Journal of Anxiety Disorders 26 (2012) 871–878

Contents lists available at SciVerse ScienceDirect

Journal of Anxiety Disorders

The structure of anxiety symptoms among adolescents in Iran: A confirmatory factor analytic study of the Spence Children's Anxiety Scale

Cecilia A. Essau[a,*], Beatriz Olaya[b,c], Gholamreza Pasha[d], Jean O'Callaghan[a], Diane Bray[a]

[a] University of Roehampton, UK
[b] CIBER en Salud Mental (CIBERSAM), Spain
[c] Parc Sanitari Sant Joan de Déu, Sant Boi de Llobregat, Barcelona, Spain
[d] Islamic Azad University, Ahvaz Branch, Iran

ARTICLE INFO

Article history:
Received 10 November 2011
Received in revised form 7 August 2012
Accepted 23 August 2012

Keywords:
Anxiety symptoms
Cross-cultural
Adolescents
Depression
Spence Children's Anxiety Scale

ABSTRACT

The present study examined the psychometric properties of the Iranian translation of the Spence Children's Anxiety Scale (SCAS) in a large community sample of adolescents ($N = 1984$), aged 12–17 years, in Ahvaz City, Iran. In addition to the SCAS, all participants completed the Strengths and Difficulties Questionnaire (SDQ), and the Centre for Epidemiological Studies Depression Scale for Children (CES-DC). The internal consistency (Cronbach Alpha = .92) and the validity of the Iranian translation of the SCAS was excellent. The SCAS total scores correlated significantly with the CES-DC, as well as with the emotional, conduct problems, hyperactivity-inattention, and peer problems subscales of the SDQ. However, Steiger's *Z* test demonstrated that correlations between the SCAS scores and the SDQ conduct problems or hyperactivity-inattention subscales were significantly lower than the correlations between the SCAS scores and the SDQ emotional symptoms subscale. Confirmatory factor analyses revealed the same 6-factor structure as the original SCAS. The SCAS proved to be a reliable and valid measure of anxiety symptoms among adolescents in Iran.

1. Introduction

Studies conducted in Western countries have indicated that anxiety disorders are one of the most common psychiatric disorders in adolescence, with approximately 15–31.9% of young people affected (Chavira, Stein, Bailey, & Stein, 2004; Cohen et al., 1993; Costello, Mustillo, Erkanli, Keeler, & Angold, 2003; Essau, Conradt & Petermann, 2000; Lewinsohn, Hops, Roberts, Seeley & Andrews, 1993; Merikangas et al., 2010; Reinherz, Giaconia, Lefkowitz, Pakiz, & Frost, 1993; Wittchen, Nelson, & Lachner, 1998). These disorders are not only prevalent but also frequently co-occur with other psychiatric disorders (Essau et al., 2000; Kendall et al., 2010) and have been found to be predictors of several psychiatric disorders and educational underachievement in adulthood (Woodward & Fergusson, 2001). Furthermore, anxiety disorders in adolescents have been found to be associated with difficulties in various life domains (Essau et al., 2000; Messer & Beidel, 1994). Although these findings have enhanced our understanding of anxiety, little is known about the extent to which they can be generalized to adolescents who live in other cultures such as Iran.

The few cross-cultural studies on adolescent anxiety have reported differences in the number and types of fears and anxiety across cultures. For example, Nigerian compared to Chinese youth reported higher levels of fear (Ollendick, Yang, King, Dong, & Akande, 1996). Chinese youth in turn had higher fear scores compared to Australian and American children (Ollendick et al., 1996). The content of these fears seemed to be culture-specific. For example, in Africa the most common fear was related to snakes, while as in America this was fear of looking foolish. In China, the fear was of the paranormal, i.e., seeing ghosts. In Turkey, Erol and Sahin (1995) found commonly reported fears to be related to death, separation, and fears associated with religion. In recent years, Essau, Leung, Conradt, Cheng, and Wong (2008) and Essau, Sasagawa, Anastassiou-Hadjicharalambous, Olaya Guzman, and Ollendick (2011) conducted a series of studies comparing anxiety symptoms among adolescents in Asia and Europe. In one study, Essau, Sakano, Ishikawa, and Sasagawa (2004) found Japanese compared to German adolescents reported significantly lower anxiety symptoms. In another study, Essau et al. (2008) compared the frequency and correlates of anxiety among adolescents in Hong Kong and in Germany. Interestingly, Hong Kong Chinese young people had significantly higher anxiety than German adolescents.

* Corresponding author at: Department of Psychology, University of Roehampton, Whitelands College, Holybourne Avenue, London SW15 4JD, UK.
Tel.: +44 020 8392 3647; fax: +44 020 8392 3527.
E-mail address: c.essau@roehampton.ac.uk (C.A. Essau).

0887-6185/$ – see front matter © 2012 Elsevier Ltd. All rights reserved.
http://dx.doi.org/10.1016/j.janxdis.2012.08.001

Considering within-European trends, Essau, Sasagawa et al. (2011) recently compared the frequency of anxiety symptoms among adolescents in five European countries (i.e., Cyprus, Sweden, Italy, UK and Germany). Results showed that adolescents in the UK reported significantly more anxiety symptoms than adolescents in the other four European countries. Interestingly, adolescents in Cyprus were second highest in the self-report of anxiety symptoms of which obsessive–compulsive behaviours were significantly higher in Cyprus relative to the other countries. Furthermore, the high level of obsessive–compulsive symptoms has recently been replicated in two subsequent studies of anxiety symptoms in Cypriot adolescents (Essau, Anastassiou-Hadjicharalambous, & Muñoz, 2011, 2012). Overall, these studies show that anxiety symptoms are prevalent in both Western and non-Western countries.

To our knowledge, no studies have been conducted on the frequency of anxiety and symptoms of other psychiatric disorders in adolescents in Iran or in the Middle Eastern cultures. The present study therefore contributes to knowledge on anxiety by providing information on the frequency and structure of anxiety symptoms among adolescents in Iran. In a study among adults in Iran, 10.81% of adults in the general population were estimated to have met the lifetime diagnoses of any DSM-IV disorders (Mohammadi et al., 2005). The most common disorders were that of anxiety disorders (8.35%), followed by mood disorders (4.2%). The lifetime prevalence of anxiety disorders in Iran was much lower than those reported in Western countries where values have been reported to range from 14.4% to 28.8% (Kessler et al., 2005; Wittchen et al., 1998). One possibility for this discrepancy may be related to the under-reporting of anxiety symptoms among adults in Iran due to the prevailing cultural ethos. Among adolescents, anxiety disorders are often overlooked or misdiagnosed (Myers & Winters, 2002) because of the internalizing nature of anxiety. This also happens because anxious feelings may be mild and transient, and at times may be considered a normal part of development. Furthermore, the clinical presentation of anxiety in young people may vary in relation to stages of development (Kendall et al., 2010). These observations highlight the importance of understanding and screening anxiety in adolescents.

Considering the many self-report instruments that have been developed to screen for anxiety in adolescents, the Spence Children's Anxiety is Scale (SCAS; Spence, 1997) is the questionnaire that has been identified as having good to excellent psychometric properties, and which has been commonly used with children and adolescents in various countries and cultural backgrounds. The SCAS taps anxiety symptoms that can be linked to symptoms of DSM-IV anxiety disorders: generalized anxiety disorder, separation anxiety disorder, social phobia, panic disorder and agoraphobia, obsessive–compulsive disorder, and fears of physical injury. Each item is rated on a 4-point scale in terms of its frequency from 'never' (0) to 'always' (3). A total anxiety score is calculated by adding all its 38 items, with a maximum possible score of 114. A score of 60 has been regarded as an indicator for a sub-clinical anxiety.

Since the initial publication of the SCAS in 1997, its psychometric properties have been tested in diverse settings and countries; overall studies have reported the SCAS to be reliable in terms of internal consistency and test–retest reliability. In the first paper on the psychometric properties of SCAS (Spence, 1997), the alpha for the total score was reported to be .92. The Cronbach alphas for the six subscales were as follows: .82 for panic-agoraphobic symptoms, .70 for separation anxiety, .70 for social phobia, .60 for fears of physical injury, .73 for obsessive–compulsive, and .73 for generalized anxiety. More recent studies have similarly shown high alpha coefficients for the SCAS (e.g., Essau et al., 2004, 2008; Essau, Sasagawa et al., 2011; Ishikawa, Sato, & Sasagawa, 2009; Mellon & Moutavelis, 2007; Spence, Barrett, & Turner, 2003; Whiteside & Brown, 2008).

Numerous studies have also reported positive discriminant and convergent validity of the SCAS. First, the SCAS has shown good discriminant validity, differentiating between children and adolescents with and without anxiety disorders (Mellon & Moutavelis, 2007; Muris, Schmidt, & Merckelbach, 2000; Spence, 1998; Whiteside & Brown, 2008). Second, the convergent validity of the SCAS is also good as shown by the significant correlation between SCAS and other measures that purport to assess the construct of anxiety such as the Screen for Child Anxiety Related Emotional Disorders (SCARED; Birmaher, Brent, Chiappetta, Bridge, Monga, & Baugher, 1999) and the Revised Children's Manifest Anxiety Scale (RCMAS; Reynolds & Richmond, 1978) (Essau, Muris, & Ederer, 2002).

In the original paper that described the development of the SCAS (Spence, 1997), confirmatory factor analyses comparing four models (i.e., single-factor, six uncorrelated factors, six correlated factors, and six factors loading onto a single higher-order factor) suggested that the 6-factor, higher-order model fitted better than the other models (Spence, 1997, 1998). Further support for a six-correlated factor model came from a study by Spence et al. (2003), based on data of Australian adolescents and from a recent study by Essau et al. (2012) using children and adolescents in Cyprus. However, these factor structures failed to receive support from studies that used the various translations of the SCAS, including the German (Essau et al., 2004), the Chinese (Essau et al., 2008) and the Japanese (Ishikawa et al., 2009) translations. Such factors could have contributed to differences in these findings, although differences in socialization practices and cultural values (e.g., social norms, theoretical worldviews, environmental factors, educational and parenting practice) have also been suggested (Essau et al., 2008).

While the applicability and the psychometric properties of the SCAS have been examined in many other countries (e.g., North America, Europe, China, South Africa, Japan), to our knowledge no such studies have been done in Iran. Iran is a large country with a population of about 67.478 millions; 66% of its population live in urban and 34% in rural areas (World Health Organization; WHO, 2006). Most of the Iranian population are Shia Muslims (89%); 10% are Sunni Muslims and the rest (1%) are Christian, Zorastrian, Bahai and Jewish (WHO, 2006). Due to it being an Islamic country with strict adherence to Islamic teaching, the traditional Iranian family unit is patriarchal with religious laws prescribing a wife's relationship to her husband as one of the submission (Vreeland, 1957). Further, in this culture, family and the kinship network are highly valued. Family ties take precedence over any other social relationships. Iranians usually believe in fate, or "Taghdir" in that they are expected to accept with grace what happens in their lives (Vreeland, 1957).

The main aim of the present study was to examine the reliability and the validity of the Iranian translation of the SCAS in adolescents in Iran, as well as to test the validity of the 6-factor model (see Fig. 1). Additionally, we wanted to test a hypothetical 4-factor model and a 5-factor model as there have been several recent studies that suggested a possible overlapping between fears of physical injury and separation anxiety as well as between generalized anxiety and obsessive–compulsive disorders (Essau, Sasagawa et al., 2011). Moreover, it is also hypothesized that generalized anxiety and social phobia would be explained as the same factor (Essau et al., 2008; Essau, Sasagawa et al., 2011). The 4-factor model would combine fears of physical injury and separation anxiety as one factor, and generalized anxiety and obsessive–compulsive disorder as another factor, whereas the 5-factor model would include the generalized anxiety disorder and the social phobia as the same factor. Such psychometric evaluation would indicate whether or not the SCAS is useful for screening anxiety symptoms in Iranian populations. Findings of the present study could also advance