The diagnostic utility of the Screen for Child Anxiety Related Emotional Disorders-71 (SCARED-71)

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ABSTRACT

Objective: This study investigated the diagnostic utility of the 71-item Screen for Child Anxiety Related Emotional Disorders (SCARED-71), as a screening tool for identifying anxiety disorders in youth aged 8–18 years.
Method: The SCARED-71 and the Anxiety Disorder Interview Schedule (ADIS) were administered to clinically referred anxious children ($n = 138$) and control children ($n = 38$) as well as their parents.
Results: Results showed that the SCARED-71 differentiated clinically anxious from control children on the total score and on all subscales. Girls generally reported higher levels of anxiety symptoms and there were also significant age effects for various anxiety subscales. Further, reliable cut-off scores were established for the child and parent version of the SCARED-71. The parent version displayed better sensitivity and specificity, and therefore seems to be a more optimal screen for anxiety problems in children and adolescents. Finally, evidence for the predictive validity across anxiety disorders was found.
Conclusion: The SCARED-71 can be used as a screening tool to detect clinically significant anxiety problems in children and adolescents and discriminates reasonably well among specific anxiety disorders.

Introduction

Are self-report questionnaires actually able to reliably and accurately detect childhood anxiety disorders? The Spence Children's Anxiety Scale (SCAS; Spence, 1998), the Revised Child Anxiety and Depression Scale (RCADS; Chorpita, Yim, Moffitt, Umemoto, & Francis, 2000), and the 38-item Screen for Child Anxiety and Related Emotional Disorders (SCARED; Birmaher et al., 1997) seem to have potential for detecting anxiety problems in youths. An advantage of the 66-item SCARED-R(evised) (Muris, Merckelbach, Schmidt, & Mayer, 1999) is that this scale taps into all DSM-IV childhood anxiety disorders. Still, interviews such as the Anxiety Disorder Interview Schedule (ADIS-C/P; Silverman & Albano, 1996), the Diagnostic Interview Schedule for children (DISC; National Institute of Mental Health, 1992), and the Child version of the Structural Clinical Interview of DSM (Kid-SCID; Hien et al., 1998) are necessary to establish an anxiety disorder classification. However, interviews are time-consuming, costly, and require trained professionals. With reliable cut-off scores, questionnaires like the SCARED-R might be helpful to screen for anxiety disorders and to differentiate nonclinical from clinically anxious children.

Evidence for the discriminant validity of the 66-item SCARED-R was obtained by demonstrating that this questionnaire is able to differentiate between children with anxiety disorders, disruptive behavior disorders, and mood disorders (Muris, Dreessen, Bögels, Weckx, & van Melick, 2004; Muris & Steerneman, 2001). Furthermore, the chance of having an anxiety disorder was 9 times higher for children scoring high on the SCARED-R as compared to children with low scores (Muris et al., 2001). Using the original 38-item SCARED, Birmaher et al. (1997) found that anxiety-disordered youth also displayed significantly higher anxiety scores than children with other psychiatric disorders.

In order to detect children with serious anxiety problems, reliable cut-off scores have to be established. Such cut-off scores are useful in prevention research to identify children at high risk for anxiety problems. Furthermore, in therapy outcome studies, cut-off scores can be employed to determine whether treatment was successful in such way that a child has reached a subclinical level of anxiety. Muris, Merckelbach, Mayer, and Prins (2000) determined a cut-off point of 33 for the SCARED-R by means of discriminant

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analysis between high and low anxious nonclinical youth. However, it remains unclear whether this cut-off score can also be employed in clinically anxious youth.

Two demographic factors are important when investigating anxiety in children, namely gender and age. Several studies have shown that girls report higher levels of anxiety than boys (e.g., Castellanos & Hunter, 1999; Costello, Mustillo, Erkanli, Keeler, & Angold, 2003; Craske, 1997). Girls might report more anxiety symptoms because of gender stereotyping. That is, it is culturally more accepted that girls display anxiety symptoms. In addition, differences in parental rearing styles and biological temperament factors may contribute to the fact that girls display higher levels of anxiety than boys. Moreover, girls' coping behavior is more often characterized by rumination and worry which are generally assumed to enhance anxiety, whereas boys more frequently rely on active, problem-oriented coping which is usually associated with lower levels of anxiety (Craske, 1997). Girls generally report higher levels of anxiety symptoms on the SCARED-R as compared to boys in both nonclinical and clinical samples, and a similar trend has been observed for the parent version (Muris et al., 2004; Muris, Merckelbach, Schmidt, et al., 1999; Muris, Merckelbach, van Brakel, & Mayer, 1999).

It is generally assumed that anxiety decreases in nonclinical children as they become older (Bernstein, Borchardt, & Perwien, 1996; Castellanos & Hunter, 1999). Initially, as children reach a certain level of cognitive development, their ability to perceive situations as potentially dangerous increases. With increasing age, however, the child gets a better understanding of these situations and learns to control them, which reduces anxiety (Ollendick, Yule, & Ollier, 1991). Studies using the SCARED-R with nonclinical children generally reveal no substantial age effects (e.g., Muris et al., 1998). In clinically anxious youths, symptoms of panic disorder and generalized anxiety were found to increase with age, whereas symptoms of specific phobias and separation anxiety decreased as children get older (Muris et al., 2004).

Three studies have examined whether the SCARED-R is able to reliably detect specific anxiety disorders in youths. Muris et al. (2000) found that children with subclinical symptoms of specific phobia, generalized anxiety and separation anxiety on the DISC had significantly higher scores on the corresponding SCARED-R subscales than children without such symptoms. In another study of nonclinical children, generalized anxiety disorder and separation anxiety disorder as classified by means of the Kid-SCID were best predicted by high scores on the corresponding SCARED-R subscales (Muris et al., 2001). The sensitivity and specificity scores of these scales appeared to be modest to satisfactory. The social phobia subscale, however, had little predictive value, whereas other anxiety disorders were not investigated. In a study with clinically anxious children (Muris et al., 2004), further support for the predictive value of the SCARED-R was obtained, as most anxiety diagnoses were best predicted by their SCARED-R counterpart.

This is the first study to investigate the psychometric properties of the SCARED-71 in a clinical population using both child and parent report. As it has been argued that the social phobia subscale of the 66-item SCARED-R does not sufficiently cover this particular anxiety disorder (Muris et al., 2001; see also Birmaher et al., 1999), this subscale was expanded by adding 5 extra items. The first goal was to examine the internal consistency of the SCARED-71. Special attention will be devoted to the extended social phobia subscale to investigate whether its psychometric properties have improved. Second, the discriminant validity was investigated by comparing scores of clinical and nonclinical children. Third, since several studies have shown gender and age effects for anxiety symptoms, the influence of these demographic variables on SCARED-71 scores was also explored. Fourth, cut-off scores were determined to differentiate clinically anxious children from control children based on SCARED-71 total and subscale scores. Finally, the predictive validity of SCARED-71 scales for detecting specific anxiety disorders will be investigated.

Method

Participants

Participants were clinically anxious ($n = 138$) and control children ($n = 38$). The clinically anxious children were referred for treatment and participated in a multi-centre randomized clinical trial comparing family-based CBT with individual CBT (Bodden et al., 2008). Children were included, if their age was between 8 and 18 years ($M = 12.5$, SD $= 2.7$), they suffered from a primary anxiety diagnosis and had an IQ ≥ 80. Children were excluded if they suffered from substance abuse, suicide attempts, psychosis, autism spectrum disorders, or had an untreated or primary diagnosis of attention-deficit hyperactivity disorder (ADHD). There were 83 (60%) girls and 55 (40%) boys. Almost half (44%) of the children attended primary school, the remaining 77 (56%) attended secondary education. Of the parents, 136 mothers and 124 fathers participated.

The control sample consisted of children from the general population who were recruited via advertisements and were comparable to the clinically anxious group in terms of age, $F(1,174) = 0.0$, $p > .1$ and gender, $\chi^2 = 0.1$, $p > .1$. The age of nonclinical children also ranged from 8 to 18 years ($M = 12.4$, SD $= 2.6$). This sample consisted of 24 (63%) girls and 14 (37%) boys. Fifteen (40%) children attended primary school and 23 (60%) secondary education. All mothers ($n = 38$) and fathers ($n = 38$) participated. In both samples, most children (99%) were Caucasian.

The ADIS child (C) and parent (P) version were conducted to obtain diagnostic status. Primary and comorbid compound diagnoses of the clinically anxious children are shown in Table 1. The diagnosis with the highest clinical severity rating was considered as the primary diagnosis. In case severity ratings for diagnoses were equal, the clinician decided which diagnosis yielded the highest level of interference. In the control group, 2 children (5%) had a specific phobia and 1 child (3%) ADHD according to the ADIS-C/P. The fairly low frequency of anxiety disorders comes close to the 5–10% prevalence rates for these disorders as reported by Klein and Pine (2002) for community samples, and support the "normality" of the control sample.

Table 1

Primary and comorbid diagnoses of the clinically anxious children on the ADIS-C/P ($n = 138$).

Diagnosis	Primary diagnosis				Comorbid diagnosis			
	ADIS-C		ADIS-P		ADIS-C		ADIS-P	
	N	%	N	%	N	%	N	%
No anxiety disorder	6	4	0	0	0	0	0	0
Social phobia	37	27	43	31	36	26	41	30
Separation anxiety disorder	26	19	32	23	20	14	19	14
Specific phobia	34	25	27	20	38	28	53	38
Generalized anxiety disorder	25	18	25	18	22	16	40	29
Panic disorder	10	7	11	8	13	9	11	8
Obsessive-compulsive disorder					5	4	5	4
Posttraumatic stress disorder					4	3	6	4
Depressive and/or dysthymic disorder					15	11	26	19
Attention-deficit hyperactivity disorder					3	2	9	7
Conduct disorder					0	0	2	1
Pervasive developmental disorder					0	0	1	1
Oppositional Defiant Disorder					0	0	2	1