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Adaptation and Concurrent Validity of Screen for Children Anxiety Related Emotional Disorders (SCARED)

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Abstract

The current study was designed to adapt and investigate the psychometric properties of SCARED (screening children for anxiety related emotional disorders) as the first anxiety related emotional disorder screening tool for Pakistani children. The sample consisted of 8 to 11-year-old (N=322, mean age= 9.48) primary class children, including 157 girls and 165 boys. The 41-item child version of SCARED was translated into Urdu language by following Brislin's translation method. The convergent validity of this scale was determined by comparing it with DBDRS (Disruptive Behaviour Disorder Rating Scale). Cronbach's alpha reliability of SCARED scale was 0.89 and its subscales demonstrated internal consistencies ranging from 0.68 to 0.76 i.e. moderate to high, except one subscale SH, 0.45. The total score of SCARED was positively correlated with conduct disorders (r= 0.16, p <0.01), inattentive (r= 0.19, p < 0.01), hyper impulsive (r= 0.16, p < 0.01) and with ODD (r= 0.16, p < 0.01).Furthermore, the chi square result showed statistically non-significant association between cases and non-cases of SCARED and cases and non-cases of all subscales of DBDRS including conduct disorders (χ^2= 2.45, p> 0.05), inattention(χ^2= 0.11, p > 0.05), hyperactivity/ impulsive(χ^2= 0.23, p > 0.05), ODD (χ^2= 0.05, p > 0.05) and with ADHD combined scores (χ^2= 0.27, p > 0.05.The findings supported convergent validity for anxiety disorders with disruptive behaviours depicting the comorbidity of anxiety and disruptive behaviour. The study provides support for the convergent validity of SCARED with DBDRS.

Key Words: adaptation, anxiety, comorbidity, convergent validity, disruptive behaviours.

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1. INTRODCUTION

Anxiety disorders signify one of the most prevailing psychiatric disorders all over the world [Kessler *et al*. (2007)] among children and adolescents [Beesdo *et al.* (2009)]. Approximately 5-20% children and adults having anxiety disorders have been reported in world-wide epidemiological studies on anxiety [Beesdo *et al.* (2009); *Essau Conradt, and* Petermann (2000)]. Anxiety and fear are very common and focus typically on imitating key progressive themes and challenges among children and adolescents [Muris and Field (2011)]. These challenges and themes are largely consistent in different cultures [Ollendick *et al.* (1996)]. Anxiety disorders in children are linked with school avoidance, panic disorder, separation anxiety disorder and psychosocial problems [Strauss *et al.* (1988)]. These disorders are related with higher rates of comorbidity with disruptive behaviours i.e. oppositional defiant disorder, conduct disorder and ADHD [Kendall *et al.* (2001)]. Anxious children sometimes manifest behavioural problems, which gives grounds for the development and existence of comorbidity with anxiety and disruptive behaviours [Bubier and Drabik (2009)].

In Pakistan, there is a deficit in research work on children's anxiety disorders because of limited resources such as lack of insight regarding developmental disorders in parents for their children. However, a few small-scale researches indicate that, approximately 11 percent children have anxiety disorders among all the psychiatric disorders [Sarwat *et al.* (2009)]. World Health Organization (WHO) shows that children and adolescents with the prevalence of disabling mental illness attending care centres ranges between 20-30% and 13-18% in cities and rural areas respectively, but out of these 3-4% children are facing serious mental illness and require treatment [Hassan (1991)]. Some of the risk factors for anxiety disorders in children include low socio-economic status of parents [Mumford *et al.* (2000)], natural disasters such as earthquake and consequently elevated rates of Post-Traumatic Stress Disorder (Ayub *et al.* (2012)), violence aired on media round the clock (Wasif (2012)) and exposure of terrorist attacks [Nasim *et al.* (2014)] such as army public school at Peshawar [Maqbool 2015; Yusufzai (2014)].

A large portion of current Pakistani population comprises of children and youth, therefore in Pakistan timely identification of children's anxiety disorders are of substantial public health relevance. If these anxiety disorders are identified early in children, then it would be potentially valuable from existing worthwhile interventions that could change the trajectory of this disorder [Dadds *et al.* (1997); Lowry-Webster *et al.* (2003)]. For this purpose, the existence of a short screening tool for anxiety disorders is essential for

practice in non-clinical and clinical settings. The self-report scale for screening out anxiety of children is time efficient, easy to use and, less expensive [Essau *et al*. (2002)]. Spence Children Anxiety Scale [SCAS; Spence (1998)] and Revised Children Manifest Anxiety Scale [RCMAS; Reynolds and Richmond (1978)] are the most commonly used self-report scales but are not thorough enough in identifying symptoms of anxiety related to emotional disorders like generalized anxiety disorder, social anxiety disorder and separation anxiety disorder, and other DSM-V based anxiety disorders [Muris *et al.* (2000)].

Screen Children for Anxiety Related Emotional Disorders (SCARED) is used for screening anxiety related emotional disorders in children and adolescents of age range 9 to 18 years and specifically measures five main anxiety related disorders i.e. significant school avoidance, panic disorder, generalized anxiety disorder, social anxiety disorder, and separation anxiety disorder [Birmaher *et al.* (1997)]. In a replica study on SCARED in which three items associated with social phobia were added to the original version, resulting to 41 items in the questionnaire [Birmaher *et al.* (1999)].

SCARED is available in both child and parent version, with modest inter-rater correlation $p=0.32$, $p=0.0001$. The internal constancy $\alpha=0.90$ and test retest reliability $r=0.86$ is very high for both versions of SCARED. These two versions have presented really good discriminant validity and distinguished significantly $p\leq0.005$ among anxiety and depression in children [Birmaher *et al.* (1999)]. Numerous studies supported the convergent validity of SCARED because of its significant correlation with other measures of the anxiety disorders, i.e., physical injury fears and obsessive compulsive disorder and also with disruptive behaviours in children [Monga *et al.* (2000); Muris *et al.* (2002); Muris *et al*. (2002)] like RCMAS (Boyd *et al.* (2003)) and finally SCAS [Essau (2002)]. The sensitivity and specificity of this scale is 71% and 67% respectively [Birmaher *et al.* (1999)].

SCARED have been validated cross culturally which included data of European countries, United States of America, and South Africa [Hale *et al.* (2011)]. A study in which this scale was translated and adapted in Arabic language depicted that the cronbach's alpha value of internal consistencies was 0.91for the child version and 0.92 for the parent version, the value of cronbach's alpha of subscales ranged between 0.70 and 0.89 for parent version and 0.65 and 0.85 for child version. Sensitivity and Specificity of parent version was 67% and 55% respectively and in child version sensitivity was 66% and specificity was 56% [Hariz *et al.* (2013)]. Moreover, another study in which child version of SCARED was translated into the Chinese language represented its internal consistency and coefficient α value was 0.89 of total score. The

subscales coefficient α value ranged between 0.43 and 0.79. In this study the child version of SCARED yielded optimal sensitivity 79% and specificity 82% [Linyan *et al*. (2008)]. These marked benefits build the case in favour of SCARED as an important screening instrument in the perspective of scarceness of information on anxiety disorders among Pakistani children.

The objectives of the current study are: (1) Translation and adaptation of SCARED into Urdu language; and (2) Examination of the convergent validity of SCARED-Urdu version with disruptive behaviours, measured by Disruptive Behaviours Disorders Rating Scale (DBDRS)-Urdu version.

2. METHODS

The present study was conducted in two phases. First phase included the translation of screening for children anxiety related emotional disorder scale(SCARED)and second phase was validation for children anxiety related emotional disorders (SCARED) with disruptive behaviours disorders rating scale of parents (DBDRS).

Phase 1. Translation of SCARED

Step 1: Forward Translation. SCARED, a screening tool for anxiety in children was translated by using Brislin's back translation method in the present study [Brislin (1970)]. As a first step, four bilinguals (who were well-versed in both source (English) and target (Urdu) languages) were selected by the research committee for initial translation. All the bilinguals were Master of Arts in English and Urdu. They translated an original scale into the target language.

Step 2: Evaluation of Translated Versions by Expert Panel. In the second step a committee was formulated which included three experts; a professor of English and two PhD scholars of Psychology. They rigorously assessed each translated items and analysed content equivalence between Urdu and English both versions. Items were evaluated with the reference to vocabulary; grammar, and context by the expert panel. Those items that conveyed the meaning closest to the original were selected and enlisted for the back translation.

Step 3: Back Translation. As a third step, Urdu version was translated back into English language to determine the authenticity of translated scale. Two MS students of Psychology and 2 Master of Arts students of English back translated Urdu version. They were asked to translate these items into English language as accurate as possible. These bilinguals were neither familiar with the content of the original scale nor included in the forward translation process.

Step 4: Evaluation of Back Translated Version by Expert Panel. In this step, one professor and two students of Master of Science in Psychology critically analysed back translated items and finalised the items of Urdu version of SCARED. All members of the expert panel expressed their full consensus regarding the accuracy of translated version.

Phase 2. Validation of SCARED

Participants

The sample size consisted of 322 students ranging from age 8–11 years. Data were collected from different schools of Rawalpindi and Islamabad. These students were studying from grade 3 to grade 7. Convenient sampling technique was employed to collect the data from the students. Teachers were asked to refer the students who in their view might have some anxiety and behaviour related issues.

Instruments

Following instruments were administered.

Screen for Children Anxiety Related Emotional Disorder (SCARED) Anxiety scale for children named Screen for Children Anxiety Related Emotional Disorders was used to check anxiety level in children. The *SCARED* is a child and parent self-report instrument, [Birmaher *et al.* (1999)] used to screen for childhood anxiety disorders consisting 41 items and dimensions of the scale including panic disorder, separation anxiety disorder, social anxiety disorder, and generalized anxiety disorder. Items are rated on a 3-point Likert questionnaire with response categories ranging between "not true" (0) and "very true" (2). The whole scale measured anxiety disorder. Scores higher than cut-off divided the population into cases and non-cases. The cut-off score of whole scale is more or equal to 25, score of 7 indicate panic disorder, 9 for generalized anxiety disorder, 5 for separation anxiety, 8 for social anxiety and 3 may indicate school phobia.

Disruptive Behaviour Disorders Rating Scale–Parent Form (DBDRS–P)-Urdu version. Disruptive Behaviour Disorders Rating Scale, developed by Russell Barkley [Barkley (1997)] is used to measure Oppositional Defiant Disorder, Conduct Disorder or Attention Deficit/Hyperactivity Disorder. It contains 41 items in all and category of oppositional/defiant, inattention and impulsivity/over activity. It is a 4-point Likert questionnaire and categories range between "not at all" (0) and "very much" (3). Alpha reliability of Urdu

translated, and adapted version was 0.82for the subscale of Hyperactivity, 0.87 for Inattention, 0.81for ODD and 0.61 for Conduct Disorder [Malik and Tariq (2012)]. Further details with regard to DBDRS-P Urdu version are published elsewhere [Asghar and Malik (2016)].

Procedure

Researchers approached different schools from the area of Rawalpindi and Islamabad. Informed consent was signed by both parents and children. All participants reserved the rights to withdraw at any time from this study during administration of SCARED and DBDRS. Data were collected in duration of two months. Questionnaires were filled manually by all the participants of the study.

Ethical Considerations

Approval to collect the data was obtained from the school authorities. In this study participants were school children, so informed consent was signed from the parents as well as from children. It was made sure that the obtained information would only be used for the research purpose and kept confidential.

Furthermore, various ethical issues are important to consider while conducting research with the children for their protection. The said study really took care of the principles of beneficence and non-malfeasance, highlighting the craving to protect children from any type of harm. It was made sure that for any potential risks related to emotional disturbance, referrals to mental health professionals would be made.

3. RESULTS

After data collection the data analysis was carried out by computing the mean, standard deviation, and percentage of the demographic sample (Table 1) and also of the subscale of anxiety and disruptive disorders (Table 2). The correlation among all variables was computed by Pearson moment correlation test (Table 3) and Crobach's alpha reliability test was administrated to check the reliability of the scale SCARED and DBDRS (Table 2). Chi square test was used to check the overlapping among the non-cases and cases of subscales of DBDRS and SCARED (Table 5).

Table 1. Frequency and Percent Distribution of Demographics Variables (N=322)

Variable	Categories	F	(%)	M	SD
Age				9.48	1.19
	8 year	91	28.3		
	9 year	83	25.8		
	10 year	51	15.8		
	11 year	97	30.1		
Gender	Boys	162	51.2		
	Girls	157	48.8		
Grade	3rd	119	37.0		
	4th	85	26.4		
	5th	29	9.0		
	6th	62	19.3		
	7th	27	8.4		

Table 2. Mean (M), Standard Deviation (SD) and Cronbach's Alpha Reliability Coefficient of Sub Scales of SCARED and DBDRS (N=322)

Scale	No of Items	M	SD	α	Range		Skewness
					Actual	Potential	
PN	13	5.57	4.64	0.76	26	26	0.84
GD	9	4.33	2.96	0.70	14	18	0.67
SP	8	6.00	3.42	0.60	14	16	0.14
SC	7	4.52	3.46	0.68	14	14	0.53
SH	4	1.16	1.39	0.45	8	8	1.39
Inattentive	9	6.32	5.03	0.82	22	27	0.92
Hyper/Impulsive	9	7.32	5.75	0.81	25	27	0.66
ODD	8	5.50	4.52	0.78	22	24	1.05
CD	15	.57	1.21	0.70	9	15	3.27
SCARED	41	21.57	13.67	0.89	58	82	0.40
DBDRS	41	19.71	13.28	0.89	67	93	0.65

Note: PN (panic disorder), GD (generalized anxiety disorder), SP (separation anxiety disorder), SC (social anxiety disorder), SH (significant school avoidance), ODD (oppositional defiant disorder), CD (conduct disorder), SCARED (Screen for Children Anxiety Related Emotional Disorders) and DBRDS (disruptive behaviours disorders rating scale).

Table 3. Pearson's Correlation between Sub Scales of SCARED and DBDRS (N=322)

Variable	PN	GD	SP	SC	SH	Int	H/I	ODD	CD	SCARED
PN	-	.67**	.54**	.59**	.45**	.24**	.14*	.14*	.16**	.88*
GD		-	.51**	.51**	.37**	.16**	.10	.10	.11*	.81**
SP			-	.55**	.27**	.13*	.19**	.15**	.10	.77**
SC				-	.29**	.06	.12*	.06	.10	.80**
SH					-	.09	.02	.10	.20**	.51**
Int						-	.52**	.49**	.25**	.19**
H/I							-	.60**	.31**	.16**
ODD								-	.44**	.14*
CD									-	.16**
SCARED										-

Note: PN (panic somatic), GD (generalized anxiety disorder), SP (separation anxiety disorder), SC (social anxiety), SH (significant school avoidance), Int (inattentive), H/I (hyper impulsive), ODD (oppositional defiant disorder), CD (conduct disorder) and SCARED (Screen for Children Anxiety Related Emotional Disorders).

Table 4. Frequency and Percent of Clinical and Non-Clinical Cases of Scales (N=322).

Scale	Categories	*F*	P (%)
PN	Non-clinical	209	68.0
	Clinical	103	32.0
GD	Non-clinical	310	96.3
	Clinical	12	3.7
SP	Non-clinical	142	44.1
	Clinical	180	55.9
SC	Non-clinical	275	85.4
	Clinical	47	14.6
SH	Non-clinical	301	93.5
	Clinical	21	6.5
Int	Non-clinical	310	96.3
	Clinical	12	3.7
H/I	Non-clinical	303	94.1
	Clinical	19	5.9
ODD	Non-clinical	299	92.9
	Clinical	23	7.1

CD	Non-clinical	310	96.3
	Clinical	12	3.7
SCARED	Non-clinical	203	63.0
	Clinical	119	37.0
ADHD-C	Non-clinical	293	91.0
	Clinical	29	9.0

Note: PN (panic somatic), GD (generalized anxiety disorder), SP (separation anxiety disorder), SC (social anxiety), SH (significant school avoidance), Int (inattentive), H/I (hyper impulsive), ODD (oppositional defiant disorder), CD (conduct disorder), SCARED (Screen for Children Anxiety Related Emotional Disorders) and DBRDS (disruptive behaviours disorders rating scale).

Table 5. Contingency Table of SCARED and Subscales of DBDRS for Cases and Non-Cases (N = 322)

		SCARED			χ^2	*p*	Phi Cramer's V value
		Non Cases	Cases	Total			
Conduct	Non cases	198	112	310	2.45	.13	.08
Disorder	Cases	5	7	12			
	Total	203	119	322			
Inattentive	Non Cases	196	114	310	.11	.76	.01
	Cases	7	5	12			
	Total	203	119	322			
Hyper	Non cases	192	111	303	.23	.63	.02
Impulsive	Cases	11	8	19			
	Total	203	119	322			
ODD	Non cases	189	110	299	.05	.82	.01
	Cases	14	9	23			
	Total	203	119	322			
ADHD-C	Non cases	186	107	293	.27	.68	.02
	Cases	17	12	29			
	Total	203	119	322			

There was almost equal representation of both genders. Also, an equal representation of participants across all age categories except for the category of '10 years' as there were slightly less number of participants (f=51;15.8%) when compared to other age categories. The highest number of participants belonged to 3rd grade, followed by 4th and 6th grade. The lowest number of participants was from 7th grade. Table 1 shows details.

The Cronbach's alpha reliability of all subscales and whole scale of SCARED and DBDRS is very high and ranges between 0.6-0.89 except school avoidance subscale (0.45). Skewness was measured to assess the normality which showed that data was symmetrical except school avoidance (1.39),

oppositional defiant disorder (1.05) and conduct disorder (3.27) subscales. Table 2 shows details.

The Pearson's correlation coefficient was used to assess the relationship between SCARED, DBDRS and its subscales. There was significant positive correlation with low magnitude among all subscales except very few like school avoidance and social anxiety subscales. Table 3 shows details.

The frequency distribution of clinical and non-clinical population of subscales of SCARED and DBDRS were computed. The results showed that Panic somatic subscale has 209 (68.0%) non-clinical and 103 (32.0%) clinical cases, separation anxiety disorder has 142, (44.1%) non-clinical and 180 (55.9%) clinical cases, inattentive and conduct disorder has 310, (96.3%) non-clinical and 12 (3.7%) clinical cases. Overall SCARED scores showed 203, (63.0%) non-clinical and 119 (37.0%) clinical cases. Table 4 provides details.

To assess the relationship between SCARED scale and all subscales of DBDRS, a Chi-square test was performed. The results indicated that the relationship between SCARED scale and all subscales of DBDRS was non-significant thus demonstrated convergent validity of scale.

4. DISSCUSSION

This study was designed to adapt and validate the children anxiety scale named as Screen for Child Anxiety Related Emotional Disorders SCARED in Urdu language. On the basis of immense procedures of scale translation and its adaptation, 41 items were translated which included 13 items of Panic disorder or Significant Somatic, 9 items of General Anxiety Disorder, 8 items of Separation Anxiety, 7 items of Social Anxiety Disorder and 4 items of Significant School Avoidance. The item structure was the same as of the original SCARED. Findings were consistent with the original version (Birmaher *et al.* (1999)) except that of significant school avoidant subscale where the value of reliability was low because of less number of items [Linyan *et al.* (2008)].

This study also assessed the level of association among the subscales of anxiety and disruptive disorders. Results were in favour of the phenomenon showing significant co-occurrence among subscales of anxiety and disruptive disorders (Table 5). Although correlation was significant, but the magnitude of the correlation was weak ranging from 0.11 to 0.24 between SCARED and DBDRS subscales thus indicating that there is a weak relationship between anxiety disorders, i.e., generalized anxiety disorder, panic disorder and disruptive behaviour disorder, i.e., oppositional defiant disorder, conduct

disorder and inattention. The subscales of anxiety were positively correlated with the subscales of disruptive disorders and in previous researches it was also found that a positive relationship among the subscales of both anxiety and disruptive disorders exists (Table 3). Several studies have noted that CD, ODD and ADHD significantly show comorbidity with anxiety disorders (e.g., separation anxiety disorder (SAD) and GAD) among children [Bubier and Drabick (2009)]. CD, ODD and ADHD often co-occur with anxiety disorders (considered as a group) among adolescents and children [American Psychatric Association (2013)]. However, results also propose distinct relations among each of the anxiety disorders and disruptive behaviour. Specifically, ADHD and ODD were associated with both SAD and GAD, whereas CD was only related with GAD. This is consistent with the previous [Bubier and Drabick (2009)]. The prevalence of co-occurrence of anxiety and subscales of DBDRS (Table 5) was evident in the chi square analysis [Russo and Beidel (1994); American Psychatric Association (2013)]. The small magnitude of correlation also implies that although there is comorbidity among anxiety disorders and disruptive behaviour disorders but otherwise these are two distinct categories of developmental disorders in Diagnostic and Statistical Manual of Mental disorders (DSM).

As the present study was about the adaptation and translation of SCARED a screening tool, it was found out that 32% children are vulnerable to develop panic disorder, 3% are vulnerable to generalized anxiety disorder, 55% are vulnerable to develop separation anxiety disorder, and 14% are vulnerable towards social anxiety disorder. This implies the need to engage all stakeholders and offer some effective community mental health programs to circumvent the mental health issues of children. Through psycho-educational programs children can learn self-help strategies in order to deal with various types of anxiety related problems.

Limitations and suggestions

The sample size was small and collected from limited areas of Islamabad and Rawalpindi cities; therefore, it is recommended for future researchers that the sample size should be large enough so that the study could be generalized on a broader population. In the present study the convergent validity of the scale was checked against DBDRS, which is a screening tool to measure disruptive behaviour disorder in children. In future convergent validity can be established against other screening tools for anxiety disorders such as RCADMS, and SPENCE Urdu version. This would help identify the best available screening measure in Urdu. For a screening tool, establishing

divergent validity and conducting Confirmatory Factor Analysis (CFA) is very important. Due to small sample size it was difficult to conduct CFA on this data. Therefore, it is suggested for future research that divergent validity and CFA can be analysed on a large sample size.

Conclusion and Implications

This study satisfies the objective of the adaptation and validation of the scale SCARED in Urdu language. Moreover, this study confirms that there is a significant positive correlation among subscales of anxiety and disruptive behaviour disorders. The study also established the convergent validity of SCARED with that of the disruptive behaviours which showed that disruptive behaviours do have co morbidity with anxiety disorders. Based upon the results of present study, it can be concluded that SCARED Urdu version can be applied in counselling, research, and clinical settings for the screening of several problems in children and can also be utilized in intervention study.

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