Psychiatry Research 199 (2012) 140–144

Contents lists available at SciVerse ScienceDirect

Psychiatry Research

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

Factor structure analysis of the SCL-90-R in a community-based sample of African American women

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ARTICLE INFO

Article history:
Received 25 July 2011
Received in revised form
12 March 2012
Accepted 17 March 2012

Keywords:
Anxiety disorders
African Americans
SCL-90
Assessment
Structural equation modeling
Factor analysis

ABSTRACT

The empirical literature pertaining to anxiety and related disorders in African Americans continues to be sparse, raising significant doubt upon the valid assessment of anxiety and related disorders in African American samples. The identification of culturally valid instruments that accurately identify the symptomatology associated with anxiety and related constructs as well as differentiating individuals who meet criteria for anxiety and related disorders would undoubtedly enhance our understanding of anxiety and related constructs in diverse populations while assisting researchers in identifying ingredients for culturally sensitive therapies (CSTs). The current study represents a major stride in this area through examination of the factor structure of the Symptom Checklist 90-Revised (SCL-90-R) in a community-based sample of African American women. Ninety-one African American women completed the SCL-90-R as part of a larger investigation of anxiety and related disorders in African American parent–child dyads. Results suggest that psychological distress, as measured by the SCL-90-R, adequately fits the current data. Implications and suggestions for future work in this area are discussed.

1. Introduction

Within the empirical literature pertaining to the anxiety disorder spectrum, a current vacuum exists in terms of the construct of anxiety within ethnic minority samples. In fact, the presentation of anxiety-related symptoms and the prevalence of anxiety disorders are still not fully understood within the context of certain minority groups, particularly African Americans (see Heurtin-Roberts et al., 1997; Smith et al., 1999; Chapman et al., 2009a, b; Chapman et al., 2011). However, the scant literature that does exist presents nascent evidence that African Americans in particular may have a higher rate of certain anxiety disorders (e.g., posttraumatic stress disorder (PTSD) and specific phobias) than non-Hispanic White individuals (Nalven, 1970; Neal and Turner, 1991; Last and Perrin, 1993; Neal et al., 1993; Neal and Brown, 1994; Chapman et al., 2008; Chapman et al., 2011) while other symptom constructs may differ significantly from those found in Whites with the same disorder (e.g., specific phobia domains; see Chapman et al., 2008; Chapman et al., 2009a, b; Chapman et al., 2011). Research in this area with a focus on community-based ethnic minority samples would help amend the paucity of research germane to anxiety constructs in underserved populations.

It is well known that culture can affect the way in which diagnoses are conceptualized, and that certain universal symptoms of psychopathology may be grouped together to form culturally bound syndromes (Mezzich et al., 1999) unique to a particular group of individuals. What is less understood is the effect of culture on various assessment measures frequently used both in clinical practice and research settings to identify the presence and degree of symptoms of psychological distress. Previous research with self-report measures of personality constructs and psychopathology has found evidence that individuals who identify as African American frequently produce higher scores in certain areas of psychological distress than individuals who identify as non-Hispanic White. For example, early research with the Minnesota Multiphasic Personality Inventory (MMPI) found African Americans to produce higher scores than Whites on several scales measuring psychopathology (Greene, 1987; Graham, 1990). Additionally, biases have also been consistently indicated on the MMPI-2 in both inpatient and non-clinical samples of African American adults. For example, in two separate investigations that utilized the MMPI-2 to predict psychiatric diagnosis in African American inpatients, both Monnot et al. (2009) and Arbisi and Ben-Porath (2002) found both under and over prediction of psychiatric disorders. Similarly, in a sample of exclusively African American women, Reed et al. (1996) found that 76% of the sample had elevated scores on the MMPI-2 although the participants' coping scores were similar to normal controls. In response, some have suggested that separate ethnic group norms may be necessary for this measure, as the original normative sample lacked an adequate amount of African

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0165-1781/$ - see front matter © 2012 Elsevier Ireland Ltd. All rights reserved.
http://dx.doi.org/10.1016/j.psychres.2012.03.028

American participants (Lindsey, 1998). However, more recent work in this area has utilized different measures of psychological distress in African American samples given the consistently found difficulties with the MMPI. For example, Chapman et al. (2009a, b), examined psychological distress, perceived control, and worry in a sample of African American and non-Hispanic White young adults. In the African American sample, worry was predicted by higher ratings of psychological distress as measured by the Beck Depression Inventory (BDI) and the State subscale of the State Trait Anxiety Inventory (STAI) while low perceived control was more predictive of worry in the non-Hispanic White sample. Additionally, recent research with self-report assessment measures focused on Obsessive Compulsive Disorder symptomatology has found that several of these measures may be racially biased towards African Americans, as this ethnic group appears to endorse higher amounts of items assessing for attitudes about cleanliness and contamination (Williams and Turkheimer, 2007). In terms of brief symptom checklists, little research has been conducted on the appropriateness of use of these measures with ethnic minority populations. Moreover, this ambiguity in the extant literature suggests the need for further examination a self-report measures of psychological distress for use in ethnic minority populations. As such, the current study represents advancement in this area through an attempt to examine the factor structure of the Symptom Checklist-90-Revised (SCL-90-R; Derogatis, 1994) in a community-based sample of African American adults. The goal of the study was to examine whether African Americans would produce the same SCL-90-R factor-loading pattern as the inventory's normative sample.

1.1. The Symptom Checklist-90-Revised in African American adults

Since its development, the Symptom Checklist-90-Revised (SCL-90-R; Derogatis, 1994) has become one of the most commonly used measures of psychological assessment (Elliott et al., 2006) in clinical and research settings. The normative sample of nonpatients included 974 individuals, 49% ($n=480$) of which were female. Although less demographic information on the nonpatient normative sample is available, 11% ($n=111$) of the participants were identified as Black (Derogatis, 1994). The first and only study involving the SCL-90-R and an ethnic minority population attempted to assess the measure's ability to predict distress in African Americans (Ayalon and Young, 2007). Ayalon and Young found there to be few group differences between African American and White college students, and concluded that the SCL-90-R was a valid measure for use with an African American population. Aside from the work of Ayalon and Young, no studies to date have specifically measured the factor structure of the SCL-90-R using structural equation modeling in an exclusively African American sample. Ironically, existing work that examines factor patterns of anxiety and related constructs suggests variant factor patterns in African American as compared to non-Hispanic White adults (Chapman et al., 2008; Chapman et al., 2009a, b; Melka et al., 2010; Chapman et al., 2011). Furthermore, the current study should significantly add to work in this area by either confirming the work of Ayalon and Young (2007) or corroborating other work in this area suggesting variant factor patterns in psychological assessment measures in African American adults. As such, this study seeks to examine the factors structure of the SCL-90-R in a community sample of African American women.

2. Method

2.1. Participants

The current study was part of the "Cooperative for African American Family Excellence" (CAFÉ) Project, which examined anxiety and related disorders in African American families. The CAFÉ project was advertised as a "free, culturally sensitive familial assessment" and data were collected over the course of 1 year (January–December 2010). Informed consent was obtained from all participants prior to taking part in the study, and they were paid $50 cash as an incentive for their time. Participants were 91 community dwelling African American females. Participants ranged in age from 23 to 55, with a mean age of 37 (S.D.=7.28). The majority of participants in the current study were single ($n=70$), although 23% were married at the time the study took place. The number of children that participants in the current study had ranged from one to seven, with a mean of approximately 2.5 children (S.D.=1.27). Ninety-three percent of the participants were high school graduates, although 62% of the sample earned less than $30,000 annually. Additionally, only 16% of the participants in the current study earned at least $50,000. All participants completed the Symptom-Checklist-90-Revised (SCL-90-R; Derogatis, 1994) individually in the Community and Family Excellence Research Lab at the University of Louisville in Louisville, Kentucky. To ensure data completeness, two Graduate Research Assistants checked all data prior to each participant's departure. Therefore, there was no missing data from the current study. Table 1 includes demographics for the current sample.

2.2. Model indicators

The responses from the SCL-90-R served as model indicators for the measurement model. A latent factor was created from the subscales of the SCL-90-R, which served as the measure of psychological distress in the measurement model.

2.3. SCL-90-R

The Symptom Checklist 90-Revised (SCL-90-R; Derogatis, 1994) is a multidimensional self-report symptom inventory originally designed for use in medical, clinical, and non-clinical samples and based on the Hopkins Symptom Checklist (Derogatis et al., 1974). The inventory is composed of 90 items, each a distinct symptom of psychopathology, which are rated on a Likert scale of 0 (none at all) to 4 (extremely) based on the amount of distress the symptom has caused the patient in the past seven days. Psychological distress is measured in terms of nine clinical subscales; Somatization (SOM), Obsessive-Compulsive (OBS), Interpersonal Sensitivity (INT), Depression (DEP), Anxiety (ANX), Hostility (HOS), Phobic Anxiety (PHO), Paranoid Ideation (PAR), and Psychoticism (PSY). Each symptom is rated on a five-point scale (0=*not at all*, 4=*extremely*) indicating how frequently the client has experienced these symptoms in

Table 1
Demographic characteristics of study sample, University of Louisville, 2010.

Variable	*N*	%
Gender		
Female	91	100
Age		
20–25	4	4
26–30	15	16
31–35	23	25
36–40	24	26
41–45	12	13
46–50	7	8
51–55	6	7
Marital status		
Single	68	75
Married	21	23
Separated	2	2
Number of children		
1	19	21
2	33	36
3	24	26
4	8	9
5+	7	8
Education		
Grades 9, 10, or 11	6	7
High school graduate	6	7
Some college or specialized training	44	48
College graduate	22	24
Graduate or professional training	10	11
Income level		
Under $10K	24	26
$10,000–19,999	14	15
$20,000–29,999	20	22
$30,000–49,999	18	20
$50,000–69,999	9	10
$70,000+	6	7