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RELIABILITY AND VALIDITY OF URDU VERSION OF SOCIAL RESPONSIVENESS SCALE (USRS-2) FOR CHILDREN WITH AUTISM SPECTRUM DISORDER

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ABSTRACT

In Pakistan, there is a lack of validated methods for measuring the social skill deficit level of children with Autism Spectrum Disorder (ASD). The current study was conducted to determine the validity and reliability of the Urdu version of the Social Responsiveness Scale (USRS-2) for children with ASD. The study was conducted in two stages. In the first stage, forward and backward Urdu translation by the researcher with the help of six bilingual (English and Urdu) experts, was carried out. Content and face validity were carried out by experts in this stage. Suggestions and recommendations given by the experts were administered for the pilot testing on 30 children. In the second stage reliability, test-retest reliability, inter-rater reliability, and Content Validity Index were analyzed. Findings showed that coefficient of alpha reliability for Urdu version of Social Responsiveness Scale-2 (USRS-2) was 0.889, test-retest was found as 0.754, and inter-rater reliability was found to as 0.779. Results showed that USRS-2 was proved to be appropriate, acceptable, reliable and valid tool to use in Pakistan. Findings of this study could be beneficial to psychologists, teachers, parents, and researchers who intend to explore the social skill deficit level of children with ASD in Pakistan.

Keywords: *Social Responsiveness Scale (SRS-2), social skill deficit level, children with ASD, Urdu version of Social Responsiveness Scale (USRS-2).*

1. Introduction

Social skills are the skills that we use to interact with each other through our signs, gestures, communication, facial expressions, verbally, and nonverbally. It is the ability to communicate with people productively and harmoniously in social settings. It includes a variety of acts, modes of communication, and interpersonal skills that promote effective interactions and relationships. Social skills allow people to interact with others in a variety of social contexts appropriately and successfully. These skills are necessary for communicating, establishing and preserving healthy relationships, and handling social situations with grace. To be socially competent and effectively interact with others, one must possess a broad range of behaviors, attitudes, and interpersonal skills.

Social skills make a person confident and autonomous in the environment, society, and workplace as well. Various tools have been used for measuring the social skills of children without disability. A few of them are Social Skill Inventory (SSI); Social Skills Improvement System (SSIS), Greshman & Elliot (2008); School Social Behavior Scale (SSBS); Vineland Social Emotional Early Childhood Scale (VSEEC), Lichtenberger, E. O. (2008); Social Skill Rating System (SSRS), and Waksman Social Skill Rating Scale (WSSRS).

Similar to children without disabilities, social skills are equally important for children with Autism Spectrum Disorder (ASD). This is the most crucial and problematic area for them. They face complexity when involved with others. There are different tools for screening children with ASD i.e. Autism Behavior Checklist (ABC); Childhood Autism Rating Scale (CARS); Gilliam Autism Rating

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Scale (GARS), and the Autism Diagnostic Observation Schedule (ADOS) Lord et.l, (2012). These tools depict the signs of autism but have limited items to measure the social skills levels of an individual with ASD.

Exploring the social skill deficit levels of children with ASD is crucial for social and psychological integration, as well as for the resolution of social challenges. The Social Responsiveness Scale (SRS-2) developed by John Constantino (2005) was found to be a reliable tool for finding out the social skill deficit level of children with ASD. It is a commonly used instrument for children with ASD. SRS-2 gives ways to get the answer in different subsections of social skills i.e. social awareness, social cognition, social communication, social motivation, restricted interest, and repetitive behavior of children with ASD. It is a teacher/parent-reported tool. It takes 15-20 minutes to fill out the questionnaire based on four four-point Likert scale addressing different subsections of social skills.

It is a standardized tool and has been translated into different languages i.e. Arabic, Chinese, French, German, Persian, Russian, etc. Autism Spectrum Screening Questionnaire (ASSQ) was translated into Urdu language (Saeed et.al., 2022). This tool is used only for screening Autism. It does not measure the social skill level of an individual with ASD in detail. While examining practices in our society we don't have a tool that is culturally and linguistically appropriate. Therefore SRS-2 is required to be translated into Urdu language and validated according to our culture and context. Researchers who are interested in learning more about the subsections of social skill deficit levels of children with ASD in the Pakistani context may use this tool. The Urdu version of the Social Responsiveness Scale-2 (USRS-2) is linguistically and culturally appropriate. It is easy to employ teachers, parents psychologists, and other health professionals. It takes a very short time (15 to 20 minutes) to assess the social skill deficit levels of children with ASD.

2. Statement of the Problem

Lack of social skill is most problematic area for the children with ASD. It is important to identify the social skill deficit level of children with ASD. We can't make these children autonomous until we don't address this area. A reliable and valid tool is required according to Pakistani context. Due to shortage of linguistically and culturally validated methods for measuring social skill deficit level for the children with ASD in Pakistan, a trustworthy instrument in Urdu language for children with ASD is urgently needed.

3 . Objectives

The objectives of the study were to:

i. Translate Social Responsiveness Scale (SRS-2) in Urdu language.
ii. Establish validity and reliability of Urdu version of Social Responsiveness Scale-2 (USRS-2).

4. Methodology

4.1 Research Design

The study was validated in nature as it investigated the reliability and validity of Urdu version of Social Responsiveness Scale-2 (USRS-2). The study was conducted in two stages.

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Stage I: In the first stage translation and development of Urdu version was done.

Stage II: Reliability and validity of the Urdu version was established.

4.2 Population

The population consisted of two stages. Population-1 was selected for translation and population-2 was selected for the validation and reliability of Urdu version of Social Responsiveness Scale-2 (USRS-2).

1. All professionals (Special educators/lecturers) belonging to normal and special education institutes of Punjab and Islamabad fulfill the following:
    - Having at least a Masters degree in Urdu/English
    - More than three years of teaching experience working with ASD children in a recognized institute.
2. Children with ASD (age group 5-15 years) of the special education institutes of Rawalpindi and Islamabad were the population of the second phase of the study.

Table 1: *List of public, private, and semi-government institutes for children with ASD in ICT and Punjab.*

S. No	Name of Institute	Region	No of Students with ASD
1	Rehabilitation Centre for Children with Developmental Disorder (RCCDD), H-8/4 Islamabad.	ICT	25
2	National Training Centre for Special Persons, G-9/2 Islamabad.	ICT	07
3	Shadab, Gulrez near Swan Adda,Rawalpindi.	Punjab	05
4	Army Special Education centre, Fort road Rawalpindi.	Punjab	30
5	Chambeli Institute for Mentally Challenged, Rehmanabad Rawalpindi.	Punjab	20
6	Govt special education centre, Kallar Syedan	Punjab	02
7	Govt special education centre, Gujar khan	Punjab	10
8	Govt Special Education Centre, Kahota	Punjab	03

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9	Govt Special Education Centre, Kotli Sattiyan	Punjab	02
10	Autism Resource Centre (ARC), ChoharChowk Rawalpindi.	Punjab	40
11	Well Being Centre (WBC), Mid CityApartments, Khokhar Road Azeem Town, Rawalpindi	Punjab	15
12	Step to Learn, I-8, Islamabad	ICT	10
13	ASAS International School, Nazim-ud-Din Road, F/8-3 Islamabad.	ICT	10
14	Care for special persons, I/8 Islamabad	ICT	05
15	Umed-e-Noor center for special children,H/8-1 Islamabad.	ICT	15
16	Bahria College of Special Education, Shangrilla Road, Naval Complex, E-8 Islamabad.	ICT	12
17	Behavior and Special EducationServices, (BASE), E-9 Islamabad.	ICT	20
18	Center for Profound Education (CPE), 151-A Sir Syed Avenue, Gulrez 6 Rawalpindi.	Punjab	10
19	Shining Star Special Education School, Jhelum	Punjab	02
20	Ali Rafay Early Intervention Centre (AREIC), Rawalpindi	Punjab	30
21	Rising Sun Institute for ASD, Lahore	Punjab	20
22	Govt Special Education Centre, Millat Town, Faisalabad	Punjab	05
	Total		**298**

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4.3 Sample

The sampling procedure consisted of two stages.

Stage-I: Convenient sampling was done in stage-I with three lecturers in English and three in Urdu having master's, MS, or MPhil in the related subject.

Stage-II: Census sampling was done in stage II, all children with ASD having age range (5-15 years) from special education institutions of the Punjab and Islamabad. A total of responses (65%) from twenty-two institutes were obtained which gave the data about 194 children.

4.4 Ethical Consideration

Participants were asked to participate in the study willingly. Consent forms were obtained for all the participants. Consent forms from the parents of each individual with ASD for voluntary participation were taken. Surety of confidentiality was given to parents and the administration of the institute. Data was only used for research purposes. Data was not shared with any other person, institute, or department.

4.5 Procedure

The study was completed in two phases. Phase I included translation of Social Responsiveness Scale (SRS-2) and Phase-II consisted of validation of the Urdu version of Social Responsiveness Scale (USRS-2).

4.5.1 Phase-I: Translation of the Social Responsiveness Scale (SRS-2)

In the first stage, the researcher with the help of six bilingual experts conducted forward translation of Social Responsiveness Scale (SRS-2) into Urdu. Three bilingual experts were familiar and skilled in reading & writing both in Urdu and English languages. They had five years of experience working with ASD children and a master's degree in special education as well. The researcher asked these experts to do a forward translation of Social Responsiveness Scale (SRS-2) into the targeted language (Urdu) in such a way that the meanings of the items remain the same and can be comprehended.

In the second stage, backward translation from Urdu to English language was conducted by three bilingual experts (other than those bilingual experts, who had conducted forward translation), who had not seen the original scale.

Urdu-version of Social Responsiveness Scale (USRS-2) was then, evaluated by the committee. The committee included three members: the researcher and two bilingual experts from the Higher Education Institute, one had a PhD degree in Education and the second had a PhD degree in Urdu language. Committee members assessed the semantic similarity between the Urdu version of Social Responsiveness Scale (USRS-2) and the original scale of Social Responsiveness Scale (SRS-2). They also discussed cultural differences in the use of both languages and their interpretation. The discrepancy

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between back translated version and English English-translated version was seen and the difference was corrected in the Urdu version.

4.5.2 Phase-II: Validation of Urdu version of Social Responsiveness Scale (USRS-2)

Face and content validity were established with the help of experts. Language structure and vocabulary of four item numbers (8, 19, 27, and 39) were amended by experts teaching children with ASD. Finally, after changing the language of items according to the suggestions and recommendations of experts, the final questionnaire was carried out for the pilot testing. The resultant Urdu version of Social Responsiveness Scale (USRS-2) was administered to 30 children with ASD from the Army Special Education Academy (ASEA), Rawalpindi. The value of Cronbach's Alpha was 0.747. Thus, understanding of the questionnaire was tested, and face validity and content validity of USRS-2 were established.

5. Data Collection

Google form for the Urdu version of Social Responsiveness Scale (USRS-2) was made and it was sent to the psychologists and teachers of children with ASD in different institutes for data collection. Psychologists and teachers were requested to fill out the form and respond to each item. Data was also collected both in soft and hard form. The response rate of data collection from different institutes was 65%.

5.1 Data Analysis

The reliability of USRS-2 was computed using SPSS version 21. The procedure of data analysis was (i) overall reliability of USRS-2 (ii) inter-rater reliability (iii) test-retest reliability (iv) Content validity index (CVI) was analyzed to find the internal consistency of each item.

5.2 Construct Validity

For establishing validity for the Urdu version of Social Responsiveness Scale (USRS-2), the reliability of each item, Item wise Content Validity Index (I-CVI) was analyzed. Scale-wise Content Validity Index (S-CVI) was also established. It was found as 0.97. Item-wise Content Validity Index (I-CVI) results are shown as under:

Items No.	Alpha	I-CVI
(Social Awareness)		
Item 2	0.888	1
Item 7	0.887	1
Item 25	0.892	1
Item 32	0.889	1

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Item 45	0.889	1
Item 52	0.887	1
Item 54	0.887	1
Item 56	0.886	1
(Social Cognition)		
Item 5	0.886	1
Item 10	0.888	1
Item 15	0.887	1
Item 17	0.887	0.83
Item 30	0.886	1
Item 40	0.885	0.83
Item 42	0.888	1
Item 44	0.887	1
Item 48	0.887	1
Item 58	0.884	1
Item 59	0.884	1
Item 62	0.888	1
(Social Communication)		
Item 12	0.887	1
Item 13	0.887	1
Item 16	0.887	0.83
Item 18	0.885	1
Item 19	0.885	1
Item 21	0.888	1
Item 22	0.888	1
Item 26	0.887	1
Item 33	0.889	1
Item 35	0.887	1

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Item 36	0.886	1
Item 37	0.885	1
Item 38	0.887	1
Item 41	0.888	1
Item 46	0.887	1
Item 47	0.887	1
Item 51	0.887	0.66
Item 53	0.887	0.83
Item 55	0.891	1
Item 57	0.886	1
Item 60	0.887	1
Item 61	0.887	1
(Social Motivation)		
Item 1	0.887	1
Item 3	0.889	0.83
Item 6	0.888	1
Item 9	0.888	0.83
Item 11	0.887	0.66
Item 23	0.887	1
Item 27	0.886	1
Item 34	0.888	1
Item 43	0.889	1
Item 64	0.887	1
Item 65	0.886	1
(Restricted Interest and Repetitive Behavior)		
Item 4	0.886	0.83
Item 8	0.888	1
Item 14	0.887	1
Item 20	0.888	1

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Item 24	0.886	1
Item 28	0.889	1
Item 29	0.885	0.83
Item 31	0.886	1
Item 39	0.886	1
Item 49	0.889	1
Item 50	0.886	1
Item 63	0.888	1

5.3 Reliability of Urdu version of Social Responsiveness Scale (USRS-2)

Alpha, test re-test, and inter-rater reliability were computed and tabulated as shown in the following tables.

Table 1

USRS-2 (Overall)	Items	Alpha
Reliability	65	0.889

Table 1 defines the overall reliability of Urdu version of Social Responsiveness (USRS-2) Scale was found as 0.889. The reliability of five subsections of the tool was also computed.

Table 2

Reliability of subsection of Urdu version of Social Responsiveness Scale (USRS-2)

Sr.	Sub-sections	Items	Alpha
1	Social Awareness	8	0.379
2	Social Cognition	12	0.733
3	Social Communication	22	0.730
4	Social Motivation	11	0.578
5	Restricted Interest & Repetitive Behavior	12	0.655

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Table 2 defines the reliability of subsections of Urdu version of Social Responsiveness (USRS-2) Scale. Reliability for Social Awareness was found 0.379, social cognition was 0.733, social communication was 0.730, social motivation was 0.578, and for restricted interest and repetitive behavior was 0,655.

Test-retest reliability for USRS-2

Table 3

Mean and SD of test-retest for USRS-2

	Mean	SD	N	Cronbach's Alpha
Items means	92.38	12.319	21	--
Cronbach's Alpha	-	-	65	0.754

Table 3 elaborates on the Mean and SD of test-retest reliability for Urdu version of Social Responsiveness Scale (USRS-2). To find the reliability, 21 already selected children were tested again after two weeks. It is clear from the table that the mean value was 92.38 and SD 12.319. For sixty-five items, the value of Cronbach's Alpha was found 0.654.

Table 4

Intra-class Correlation Coefficient (Test-retest Reliability) for Urdu version of Social Responsiveness Scale (USRS-2)

	Intra-class Correlation	95% Confidence Interval		F Test with True Value 0			
		Lower Bound	Upper Bound	Value	df1	df2	Sig
Single Measures	.027a	.010	.069	2.890	20	1280	.000
Average Measures	.643c	.394	.828	2.890	20	1280	.000

Table 4 illustrates the correlation between test-retest scores of twenty-one children. It was found to be 0.643, which was significant at the level of 0.05.

Inter-rater reliability for USRS-2

Table 5

Mean and SD of inter-rater for Urdu version of Social Responsiveness Scale (USRS-2)

	Mean	SD	N	Cronbach's Alpha
Items means	92.85	16.294	20	--

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Cronbach's Alpha	-	-	65	0.779

Table 5 describes the Mean and SD of inter-rater reliability for Urdu version of Social Responsiveness Scale (USRS-2). To find the reliability, 20 already selected children were tested again after two weeks by another psychologist. It is clear from the table that the mean value was 92.85 and SD 16.294. For sixty-five items, the value of Cronbach's Alpha was found 0.779.

Table 6

Intra-class Correlation Coefficient (Inter-rater Reliability) for the Urdu version of Social Responsiveness Scale (USRS-2)

	Intra-class Correlation	95% Confidence Interval		F Test with True Value 0			
		Lower Bound	Upper Bound	Value	df1	df2	Sig
Single Measures	.051a	.024	.117	4.528	19	1216	.000
Average Measures	.777c	.613	.896	4.528	19	1216	.000

Table 6 delineates the correlation between the inter-rater score of twenty children was found to be 0.777 which was significant at the level of 0.05.

5.4 Psychometric Properties of Urdu version of Social Responsiveness Scale (USRS-2)

Urdu translated version of the Social Responsiveness Scale (USRS-2) contained 65 items from which forty-eight items were positively scored and seventeen items were negatively scored.

Positively scored Items:

The positively scored items i.e. 0-3 include 1, 2, 4, 5, 6, 8, 9, 10, 13, 14, 16, 18, 19, 20, 23, 24, 25, 27, 28, 29, 30, 31, 33, 34, 35, 36, 37, 39, 41, 42, 44, 46, 47, 49, 50, 51, 53, 54, 56, 57, 58, 59, 60, 61, 62, 63, 64, and 65.

Reversed scored Items:

The reversed scored items i.e. 3-0 include 3, 7, 11, 12, 15, 17, 21, 22, 26, 32, 38, 40, 43, 45, 48, 52, and 55.

Scoring criteria depict that an individual who scored greater than 76 was declared as severe social skill deficit level, 66-75 as a moderate social skill deficit level, 60-65 as a mild social skill deficit level, and less than 59 was declared as normal. The tool has five subsections.

Social Awareness: Include the ability to comprehend others and what they think of you. Social awareness can build an individual's social perspective. Item numbers include 2, 7, 25, 32, 45, 52, 54, and 56.

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Social Cognition: The ability to understand and comprehend verbal or nonverbal messages regarding human relations. Item numbers include 5, 10, 15, 17, 30, 40, 42, 44, 48, 58, 59, and 62

Social Communication: The ability to share, join activities, ask for permission, and wait turns. Item numbers include 12, 13, 16, 18, 19, 21, 22, 26, 33, 35, 36, 37, 38, 41, 46, 47, 51, 53, 55, 57, 60, and 61.

Social Motivation: Social motivation is a significant step in social development. Throughout the process of social development, an individual is required to come up with what to say to others without difficulty. Item numbers include 1, 3, 6, 9, 11, 23, 27, 34, 43, 64, and 65.

Restricted Interest and Repetitive Behavior: It is the hallmark of children with ASD. The individual might show repetitive behavior towards an object and have restricted, fixed, and intense behavior in a specific activity or subject. Item numbers include 4, 8, 14, 20, 24, 28, 29, 31, 39, 49, 50, and 63.

6. Discussion

For the diagnosis of children with ASD in Iran, the translated and culturally customized Farsi versions of the SRS-2 have shown strong validity, and reliability (Tavakolian et.al ., 2024). The item reliability test of SRS-2 in the Chinese version revealed that only 36 items of the 65 items met the reliability criteria, and internal consistency Cronbach's alpha was found as 0.71–0.91 (Yang et.al., 2023). The reliability of Urdu version of SRS was found as 0.884-0,892. Social Responsiveness Scale in Turkish Form (SRS-2-PTF) was found to be a valid and reliable tool for identifying children with ASD. The Cronbach's alpha internal consistency for the subscales of social awareness, social cognition, social communication, social motivation, and restricted interest and repetitive behaviors were 0.59, 0.72, 0.87, 0.79, 0.80 (Bakkaloğlu et.al ., 2021). Cronbach's alpha internal consistency for the subscales of the Urdu version of SRS-2 i.e. social awareness, social cognition, social communication, social motivation, and restricted interest and repetitive behaviors were found as 0.379, 0.733, 0.730, 0.578, and 0.655. Cronbach's alpha for the German version of SRS-2 was found as 0.71 to 0.89 (Bolte.S, 2012). The translated and culturally adapted version of SRS-2 showed good reliability and validity. The reliability was found as 0.88-0.89. Reliability for the Urdu version of Social Responsiveness Scale (USRS-2) was found as 0.889.

7. Conclusion

Urdu version of Social Responsiveness Scale (USRS-2) is a valid and reliable tool to screen out social impairment for children with ASD in Pakistan. The reliability of USRS-2 was found as 0.889. Scale was found to be linguistically and culturally suitable for Pakistani context as compared to first designed in a western society.

8. Recommendations

- Urdu version of Social Responsiveness Scale (USRS-2) is recommended to measure social skill deficit level of children with ASD.
- Criterion validity should be established by comparing/ contrasting USRS-2 with other measures.

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