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PSYCHOMETRIC PROPERTIES OF THE SOCIAL EMOTIONAL DEVELOPMENT ASSESSMENT SCALE IN PAKISTAN

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ABSTRACT

Recently, researchers have highlighted the significance of social emotional learning-based interventions in schools for children. Therefore, it is important to have a psychometrically sound assessment tool to assess social emotional development. The present study aimed to evaluate the reliability and structural validity of the adapted Urdu version of Social and emotional development assessment (SEDA), a self-report universal screening tool in a Pakistani sample. 426 participants were recruited from kindergarten, grade one and grade two from public schools of Islamabad, who completed the questionnaire. Findings revealed that the exploratory factor analysis explored three factors, and confirmatory factor analysis supported this structure for Pakistani children. Furthermore, the Urdu SEDA demonstrated excellent internal consistency, good split half reliability, adequate goodness of fitness indices and divergent validity. Overall, results suggested that the Urdu version of SEDA may be a valid method for the assessment of social emotional development in young children. Recommendations and limitations are discussed within a cultural context.

Keywords: Social emotional development, reliability, factor analysis, validity, Universal Screenings, self-report, Pakistan.

INTRODUCTION

Over recent decades, Social emotional learning (SEL) is emerging as an integral part of education and curriculum. Researchers are exploring strategies for SEL based interventions' implementation in schools and classrooms. Humphrey (2013) believed that SEL is now a worldwide phenomenon that has piqued the interest of researchers, educators, and policymakers. Furthermore, many experts believe children and adults need social emotional skills to improve academic and life skills (Anthony et al., 2020; Elbertson et al., 2010; *Niemi: CASEL Is Updating the Most Widely Recognized Definition of Social-Emotional Learning. Here's Why* | *The 74*, n.d.;



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Weissberg et al., 2015);). Based on a growing literature, SEL builds resilience to face challenges of learning, preventing risky behaviors and promote one's wellbeing (DiPerna et al., 2002; Durlak et al., 2011; Miyamoto et al., 2015; Nielsen et al., 2015; Schonfeld et al., 2015). There is substantial evidence supporting the conclusion that the broad range of social and emotional competencies is associated with children's success in school and with a wide range of concurrent and later life outcomes (Durlak et al., 2015; Jones & Doolittle, 2017). As a result of its evident benefits to student success, a large number of universal school-based social emotional learning (SEL) programs have been developed and field tested. Meta-analyses have reported that when well implemented, these programs benefit students socially, behaviorally, and academically and those benefits persist over time (Corcoran et al., 2020; Taylor et al., 2017).

In Pakistan, overall mental health services are the most neglected, with 10-16 percent of the population, or more than 14 million people, suffering from mild to moderate mental diseases (Rathod et al., 2017; World Health Organization, 2015). Data from recent studies done in Pakistan using adapted assessment measures revealed that approximately 34.4% of school children suffer from mental health problems(Javed et al., 1992; Syed et al., 2007). A recent telephonic survey(Malik et al., 2019) from parents revealed 15.9% prevalence of overall behavior problems in children aged 6-16 years. Another study (Inam & Zaman, 2014) reported a significant percentage of 46.5% borderline behavior problems in preschool children. Since, social emotional skills are strongly associated with children's trajectory of development of internalizing and externalizing problems during early childhood (Sun et al., 2022). These behavioral problems in young children may manifest as a result of children's own individual difficulties with social emotional competence (Housman, 2017). However, education is Pakistan lacks attention towards SEL and prioritizes academic achievement. Educationists, policy makers and researchers have identified the need for SEL based interventions programs and recommended immediate implementation in schools (Barlas et al., 2022; Inam et al., 2022).

As SEL interventions continue to evolve, it will be crucial to have effective assessment measures to determine the efficacy of programs. In comparison to more comprehensive diagnostic instruments, these assessments should be practical and simple to apply. In the field of social-emotional development, however, there are few universal screening instruments that can be administered effectively. Pakistan is at early stage of identifying needs of social emotional development in young children and only a few SEL based studies has been conducted with young children using emotional competence and social skills based tools (Inam, 2016; Mushtaq et al., 2017). These researchers identified significant gaps in early children's assessment of social emotional skills. In addition, self-reports are often neglected in screening until adolescence or adulthood.

Assessment of social emotional competencies in young children involves knowledge of a child's behavior at a specific development age. The use of validated, normed assessment tools for children improves the assessment of social–emotional functioning in a developmentally sensitive manner. Self-report tools have certain strengths. They are comparatively easy to develop, to administer in a group setting, and represents child's perspective of their SEL strengths and needs. On the other



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hand, these tools have more "social desirability response bias" (Crowne & Marlowe, 1960), and due to reading and cognitive demands, it is difficult to administer to young age children (McKown, 2019).

The present study focuses on the initial psychometric evidence for an adapted version of Social Emotional Development Assessment (SEDA) scale (Brenchley, 2017), a screening measure that assess SEL competencies including social and emotional skills. SEDA is a self report tool for assessment of SEL in children from kindergarten to grade two respectively. The SEDA is the classwide and universal screening instrument that permits academic skills and prosocial behavior to be contextualized. It was designed to provide an overview of the status of children's social and academic functioning based on self-reports.

METHOD

Sample and study design

The present study was based on cross sectional study design. Data was collected in May-2021 from four federal schools of Islamabad, Pakistan. The primary participants in this study included 15 teachers who taught prep (ages 4–5) through year 2 (ages 7–8). The target population was both males and females enrolled in public schools from three grade levels, i.e., prep, grade one, and grade two. A sample of 426 eligible students (48.6% males) was drawn from 15 classes and four public schools. The average age of participants was 6.3 years (SD= 0.85). All participants were all from four public schools in Islamabad, Pakistan that was involved in a year long PhD intervention Project to improve social emotional skills.

Sampling and procedure

Two staged cluster sampling technique was used to induct schools and study participants. As a first step, permissions were sought from the Federal Directorate of Education (FDE), Islamabad. Written consent was taken from the parents, due to covid restrictions of social and public meetings, parents were approached through letters from the schools. Data was collected in class groups with the assistance of researchers.

A statistical power analysis was performed using Stata v.17 (Statacorp, 2021) software for sample size estimation, based on data from the meta-analysis, comparing school-based studies for depression and anxiety programs. With an estimated small effect size (Erol et al., 2005)) of 0.25, an alpha = .05, and power = 0.80, the projected sample size was 98. 426 children were from 4-8years of age (Mean age= 6.3 years, SD=0.84) belonging to three classes Kindergarten, grade one, and grade two, respectively.

Measures

1. Demographic form

A form was developed to obtain data about the sample's various demographic variables including gender, age, family income and family system.

2. Social Emotional Development Assessment (SEDA)



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Social Emotional Development Assessment (SEDA) (Brenchley, 2017)scale consisting of 12 self-report items. The response options were like a 3-point Likert scale 0-2 (i.e., "not true or rarely true" as indicated by a thumbs down clip art, "sometimes true" as indicated by a sideways thumbs clip art, "usually or always true" as indicated by a thumbs up clip art). The scale consists of five domains of social emotional development: self-regulation, social skills, school belongingness, social responsibility, and optimism. Where, school belongingness and optimism have 3 items each and rest of the domains have 2 items (e.g., I wait my turn in line, I invite kids to play with me, I like myself). The scale evidenced adequate internal consistency ($\alpha = 0.74$).

SEDA was translated into Urdu language by following the guidelines of Brislin (1980) in the following steps. At first, a group of 7 experts comprising of 4 preschool teachers and 3 educationists who have more than 15 years' experience of working with young children in school settings were asked to review and evaluate the relevance of the items to young school children in Pakistan. Secondly, forward translation of items to Urdu were completed by 2 Master's, 3 M[hil and PhD scholars working in the field of developmental psychology and 1 educationist. All of the experts were proficient in both English and Urdu languages. Thirdly, Urdu translation of SEDA was back translated to English and compared to the original English version. Lastly, 3 experts committee evaluated back translations and compared with the original version and finalized the scale translation.

Child Behavioral Checklist (CBCL)

An Urdu translation of preschool version (CTRF) has 99 items and child version of teacher report Child Behavior Checklist (TRF) has 113 items (M & A, 2000). Both scales have two subcategories of behavioral problems: internalizing problems including emotional reaction, anxious/depressed, somatic complaints and withdrawn behaviors and externalizing problems consisting of attention problems and aggressive behaviors. All items were on a scale of 0 ("not true"), 1 ("somewhat true"), and 2 ("very true" or "often true"). Test-retest reliability of the original scale was reported to range from .95 to 1.00, inter-rater reliability ranged from .93 to .96, and internal consistency ranged from .78 to .97.

Analytical plan

All analyses were conducted using SPSS version 26.0. Descriptive statistics were computed including frequencies, percentages, and standard deviations of all demographic variables. The psychometric properties of the Urdu version of SEDA were assessed through reliability and factory analysis. Internal consistency reliability was measured using Cronbach's alpha and split-half reliability considering following guidelines for qualitative interpretation: $.70 < \alpha < .79 =$ adequate; $.80 < \alpha < .89 =$ good; and $.90 \alpha =$ excellent internal consistency(Hunsley & Mash, 2008). We than performed item analysis using corrected item-total correlation. The factor structure of the original SEDA was based on Exploratory Factor Analysis (EFA) and Item Response Theory (IRT). Therefore, to examine how adequate the identified model of the original scale fits the Urdu SEDA-12, we initially conducted Confirmatory Factor Analysis (CFA) of original five factor model. Model was not found fit (see results). We than conducted the EFA and repeated CFA and retained three factor model for Urdu version of SEDA. Based on the review of the scree plot and the amount



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of the variance explained by the first factor, the results of the EFA supported one-dimensionality, similar to the original scale. Three domains reflecting a broader construct of positive socialemotional development in Urdu version of SEDA. Item factor loadings can be seen in Table 4. In CFA, model fits were assessed through comparative fit index (CFI; \geq .90), Tucker Lewis Index (TLI; \geq .90), root mean square error of approximation (RMSEA; \geq .08), and root mean squared residual (RMSR; .08) (Hu & Bentler, 1998).

Ethical considerations

Initially, permission was sought from the Federal directorate of Education, Islamabad, to conduct the study. Nominations for schools were received, and teachers were later asked to provide the consent form and demographic information form to the parents. Written consents were taken from the parents and class teachers. They were informed about the goal of the research and ensured that the information would only be utilized for research purposes.

Results

Table 1 displays the details of participants and demographic information. Children belonged to the low-income families.

Variable	Group	Percentage/ Mean (SD)
Gender	Male	48.6%
	Female	51.4%
Class	Kindergarten	52.6%
	One	31.2%
	Two	16.2%
Family type	Nuclear	65.3%
	Joint	34.7%
Age (years)	4-8	6.3 (0.85)
Family income		24,890 (11540)
(PKR-monthly)		

Table 1

Descriptive of the Participants (N=426)

Reliability Analysis

Reliability data for the Urdu SEDA are presented in Table 2. Internal consistency for the Urdu SEDA total score was excellent and adequate for all three factors (in all cases over $\alpha = .70$). Most item-test correlations were well over .60, suggesting that the scale is homogeneous, indicating that none of the items should be removed.

Table 2	
Descriptive and psychometric properties of SEDA	

Domains	Μ	SD	Skew	Kurt	CITC	Reliability Data	
						α	ri
SEDA Total	21.57	3.55	-1.43	0.634	1.0	.81	.90
Self-regulation	10.26	3.1	-1.69	1.27	.78	.91	.90
Social skills	5.64	0.86	-4.02	20.8	.20	.63	.60
School connectedness/	5.66	0.75	-2.82	9.26	.40	.40	.40
Belongingness							

Note: α = Cronbach's Alpha; r_i = Guttman split-half coefficient; M=mean; SD= standard deviation; Skew=skewness; CITC = corrected item total correlation.



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Exploration of SEDA structure in Pakistani Sample

We initially run the CFA with same 5-factor structure model, however, the model showed inadequate fit to the Pakistani sample based on the chi-square goodness of fit test [$\chi^2 = 11.23$ (*16*, .795)] and eigen values with only first three factors showing eigen values >1 with 55% total variance explained. We then identified a three-factor solution by EFA which accounted for cumulative variance of 66.13%. Table 3 displays factor loadings of EFA and Figure 1 shows the scree plot. Figure 2 shows the factor structure of the Urdu version of SEDA. Furthermore, Table 4 shows CFA model fit indices indicating that the ratios of the RMSEA, RMR, TLI, GFI and CFI evident good model fit.

Factor loadings on EFA						
Items	Loadings					
	Self Regulation	Social skills	School belongingness			
3	0.745					
5	0.919					
8	0.597					
9	0.924					
11	0.892					
12	0.948					
1		0.683				
2		0.523				
4		0.828				
6		0.735				
7			0.739			
10			0.676			
Eigen values	4.47	2.33	1.14			
Total Variance explained	37.26%	19.40%	9.46%			

Table 4

Table 3

Model Fit Indices for the Three Factor Model of SEDA

in the second se	ee 1 00000	1100000) 22	2.11						
	χ^2	Df (p	$\gamma \chi^2/df$	RMSEA	CFI	GFI	RMR	TLI	
		value)							
Three factor hierarchical	249.25	48(.000)	5.19	.09	.93	.91	.04	.90	
model									

Note. $\chi 2$ = likelihood ratio chi-square statistic; df = degree of freedom for the likelihood ratio test of the model versus saturated; RMSEA = root mean square error of approximation; CFI = comparative fit index; RMR = root mean squared residual; GFI = Goodness of fit indices ; TLI = Tucker Lewis Index.



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Scree Plot Eigenvalue **Component Number**

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Figure 1. Screeplot of three factor model of SEDA



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Figure 2. Factor structure of the Urdu version of Social Emotional Development Scale.

Table 5 shows the correlations between SEDA and CBCL. The Urdu version of SEDA total score as well as its subscales showed low correlations with internalizing and externalizing problems, with minimal correlation values, providing evidence for the divergent validity.



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Table 5

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Correlations coefficients of the Urdu SEDA scores with internalizing and externalizing problems.

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Variables	Internalizing Problems	Externalizing Problems
SEDA total	144**	168**
Self regulation	128**	166**
Social skills	056	-0.06
School belongingness	132**	137**

** = p < 0.01.

DISCUSSION

The purpose of this study was to examine the reliability and validity of the social emotional development assessment (SEDA) scale in primary schools in Pakistan. Results of the EFA and CFA indicated the factor structure of the SEDA in Pakistan was not congruent with the original factor structure from the US sample. However, the overall results suggest that the Urdu SEDA scale has acceptable psychometric properties. Specifically, the present study confirmed that the Urdu version of SEDA demonstrates excellent internal consistency, split half reliability, and goodness of fit indices. Results confirm that the respective scale may be a valid and reliable self-report measure of social and emotional development in young children.

Analyses of reliability revealed adequate estimates for all subscales as well as excellent internal consistency for the total scale, which is comparable with findings from previous research (Brenchley, 2017). Furthermore, the split half reliability of the total SEDA was adequate as well. Low correlations of the Urdu version of SEDA with two subscales of CBCL i.e., internalizing problems and externalizing problems, suggests its divergent validity. In summary, these findings provide preliminary evidence that the Urdu SEDA retains adequate psychometric properties. Furthermore, based on the present validation, we encourage researchers, teachers, counselors and psychologists working with children to use the measure to assess social emotional competencies. And Urdu SEDA version may be used for future SEL based research and future cross cultural comparisons.

Limitations and Future directions

The present research has some limitations that should be addressed. Firstly, the sample consisted entirely of school children from public schools of Islamabad, Pakistan belonging to the low-income families, limiting the findings generalizability to community samples of differing ages, education, and socioeconomic status. Secondly, SEDA is a self-report measure, that is inherently prone to reporting biases. Future researchers examining the psychometric properties of the SEDA should also include reports from parents or teachers and direct behavioral assessments to assess the SEL construct. Third, no evidence for could be provided for the concurrent validity. Future researchers may include any measures that could be considered as theoretically similar with social emotional development in children.



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CONCLUSION

In conclusion, despite these limitations, our study is the first to examine the psychometric properties of any social emotional development assessment for younger children in Pakistan. We conclude that the Urdu SEDA version may be a psychometric sound measure of social and emotional development.

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