_1) ranged from $b_1 = .77$ with the item “*feeling tarnished*” to $b_1 = 1.59$ with the item “*feel like covering my body*.” Overall, “*feeling tarnished*” was commonly endorsed by youth with lower levels of shame ($b_1 = .77$; $b_2 = 1.41$; $b_3 = 1.67$; $b_4 = 1.98$), whereas “*I am the only one*” was commonly endorsed with youth with higher levels of shame ($b_1 = 1.51$; $b_2 = 1.86$; $b_3 = 2.00$; $b_4 = 2.65$). The test information function curve, shown in Fig. 1, indicates that the Shame Questionnaire gives the most information or measurement precision at moderate to severe levels of shame (i.e., for youth in the $\theta = 1$ to $\theta = 3$ range). The item information function curves, shown in Fig. 2, indicates five distinct items with some extent of overlap in three of the eight total items.

4 Discussion

This study aimed to adapt and test the psychometric properties of the Shame Questionnaire among youth living with HIV in Uganda, utilizing both qualitative and quantitative methods. Results from our study demonstrate the utility of mixed methods to adapt and validate the scale and suggest the relevance of the adapted Shame Questionnaire among youth living with HIV in the Ugandan context. Results from our study also suggests that the Shame Questionnaire is a reliable measure with good content, criterion and construct validity among Ugandan youth living with HIV.

4.1 Content Validity

The use of cognitive interviews as a first step in the validation process demonstrated high levels of utility in establishing semantic equivalence. Although shame has been noted to be a relevant concept among people living with HIV in SSA (Jacobi et al. 2013; Kyaddondo et al. 2013; Schaan et al. 2016), the use of cognitive interviews was critical in understanding how shame is defined and understood in context. In our study, we found that 2 of the 8 items required revisions as they were understood to have different meaning. The item ‘*being HIV positive makes me feel dirty*’ was largely understood literally by the participants and was subsequently changed to ‘*being HIV positive makes me feel tarnished*’ based on consensus from the local research team. In addition, the item ‘*when I think about being HIV positive I feel disgusted with myself*’ was changed to ‘*when I think about being HIV positive I hate myself*’ as the majority of cognitive interview participants reported feelings of sadness, which was not in line with the intended meaning.

4.2 Criterion Validity

Using the Bolton Method for criterion validity, there were significant mean differences in the corresponding Shame Questionnaire score between self-reported cases and non-cases of personal feelings of shame (Bolton 2001). This method formed the basis of case identification and the cross-cultural validation analysis of this study. We also see in these Uganda shame findings that there is a correlation with trauma symptoms but not traumatic events. As in previous research on shame and symptoms (Feiring et al. 2009) the association

is stronger with symptoms compared to traumatic events. This suggests that how people feel about events is more salient for symptom level than whether or how many events occurred. Future validation studies in LMIC should consider this finding in determining criterion validity.

4.3 Construct Validity

The use of IRT allowed us to determine how precise the scale is at different levels. Although the study population presented with low levels of shame, we found that the Shame Questionnaire was most precise at moderate and severe levels. This level of precision indicates that the Shame Questionnaire could be useful in identifying those with moderate to severe levels of shame and are in most need of interventions to decrease this toxic self-evaluative emotion associated with trauma symptoms. The Shame Questionnaire could also be useful in tracking the efficacy of interventions as we would anticipate a decrease in shame and concomitant change in post-trauma symptoms (Feiring and Taska 2005).

Based on Table 4, discrimination parameters were all in high range (between 1.77 and 3.38). Similarly, there was a strong range of difficulty parameters across questions (.77 to 1.59). Consistent with our findings of discrimination and difficulty, the test information function curve confirms that the Shame Questionnaire gives the most information or measurement precision at moderate to severe levels of shame. While the item information function indicated potential overlap of some items, we believe all eight items should be retained to insure acceptable reliability. Future studies could evaluate reducing the three middle categories where potential redundancy exists to increase precision.

4.4 Limitations

The primary limitation of this study is that our sample only represents PLHA in the greater Masaka regions. Future studies should examine the utility of the Shame Questionnaire and differential item functioning across contexts in Uganda and countries in SSA with high-prevalence of HIV. Although the Shame Questionnaire was also deemed to be valid and reliable among a sample from trauma-affected girls in Zambia (Michalopoulos et al. 2015), comparing the results indicate differences were present in terms of item difficulty parameters across the latent shame construct. Differences could be due to cultural context, changes in wording of some of the items of the current study, or shame related to HIV status vs. sexual abuse. Regardless, the differences in item location highlights the importance of future validation studies in non-western contexts, which should include examination of differences by gender, age, location and shame-related experiences.

Average shame scores were low, which may have been a function of our participants being connected to a specific clinic where they were receiving free ART treatment. Being part of such a treatment community may have buffered against feeling of shame because individuals did not feel shunned or isolated and may have been encouraged to speak about their illness openly and were responded to with care and respect. For youth not part of a caring treatment community, where shame would be counteracted by treating HIV status as an illness rather than a personal failure, it is likely that shame levels would have been higher as other studies in the U.S suggest (Cohen et al. 2004). It is also possible that average shame levels were

low in this study because most of the participants had lived with HIV their whole life (i.e., the majority of participants were HIV-perinatally infected by the time they were recruited into the intervention study) which may have served to normalize their diagnosis. Relatedly, the region for the study is known to have a high prevalence of HIV diagnosis which also might contribute to viewing such status at not a personal defect but a common community problem. Although the HIV prevalence rate among 15–49 year olds in Uganda is 7.2%, Masaka (12%) and Rakai (9.3%) are two districts with rates above the national average (Go 2013; UNAIDS 2017).

4.5 Future Research and Practice Implications

Considering the high level of precision of the Shame Questionnaire on HIV-positive youth in Rakai and Masaka, this instrument could be used within interventions, particularly those targeting populations experiencing moderate to high levels of shame, to support valid measurement of treatment effects. Further research is necessary to determine the broader applicability in Uganda and SSA, to explore variations between sociodemographic characteristics, as well as other contextual factors, beyond those directly related to HIV status, which may impact shame. Similarly, the Shame Questionnaire should be tested with a wider range of youth, that is, potentially, younger children as they become aware of the meaning of their HIV status and those living with and without caregivers living with HIV. This information can be used to develop more effective interventions to detect and treat shame symptoms in children and adolescents in order to promote psychosocial well-being throughout all stages of HIV diagnosis and psychological development. In addition, as the assessment of shame among western populations has been associated with poor medication adherence and poor quality of life (Bennett et al. 2015; Konkle-Parker et al. 2008, Persons et al. 2010) future research should examine the relevance of this relationship among Ugandan youth living with HIV.

Our findings further suggest that HIV-related shame is an important cultural construct in Uganda and potentially other countries in SSA, particularly in countries with high prevalence and where shame and HIV risk behavior are associated (Neufeld et al. 2012; Persons et al. 2010; Sikkema et al. 2009). Given that 15% of study participants had a high shame score, the findings from this study highlight the importance of further examination of contextual factors related to shame, such as gender, time of awareness of HIV status and region among Ugandan youth living with HIV. In addition, future research can consider how external stigma (i.e., public norms around condemnation of those living with HIV) is associated with the likelihood of developing and sustaining internal shame. Interventions, especially those tailored to those most at risk for shame and associated PTSD symptoms, should be mindful of the factors which influence the presentation and perpetuation of shame for this population. Evidence-based interventions are critically needed to support this population and to inform best-practices regarding shame responses for youth living with HIV. As a brief measure, local health facilities and NGOs in the Rakai and Masaka region that provide HIV care among youth can incorporate the Shame Questionnaire into HIV programming, while specifically developing referral protocols for youth living with HIV who score in the severe range of the measure.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

References

- Baker FB (2001). The basics of item response theory. For full text: <http://ericae.net/irt/baker>.
- Bass JK, Bolton PA, & Murray LK (2007). Do not forget culture when studying mental health. *The Lancet*, 370(9591), 918–919.
- Bennett DS, Traub K, Mace L, Juarascio A, & O'Hayer CV (2016). Shame among people living with HIV: A literature review. *AIDS Care*, 28(1), 87–91. [PubMed: 26296135]
- Bolton P (2001). Cross-cultural validity and reliability testing of a standard psychiatric assessment instrument without a gold standard. *Journal of Nervous and Mental Disease*, 189(4), 238–242.
- Bresnahan M, & Zhuang J (2011). Exploration and validation of the dimensions of stigma. *Journal of Health Psychology*, 16(3), 421–429. [PubMed: 21041292]
- Cicchetti DV (1994). Guidelines, criteria, and rules of thumb for evaluating normed and standardized assessment instruments in psychology. *Psychological Assessment*, 6(4), 284–290.
- Cohen JA, Deblinger E, Mannarino AP, & Steer RA (2004). A multisite, randomized controlled trial for children with sexual abuse-related PTSD symptoms. *Journal of the American Academy of Child & Adolescent Psychiatry*, 43(4), 393–302. [PubMed: 15187799]
- Collins D (2003). Pretesting survey instruments: An overview of cognitive methods. *Quality of Life Research*, 12(3), 229–238. [PubMed: 12769135]
- De Jesus M, Carrete C, Maine C, & Nalls P (2015). Attitudes, perceptions and behaviours towards HIV testing among African-American and East African immigrant women in Washington, DC: Implications for targeted HIV testing promotion and communication strategies. *Sexually Transmitted Infections*, 91(8), 569–575. 10.1136/sextrans-2014-051876. [PubMed: 25897146]
- Deblinger E, Mannarino AP, Cohen JA, & Steer RA (2006). A follow-up study of a multisite, randomized, controlled trial for children with sexual abuse-related PTSD symptoms. *Journal of the American Academy of Child & Adolescent Psychiatry*, 45(12), 1474–1484. [PubMed: 17135993]
- Dickerson SS, Gruenewald TL, & Kemeny ME (2004). When the social self is threatened: Shame, physiology, and health. *Journal of Personality*, 72(6), 1191–1216. [PubMed: 15509281]
- Duffy L (2005). Culture and context of HIV prevention in rural Zimbabwe: The influence of gender inequality. *Journal of Transcultural Nursing*, 16(1), 23–31. [PubMed: 15608096]
- Embretson SE, & Reise SP (2013). *Item response theory for psychologists*. Mahwah: Laurence Erlbaum Associates, Publishers.
- Feiring C, & Taska LS (2005). The persistence of shame following sexual abuse: A longitudinal look at risk and recovery. *Child Maltreatment*, 10(4), 337–349. 10.1177/1077559505276686. [PubMed: 16204736]
- Feiring C, Taska L, & Lewis M (2002). Adjustment following sexual abuse discovery: The role of shame and attributional style. *Developmental Psychology*, 38(1), 79–92. [PubMed: 11806704]
- Feiring C, Miller-Johnson S, & Cleland CM (2007). Potential pathways from stigmatization and internalizing symptoms to delinquency in sexually abused youth. *Child Maltreatment*, 12(3), 220–232. [PubMed: 17631622]
- Feiring C, Simon VA, & Cleland CM (2009). Childhood sexual abuse, stigmatization, internalizing symptoms, and the development of sexual difficulties and dating aggression. *Journal of Consulting and Clinical Psychology*, 77(1), 127–137. [PubMed: 19170459]
- Genberg BL, Kawichai S, Chingono A, Sendah M, Chariyalertsak S, Konda KA, & Celentano DD (2008). Assessing HIV/AIDS stigma and discrimination in developing countries. *AIDS and Behavior*, 12(5), 772–780. [PubMed: 18080830]
- Go U (2013). *HIV and AIDS Uganda country progress report*. Commission UA, editor. Kampala 2013.
- Hutcheson GD, Sofroniou N (1999). *The multivariate social scientist: Introductory statistics using generalized linear models*. London: Sage Publications.

- Jacobi CA, Atanga PN, Bin LK, Mbome VN, Akam W, Bogner JR, Kropf S, & Malfertheiner P (2013). HIV/AIDS-related stigma felt by people living with HIV from Buea, Cameroon. *AIDS Care*, 25(2), 173–180. [PubMed: 22852551]
- Katz IT, Ryu AE, Onuegbu AG, Psaros C, Weiser SD, Bangsberg DR, & Tsai AC (2013). Impact of HIV-related stigma on treatment adherence: Systematic review and meta-synthesis. *Journal of the International AIDS Society*, 16(Suppl 2), 18640. 10.7448/IAS.16.3.18640 [PubMed: 24242258]
- Konkle-Parker DJ, Erlen JA, & Dubbert PM (2008). Barriers and facilitators to medication adherence in a southern minority population with HIV disease. *Journal of the Association of Nurses in AIDS Care*, 19(2), 98–104.
- Krüsi A, Small W, Wood E, & Kerr T (2009). An integrated supervised injecting program within a care facility for HIV-positive individuals: A qualitative evaluation. *AIDS Care*, 21(5), 638–644. [PubMed: 19444673]
- Kyaddondo D, Wanyenze RK, Kinsman J, & Hardon A (2013). Disclosure of HIV status between parents and children in Uganda in the context of greater access to treatment. *SAHARA-J: Journal of Social Aspects of HIV/AIDS*, 10(sup1), S37–S45.
- Lowther K, Selman L, Harding R, & Higginson IJ (2014). Experience of persistent psychological symptoms and perceived stigma among people with HIV on antiretroviral therapy (ART): A systematic review. *International Journal of Nursing Studies*, 51(8), 1171–1189. [PubMed: 24602830]
- Luisa Zúñiga M, Blanco E, Martínez P, Strathdee SA, & Gifford AL (2007). Perceptions of barriers and facilitators to participation in clinical trials in HIV-positive Latinas: A pilot study. *Journal of Women's Health*, 16(9), 1322–1330.
- Michalopoulos LTM, Murray LK, Kane JC, Wyk SS, Chomba E, Cohen J, Imasiku M, Semrau K, Unick J, & Bolton PA (2015). Testing the validity and reliability of the shame questionnaire among sexually abused girls in Zambia. *PLoS One*, 10(4), e0123820. 10.1371/journal.pone.0123820. [PubMed: 25879658]
- Neufeld SA, Sikkema KJ, Lee RS, Kochman A, & Hansen NB (2012). The development and psychometric properties of the HIV and Abuse Related Shame Inventory (HARSI). *AIDS and Behavior*, 16(4), 1063–1074. [PubMed: 22065235]
- Nguyen TH, Han H-R, Kim MT, & Chan KS (2014). An introduction to item response theory for patient-reported outcome measurement. *The Patient-Patient-Centered Outcomes Research*, 7(1), 23–35. [PubMed: 24403095]
- Nunnally JC, & Bernstein I (1994). *Psychometric theory*. New York: McGraw-Hill.
- Pantelic M, Boyes M, Cluver L, & Thabeng M (2016). 'They say HIV is a punishment from god or from ancestors': Cross-cultural adaptation and psychometric assessment of an HIV stigma scale for south African adolescents living with HIV (ALHIV-SS). *Child Indicators Research*, 1–17. 10.1007/s12187-016-9428.
- Pantelic M, Boyes M, Cluver L, & Meinck F (2017). HIV, violence, blame and shame: Pathways of risk to internalized HIV stigma among south African adolescents living with HIV. *Journal of International AIDS Society*, 20(1), 21771. 10.7448/IAS.20.1.21771
- Persons E, Kershaw T, Sikkema KJ, & Hansen NB (2010). The impact of shame on health-related quality of life among HIV-positive adults with a history of childhood sexual abuse. *AIDS Patient Care and STDs*, 24(9), 571–580. [PubMed: 20718687]
- Prince M, Patel V, Saxena S, Maj M, Maselko J, Phillips M, & Rahman A (2007). Global mental health 1 - no health without mental health. *The Lancet*, 370(9590), 859–877.
- Qualtrics Software. Provo Utah (2016). <http://www.qualtrics.com>
- Rodkjaer L, Laursen T, Balle N, & Sodemann M (2010). Depression in patients with HIV is under-diagnosed: A cross-sectional study in Denmark. *HIV Medicine*, 11(1), 46–53. [PubMed: 19601996]
- Samejima F (1997). Graded response model. In van der Linden WJ, & Hambleton RK (Eds.), *Handbook of modern item response theory* (pp 85–100). New York: Springer.
- Schaan MM, Taylor M, Gungqisa N, & Marlink R (2016). Personal views about womanhood amongst women living with HIV in Botswana. *Culture Health Sexuality*, 18(2), 171–183.

- Shoeb M, Weinstein H, & Mollica R (2007). The Harvard trauma questionnaire: Adapting a cross-cultural instrument for measuring torture, trauma and posttraumatic stress disorder in Iraqi refugees. *International Journal of Social Psychiatry*, 53(5), 447–463.
- Sikkema KJ, Hansen NB, Meade CS, Kochman A, & Fox AM (2009). Psychosocial predictors of sexual HIV transmission risk behavior among HIV-positive adults with a sexual abuse history in childhood. *Archives of Sexual Behavior*, 38(1), 121–134. [PubMed: 17999171]
- StataCorp. (2013). *Stata statistical software: Release 13*. College Station: StataCorp LP.
- Teresi JA (2006). Overview of quantitative measurement methods: Equivalence, invariance, and differential item functioning in health applications. *Medical Care*, 44(11), S39–S49. [PubMed: 17060834]
- UNAIDS (2017). Global HIV statistics: Fact sheet July 2017. UNAIDS. Retrieved from http://www.unaids.org/sites/default/files/media_asset/UNAIDS_FactSheet_en.pdf. Accessed 10 Dec 2017.
- Vreeman RC, Nyandiko WM, Ayaya SO, Walumbe EG, & Inui TS (2014). Cognitive interviewing for cross-cultural adaptation of pediatric antiretroviral therapy adherence measurement items. *International Journal of Behavioral Medicine*, 21(1), 186–196. [PubMed: 23188670]
- Weathers F, Blake D, Schnurr P, Kaloupek D, Marx B, & Keane T (2013). The Life Events Checklist for DSM-5 (LEC-5). Retrieved from National Center for PTSD at: http://www.ptsd.va.gov/professional/assessment/te-measures/life_events_checklist.asp.
- Wolfe VV, Michienzi CGT, Sas L, & Wolfe DA (1991). The Children's impact of traumatic events scale: A measure of post-sexual-abuse PTSD symptoms. *Behavioral Assessment*, 13, 359–383.

Fig. 1.
Test information function curve for the Shame Questionnaire

Fig. 2.
Item information function for the Shame Questionnaire

Table 1

Cognitive interview results (Total $N = 31$)

Shame questionnaire item	Theme	Representative responses	Revised item if applicable
I feel shame/ashamed because I think that people can tell by looking at me that I am HIV positive	Adverse External Reactions	<ul style="list-style-type: none"> - That is when you feel bad for example when one knows that you have HIV/AIDS and they go on to gossip about it - Someone telling a bad thing about you in public and you feel ashamed for example HIV/AIDS - Is a situation someone experiences when one is oppressed because people know what happened 	N/A
When I think about being HIV positive I want to go away by myself and hide	Committing a Crime	<ul style="list-style-type: none"> - Being ashamed and you want to hide yourself; for example when you stole something and feel ashamed. - It means feeling ashamed in public like when you stole something - When you don't want to be seen due to what happened like when you have AIDS and hide and cry from there 	N/A
I feel shame/ashamed because I feel I am the only person I know who is HIV positive	HIV/AIDS Discrimination	<ul style="list-style-type: none"> - Being sad and thinking that you're the only one experiencing that situation like HIV/AIDS - That is when you go through a bad situation, get afraid, discriminated and you admire and want to be like other people when you have HIV - Feeling ashamed and discriminated like those who have HIV/AIDS 	N/A
Being HIV positive makes me feel dirty	Physical Dirt	<ul style="list-style-type: none"> - The situation someone experiences when he/she does not clean him/herself and does not take care of his/her home - It means being dirty for example if he/she doesn't bathe. - Being dirty For example if am playing and it makes me being dirty. 	Being HIV positive makes me feel tarnished
When I think about being HIV positive I feel like covering my body	Desire to Cover Oneself	<ul style="list-style-type: none"> - When you hate yourself it makes you want to cover your body - A situation one is experiencing and does not want other people to know about it - A situation that one goes through... doesn't want others to see him or her. For example, being sick and I don't want others to see me 	N/A
When I think about being HIV positive I wish I were invisible	Invisible	<ul style="list-style-type: none"> - Is the situation which makes you think that you're the only one with HIV and makes you want to hide - A situation one is experiencing that makes he/she want to die and be gone. - A bad situation one is experiencing which makes him/her to be invisible/not be seen or unable to proceed. 	N/A
When I think about being HIV positive I feel disgusted with myself	Sadness	<ul style="list-style-type: none"> - It means that whenever you think about that situation you feel sad - When one is unhappy due to a lot of problems he/she has - It means that there is something disturbing you and you are unhappy 	When I think about being HIV positive I hate myself
When I think about being HIV positive I feel exposed	Negative Exposure	<ul style="list-style-type: none"> - Is the situation which makes you think that there is someone who knows about it like when you have HIV - It's when they go on gossiping about you - Everyone talks about you and it makes me feel sad when they say I have HIV/AIDS 	N/A

Table 2

The Shame Questionnaire items and exploratory factor analysis Varimax rotated (N = 150)

Item	Mean (SD)	Standard deviation	Factor loading
<i>Tell by looking at me</i>	.51 (1.02)	1.02	.58
<i>Go away and hide</i>	.24 (.80)	.80	.62
<i>I am the only one</i>	.23 (.75)	.75	.62
<i>Makes me feel tarnished</i>	.53 (1.08)	1.08	.70
<i>Feel like covering my body</i>	.24 (.78)	.78	.50
<i>I wish I were invisible</i>	.37 (.93)	.93	.74
<i>I hate myself</i>	.33 (.85)	.85	.55
<i>I feel exposed</i>	.36 (.90)	.90	.69

Table 3

Traumatic event types experienced and witnessed (N = 150)

Trauma event	Experienced frequency (%)	Witnessed frequency (%)
Natural Disaster	23 (15.33)	46 (30.67)
Fire or explosion	14 (9.33)	43 (28.67)
Transportation accident	17 (11.33)	85 (56.67)
Serious accident at home, school or during recreation	9 (6.00)	41 (27.33)
Exposure to a toxic substance	7 (4.67)	35 (23.33)
Physical assault	112 (74.67)	14 (9.33)
Assault with a weapon	8 (5.33)	22 (14.67)
Sexual assault	4 (2.67)	15 (10.00)
Other unwanted sexual experience	2 (1.33)	15 (10.00)
Combat or exposure to war	6 (4.00)	26 (17.33)
Captivity	4 (2.67)	14 (9.33)
Life threatening illness or injury	62 (41.33)	31 (20.67)
Severe human suffering	17 (11.33)	40 (26.67)
Sudden violent death	1 (0.67)	71 (47.33)
Sudden accidental death	1 (0.67)	70 (46.67)
Serious injury harm or death caused to someone else	6 (4.00)	15 (10.00)

Table 4

Graded Response Model Item Discrimination Parameters (a) and Standard Errors, and Item Location Parameters (b_1 , b_2 , b_3 , b_4 and Standard Errors (N=150)

Item	Discrimination Parameter (Standard error)	Difficulty parameter (Standard error)
<i>Tell by looking at me</i>	1.79 (.39)	
b_1		.80 (.16)
b_2		1.61 (.26)
b_3		2.08 (.34)
b_4		2.34 (.39)
<i>Go away and hide</i>	3.27 (.92)	
b_1		1.43 (.18)
b_2		1.75 (.22)
b_3		1.81 (.23)
b_4		2.24 (.33)
<i>I am the only one</i>	2.55 (.68)	
b_1		1.51 (.21)
b_2		1.86 (.27)
b_3		2.00 (.30)
b_4		2.65 (.47)
<i>Makes me feel tarnished</i>	2.46 (.53)	
b_1		.77 (.14)
b_2		1.41 (.19)
b_3		1.67 (.23)
b_4		1.98 (.28)
<i>Feel like covering my body</i>	1.92 (.50)	
b_1		1.59 (.26)
b_2		2.20 (.38)
b_3		2.39 (.42)
b_4		2.64 (.49)
<i>I wish I were invisible</i>	3.38 (.80)	
b_1		1.03 (.14)
b_2		1.58 (.19)
b_3		1.84 (.28)
b_4		1.98 (.25)
<i>I hate myself</i>	1.77 (.43)	
b_1		1.27 (.22)
b_2		1.88 (.32)
b_3		2.43 (.45)
b_4		2.71 (.52)
<i>I feel exposed</i>	2.60 (.59)	

Item	Discrimination Parameter (Standard error)	Difficulty parameter (Standard error)
b_1		1.00 (.15)
b_2		1.72 (.24)
b_3		2.00 (.28)
b_4		2.10 (.30)
<i>Value Ranges</i>	[1.77–3.38]	
b_1		[0.77–1.59]
b_2		[1.41–2.20]
b_3		[1.67–2.43]
b_4		[1.98–2.71]