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Reliability and validity of the Arabic Screen for Child Anxiety Related Emotional Disorders (SCARED) in a clinical sample



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ABSTRACT

This study aimed at investigating the reliability and validity of the Arabic Screen for Child Anxiety Related Emotional Disorders (SCARED) as a first child and adolescent anxiety screening tool in the Arab World. The English parent (SCARED-P) and child (SCARED-C) versions were translated into Arabic and administered along with the Arabic Strengths and Difficulties Questionnaire (SDQ) to 77 parents and 67 children attending a Psychiatry clinic. DSM-IV-TR diagnoses were made by a psychiatrist without knowledge of the scale scores. Internal consistency was confirmed by Cronbach's $\alpha=0.92$ for SCARED-P and 0.91 for SCARED-C. Their subscales had internal consistencies between 0.65 and 0.89. Parent-child agreement was $r=0.67$, $p<0.001$. SCARED-P demonstrated good discriminant validity between participants with anxiety disorders and those with other psychiatric disorders ($t(72)=3.13$, $p=0.003$). For SCARED-C, this difference was significant when participants with depressive disorders were excluded ($t(43)=2.58$, $p=0.01$). Convergent validity was evident through a significant correlation between SCARED-P and the parent SDQ emotional subscale ($r=0.70$, $p<0.001$), and SCARED-C and the child SDQ emotional subscale ($r=0.70$, $p<0.001$). Divergent validity with the SDQ hyperactivity subscale was observed as no significant correlation was found. Overall, the Arabic SCARED demonstrated satisfactory psychometric properties in a clinical sample in Lebanon.

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1. Introduction

Anxiety disorders constitute the most prevalent class of psychiatric disorders in many countries worldwide, in both adult (Kessler et al., 2007) and pediatric populations (Beesdo et al., 2009). Their onset generally precedes that of other disorders, making them one of the earliest forms of psychopathology. Specific phobias and separation anxiety appear particularly early in childhood, and social phobia in adolescence (Kessler et al., 2005). Pediatric anxiety disorders are associated with social, family, and academic impairments. For instance, symptoms of social phobia and separation anxiety interfere with the child's ability to develop social skills and learn independence, while other anxiety disorders may affect the child's self-esteem and perceived self-competence, resulting in psychosocial and functional difficulties (Messer and Beidel, 1994; Connolly et al., 2007).

In Lebanon and the Arab World, the impact of anxiety disorders is further fueled by exposure to war and conflict, unfortunately

still commonly occurring in the region (Tanios et al., 2009). Indeed, studies conducted in postconflict Lebanon, Algeria and Palestine showed a significant relationship between exposure to war-related trauma and the prevalence of anxiety disorders (de Jong et al., 2003; Karam et al., 2006). A study conducted in Gaza showed that this was particularly true for children and adolescents, whereby elevated Post-Traumatic Stress Disorder (PTSD) severity scores and other anxiety disorders severity scores were significantly associated with exposure to traumatic events (Thabet et al., 2008).

Early identification of pediatric anxiety disorders is therefore of substantial public health relevance in the Arab World. Indeed, children and adolescents with anxiety disorders, if identified early, would potentially benefit from available efficacious interventions which could alter the trajectory of the disorders (Dadds et al., 1999; Lowry-Webster et al., 2003). To this effect, the availability of a brief screening tool is warranted for use in both clinical and community settings. To our knowledge no such tools exist as of yet in the Arabic language. The Strengths and Difficulties Questionnaire (SDQ; Goodman, 1997), a brief screening tool for children and adolescents composed of five subscales, has been validated in Arabic (Almaqrani and Shuwail, 2004; Alyahri and Goodman, 2006) and one of its subscales screens for emotional symptoms; however, it is not specific

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to anxiety. More recently, the Arab Youth Mental Health Scale was developed as a general screening tool for common mental disorders (Makhoul et al., 2011) but was not found to be helpful in detecting anxiety and depressive symptoms among Arab boys (Mahfoud et al., 2011).

The Screen for Child Anxiety Related Disorders (SCARED; Birmaher et al., 1997) is a brief self-report scale which screens for anxiety in children and adolescents aged 9–18 and specifically assesses five main anxiety disorders: (1) Panic Disorder or Significant Somatic Symptoms, (2) Generalized Anxiety Disorder, (3) Separation Anxiety Disorder, (4) Social Anxiety Disorder and (5) Significant School Avoidance. The SCARED provides severity scores for anxiety symptoms; while a definitive diagnosis cannot be extrapolated from such scores, they constitute an initial screen that would need to be confirmed with further clinical assessments. The scale is available in both child- and parent-report versions (SCARED-C and SCARED-P), with moderate inter-rater correlation ($\rho=0.32$, $p=0.0001$). Both versions of the SCARED have high internal consistency ($\alpha=0.90$) and test-retest reliability ($r=0.86$). They have shown good discriminant validity in that they differentiated significantly ($p \leq 0.005$) between children with anxiety disorders and those with other psychiatric disorders (Birmaher et al., 1999). Although originally developed and validated in clinical samples (Birmaher et al., 1997, 1999), the SCARED further demonstrated robust psychometric properties both in other clinical (Monga et al., 2000; Muris and Steerneman, 2001) and in community samples (Essau et al., 2002; Hale et al., 2005; Crocetti et al., 2009; Isolan et al., 2011) in different countries.

The SCARED is one of many tools available in the English language for the screening of anxiety disorders in children and adolescents. The Spence Children's Anxiety Scale (SCAS; Spence, 1997, 1998) resembles the SCARED in consisting of both child and parent forms. Each consists of 45 items designed to evaluate symptoms of separation anxiety disorder, social phobia, obsessive-compulsive disorder (OCD), panic-agoraphobia, generalized anxiety, and fears of physical injury. The SCAS has the advantage of including OCD, which the SCARED does not assess for. It is, however, limited to children aged 8–12. Other scales, such as the Revised Children's Manifest Anxiety Scale (RCMAS; Reynolds and Richmond, 1978), the Depression and Anxiety in Youth Scale (DAYS; Newcomer et al., 1994) and the Beck Anxiety Inventory (BAI; Beck et al., 1988), while covering a broad age range of children and adolescents, measure anxiety symptoms in general without meeting full criteria for specific disorders. The Multidimensional Anxiety Scale for Children (MASC; March et al., 1997), although initially developed only as a self-report for children, has demonstrated good psychometric properties for a parent version as well (Baldwin and Dadds, 2007). The MASC is composed of four major factors: physical symptoms, harm avoidance, social anxiety and separation anxiety (March et al., 1997). While the latter two correspond to anxiety disorder diagnoses, the scale does not otherwise assess for more specific anxiety disorders. Compared to all these scales, the SCARED offers the combined advantages of having both child and parent versions, being applicable to a wide age range of children and adolescents, and assessing for specific anxiety disorders as well as for anxiety symptoms in general.

Another advantage of the SCARED is that its psychometric properties, namely with regard to factor structure and internal consistency, have been shown to apply cross-culturally, as was demonstrated in a meta-analysis that included data not only from different European countries (Belgium, Germany, Italy and the Netherlands) and the United States, but also from countries with markedly different cultures such as South Africa and China (Hale et al., 2011). A study, conducted in a clinical sample in the United States using the SCARED also showed that similar structure of anxiety symptoms exist across non-Hispanic White and African

American youths (Gonzalez et al., 2012). Such an advantage makes the SCARED a valuable tool in the context of the scarcity of information on the concept of anxiety in the Arab World. Furthermore, studies have presented contradicting theories as to whether anxiety could be considered a universal phenomenon (Cheng, 2001) versus a culturally-specific construct (Hinton et al., 2011), thus adding to the benefit of using a cross-culturally applicable tool.

The current study aimed at translating the SCARED into the Arabic language and establishing its reliability and validity in a child and adolescent psychiatric outpatient population in Lebanon. We specifically investigated (1) the internal consistency of the child and parent versions of the Arabic SCARED and their subscales, (2) inter-informant agreement, (3) discriminant validity by comparing children and adolescents with clinically diagnosed anxiety disorders to those with other psychiatric disorders, (4) the best cutoff scores for this population and the corresponding sensitivity and specificity, and (5) convergent and divergent validities with regard to other relevant self-report scales.

2. Methods

2.1. Participants

Participants were recruited as part of a child and adolescent psychiatric clinic registry at the American University of Beirut Medical Center (AUBMC). This study was approved by the American University of Beirut (AUB) Institutional Review Board (IRB). All patients presenting for their first visit to the psychiatry outpatient clinics between January 2011 and June 2012 were approached to participate. Informed consent was obtained from parents, and assent was obtained from children and adolescents. Participants diagnosed with psychotic disorders were excluded and, for participants with diagnoses of mental retardation (MR) and pervasive developmental disorders (PDD), only parent questionnaires were included. A total of 82 participants between the ages of 9 and 17 were included in this study. Sixty-two of them had both SCARED-P and SCARED-C completed, 15 had only SCARED-P and 5 had only SCARED-C.

2.2. Procedure

The SCARED child and parent versions were translated from English into Standard Modern Arabic by a team of masters-level psychologists, graduate students and the last author, all fluent in both languages. Standard Modern Arabic (SMA) is the form of Arabic shared across all Arab countries, and used in formal education (Holes, 2004). The advantage of SMA is that it facilitates the use of the Arabic SCARED in all Arabic-speaking countries. The SCARED was then back-translated to English by a member of the team not familiar with the original English version and was reviewed by the author of the English SCARED, B. Birmaher, and compared to the original scale for accuracy. The team revised and finalized the Arabic version accordingly.

Children and adolescents were asked to complete the SCARED-C, and their parents completed the SCARED-P. Children and their parents also completed the Arabic SDQ; the child version was completed by participants aged 11–17, and the parent version was completed for all participants. In addition, demographic information was obtained from parents.

Clinical diagnoses were generated by a child and adolescent psychiatrist, the last author (FM), according to the Diagnostic and Statistical Manual of Mental Disorders, 4th edition, Text Revision (DSM-IV-TR; American Psychiatric Association, 2000). FM was blinded to the scores of the scales. Diagnoses were made following one or two visits with both parents and children seen separately and together.

2.3. Measures

2.3.1. The Screen for Child Anxiety Related Disorders

The SCARED (Birmaher et al., 1997) consists of 41 items, each scored as a Likert-type scale of 0 to 2 ("not true or hardly ever true", "somewhat true or sometimes true", and "very true or often true"), for a total score ranging from 0 to 82. It exists in both child-report and parent-report versions, both intended for children and adolescents aged 9–18. The suggested cutoff score between anxious and non-anxious cases is 25, with 71% sensitivity and 67% specificity (Birmaher et al., 1999). The scale differentiates more specifically between the following anxiety disorders constituting its five subscales: (1) Panic Disorder or Significant Somatic Symptoms, (2) Generalized Anxiety Disorder, (3) Separation Anxiety

Disorder, (4) Social Anxiety Disorder and (5) Significant School Avoidance (Birmaher et al., 1997). Items included in each of these subscales include the following: (1) "When my child feels frightened, it is hard for him/her to breathe"/ "When I feel frightened, it is hard to breathe", (2) "My child worries about being as good as other kids"/"I worry about being as good as other kids", (3) "My child gets scared if he/she sleeps away from home"/"I get scared if I sleep away from home", (4) "My child does not like to be with people he/she does not know well"/"I do not like to be with people I do not know well", (5) "My child gets headaches when he/she is at school"/"I get headaches when I am at school". The SCARED has been translated into several languages and validated in clinical and/or community settings in the corresponding countries, including the Netherlands (Hale et al., 2009), Germany (Essau et al., 2002), Italy (Crocetti et al., 2009), Spain (Vigil-Colet et al., 2009), China (Su et al., 2008) and Brazil (Isolan et al., 2011).

3.2.3. The Strengths and Difficulties Questionnaire

The SDQ (Goodman, 1997) is a brief self-report questionnaire that comprises 25 items equally divided into five subscales (conduct problems, hyperactivity, emotional symptoms, peer relationships and prosocial behavior), as well as an "impact supplement" assessing the informant's perception of the child's difficulties (Goodman, 1999). Each item is given a Likert-type score from 0 to 2, resulting in scores ranging from 0 to 10 for each subscale, and a total difficulties score from 0 to 40 obtained as the sum of the first four subscales. The SDQ is available in parent and teacher forms for children aged 4–16, and a self-report form for children aged 11–17 (Goodman et al., 1998). It has demonstrated good internal consistency (Cronbach's $\alpha=0.80$ for the self-report and $\alpha=0.82$ for the parent-report total difficulties score (Goodman, 2001) and good discriminant validity between psychiatric and non-psychiatric samples (Goodman, 1997). The five-item emotional subscale has been shown to efficiently screen for mood and anxiety disorders in a clinical sample, whereby it predicted clinical diagnoses of these disorders with 81% sensitivity and 80% specificity. Similarly, the hyperactivity subscale predicted clinical diagnoses of the corresponding disorders with 89% sensitivity and 78% specificity (Goodman et al., 2000). The SDQ currently exists in 74 languages and has been validated in most of them, including Arabic (Almagrabi and Shuwal, 2004; Alyahri and Goodman, 2006).

3.2.4. Analysis

The data were analyzed using SPSS 19. Sample characteristics were reported using descriptive statistics. Missing values were checked using Missing Value Analyses (MVA) and Little's MCAR was used to assess the pattern of missing values. Although 83 parents had completed the SCARED-P, 6 had omitted more than 10% of the scale items (5 items or more) and their scales were therefore excluded. Out of the 77 remaining scales, 21 had 1–3 missing items; these were replaced by the corresponding subscale mean for each participant. For SCARED-C, 16 out of 67 scales had 1–4 missing items; they were replaced by their subscale means. Normality of the data was checked through standardized skew statistics, the Kolmogorov–Smirnov test and the Levene statistic. Univariate outliers were assessed through standardized z-scores. The reliability of the parent and child SCARED and each of their subscales was calculated using internal consistency, namely Cronbach's alpha. Parent–child agreement was evaluated using Pearson correlations. Independent-sample *t*-tests were conducted to compare the SCARED score means of anxious and non-anxious participants. This was also done for each subscale, whereby a comparison was made between the participants who were clinically diagnosed with the corresponding disorder and those who were not. The optimal cutoff SCARED scores between anxious and non-anxious children in our sample were estimated using the receiver operating characteristic (ROC) method, whereby the area under the curve (AUC) represents the scale's ability to differentiate between anxious and non-anxious participants, and optimal cutoff scores can be selected as those that maximize both sensitivity and specificity. Finally, convergent and divergent validity were assessed by comparing SCARED scores to those of the SDQ emotional subscale and the SDQ hyperactivity subscale, respectively. For all analyses, statistical significance was set at $p < 0.05$.

3. Results

3.1. Demographic and clinical data

The mean age for the overall sample was 14.0 years, with a standard deviation (S.D.) of 1.4 years. Fifty-three (64.6%) were male and 29 (35.4%) were female.

Thirty-three participants (40.2%) were clinically diagnosed with one or more of the DSM-IV-TR anxiety disorders which the SCARED screens for. Anxiety disorder was the primary diagnosis for 19 of them, and a secondary or comorbid diagnosis for the remaining 14. Specifically, 2 participants had Panic Disorder (PD), 14 had Generalized Anxiety Disorder (GAD), 4 had Separation

Anxiety Disorder (SAD), 7 had Social Phobia (SP), 2 had both PD and GAD, 1 had PD and SAD, and 3 had GAD and SAD.

Out of these 33 anxious participants, only 3 had no comorbid psychiatric conditions. 6 had depressive disorders, 1 had a bipolar disorder, 3 had Obsessive–Compulsive Disorder (OCD), 2 had Post-traumatic Stress Disorder (PTSD), 10 had attention-deficit and/or disruptive behavior disorders, 2 had (PDD), and 9 had other disorders (simple phobia, somatization disorder, tic disorders, trichotillomania and stuttering).

The remaining participants ($N=49$, 59.8%) had various clinical diagnoses or no diagnosis. Specifically, 3 had an anxiety disorder not otherwise specified (NOS), 16 had depressive disorders, 2 had bipolar disorders, 8 had OCD, 22 had attention-deficit and/or disruptive behavior disorders, 1 had MR, 5 had PDD, 9 had other disorders (simple phobia, anorexia nervosa, adjustment disorder, conversion disorder, tic disorders, trichotillomania and stuttering), and 1 had no psychiatric disorder.

The mean age for anxious participants was 14.2 years (S.D.=2.1) and that for non-anxious participants was 13.6 years (S.D.=2.5); there was no significant difference between them ($p > 0.05$). The anxious group consisted of 63.6% male and 46.4% female participants, and the non-anxious group of 65.2% male and 34.8% female; gender ratios did not differ significantly between groups ($p > 0.05$).

3.2. Reliability of the parent and child SCARED and their subscales

The internal consistencies of the SCARED-P and SCARED-C were represented by Cronbach's alpha values of 0.92 and 0.91, respectively. Cronbach's alpha values of their subscales ranged between 0.70 and 0.89 for the parent version and between 0.65 and 0.85 for the child version (Table 1). The internal consistencies of the SCARED-P and its subscales did not differ when scores of children with PDD and MR were excluded.

3.3. Parent–child agreement

The total SCARED-P and SCARED-C scores were significantly correlated, with $r=0.67$ ($N=62$; $p < 0.001$). The correlation was $r=0.85$ ($N=11$; $p < 0.001$) for children aged 9–12 and $r=0.64$ ($N=51$; $p < 0.001$) for adolescents aged 13–17. Parent–child correlations were 0.66 for the PD subscale, 0.64 for the GAD subscale, 0.63 for the SAD subscale, 0.56 for the SP subscale and 0.57 for the school avoidance subscale, all significant at $p < 0.001$.

3.4. Comparisons between anxious and non-anxious youth on total scores

Participants with a valid SCARED-P who were clinically diagnosed with one of the anxiety disorders screened for by the SCARED ($N=30$) had a mean SCARED-P score of 31.8 (S.D.=14.6), while those who were not diagnosed with any of those disorders nor with anxiety disorder NOS ($N=44$) had a mean SCARED-P

Table 1
Internal consistency of parent and child SCARED and their subscales.

	SCARED-P ($N=77$)	SCARED-C ($N=67$)
Total score (41 items)	0.92 ^a	0.91
Panic Disorder or Significant Somatic Symptoms subscale (13 items)	0.89	0.83
Generalized Anxiety Disorder subscale (9 items)	0.85	0.85
Separation Anxiety Disorder subscale (8 items)	0.79	0.67
Social Anxiety Disorder subscale (7 items)	0.89	0.82
Significant School Avoidance subscale (4 items)	0.70	0.65

^a Values represent Cronbach's alpha.

score of 21.7 (S.D.=13.0). *t*-Tests showed a significant difference between these 2 means ($t=3.13$; *d.f.*=72; $p=0.003$) (Table 2). This was also the case when scores of children with PDD and MR were excluded. The corresponding means for SCARED-C were 32.9 (S.D.=13.1) for the anxious group ($N=29$) and 27.3 (S.D.=15.1) for the non-anxious group ($N=36$); the mean difference was not statistically significant ($t=1.60$; *d.f.*=63; $p=0.12$).

When participants with depressive disorders were excluded from both groups (remaining sample: $N=27$ in the anxious group and $N=31$ in the non-anxious group), both parent and child scales differentiated significantly between anxious and non-anxious groups (mean=30.8, S.D.=14.8 for SCARED-P and mean=33.7, S.D.=12.7 for SCARED-C in the anxious group, mean=19.1, S.D.=12.7 for SCARED-P and mean=23.3, S.D.=14.4 for SCARED-C in the non-anxious group, with $t=3.18$; *d.f.*=54; $p=0.002$ for SCARED-P and $t=2.58$; *d.f.*=43; $p=0.01$ for SCARED-C when the means of the two groups were compared).

3.5. Comparison between anxious and non-anxious youth on subscale scores

When scores on the PD subscale were compared for participants diagnosed with this disorder versus all the other participants, the means were significantly different for SCARED-P ($p=0.04$) but not for SCARED-C ($p > 0.05$; Table 2). Similarly, the GAD subscale score means differed significantly between participants with and without GAD for SCARED-P ($p=0.004$) but not for SCARED-C ($p > 0.05$; Table 2). However, for SAD and SP, both SCARED-P and SCARED-C scores significantly differentiated between cases and non-cases ($p < 0.001$ and $p=0.001$ for separation anxiety, $p=0.002$ and $p=0.001$ for social anxiety; Table 2). The school avoidance subscale could not be assessed since none of the participants were diagnosed with this disorder. These results were the same when SCARED-P scores of participants with PDD and MR were removed.

3.6. Exploratory receiver operating characteristic curves

The ROC method was applied to SCARED-P and SCARED-C (Fig. 1) so as to explore possible cutoff scores that could be applied to our sample. The obtained AUCs were .70 ($p=0.003$) and .63 ($p=0.06$), respectively. The cutoff scores that maximized both sensitivity and specificity were 24 for SCARED-P, resulting in a sensitivity of 67% and a specificity of 55%, and 26 for SCARED-C, with a sensitivity of 66% and a specificity of 56%.

3.7. Convergent and divergent validity

The SCARED total scores and SDQ emotional subscale scores were significantly correlated for both the parent ($N=67$; $r=0.70$; $p < 0.001$) and child versions ($N=52$; $r=0.70$; $p < 0.001$). Conversely, there were no significant correlations between the SCARED and SDQ hyperactivity subscale scores ($p > 0.05$ for both and parent and child versions). The correlations for SCARED-P did not differ if scores of children with PDD and MR were excluded.

4. Discussion

The purpose of this study was to investigate the reliability and validity of an Arabic version of the SCARED in a clinical sample in Lebanon.

Both the child and parent versions of the Arabic SCARED demonstrated high internal consistencies. This is consistent with the findings on the English version in a similar clinical sample (Birmaher et al., 1999). While some of the subscales (the child SAD subscale and both the parent and child school avoidance subscales) had moderate internal consistencies, all the other subscales had good internal consistencies comparable to those obtained for the original English version, ranging from 0.79 to 0.89 (Birmaher et al., 1999).

There was satisfactory parent–child agreement between children's and parents' scores ($r=0.67$). The corresponding correlations found for other validation studies were moderate: 0.32 for the original English version (Birmaher et al., 1999), 0.50 for the German version (Weitkamp et al., 2010), and 0.59 for the Chinese version (Su et al., 2008). The parent–child correlation was good for participants aged 9–12 and moderate for those above 12, in contrast to the findings in previous studies which demonstrated higher correlation in the older age group (Birmaher et al., 1999). This may be explained by a tendency for parents to be less aware of internalizing symptoms in their adolescent children than in the pre-pubertal ones. In fact, studies comparing parent and adolescent reports when assessing for psychiatric disorders showed high discrepancies between them, with adolescents reporting significantly higher levels of emotional symptoms than their parents (Sourander et al., 1999). This may not be as pronounced for pre-pubertal children, in whom clear-cut anxiety disorders such as SAD are more common than mixed non-specific anxiety and depression symptoms that may be more difficult for parents to pick up on.

The parent version differentiated participants diagnosed with at least one anxiety disorder that the SCARED screens for from participants with other non-anxious psychiatric disorders, while

Table 2
Comparison of SCARED score means between anxious and non-anxious participants.

	SCARED-P					SCARED-C				
	Anxious	Non-anxious	<i>t</i>	<i>d.f.</i>	<i>p</i>	Anxious	Non-anxious	<i>t</i>	<i>d.f.</i>	<i>p</i>
Total SCARED	31.8 (14.6) ^a (<i>N</i> =30)	21.7 (13.0) (<i>N</i> =44)	3.13**	72	0.003	32.9 (13.1) (<i>N</i> =29)	26.5 (15.5) (<i>N</i> =36)	1.60	63	0.1
Panic Disorder	12.3 (10.5) (<i>N</i> =3)	5.5 (5.4) (<i>N</i> =74)	2.08*	75	0.04	11.0 (5.8) (<i>N</i> =5)	6.9 (5.1) (<i>N</i> =62)	1.68	65	0.1
Generalized Anxiety Disorder	10.2 (3.8) (<i>N</i> =17)	6.6 (4.5) (<i>N</i> =60)	2.97**	75	0.004	10.2 (3.7) (<i>N</i> =17)	8.1 (5.0) (<i>N</i> =50)	1.60	65	0.1
Separation Anxiety Disorder	11.0 (4.4) (<i>N</i> =8)	4.7 (3.3) (<i>N</i> =69)	4.89**	75	< 0.001	9.0 (3.6) (<i>N</i> =8)	5.0 (3.0) (<i>N</i> =59)	3.45**	65	0.001
Social Anxiety Disorder	10.0 (3.1) (<i>N</i> =7)	5.0 (4.0) (<i>N</i> =70)	3.28**	75	0.002	10.6 (4.7) (<i>N</i> =5)	5.1 (3.3) (<i>N</i> =62)	3.52**	65	0.001

^a Values represent the mean score (standard deviation) for each scale or subscale.

* Significant at $p < 0.05$.

** Significant at $p < 0.01$.

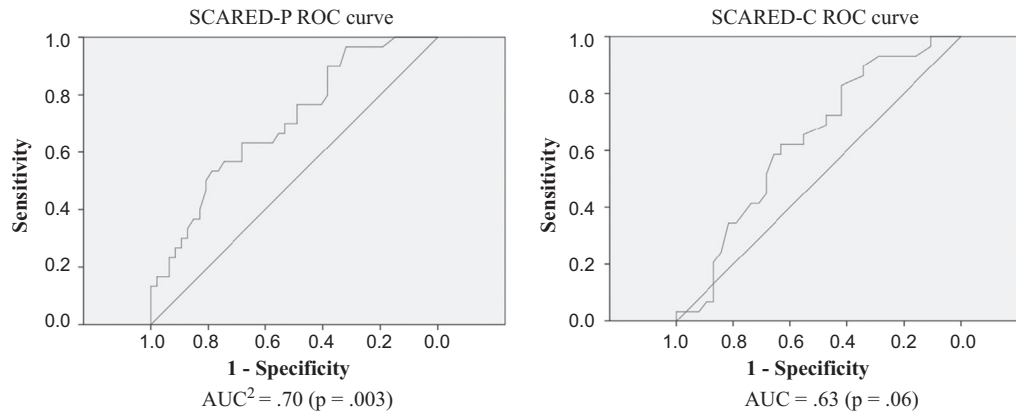


Fig. 1. Parent and Child SCARED receiver operating characteristic curves.

the difference on the child version was not statistically significant. This finding is consistent with previous studies, which have shown a discrepancy between the parent and child SCARED scores, namely excess symptom reporting by children as compared to parents (Wren et al., 2004). When children with depressive disorders were excluded, the difference on SCARED-C between the anxious and non-anxious groups became statistically significant ($p=0.007$), suggesting that depressed children had comorbid anxiety symptoms that were not picked up and reported by their parents during the clinical interview, since the mean SCARED-C dropped from 27.3 to 19.1 in the non-anxious group when depressed participants were excluded. Another explanation may be that depressed children in our sample experienced overlapping symptoms with anxiety disorders, especially physical symptoms, and hence scored highly on anxiety self-reports. This finding is in line with previous research showing significant symptom overlap between anxiety and depressive disorders in children and adolescents with measures of them being highly correlated with each other (Brady and Kendall, 1992). This overlap has led researchers to propose a tripartite model for anxiety and depression with the development of a third diagnostic category pertaining to the general trait of negative affectivity that is common to both disorder classes (Clark and Watson, 1991). Originally proposed for adults, this model has been demonstrated in children and adolescents as well (Joiner et al., 1996). Studies conducted on children and adolescents have also found that, despite constituting two separate constructs, depression and anxiety symptoms show parallel growth and increase each other's severity (Hale et al., 2009). In the Arab World, studies conducted on young adults have demonstrated the same patterns of overlap between depression and anxiety that were seen in the Western cultures, both in clinical samples (Al-Turkaita et al., 2011; Bener et al., 2012) and university student samples (Alansari, 2005).

The same pattern was found when PD and GAD subscales were assessed, in that the parent version differentiated significantly between anxious and non-anxious cases while the child version did not. This may be explained by the overlap between symptoms of these disorders and those of other anxiety and depressive disorders. The items representing separation anxiety disorder and social anxiety disorder, conversely, seemed much more specific to these disorders, thus allowing for the corresponding subscales of both SCARED-P and SCARED-C to effectively differentiate between these and other disorders. Previous studies have shown a tendency in children to obtain higher scores on the panic/somatic and separation anxiety subscales of the SCARED than their parents (Wren et al., 2004), while children were found to under-report social phobia symptoms as compared to their

parents (DiBartolo et al., 1998). These findings emphasize the importance of integrating both parent and child reports when assessing for anxiety disorders rather than relying on either of them alone.

The ROC curves further confirmed SCARED-P's ability to significantly differentiate between anxious and non-anxious cases, with an AUC of .70 ($p=0.003$), and showed a lesser ability of SCARED-C to make this differentiation, with an AUC of 0.63 approaching significance ($p=0.06$). A similar AUC for SCARED-P was obtained in other studies (AUC=0.70 for the original version of the SCARED); however, the SCARED-C had a higher AUC with statistical significance (Birmaher et al., 1997).

The optimal cutoff scores obtained using the ROC method on our sample were 24 for SCARED-P and 26 for SCARED-C, which are close to the cutoff of 25 suggested for the original English version of the SCARED (Birmaher et al., 1999). The resultant sensitivity and specificity (67% and 55% for SCARED-P, 66% and 56% for SCARED-C, respectively), although lower than those found in other studies (71% sensitivity and 67% specificity; Birmaher et al., 1999), were satisfactory.

Both the parent and child Arabic SCARED showed good convergent and divergent validity, as indicated by their significant correlation with the Arabic SDQ emotional subscale and their lack of correlation with the hyperactivity subscale. In fact, 4 of the 5 items comprising the SDQ emotional subscale relate to anxiety symptoms that the SCARED screens for: having somatic symptoms, worrying often, being nervous or clingy in new situations and having many fears.

One limitation associated with our study was the sample size, which was not large enough to allow for ROC analyses and the determination of subscale cutoff scores, given the small number of participants that were diagnosed with each specific disorder. Factor analysis assessing the applicability of the scale's 5-factor structure to the Arabic version could also have been obtained with a larger sample. Additionally, as expected in any clinical sample, comorbidity between psychiatric disorders was very high, especially between anxiety and mood disorders. SCARED-C did not significantly differentiate between depressive and anxiety disorders, most likely due to symptom overlap and a not large enough sample size. Future studies should aim at recruiting a sample of participants with pure anxiety and pure depression in order to further investigate the scale's ability to differentiate between these disorders.

In summary, the SCARED was successfully translated into the Arabic language and demonstrated satisfactory psychometric properties when applied to a clinical sample in Lebanon. In particular, it showed high reliability, good cross-informant correlation, and adequate convergent and divergent validity. The

Arabic SCARED, especially when taking into account both the parent and child reports, is a suitable screening tool for anxiety disorders in children and adolescents in a clinical setting. The availability of this tool is much needed in clinical practice and its use would potentially spread to more than 22 countries and 360 million people speaking the Arabic language (League of Arab States, 2011). Studies using larger samples with less comorbidity should further assess the diagnostic ability of each subscale, the overall ability of the child version of the scale to differentiate between depressive and anxiety disorders and the validity of the 5-factor structure for the Arabic SCARED. In addition, future studies should aim at validating the Arabic SCARED on a community sample.

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