Drug and Alcohol Dependence xxx (2016) xxx–xxx

Contents lists available at ScienceDirect

Drug and Alcohol Dependence

journal homepage: www.elsevier.com/locate/drugalcdep

Full length article

Validation of a substance and alcohol use assessment instrument among orphans and vulnerable children in Zambia using Audio Computer Assisted Self-Interviewing (ACASI)

Jeremy C. Kane[a,*], Laura K. Murray[a], Judith K. Bass[a], Renee M. Johnson[a], Paul Bolton[a,b]

[a] Department of Mental Health, Johns Hopkins Bloomberg School of Public Health, 624 North Broadway, Baltimore, MD 21205, United States
[b] Department of International Health, Johns Hopkins Bloomberg School of Public Health, 615 North Wolfe Street, Baltimore, MD 21205, United States

ARTICLE INFO

Article history:
Received 25 February 2016
Received in revised form 2 June 2016
Accepted 26 June 2016
Available online xxx

Keywords:
sub-Saharan Africa
Adolescent
Orphans and vulnerable children
HIV
Substance use
Psychometrics
ASSIST
Youth Self Report

ABSTRACT

Background: Substance and alcohol misuse is a global problem that increases the risk of HIV infection. This is a concern among orphans and vulnerable children (OVC) in sub-Saharan Africa who may have elevated substance use rates. The Alcohol, Smoking, and Substance Involvement Screening Test (ASSIST) is a reliable and valid instrument of substance use among adults in primary care high-income settings. This study examined psychometric properties of the ASSIST among OVC in Zambia using Audio Computer Assisted Self-Interviewing (ACASI).
Methods: Baseline data from an ongoing randomized trial of interventions to reduce HIV risk behaviors were analyzed. The analysis included 502 OVC ages 13–17 living in low-income, high-density neighborhoods in Lusaka, Zambia. Internal consistency of the ASSIST was assessed and discriminant validity was measured using items from the Youth Self Report as criterion variables.
Results: Internal reliability was strong with a Cronbach's alpha of ≥0.80 for each of the specific substance scales and total substance involvement. For all substances except tobacco and sedatives, discriminant validity was demonstrated in distinguishing between low risk use and moderate use. Sensitivity and specificity analysis indicated adequate area under the curve across substance types (AUC range: 0.68–0.80). Discrimination between moderate and high risk was demonstrated for alcohol and total substance involvement.
Conclusions: ASSIST administered via ACASI is a reliable instrument and an appropriate tool for distinguishing between low and hazardous substance use among adolescent OVC populations in sub-Saharan Africa. Additional examination is warranted to determine its ability to measure gradations of severity within hazardous use.

1. Introduction

The burden associated with substance and alcohol use disorders is highest among adolescent and young adult populations (Degenhardt et al., 2013; Whiteford et al., 2013). There are few studies on substance use among adolescents from low and middle-income countries (LMIC), however, particularly in sub-Saharan Africa (UNODC, 2012). Recent reports suggest that rates of illicit substance use and hazardous drinking are high and may be increasing in Africa (Kalichman et al., 2007; Shield et al., 2013; UNODC, 2012; World Health Organization, 2004). Substance and alcohol use among orphans and vulnerable children (OVC; youth who are either single or double orphans and/or are at disproportionately high risk of poor outcomes compared to their peers) is of particular concern in Africa due to the link between substance use, including non-injection substances, and HIV risk, worse disease course for HIV, and other negative childhood outcomes (Kalichman et al., 2007; Morojele et al., 2006; Shuper et al., 2010; UNODC, 2012). Male orphans, in particular, may have an increased risk for substance abuse (Pufall et al., 2014). To accurately estimate the prevalence of substance and alcohol use disorders among youth and OVC populations in LMIC, screen for these problems in primary care centers, and evaluate interventions designed to manage and treat these problems, there is a need for locally validated instruments. There has been a call for increased psychometric testing of substance use instruments in these settings (Moodley et al., 2012), though

* Corresponding author at:. Department of Mental Health, Johns Hopkins Bloomberg School of Public Health, 624 N. Broadway, 8th Floor, Baltimore, MD 21205, United States.
E-mail address: jkane29@jhu.edu (P. Bolton).

http://dx.doi.org/10.1016/j.drugalcdep.2016.06.026
0376-8716/

few studies have attempted to validate substance use assessment instruments in sub-Saharan Africa.

The Alcohol, Smoking, and Substance Involvement Screening Test (ASSIST) was originally developed by the World Health Organization (WHO) in 2001 as a tool for substance and alcohol use screening in primary care settings (WHO ASSIST Working Group, 2002). The ASSIST is unique among assessment instruments of substance use in that it includes items relevant for lifetime and past three month-use, degree of and associated problems with use, and the ability to detect high risk use and acute intoxication for several types of substances (Humeniuk et al., 2010). The original version was found to be feasible and have adequate test-retest reliability among adult populations in several geographic locations (WHO ASSIST Working Group, 2002). Among adults in both high (USA, UK, Australia) and low- and middle-income (Brazil, India, Thailand, Zimbabwe) settings, concurrent validity was indicated for the ASSIST by significant correlations with other substance use instruments including the Alcohol Use Disorders Identification Test (AUDIT) and the MINI International Neuropsychiatric Interview (MINI-Plus). Discriminant validity was indicated through its ability to differentiate use, abuse, and dependence as defined by independent clinical evaluation and MINI diagnoses (Humeniuk et al., 2008). Additional published reports of psychometric testing for the ASSIST in high and upper-middle income settings among adult populations reported good criterion validity of the ASSIST and high internal consistency (Henrique et al., 2004; Khan et al., 2012, 2011; Newcombe et al., 2005; Rubio Valldolid et al., 2014). One U.S.-based study with adults compared a version of the ASSIST administered through an Audio Computer Assisted Self-Interviewing (ACASI) system with a traditional interviewer method and found excellent concordance across the two modalities in ability to detect moderate to high risk use (McNeely et al., 2015).

Two recent studies, both conducted in high-income countries, were the first to validate the ASSIST with youth populations. Gryczynski et al. (2014) found good internal consistency for the tobacco ($\alpha = 0.87$), alcohol ($\alpha = 0.72$), and cannabis ($\alpha = 0.88$) scales and concurrent validity with the CRAFFT screening tool, but the ASSIST was only able to discriminate between levels of severity for cannabis. Nichols et al. (2014), using an ACASI-based ASSIST, found high concordance of ASSIST-reported marijuana and tobacco with toxicology reports. To our knowledge, no substance use assessment instrument has been validated with a youth population classified as OVC in a low-income setting, and there are currently no published reports of the utility of the ASSIST using ACASI with this population.

The current study aims to evaluate the validity and reliability of the ASSIST (version 3.1) among a sample of OVC adolescents in Lusaka, Zambia administered via ACASI. The psychometric properties to be tested include internal reliability and discriminant validity.

2. Methods

2.1. Participants and procedure

The current study is a secondary analysis of data from the baseline visit of an ongoing randomized controlled trial in Lusaka, Zambia. The purpose of the trial is to test the effectiveness of two different interventions to reduce HIV risk behaviors and mental health symptoms among OVC adolescents. Participants enrolled between March, 2014 and December, 2015 were included in this analysis.

Participants were recruited from 16 low-income, high density neighborhoods (referred to as "compounds") in Lusaka, the capital city of Zambia. We first conducted general community meetings in these neighborhoods, in which research staff presented an overview of the study and informed community members of dates and times when assessments were taking place at the local parish (or other community site). Our primary method of recruitment was through collaboration with home-based care workers (HBCWs) operating in these 16 communities throughout Lusaka who were part of pre-existing community outreach efforts. The HBCWs had extensive connections throughout the communities, and their role was to visit families regularly to link them to services (e.g., nutrition, education). We trained 68 HBCWs and asked them to identify OVC (13–17 years old) under their care or in their communities who the HBCWs believed may have behaviors that increase HIV infection risk, such as sexual risk behaviors and substance use. The HBCWs informed potentially eligible families of the study using a brief recruitment script. Families (the OVC and one of his/her caregivers) who were interested in participating in the study were referred to a study field site, typically a local parish located in the family's compound, on a specific day and time to meet with research staff, hear details about the study, provide informed consent, and complete a screening and baseline interview.

We also attempted to recruit through referral—by other outreach organizations in the communities, and by adolescent participants or their caregivers who referred neighbors, friends, or family members to the study who they believed would benefit from the services being offered.

After providing informed consent, both the adolescent and his/her caregiver completed a brief screener. If behaviors that increase the risk of HIV (e.g., sexual risk behaviors) were indicated on the screener through either self- or caregiver-report, and if the adolescent met PEPFAR criteria for an OVC (Office of the U.S. Global AIDS Coordinator, 2006), he/she was enrolled into the study and completed a larger baseline assessment. Data for the current analysis were obtained from those baseline assessments. All eligible adolescents (as of December, 2015) were included in this analysis. The study received ethical approval from the Johns Hopkins Bloomberg School of Public Health Institutional Review Board and the University of Zambia ethical review board.

2.2. Measures

Adolescents who met eligibility criteria were asked to complete the full study assessment, which was administered using a laptop-based ACASI developed by Tufts University (Tufts University School of Medicine, 2014). A systematic review by Langhaug et al. (2010) of 26 studies on sexual behavior in sub-Saharan Africa indicated that study participants were more likely to answer sensitive questions accurately when the interview was administered via ACASI compared to a face-to-face interviewer and that ACASI was feasible in LMIC settings. ACASI allows respondents to complete the questionnaire using a laptop computer and headphones, reading on their own and hearing a recorded voice speak the questions and response options. Participants were provided a brief training on how to use the laptops. Research staff were stationed nearby to answer questions and provide assistance, if necessary.

To build ACASI, the full interview was first translated from English to two local languages, Nyanja and Bemba, and then back-translated to English to ensure accuracy. Nearly all adolescents in Lusaka speak at least one of these three languages and the ability to do so was an inclusion criterion. All questions were then reviewed by community groups of adolescents from our target population for conceptual understanding and translation accuracy. For the audio component of ACASI, research staff in Zambia recorded the full interview in each of the three study languages, English, Bemba, and Nyanja. Study participants were able to complete the interview in the language of their choice.

The comprehensive baseline assessment included the following tools: (1) OVC Well-being Scale (Catholic Relief Services, 2008), (2)

Please cite this article in press as: Kane, J.C., et al., Validation of a substance and alcohol use assessment instrument among orphans and vulnerable children in Zambia using Audio Computer Assisted Self-Interviewing (ACASI). Drug Alcohol Depend. (2016), http://dx.doi.org/10.1016/j.drugalcdep.2016.06.026