

Development and Validation of Non-Verbal Social Skill Rating Scale for Mentally Ill

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Abstract

Aim: The aim of this study is to develop and validate the Non-verbal Social Skill Rating Scale for Mentally Ill.

Objectives:

- To generate the scale items through focus group discussion.
- To identify the appropriateness and relevance of items through subject matter expert rating.
- To establish the psychometric properties of developed scale.
- To develop norms for developed scale.

Methodology: Formulation of 48 statements was done with focus group discussion. The statements were sent to 26 experts in the field of Occupational therapy, Psychiatrist Psychologist and Psychiatric Social Worker for validating the items. Total of 48 items are validated by the experts. A total of 100 samples including Bipolar disorder, Schizophrenia, Depression, Anxiety, Schizoaffective disorder and acute psychosis were selected for the field trial or main study those who were residing in psychiatric homes at Tamil Nadu. Samples were selected by using convenient sampling method. Socio demographic data sheet prepared by investigators were used for collecting baseline information.

Conclusion: This research shows the assessment tool has good internal consistency and reliability. The expert validation was done and got good relevance. Hence, Non-verbal Social Skill Rating Scale for Mentally Ill indicated that the scale is a reliable and valid measure of Non-verbal social skills, which is used to identify the level of Non-verbal Social Skill of Mentally Ill.

Keywords: Non-verbal social skill, Mentally ill, Reliability and Validity, Occupational Therapy.

Introduction

Social skill is a process in which people convey their feelings, thoughts and attitudes towards the recipient through verbal or non-verbal skills.

Non-verbal social skills are as important as verbal skills in interpersonal relationship. Non-verbal cues were more likely to influence observer's judgement than verbal. Non-verbal communication represents the feelings, expression, information and behaviour without using any language. The elements of non-verbal social skills are eye contact, facial expression, vocal expression, kinesics, proxemics and haptics.

The Non-verbal Immediacy Scale (NIS) was developed by Richmond¹. This scale includes 26 items for the purpose of measuring the non-verbal immediacy of teachers and students by self reported method. The

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scale is used to measure non-verbal immediacy in the contexts sometimes have been problematic in their reliability estimates. It is a self reported assessment tool which is not suitable to assess the non-verbal social skills among mentally ill.

Social Skill Inventory (SSI) was developed by Ronald E. Riggio in 1992.^{2,3,4,5}. It includes 90 items, self monitoring scale that used to measure basic skills in verbal as well as non-verbal/emotional communication. Cronbach's alpha coefficients ranging from .65 to .88 of 549 employed adults. Alpha coefficient ranging from .64 to .89 of 389 undergraduate students. But this scale is does not suit our culture.

The Profile of Non-verbal Sensitivity (PONS) was developed by R. Rosenthal⁶. This test consists of 220 items and it runs for 47 minutes. It is used to measure one's ability to decode non-verbal cues. The test is large-scale effort to evaluate individual differences in ability to decode non-verbal behaviour. This scale has also been criticized for its lack of realism. This scale is too time consuming as it contains many items.

Non-verbal Communication Skills of School Administrator Scale (NCSSAS) was developed by Tevfik Uzun⁷. This scale consists of 29 items under seven sub dimensions. This scale is used to assess only the non-verbal social skills of school administrator. Sebastian Walther⁸ et al., conducted a study to investigate whether gesture deficits in schizophrenia were related to non-verbal social perception, gesture knowledge, or actual tool use. The study confirmed a generalized non verbal communication deficit in schizophrenia. Jeffry M. Girard⁹ et al., conducted a study to investigate the relationship between non-verbal behaviour and severity of depression by following depressed participants over the course of treatment and video recording a series of clinical interview.

Sigan L. Hartley¹⁰ conducted a study to examine the non-verbal social skills of 18 adults with mild Intellectual Disability diagnosed with depression and match the samples of adults with mild Intellectual Disability without depression. A semi-structured videotaped interview was used to observe the nonverbal social skills of the participants.

Tucker, Joan S¹¹ et al., conducted a study to identify the sex difference in non-verbal expressiveness: Emotional expression, personality and impressions.

They administered a comprehensive set of emotion-relevant personality measures to 40 female and 39 male undergraduates, who were also videotaped in 3 situations.

In recent years there has been increased attention to defining and assessing individual differences in social abilities and interpersonal skills. Occupational therapist are playing vital role in the management of social skills of children and adults. But no research study has been found to assess the non-verbal social skills of mentally ill.

Very few scales are available in search engine without psychometric properties. Hence this study is initiated to develop and validate Non-verbal Social Skill Rating Scale for Mentally Ill in Tamilnadu.

Aim: The aim of this study is to develop and validate the Non-verbal Social Skill Rating Scale for Mentally Ill.

Objectives:

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Materials and Method

A total of 100 samples (Bipolar disorder, Schizophrenia, Depression, Anxiety, Schizoaffective disorder and acute psychosis) were selected for the present study those who were the age range above 17 years residing in psychiatric homes at Tamil Nadu. Samples were selected by using convenient sampling method. Socio-demographic data sheet prepared by investigator were used for collecting information regarding name of the client, age, gender, diagnosis, duration of illness, rural/urban, educational qualification, occupation, marital status and IP/OP.

Inclusion Criteria:

- People with mental illness.
- Both genders were selected.
- People age range above 17 years.

Exclusion Criteria:

- People with organic mental disorders.
- Alcoholic patients.
- Personality disorder.
- Child psychiatry patients.

Tools:

- Socio-demographic data sheet
- Non-verbal Social Skill Rating Scale for Mentally Ill

Procedure

The present study was conducted in two phase are as follows:

Phase 1: Focus Group Discussion and Item Generation: In this phase, potential items were generated for clinician assessment of non-verbal social skill. For the scale development, items were pooled through available tools/review of literature as well as through Focus Group Discussion with 5 experts. Then 26 experts were asked to provide the item relevance and appropriateness. The experts are those who are working or having experience related to Mental Health Professionals and professional from Occupational therapy were included.

Phase 2: Scale Validation:

Step 1: Face Validation and Expert Rating: The instrument with developed items was given to 26 professionals (Occupational Therapist, Psychiatrist, Psychologist and Psychiatric Social Worker), in order to arrive at a set of items to be included in the scale. Experts rating was solicited for content appropriateness, difficulty level items on a scale and addition or deletion of items were considered.

Step 2: Data Collection: The developed scale was administered on 100 mentally ill subjects. The data obtained from convenient sample was subjected for item analysis of the test items.

100 subjects of both genders meeting the inclusion and exclusion criteria were selected after obtaining the informed consent from them and as well as from their registered clinic Navaneeth Mental and De-Addiction Centre, Vivekanandha Health Care, HCA mental health care center and Natchiyar Mind Care. Written informed consent was obtained after the detailed explanation about the study from the samples. So, socio-demographic data

and Non-verbal Social Skill Rating Scale for Mentally Ill was administered on 100 samples.

Table 1 Demographic characteristics of study participants

	Frequency
Age range	
18-20	1
21-30	24
31-40	23
41-50	22
51-60	20
61-70	8
71-76	2
Gender	
Male	46
Female	54
Diagnosis	
Acute psychosis	1
Anxiety	23
Bipolar disorder	9
Depression	30
Schizoaffective disorder	5
Schizophrenia	32
Rural/Urban	
Rural	54
Urban	46
Educational qualification	
Primary school grade	21
Secondary school grade	36
UG	27
PG or other advanced graduates	7
Uneducated	9
Occupation	
Business	14
Employed	44
Housewife	27
Student	1
Unemployed	14

Table 2 Reliability statistics

Cronbach's Alpha	No. of items
.932	23

Step 3: Data Analysis: SPSS - 23 was used for statistical analysis, descriptive statistics such as mean, standard deviation, frequency and percentage. They were used to examine the items and also in final face content validity was established for the developed instrument.

- Participant had an option to leave the study at any point of time, if they wish to.
- Confidentially and anonymity of the participants was assured and maintained.

Ethical Consideration:

- Written informed consent was sought from each participant/Caretaker.

Table 3 Item-Total statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Q.1	42.11	232.644	.619	.919
Q.2	41.41	228.265	.598	.919
Q.3	43.25	223.220	.731	.916
Q.4	42.72	220.123	.736	.916
Q.5	42.26	226.800	.466	.922
Q.6	42.56	220.491	.696	.917
Q.7	43.06	231.249	.615	.919
Q.8	42.49	225.162	.767	.916
Q.9	42.93	231.439	.409	.922
Q.10	43.01	216.818	.861	.913
Q.11	41.70	230.091	.436	.922
Q.12	42.80	233.192	.383	.923
Q.13	43.06	227.087	.588	.919
Q.14	42.88	228.309	.621	.918
Q.15	42.67	229.496	.526	.920
Q.16	43.14	236.566	.413	.922
Q.17	43.14	232.930	.434	.922
Q.18	41.81	231.570	.390	.923
Q.19	42.91	222.386	.697	.917
Q.20	43.06	214.602	.776	.915
Q.21	43.20	230.141	.428	.922
Q.22	42.15	233.967	.424	.922
Q.23	41.34	236.328	.452	.921

Table 4 Component Matrix

	Component						
	1	2	3	4	5	6	7
Q.1	.653						
Q.2	.649						
Q.3	.770						

	Component						
	1	2	3	4	5	6	7
Q.4	.749						
Q.5		.624					
Q.6	.734						
Q.7	.674						
Q.8	.817						
Q.9		.689					
Q.10	.884						
Q.11				.557			
Q.12		.675					
Q.13	.619						
Q.14	.696						
Q.15	.572						
Q.16						.514	
Q.17	.515						
Q.18							.728
Q.19	.744						
Q.20	.810						
Q.21			.651				
Q.22					.540		
Q.23				.611			
Total	.941						

Table 5 Inter rater correlation

	Mean	S.D	Pearson correlation
Rater 1	43.48	15.29	.932(0.01)
Rater 2	46.85	13.32	

Table 6 Shows norms for the developed scale.

Range	Interpretation
1– 23	Very poor
24–46	Poor
47–69	Fair
70–92	Good
93 and above	Very good

Results and Discussion

The aim of the study is to develop and validate the psychometric properties of Non-verbal Social Skill

Rating Scale for Mentally Ill. Initially, formulation of 48 statements was done with focus group discussion. The statements were sent to 26 experts in the field of

Occupational therapy, Psychiatrist, Psychologist and Psychiatric Social Worker for expert rating. The 26 experts evaluated the item relevance and item difficulty by using a 5 point likert scale (0-Very poor, 1-Poor, 2-Acceptable, 3-Good, 4-Excellent). Score for item relevance given by the experts are listed. It shows that all 48 items are scored more than 50% of average. Hence entire 48 items are selected for the main study or data collection. Selected 48 items in the scale are taken for data collection. Data collection was done with 100 samples (Bipolar disorder, Schizophrenia, Depression, Anxiety, Schizoaffective disorder and acute psychosis) ranging from age 17 years residing in psychiatric homes in Tamilnadu They were selected for the field trial or main study. Samples were selected by using convenient sampling method.

Socio demographic data sheet prepared by investigators were used for collecting information regarding name of the client, age, gender, diagnosis, duration of illness, rural/urban, educational qualification, occupation, marital status and IP/OP along with the scale. Of the 100 participants who completed the scale, 46 were male and 54 were females. A total of 54 were from rural and 46 belonged to urban. As for the educational qualification, 21 were primary school graded, 36 were secondary school graded, 27 were UG graduates, 7 were PG graduates and 9 were uneducated.

Reliability was assessed through measurement of internal consistency and inter-rater reliability. The individual item effect on scale reliability was conducted. More specifically, Cronbach's alpha was computed with each item deleted to examine the item quality. Based on the Cronbach's alpha estimates, items that weakened the reliability of the scale were removed.

The internal consistency of Non-verbal Social Skill Rating Scale for Mentally Ill was measured using Cronbach's alpha coefficient. In first phase; out of 48 items, 16 items (Q.2, Q.9, Q.17, Q.19, Q.29, Q.30, Q.33, Q.37, Q.38, Q.39, Q.40, Q.42, Q.43, Q.45, Q.46 and Q.47) has got higher than overall Cronbach's alpha ($\alpha = .745$) value. So these items have been deleted for next phase. In second phase; out of 31 items, 5 items (Q.31, Q.32, Q.34, Q.35 and Q.41) has got higher than overall Cronbach's alpha ($\alpha = .907$) value. So these items have been deleted for next phase. In third phase; out of 26 items, 3 items (Q.8, Q.27 and Q.36) has got higher than overall Cronbach's alpha ($\alpha = .918$) value. So these items have been deleted for next phase. In fourth phase, the

overall Cronbach's alpha ($\alpha = .923$) value which resulted in 23 items scale is shown in Table 2 and Table 3.

The construct validity of Non-verbal Social Skill Rating Scale for Mentally Ill was analyzed as follows. Construct validity was examined via principal component analysis with varimax rotation to determine the factor structure of Non-verbal Social Skill Rating Scale for Mentally Ill. The factor analysis of Non-verbal Social Skill Rating Scale for Mentally Ill identified 7 factors which are shown in Table 4. The total extraction factor value is .938.

To assess inter-rater reliability, rater 1 and rater 2 used 23 items scale to examine the mentally ill patient's responses. Inter-rater reliability was calculated between two Occupational Therapist using Mean, S.D and Pearson correlation coefficient. The mean value of rater 1 and rater 2 are 43.48 and 46.85, S.D value of both raters is 15.29 and 13.32 and Pearson correlation coefficient is .932 is shown in Table 5. Data were analysed using SPSS 23.

Finally, Table 6 shows the norms of the developed scale of Non-verbal Social Skill Rating Scale for Mentally Ill. The range 1 - 23 indicates very poor non-verbal social skill; the range 24 - 46 indicates poor non-verbal social skill; the range 47 - 69 indicates fair non-verbal social skill; the range 70 - 92 indicates good non-verbal social skill; 93 and above indicates very good non-verbal social skill. Hence it concludes that all 23 items of Non-verbal Social Skill Rating Scale are valid and reliable.

Summary:

- All the 48 statements were generated through focus group discussion.
- Identifying the appropriateness and relevance of the statements through expert rating.
- Total 26 experts were rated the 48 statements, the statements rated 1-5 (5 point rating scale).
- Initial data collection has been conducted for 100 mentally ill.
- After factor analysis all the statements were extracted or have consistence with each statement rating from .515 to .884, and overall Cronbach's α value is .932 indicates the scale has good internal consistency.
- Norms were created for the developed scale.

Conclusion

From the statistical analysis the assessment's Cronbach's alpha value is $\alpha = .915$ to $.923$ which shows the assessment tool has good internal consistency and reliability. The expert validation was done and got good relevance with the content validity for the scale item. Hence, Non-verbal Social Skill Rating Scale for Mentally Ill can be used to identify the level of non-verbal social skill in mentally ill.

Ethical Clearance: Taken from Institutional Ethical committee of JKK munirajah Medical Research Foundation, Namakkal, Tamilnadu.

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Conflict of Interest: Nil

References

1. Richmond, V.P., McCroskey, J.K., and Johnson, A.D. "Development of the Nonverbal Immediacy Scale (NIS)": Measures of self and other perceived nonverbal immediacy communication Quarterly, (2003), 51, 502 - 515.
2. Riggio, Ronald E; Friedman, Howard S. Impression formation: The role of expressive behaviours. Journal of personality and social psychology. 1986, Vol. 50(n5), Pg: 421 – 427.
3. Riggio, Ronald E.; Friedman, Howard S. The interrelationships of self-monitoring factors, personality traits, and nonverbal social skills. Journal of Nonverbal Behavior. 1982. Vol.7 (n1), Pg:33-45.
4. Riggio, Ronald E.; Friedman, Howard S. Individual differences and cues to deception. Journal of Personality & Social Psychology. 1983. Vol. 45 (n4), Pg.899-915
5. Riggio, Ronald E.; Friedman, Howard S.; DiMatteo, M. Robin. Nonverbal greetings: Effects of the situation and personality. Personality & Social Psychology Bulletin. 1981, Vol. 7 (n4), Pg: 682-689.
6. Rosenthal, Hall, DiMatteo, Rogers, & Archer. "Profile of Non-verbal Sensitivity(PONS)". The Sourcebook of Listening Research: Methodology and Measures. 2013. Pg: 522 – 529.
7. Tevfik Uzun . Development of the Non verbal communication skills of school administrators scale (NCSSAS): Validity and reliability and implementation study. Academic journals. 2017. Vol. 12, Pg: 442 – 455.
8. Sebastin Walther, Tim Vanbellingen. Non verbal social communication and Gesture control in Schizophrenia. Schizophrenia Bulletin. 2015. Vol. 41(n2), Pg: 338 – 345.
9. Jeffry M. Girard, Mohammed H. Mahoor, Zakia Hammal. Non verbal social withdrawal in depression: Evidence from manual and automatic analysis. Image and Vision computing. 2014. Volume 32, Issue 10, Pg: 641 – 647.
10. Sigán L. Hartley (2010). Non verbal social skills of 18 adults with mild Intellectual Disability diagnosed with depression. Journal of Mental Health research in Intellectual Disabilities. 2009, Jan 1; 2(1): 11–28.
11. Tucker, Joan S, Friedman, Howard S (1993). Sex differences in Non verbal expressiveness: Emotional expression, personality and impression. Journal of Non-verbal behaviour. 1993. Volume 17(n2), Pg: 103 – 117