



# **Assessing Validity and Reliability of the Social Phobia and Anxiety Inventory for Children (SPAI-C) in a Sample of Egyptian School Children**

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## **Abstract**

*The purpose of the present study was to examine the factor structure and psychometric properties of the Social Phobia and Anxiety Inventory for Children (SPAI-C), an instrument developed in the United States and applied to a sample of Egypt schoolchildren. The process included the translation of the original material from English into Arabic by the second author. The study was performed using a cross-sectional design and the Arabic version of the SPAIC was applied to a sample of 1000 4<sup>th</sup> to 6<sup>th</sup> graders attending public schools in Kafr El Sheikh governorate, Egypt. One hundred subjects were excluded due to an incomplete questionnaire. The final sample consisted of 900 children, 400 girls and 500 boys, ranging in age from 10 to 12 years. The Pearson product-moment correlation showed that the two-week test-retest reliability coefficient was  $r = 0.820$ . The factor structure was almost similar to that reported in previous studies. The results regarding the test-retest reliability and the factor structure were similar to the findings obtained in studies performed on English speaking children. The present study showed that the Arabic language version of SPAI-C is a reliable and valid measure of social anxiety for Egyptian school children.*

**Key words:** Social assessment, Social phobia, Social anxiety, Test reliability, Test validity

## **Introduction**

Social anxiety disorder, also called social phobia, is an anxiety disorder in which a person has an excessive and unreasonable fear of social situations. Anxiety (intense nervousness) and self-consciousness arise from a fear of being closely watched, judged, and criticized by others. As a result they tend to avoid social situations or endure them with intense anxiety or distress (APA, 2000). A person with social anxiety disorder is afraid that he or she will make mistakes and be embarrassed or humiliated in front of others. The fear may be made worse by a lack of social skills or experience in social situations. The anxiety can build into a panic attack. As a result of the fear, the person endures certain social situations in extreme distress or may avoid them altogether. In addition, people with social anxiety disorder often suffer "anticipatory" anxiety -- the fear of a situation before it even happens -- for days or weeks before the event. In many cases, the person is aware that the fear is unreasonable, yet is unable to overcome it. Although mid-adolescence had been considered to be the average age of onset, some studies have shown that children as young as eight meet diagnostic criteria for the disorder (Beidel, 1991, Beidel & Turner, 1998).

Social anxiety may take different forms at different ages. Very young children who are socially anxious may appear excessively timid in social situations, cling to a familiar person, refuse to participate in group play and speak rarely. By age 8, children with social anxiety may stop inviting others over, are reluctant to go to parties or outings, won't participate in class, or will only speak to certain people. These early troubles, if not resolved, may evolve into social phobia at later ages. By adolescence, youngsters are confronted with the developmental tasks of establishing social relationships, gaining emotional independence from the family, and forming long-term vocational goals. Basic to the successful mastery of these tasks is a confident sense of self, adequate self-control and appropriate social behavior.

Social phobia in childhood not only causes internal distress, but is frequently the harbinger of later disorders. Children and adolescents with social phobia are at high risk for

major depression, suicide attempts and substance abuse disorders . In fact, social phobia has been identified as a direct link to the development of alcohol abuse by late adolescence. Social phobia also takes a toll on an individual's social, academic and occupational functioning. It is associated with failure to attain educational goals, resulting in reduced career and vocational options, financial security and the development and maintenance of a healthy lifestyle. Individuals with social phobia have low self-esteem, are highly sensitive to criticism and rejection, and lack assertiveness.

It is also important to remember that the disorder should be identified as early as possible, before it begins to jeopardize the potential of these children. In addition, when assessing children the clinician should be aware of some differences in the clinical presentation of the symptoms when compared with adults. For instance, in children there must be evidence of a capacity for social relationships with familiar people and the anxiety must occur in the peer settings, not just in interaction with adults, or during public performance, for example . Therefore, it is really important to have reliable instruments during the disorder evaluation process.

The Social Phobia and Anxiety Inventory for Children (SPAI-C) has shown initial promise in the assessment of distress in a variety of social situations. is a self-report inventory specifically designed to assess responses that delimit the “social phobia” construct in the three response systems (cognitive, psychological , sociological and motor), as described in the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV; American Psychiatric Association, 1994). It is formed by 26 empirically-derived items that measure anxiety in various social situations, including the cognitive, somatic, and motor components of Social Phobia; some items are the result of averaging the scores of the elements or sub items that they contain. Each item is scored on a 3-point Likert scale with 0 = never or very rarely, 1 = sometimes, and 2 = most of the time. Total scores range from 0 to 52 points.

Beidel et al. (1995) performed a confirmatory factor analysis and reported a three-factor model: Assertiveness/ General Conversation, Traditional Social Encounters, and Public Performance. Beidel, Turner, and Fink (1996) identified five factors in a mixed (clinical and nonclinical) sample: Assertiveness, General Conversation, Public Performance, Physical and Cognitive Symptoms, and Avoidance. In an exploratory factor analysis performed on a Portuguese community sample, Gauer, Picon, Vasconcellos, Turner, and Beidel (2005) defined four factors that explained 47.66% of the total variance; the first factor, Assertiveness, explained 13.90% of the variance; the second factor, Avoidance/Social Encounters, explained 11.99%; the third factor, Public Performance, explained 11.74%, and the fourth factor, Physical and Cognitive Symptoms, explained 10.03% of the variance.

Regarding the reliability and validity of scores, Beidel et al. (1995) found an internal consistency coefficient (Cronbach alpha) of .95 and a test-retest reliability of .86 after two weeks and .63 after ten months. Beidel et al. (1996), however, found that the internal consistency (Cronbach alpha) of scores was .92 and built a function to discriminate between children with social phobia and others with externalizing or normal disorders. Finally, Gauer et al. (2005) showed that the internal consistency (Cronbach’s alpha) of scores was .98 and the test-retest reliability was .88 in the following two weeks.

The current study was designed to validate SPAI-C in a different cultural group in order to make this instrument accessible to clinicians and researchers in the Arabic language.

## Method

### *Sample*

The initial sample consisted of 1000 Egyptian schoolchildren enrolled in the 4<sup>th</sup> to the 6th grade attending public schools in Kafr El Sheikh governorate, Egypt. After contacting the school directors and offering a presentation of the project to the teachers, the sample process was started. All students aged 10 - 12 years were chosen to participate. In some cases, the parents had given informed consent for the child to participate, as required by some school principals. Hence, the sample was not randomly selected but rather included all available students. One hundred subjects were excluded because they failed to complete questionnaire. The final sample consisted of 900 children, 400 girls and 500 boys. Two weeks after the initial administration, SPAI-C was readministered to 250 subjects of the original sample.

### *Social Phobia and Anxiety Inventory for Children*

SPAI-C is an empirically derived inventory developed specifically to assess social phobia in childhood and early adolescence, as a screening scale (Beidel et al.,1995). Useful in clinical and research settings, the SPAI-C assesses a range of potentially anxiety-producing situations (reading aloud, performing in a play, and eating in the school cafeteria) and assesses physical and cognitive characteristics of social phobia as well as avoidance behaviors. Each of the 26 items is rated on a 3- point scale (never or hardly ever, sometimes, most of the time or always). Some of the items require multiple responses. SPAI-C uses a Likert scale format that allows an assessment of the frequency with which each symptom is experienced. The maximum score on SPAI-C is 52, which indicates that the child experiences anxiety with a high frequency in a broad range of social settings. In addition to its quantitative score, the scale can be used qualitatively to examine different patterns of responses to various types of social situations (Beidel et al.,1995). Such an examination may assist the clinician in determining the salient aspects of the child's fear, and thus may be important for the development of an appropriate treatment plan. In the initial investigation, SPAI-C had high internal consistency ( $\alpha = 0.95$ ), high 2-week test-retest reliability ( $r = 0.86$ ), and adequate reliability at 10 months ( $r = 0.63$ ) (Beidel et al.,1995). After this initial investigation, other studies have been conducted to determine the reliability and validity of SPAI-C (Beidel et al.,1995).

### *Assessment*

The total length of time necessary to collect the test and retest data was 20 days. After being trained in a small conference to apply the scale, 10 elementary school teachers administered the questionnaire in their classrooms in Baltim Sector. In each classroom, students completed the self-report measure as a group after receiving instructions on how to proceed. For young children, especially those in the 4th year, the teachers read the questions aloud. Teachers circulated among the students during the test session and provided individual help to any student who experienced difficulty. Completion of the SPAI-C took approximately 45 min. After the students had completed the questionnaire, the teachers reviewed them and if anything was missing or a mistake was detected, the questionnaire was returned to the children and they were encouraged to complete it. Since the students were not required to indicate their name and identification number in the questionnaire, they could not be identified after they completed the application. In order to be able to compare the test with retest, the teachers gave a number to the students who participated in the second application.

### *Data Analysis*

Test-retest reliability was calculated (using Pearson's  $r$ ) with a Arabic language instrument version in a subsample of 250 school children, with a two week break between assessments. The factor structure of the 26-item SPAIC was examined using factorial analysis validation with a varimax rotation of data with the Arabic language instrument version assessed in a sample 300 children.

## **Results**

### *Test-retest reliability*

The test-retest reliability was calculated using the Pearson product-moment correlation. For the total sample of 250 children the two-week test-retest reliability coefficient was  $r = 0.820$ .

### *Factor analysis*

The factor structure of the 26-item SPAIC was examined using factor analysis validation with a varimax rotation of data in the Arabic version of the instrument assessed in the 900 children. There were four factors with eigenvalues higher than 1. Only items that loaded 0.40 or greater on a factor were retained within a factor. Using this criterion, only one item failed to load on a factor. Taken together, these factors accounted for 47.66% of the total variance. The items and their factor loadings are presented in Table 1. The first factor was labeled Assertiveness and accounted for 13.90% of the variance. The second factor was labeled Avoidance/ Social Encounters and accounted for 11.99% of the variance. The third factor was labeled Public Performance and accounted for 11.74% of the variance. The fourth factor was called Physical and Cognitive Symptoms and accounted for 10.03% of the variance.

## **Discussion**

The results of the test-retest reliability were to some extent similar to the findings in studies performed with children in areas where English is spoken. The data on test-retest reliability obtained by this investigation showed satisfactory Pearson product-moment correlation, confirming the good psychometric properties of the instrument found in previous studies. The factor structure was almost similar, but not identical, to that reported in two previous studies performed with children in the United States (Beidel et al., 1995, Beidel et al., 1996). We detected Assertiveness as a first factor, similar to that observed in previous studies but, in contrast to these studies, we did not find the General Conversation factor. As factor number two we found Avoidance/Social Encounters. It is interesting that the items included in this factor are similar to the Traditional Social Encounters factor found in the first study, and to the Avoidance factor found in the second study, but not in the first. Factor three, Public Performance, was similar to both previous studies. Factor four, Physical and Cognitive Symptoms, on the other hand, was found in the second study but not in the first. Thus, most factors that were found in the previous studies were also found in the present study. Only the General Conversation factor was not found, nor any new factor.

These small differences are perhaps due to the fact that the previous studies mixed small samples of patients and normal controls whereas we conducted an epidemiological study on a non-clinical sample. Some limitations of the present investigation should be noted. First, the extrapolation of the present findings to clinical samples is limited by the non-clinical nature of the present sample. Second, the construct validity of SPAIC with other measures of social

anxiety (convergent validity) and the comparison of social phobic children with other disorders (discriminant validity) must be evaluated for this population. Assessing an instrument's construct validity is a constant process requiring multiple efforts over time. Despite the fact that we still have a few more steps to go, the results of the present study have shown that the Arabic language version of SPAI-C is a reliable and valid measure of social anxiety for Egyptian children and, because of its appropriate psychometric properties, it can be used in clinical as well as in research settings.

Table 1. *Factor analysis*

<b>Item number and content</b>	<b>Factor loading</b>
<b>Factor 1 - Assertiveness (14.40%)</b>	
2. Scared when becoming the center of attention	0.52
10. Scared if someone starts arguing	0.68
11. Scared if someone asks me to do something that I don't want to do	0.61
12. Scared in an embarrassing situation	0.67
13. Scared if someone says something that is wrong or bad	0.58
18. Scared when ignored or made fun of by others	0.79
<b>Factor 2 - Avoidance/Social Encounters (10.81%)</b>	
6. Scared at parties, dances, school... And go home early	0.42
7. Scared to meet new kids	0.48
9. Scared in the school cafeteria	0.59
14. Scared when I start to talk to someone	0.56
15. Scared if I have to talk for longer than a few minutes	0.68
19. I avoid social situations (parties, school, playing with others)	0.54
20. I leave social situations	0.75
<b>Factor 3 - Public Performance (12.54%)</b>	
1. Scared when joining a large group	0.55
3. Scared when I have to do something while others watch me	0.68
4. Scared when speaking or reading in front of a group	0.64
5. Scared when answering questions in class or at group meetings	0.61
8. Too scared to ask questions in class	0.67
16. Scared when speaking in front of class	0.59
17. Scared when in a school play, choir, music, or dance recital	0.52
<b>Factor 4 - Physical and Cognitive Symptoms (12.57%)</b>	
21. Before going to a party, I think about what might go wrong	0.58
22. My voice leaves me or sounds funny when I am talking to others	0.65
24. When I am with other people, I think "scary" thoughts	0.64
25. Before going someplace, I feel (somatic symptoms)	0.64
26. When I am in a social situation, I feel (somatic symptoms)	0.61

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