Translation and Validation of Social Skills Questionnaire for Pakistani Pediatric Population:

A Confirmatory Factor Analysis

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Abstract: Social Skills Questionnaire (SSQ) is widely used brief self-report scale to gage social skills among young children. In the present study, reliability and various forms of validity such as cross-language, construct, convergent and discriminant validity were established in Pakistani context.
By using the Cross-Sectional Study design, a total of 445 Primary School Children (56.9%boys and 43.1% girls; with mean age =10.63 years; standard deviation=.713); were engaged from 6 primary schools in Rawalpindi District. Urdu translated version SSQ, Rosenburg Self-esteem Scale, Urdu (RSES-U), Strengths and difficulties questionnaire (SDQ-U) along Socio-demographic form were administered in group setting after getting Consent from parents and Assent form children. Pilot analysis revealed that the measure had good reliability (Urdu Version α = .90; English Version α = .89) as well as test-retest correlation coefficients over a period of two weeks days (r = .99). Final Urdu version has sound alpha reliability of 0.89. Confirmatory factor analysis displayed model provided a better fit similar to original model that is single factor model. Pearson's correlation of translated version with CESDC revealed good discriminant validity (r= - 0.16**; p<0.01) and with SDQ Prosocial subscale (0.47**; p<0.01) showed solid convergent validity; On basis of these results; SSQ proved to be a valid and efficient measure of social skills among Pakistani Children.

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INTRODUCTION

Children with healthy development enhance progression in future of the society, therefore, special attention towards development of children is required, not just to ensure physical but mental health as well. Acquiring social skills is one of the milestones towards healthy development and the foundation for success later in life (Wentzel et al..,2021; Zhu, et al., 2021). These erudite skills empower children to intermingle effectively with others; being substantial part of social competence and general measure of the quality of social behavior (Gresham & Elliott.,1984; Takahashi et al., 2015). Moreover; development of these skills has strong association with children's school performance, cognitive and socioemotional development, and enhancement in overall teaching process (McIntyre et al., 2006; Hokenberry & Wilson, 2013 Selimović, et al.,2018; Wentzel et al..,2021; Hukkelberg et al., 2019). On the other hand, absence of social skills at early years of life are associated with feelings of loneliness, poor self-esteem and subsequent mental health problems (Salmani, Sharifi, Kazemnejad, 2003; Arnold et al., 2012; Lodder et al., 2016; Ke et al.,2017; Ali., 2018).

Parents and teachers are essential social agents in the development and modification of these skills; starting from home through interactions with parents (Aksoy & Baran, 2010); entrance in preschool act as first social environment for further enhancement of socialization process (Pecjak et al., 2009). As young children spend their maximum time in schools with one teacher in preschool years; teachers display caregiving roles in terms of preserving their protection, dismissing their stress and humanizing them along with handling their misbehaviors (Kramer et al., 2010). Social skills acquired through teacher-child communications; utilized subsequently by children in other social situations. Likewise, children apply social skills learnt at home in successive interactions with teachers and peers at school (Ziv, 2013). Number of factors involved in further processing of these skills such as to parents' personality and mental health, the family socioeconomic status, home, school environment, teachers' characteristics as well as cultural fabrics (Shamim, 2005).

For example; in few cultures, the development of social skills is different by gender, for example, in Eastern societies, girls acquire social skills faster than boys. In addition, the cultural context effects the exhibition of social skills differently in different social situations (Mohamed, 2018). In developing countries; socialization occurs through adherence to the expectations of parents and the society, but in industrialized societies, authoritarian status has a lesser effect on the parent child relationship (Olcer, 2014; Tan, et al., 2018). Therefore, a comprehensive valuation of children's social skills needs to be the assessed through comparison of both parents' and teachers' viewpoints as well as the child's own perception regarding it (Meleki et al., 2019).

To fulfil the purpose of assessment of social shills of children, various assessment-measures have been designed including School Social Behavior Scales (SSBS; Merrell, 1993), Social Skills Rating System (SSRS; Gresham & Elliott, 1990), School Social Skills Rating Scale (S3; Brown, 1984), Social Behavior Assessment Inventory (SBAI; Stephens & Arnold, 1992) and Social Skills Questionnaire (SSQ; Spence, 1995) etc. However, no exclusively developed scale for social skills measurement was found for Pakistani children and adolescents. Till date, only one study carried out by Rashid (2010) regarding progress of social skills among elementary school children, identified that accepting criticism as well as rights and responsibilities; displaying respect, problem solving and open-mindedness for individual differences were common aspect among these children. Another scale was recently developed by Hamid et al (2019) is another option available but is for adolescents only and not for children. Hence, there was a dire need to adapt and translate a scale which is culturally appropriate and that leads to indigenous assessment of social skills among children of Pakistan. The present study aims to serve the purpose, therefore, Social Skills Questionnaire (SSQ), was translated and its cross-cultural validation is carried out.

According previous works; it is one of the most widely used and researched tools to measure the social skills with sound psychometric properties It has been adapted and validated in different countries, i.e., United States, Portugal, Norway, Netherlands, Germany, Slovakia, Puerto Rico and Iran (Matson & Wilkins., 2009; Crowe, et al., 2011; Humphrey et al., 2011). Its facture structure was also studied in translated versions and findings showed majority of literature supported single factor model such as Lucas, et al (2015) carried out study on 469 children and reported same model. However, deviation from this were also present being considering culture aspect in social skills; for example, in the one study on students in Portugal (Mota, et al., 2011) and other with parents of preschoolers from Germany (Hess et al., 2013) were supported for single factor model. Its convergent and discriminant validity was also established (Bandeira et al., 2009; Mota, et al., 2011). As this scale was developed in western culture which has very different sociocultural fabrics than our society. It's better to determine whether same factors are suitable for our children or not. In this context; present study intended with the determination of factor structure along with establishing convergent and discriminant validity of SSQ for Pakistani Pediatric Population.

METHODOLOGY

Research Design

Cross-sectional research design was used in present study in which primary school children recruited through the random sampling technique from 6six schools situated in Rawalpindi District. Translation and cross-language validation of scale was established in phase I whereas phase II deals with the establishment of psychometric properties of Urdu version. By using Standard back method

(Anderson & Brislin, 1976; Hambleton, 1994), translation process was done. Its detail is given below;

a) Forward Translation. The first sub-phase was the forward translation from English to Urdu by a panel of five bilingual experts. They all were native speakers with proficiency in both languages and expertise in the subject matter with having minimum Masters level degrees in psychology. The instrument was handed over to them and they were asked to pay special attention about the technical equivalence of the language (Hambleton & Patsula, 1999). At the end, there were five independent Urdu translated versions of scale.

b) Evaluation of Translated Versions by Committee of Experts or Reconciliation Session. In the next sub-phase, translated scales were deliberated by committee of subject matter experts (SME); encompassing of 5 experts of the field of psychology.

c) Back Translation. In third sub-phase, Urdu version was back-translated into original language by five other bilingual experts who were neither acquainted to original items nor were the part of forward translation process.

d) Evaluation of Back Translated Version by Expert Committee. Next time includes critical inspection of back-translated version by SME and finalization of Urdu version after developing consensus.

e) Cross-language Validation. Cross-language validation of the scale was performed by administering both versions on two groups of children (15 participants in each group); re-administering after two weeks' gap and comparing them.

Participants

By Cross-sectional research design, 445 primary School children (56.9%boys and 43.1% girls; with age bracket of 9 to 13 years were enlisted from 6 schools from Rawalpindi city, Pakistan. Basing on eligibility criteria; children with serious medical and psychological disease, with the history of traumatic event and surgery in past 6months were excluded. The sample size was determined according to past validation studies (e.g., 5 to 10 subjects per scale item are regarded apposite to compute the sample size) (Hambleton & Patsula, 1999; Choudhry et al. 2018; Shuja, et al.,2020).

Procedure

In the present study, multiple procedural steps were followed along with due ethical consideration at every step. At first step, ethical approval from Advanced Studies and Research Board (AS&RB) of university was secured. At second step, a formal meeting with Director of selected school system was held along with provision of detailed summary of research study and assessment protocol and formal permission was secured. At next step, administration of each school was approached and after detail discussion with them, first two class periods were taken from them. Researcher and co-researcher interacted with children in their class rooms along with their class teacher. First of all, they were given consent form to be filled by their parents to get permission. Many parents declined to contribute in the study, so finally only 445 children came up with parental permission.

After this, a detailed assessment pack comprised of assent form and sociodemographic and scales were given to the children. Scales included SSQ translated version; CESDC-U translated by Mustafa and Masood (2022) and SDQ-U, Prosocial subscale by Essau, et al (2017). These scales were administered in group setting of class-room. Researcher and co-researcher were available to provide assistance if necessary and to ensure independent responding. Various ethical aspect such as confidentiality; right to withdraw, safety of children and many others were kept under consideration.

Instruments

Following instruments were translated into Urdu along with designing socio-demographic form; the details of translated instruments are as follows:

a) Socio-Demographic Form (SD- Information Form). Socio-Demographic (SD-Information Form) was designed by the researcher to obtain the demographic information from children.

b) Social skills questionnaire (SSQ) (Spence,1995). It is 30 items Likert scale (e.g., on format 0 =Not true, 1=Sometimes true, 2=Mostly true); used to measure wide range of social skills and behaviors for the age range from 8 to 18 years. It has good reliability (0.96) and total score ranging from 0 to 60 was used for interpretations (Spence,1980; Spence,1995: Spence,2000).

c) The Strength and Difficulties Questionnaire (SDQ-U) (Essau., et al., 2017). It is a 25-item questionnaire assessing general difficulties and positive behaviors in children aged 3-16years with five subscales e.g., emotional symptoms conduct problems, hyperactivity peer problems and prosocial behavior. Each sub-scale contains five items which are rated on a three-point Likert-type scale (0=Not true, 1=Somewhat true, or 2=Certainly true). Prosocial sub-scale includes items1,4,9,17 and 20 was sued in present study. Findings of research on the psychometric properties of the SDQ confirm the satisfactory reliability y(r=0.80) and validity of this questionnaire (Essau et al., 2013; Essau, et al.,2017).

d) Center for Epidemiological Studies for Depression (CESDC). CES-DC is a 4-point Likert, 20 items, self-report scale for the screening of depressive symptomatology among youth aged between 6- 17 years (where 0= not at all; 1= a little; 2 =some; and 3 =a lot). Items number 4, 8, 12 ,16 is reversed scored control for response bias. Further; scale is in public domain with good psychometric properties (Weissman et al., 1980), in current study;its Urdu Translated version with reliability of 0.78 was used(Mustafa & Maqsood).

Data Analysis Plan

A series of preliminary analyses (mean, standard deviation Skewness, Kurtosis, item-total correlation, reliability and Pearson correlation by using Statistical Package for Social Sciences (SPSS version 26, IBM Corp., Armonk, NY, USA).

(Dunkley, et al., 2006). CFA was used to examine the goodness-of-fit index of the unique and the implicit structure of the SSQ. CFA was performed through AMOS.

RESULTS

Pilot Phase: Cross-Language Validation

Results of pilot phase are narrated below;

Table 1 Test-retest reliability of both versions (N=30).

SSQ	Test (Urdu)	Re-test (English)	r	p-value
M	42	40.63	0.99	0
SD	10.37	9.84		
R	0-60	0-60		
α	0.90	0.89		

Note: SSQ = Social Skills Questionnaire

Table 1 displays that alpha coefficient is 0.90 for Urdu scale version; .89 for English scale version with test re-test reliability found to be significant (r = .99).

Main Phase: Psychometric properties of scale

Results of main phase are given below in tables;

Table 2 Socio-Demographics profiling of sample (445)

Demographics		f	%
Gender			
	Boy	253	56.9
	Girl	192	43.1
Age			
	9years	15	3.4
	10years	176	39.6
	11years	216	48.5
	12years	34	7.6
	13years	4	0.9
Father's Education			
	Matric and below	85	19.1
	Matric-Graduation	215	48.3
	Graduation and above	145	32.6
Mother's Education			
	Matric and below	88	19.8
	Matric-Graduation	251	56.4
	Graduation and above	106	23.8
Family Income	50000 PKR and Below	115	25.8
	50000PKR to100000PKR	260	58.4
	100000PKR and above	70	15.7
Family setup			
	nuclear	248	55.7
	joint	197	44.3

Table shows that sample of study's sample comprised of 253(56.9%) boys and192(43.1) girls with mean age 10.63 (SD=.713). Among them 55.7 % children were living in nuclear family setup 44.3 % were living in joint setup. Majority of children's parents' education was graduation with family income range of 50000to100000.

Table 3 Mean, Standard Deviation, Skewness and Kurtosis and reliability Study Variables (N=445)

Variables	**M**	**S. D**	**N**	**Min**	**Max**	**S**	**K**	**α**
SSQ	39.92	11.39	445	0	60	-1.00	1.54	0.89
SDQ_Pro	6.42	2.50	445	0	10	-0.36	-0.57	0.66
CESDC	17.21	8.95	445	0	43	.524	-.166	0.76

Note: SSQ=Social skills questionnaire, SDQ= The Strength and Difficulties Questionnaire, Pro=Prosocial Behaviour Scale, GD=General Difficulties; CESDC= Center for Epidemiological Studies for Depression Scale for Children

Table 3 shows that normality values of skewness and kurtosis was within the accepted level (± 3.29) (Brown,2006) with good reliability for all scales.

Table 4 Item total correlation of SSQ (n=445)

Items	**r**
SSQ_1	0.38
SSQ _2	0.27
SSQ_3	0.37
SSQ_4	-0.02
SSQ_5	0.47
SSQ_6	0.48
SSQ_7	0.39
SSQ_8	0.29
SSQ_9	0.54
SSQ_10	0.48
SSQ_11	0.30
SSQ_12	0.49
SSQ_13	0.26
SSQ_14	0.50
SSQ_15	0.55
SSQ_16	0.48
SSQ_17	0.50
SSQ_18	0.42
SSQ_19	0.45
SSQ_20	0.60
SSQ_21	0.44
SSQ_22	0.49
SSQ_23	0.46
SSQ_24	0.54
SSQ_25	0.53
SSQ_26	0.52
SSQ_27	0.60
SSQ_28	0.56
SSQ_29	0.43
SSQ_30	0.17

Table 5 shows item-total correlation of SSQ. Most of the items were in acceptable range except few, so CFA was carried out (Abubakar, et al., 2020).

Confirmatory Factor Analysis for SSQ

In present study this scale was translated in Urdu language. It was a uni-dimensional scale, it's for its validation on indigenous culture and for the confirmation of its factor structure CFA was necessary to perform. Visual presentation of its items with their factor loadings and table of fit indices are specified below;

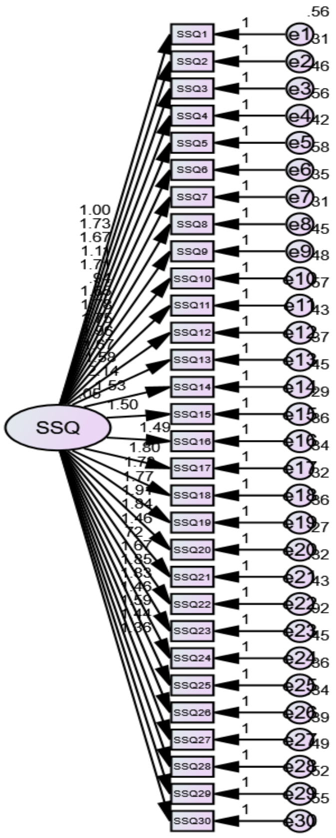

Figure 1. CFA default model for CESDC as model Fit

Figure 1 shows CFA model of SSQ, having items and its factor loading. It is dimensional scale and range of their factor loadings is from λ= .40 to λ= .91. All items have factor loadings more than .30 and are in acceptable range (Field, 2009).

Table 5 Model fit indices for SSQ-U among adults (N=445)

	X2 (df)	NFI	IFI	TLI	CFI	RMESA	ΔX2(Δdf)
Model 1	565.139(405)	0.83	0.81	0.94	0.94	0.030	

Model 1= Default model of CFA for CESDC having four subscales

Table 5 represents the Model Fit Indices for the SSQ, Urdu version. Model 1 represents fit indices of default model. As all indicators, x^2, NFI, IFI, TLI, CFI and

RMSEA were in acceptable range (Brown, 2015; Hooper et al., 2008), so this was considered as goodness of model fit and error covariances were not applied

Convergent and discriminant validity

Table 6 Correlation between SSQ, SDQ_Pro and CESDC (N=445)

Scales	**SDQ_Pro**	**CESDC**
SSQ	0.47**	- 0.16**

$p < 0.01$

Note: CESDC= Epidemiological Studies for Depression Scale for Children, SSQ=Social skills questionnaire, Pro=Prosocial Behaviour Scale

Table 6 presents that the Pearson's correlations of SSQ with SDQ-Pro was significantly positive which provides evidence for convergent validity while Pearson's correlation of SSQ with CES-DC is significantly negative ($p <0.01$) which provide evidence for discriminant validity of the scale.

DISCUSSION

The current study premeditated with the purpose of translation, cross-language validation and assessment of reliability and construct validity of Urdu version of SSQ for children in Pakistan. Findings of preliminary phase represented sound cross-language validation of the scale (r=0.99). These discoveries are reliable with earlier studies (Matson & Wilkins., 2009; Mota, et al.,2011; Moran, et al., 2015). In one such study; SSQ was translated for Portugues population (Mota, et al., 2011), which reported similar results(r=0.87).

Moreover; item-total correlation of maximum of the items of SSQ were in the range of .17 to .60, which was acceptable (De Vaus,2002; Abubakar, et al., 2020). However, few items had less than 0.2 item total correlations and these findings been in line with studies from various countries; similar type of issue with these items were also reported from previous studies (Crowe, et al.,2011; Humphrey et al., 2011; Matson & Wilkins., 2009). In such situation, it's better to see the factor structure of the scale. To fulfil the purpose of factorial validity; advance analysis such as confirmatory Factor analysis (CFA) is recommended.

It was conducted on the single factor, 30 items model as in the original author (Spence,1980; Spence,1995: Spence,2000). The results of the analysis produced a good fit (x2 =565.13, df=405, NFI=0.83; IFI=0.81; TLI=0.94; CFI=0.94; RMSEA=0.03). The fit indices suggested that a single factor solution with 30 items was a good fit for the sample data and item loading in desired range so none of item was deleted. These findings were consistent with previous literature provided evidence for the single-factor structure (Spence,1980; Spence,1997: Spence,2000; Lucas, et al; 2015). In one study; CFA of SSQ was carried out by Lucas, et al., (2015) on school children from various social groups and findings revealed less satisfactory values, so they removed item 17 and added various errors variances and finally achieved satisfactory single factor model such as x2= 1.39; CFI = .90; GFI = .95; RMSEA = .029.

The finest factorial structures obtained in present study consisted of a single factor for 30 items in comparison of existing literature. It is notable that validation studies from other countries showed different factorial configurations from the original one (Mota, Matos, & Lemos, 2011; Hess et al., 2013). This highlighted those cultural aspects of social skills should be understood while translating and validating in other cultures. As the evaluation of social skills mainly depends on sociocultural contexts in which social behavior is being produced (Prette et al. (2004) contended that, even within an explicit culture, there may be local subcultures that differently influence the social presentation and the interpersonal relationships of the individuals. In this sense, the impact of these differences on the standards used to assess social skills cannot be ignored.

Alongside the translation, determination of convergent and discriminant validity of Urdu version of SSQ with SDQ-Prosocial-U and CESDC-U was also the agenda of this study. Findings related to correlation provided indication for the convergent and discriminant validity such as correlations of Urdu version of SSQ and scores of SDQ-Prosocial provided significant positive correlation ($r = 0.47$); whereas correlations between SSQ and CESDC-U were significant negative correlations ($r = -0.16$; $p < 0.01$). These findings were similar to past literature as the study carried out by Mota, et al., (2011) in Portugal on 573 children and Bandeira et al (2009) from four Brazilian were reported similar results.

General findings suggested SSQ Urdu version as reliable and valid tool, but no study is without limitations. In present study, primarily, small sample size and specific age group (9–13-year-old) might limit the generalizability of our findings to other age cohorts. However, further studies with more miscellaneous population would authenticate the verdicts of this study. Another inadequacy is the utilization of self-report measure only for children, use of multiple assessment method would be more edifying and recommended for future studies. Despite of these drawbacks; the present study is considered best preliminary effort to study the factor structure of the SSQ in Pakistan.

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