RESEARCH ARTICLE

Turkish Journal of Psychiatry 2021;32(3):192–200
https://doi.org/10.5080/u25058

The Turkish Validity and Reliability Study of the Observable Social Cognition–A Rating Scale for Patients with Schizophrenia

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SUMMARY

Objective: The Observable Social Cognition–A Rating Scale (OSCARS) is an eight-item, interview-based psychometric tool that was developed by Healey et al. (2015) for evaluating social cognition with respect to the theory of mind, emotion perception, and attributional style in schizophrenia. The aim of this study is to determine the validity and reliability of the Turkish version of the scale.

Method: The study was conducted with 50 patients with schizophrenia and schizoaffective disorder and 50 relatives of these patients using the OSCARS, the Face Emotion Discrimination/Identification Test (FEDT/FEIT), the Positive and Negative Symptoms Scale (PANSS), the Global Assessment of Functioning (GAF) and the Dokuz Eylül Theory of Mind Index (DEZIKO). The validity of the OSCARS was assessed by exploratory factor analysis and concurrent validity analysis, the reliability was demonstrated by the internal consistency coefficient, item-total item correlation, and test-retest comparisons.

Results: The Cronbach's alpha coefficient of the OSCARS-TR was 0.83. Explanatory factor analysis yielded a 2-factor structure explaining 64.2% of the total variance of the scale. The total score of the OSCARS-TR correlated significantly with the DEZIKO (r=-0.49), the GAF (r=-0.50), the PANSS (r=0.54) and the FEDT (r=-0.29) total scores but not with the FEIT scores. The total scores of the OSCARS-TR completed by the patients and by the relatives of the patients correlated with statistical significance (r=0.93). The test-retest reliability coefficient of OSCARS-TR was 0.95.

Conclusion: The results demonstrated the validity and the reliability of the OSCARS-TR. The scale can be easily implemented on an interview basis as an appropriate tool for evaluating social cognition.

Keywords: The observable social cognition–a rating scale, schizophrenia, social cognition, validity and reliability

INTRODUCTION

Schizophrenia is a disabling mental illness mostly continuing for a lifetime and associated with the impairments in the neuroanatomy and neurochemistry of the central nervous system, progressing with the impairment of the cognitive functions (neurocognition and social cognition) and presenting with the typical symptoms of delusions and hallucinations (Alptekin et al. 2014, Woodward et al. 2006). Despite receiving effective medical and psycho-social therapy, impairment of cognitive functions is an inherently permanent condition (Addington and Addington 1998). The impairment of social cognition is considered as the endophenotype that becomes manifest before the emergence of schizophrenia (Ay et al. 2016, Green et al. 2015). Social cognition refers to an individuals' ways of thinking about themselves and other individuals they interact with in their social environments and the mental processes underlying social interactions (Billeke and Aboitiz 2013, Penn et al. 2008). The core domains of social cognition are emotion perception, theory of mind, and attributional style (Penn et al. 2008, Yıldırım and Alptekin 2012) which mediate understanding the emotions, mental states, intentions, and behaviour of others in social environments (Billeke and Aboitiz, 2013). Social functioning is an important factor in independent living, working and socialising (Brekke et al. 2005) and its impairment has been associated with the deficits in social cognition (Silberstein et al. 2018, Buck et al. 2016, Green et al. 2000). Particularly, the impairments emerging in emotion perception and the negative symptoms have been reported to mediate the effect of social cognition on functionality in schizophrenia (Buck et al. 2016, Stalberg 2013).

Received: 04.07.2019, **Accepted:** 08.12.2019, **Available Online Date:** 11.05.2020

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Considering the importance of social cognition for functioning, it is necessary to use valid and reliable measurement tools for the assessments made in this field. The existing measurement tools have significant methodological limitations that prevent the accurate assessment and identification of social cognition as the target of treatment (Pinkham et al. 2013, Buck et al. 2016). Firstly, the psychometric properties of the tasks on the core domains of social cognition have not been well established (Abdullayev et al. 2018, Bora et al. 2009). Secondly, some of the tasks in the existing measurement tools replicate each other conceptually and measurably such that similar cognitive components are assessed in each type of task (Green et al. 2008). For example, individuals are asked to select the most appropriate expression for the eye images shown to them in the Eyes Test (Yıldırım et al. 2011). This task is primarily for evaluating the theory of mind; however, it also has characteristics that also overlap with tasks for assessing emotion perception. Such problems require supporting the existing measurement tools with new methods for assessing social cognition.

In a study conducted in this context, 8 of the most frequently used measurement tools in the literature for evaluating the different core domains of social cognition were used together on a large number of schizophrenia patients in order to identify the tools with strong factors (Pinkham et al. 2013, Buck et al. 2016). Finding that most of these measurement tools had weak psychometric properties supports the rationale on the necessity of developing a single measurement tool with strong psychometric properties and a broad scope to evaluate social cognition as an umbrella concept. The literature reveals that social cognition is assessed with all its key domains by means of a battery of measurement tools. (Ludwig et al. 2017, Healey et al. 2015). Also, one-to-one interviews based on functionality are also used to evaluate social cognition (Healey et al. 2015, Roberts et al. 2014, Silberstein et al. 2018). In the literature there are observer based rating scales used in one-to-one interviews. This approach was first applied by using the Schizophrenia Cognition Rating Scale (SCoRS) which is a validated interview-based cognitive evaluation tool that rates the data acquired from individuals who regularly interact with the patients (Keefe et al. 2006). Subsequently, Ventura et al. (2010) developed similar validated measurement tools aiming at cognitive evaluation. However, these tools assess cognition as a whole and primarily for neurocognition. The OSCARS is an 8-item interview-based measurement tool, developed with the aim to assess in schizophrenia the theory of mind, emotion perception, and attributional style which are the core domains of social cognition (Healey et al. 2015). It is the only tool in the literature that assesses social cognition under a single roof. Each item of the OSCARS consists of a question examining a different core domain of social cognition followed by the description of a behaviour exemplifying the impairment in that very domain. Each item is scored with the 7-point Likert-type rating and high total scores indicate the severity of impairment in social cognition (Healey et al. 2015).

The aim of this study is to determine the validity and reliability of the psychometric properties of the OSCARS in providing a detailed interview-based assessment of the core domains of social cognition (i.e. the theory of mind, emotion perception, and attributional style).

METHOD

Research Design and the Participants

This research was designed as a descriptive and cross-sectional study and conducted in the psychiatric outpatient clinic of a university hospital between March 1 and September 30, 2018. According to the principle of scale adaptation, the number of the participants was planned to be 5-10 times more than the number of items making up the measurement tool (Esin 2014). In the order of consulting the outpatient clinic the patients (n=50) who met the sample inclusion criteria and accepted to participate in the research were enrolled in the study together with a close relation (n=50).

Inclusion Criteria

The individuals, who were diagnosed with schizophrenia and schizoaffective disorder according to DSM-5 (APA 2013), who did not have an organic brain disease, alcohol-substance use disorder and major depressive disorder, who did not receive electroconvulsive treatment (ECT) in the last 6 months, who agreed to participate in the research and signed the consent form, who were at least primary school graduates between 18-50 years of age, and had a relative who could answer the items in the questionnaire and knew the participant well were included in the research.

Data Acquisition Tools

The 'Patient and patient relation information form' prepared to assess the socio-demographic and clinical characteristics of the patients and their relatives, comprised items on age, gender, education, marital status, employment status, lifestyle, degree of consanguinity, duration of disease, duration of hospital stay, smoking, alcohol-substance use, and ECT history.

The patients were tested on the Facial Emotion Identification Test (FEIT), the Facial Emotion Discrimination Test (FEDT) (Erol et al. 2009) and the Dokuz Eylül Theory of Mind Index (DEZİKÖ) (Değirmencioğlu et al. 2018), used for assessment of social cognition in the literature, for the

purpose of testing the concurrent validity of the OSCARS in this study. The FEIT and FEDT are a set of the two separate tests developed by Kerr and Neale (1993) to assess the perception of expressed emotion in schizophrenia. In these tests, the pictures of facial expressions with the six basic emotions are shown one by one (n=19) and in pairs (n=30), expecting the six basic emotions to be identified to start with followed by identifying the similarity or difference in the emotions of the facial expressions on the paired pictures. '1' is scored for correct answers and '0' for wrong answers, the highest score being 19 for FEIT and 30 for the FEDT). In the psychometric assessment of these scales in the Turkish language, the test-retest reliability correlation coefficient was 0.90 for the FEIT and 0.70 for the FEDT in the patient group, and 0.84 for the FEIT and 0.93 for the FEDT in the control group. When each test item is assessed individually, the test-retest results were in agreement, the kappa values being in the 0.60-0.90 and 0.61-1.00 ranges, respectively, for the FEIT and the FEDT items in the patient group, and in the 0.59-0.88 and 0.58-1.00 ranges respectively, for the FEIT and the FEDT items in the control group. Considering the test-retest correlation coefficients and kappa values, both tests were found to be reliable for application in the Turkish population (Erol et al. 2009).

The DEZİKÖ is a measurement tool developed in reference to the tasks used in the literature and consisting of both the story and picture tasks including all aspects such as the first-degree false belief, the second-degree false belief, irony, metaphor and gaffe, considered to bear the theory of mind ability (Değirmencioğlu et al. 2018). The scale consists of 7 stories and 2 picture tasks. The individual is asked to listen to the stories and answer the relevant questions. The picture tasks consist of three pictures numbered as 1-2-3 and telling a story; the participants should select the 4th picture appropriate to the story from the two pictures presented as a and b. The score is 1 for a correct answer and 0 for a wrong answer. The total score to be obtained from the scale is 0–16, by summing up 0–14 in the story tasks and 0–2 in the picture tasks. The DEZİKÖ internal consistency coefficient, inter-rater reliability and test-retest reliability were calculated as 0.64, 0.99 and 0.90, respectively.

The Positive and Negative Symptoms Scale (PANSS) was used to assess psychopathology, and the Global Assessment of Functioning (GAF) was used to assess functionality.

The PANSS is a semi-structured interview scale developed by Kay et al. (1987) consisting of a total of 30 items and a seven- point violence assessment. The PANSS negative symptoms and positive symptoms subscales have totally 7 scores each, and the general psychopathology subscale has a total score of 16. The reliability and validity of the Turkish language version were determined by Kostakoğlu et al. (1999). Obtaining a high score from PANSS indicates the severity of the disease.

The GAF is the 'Axis V' test included in the DSM-IV (APA 1994) for general functioning, the effect of the disease on mental, social, and occupational functioning assessed in a range of 0-100. Obtaining a high score from the GAF indicates the goodness in mental, social and occupational functioning.

The psychometric evaluation of the participants were completed at the first conducted interview. While the PANSS assessment was performed by a single physician who followed all patients, the rest of the assessments were carried out by the researcher (ZÖ).

The Observable Social Cognition: A Rating Scale (OSCARS)

Testing the patient on the OSCARS-TR took place at the first interview following the consultation at the outpatient clinic and was repeated (n=27) 10 days after the first interview to assess test-retest reliability. The OSCARS is an 8-item measurement tool that aims an interview-based assessment of social cognition in schizophrenia patients. Each item is scored with the 7-point Likert type rating (1: none, 2: very mild, 3: mild, 4: moderate, 5: moderately severe, 6: severe, 7: extremely severe) and obtaining a high total score indicates the severity of impairment (Healey et al. 2015).

The OSCARS can be used within a semi-structured interview or can be rated by a relation who knows the patient well, when the score depends on the knowledge acquired by interacting with the patient. Both processes last approximately 15-20 minutes. A two-way assessment can be performed based on the data acquired by the two approaches.

The results of the original study on the OSCARS showed a significant relationship between the ratings by the interviewer and the relation of the patient ($r=0.94$, $p<0.001$) (Healey et al. 2015). In the original study, the internal consistency of the scale was 0.80 and the test-retest reliability results were between 0.50-0.70 for the 8 items. Test-retest reliability was 0.86 based on the total scores of the two successive applications. The exploratory factor analysis for determining the construct validity showed a 2-factor structure. Factor 1 comprised the attributional style (item 2), jumping to conclusions (item 3) and cognitive rigidity (items 4 and 5), and was named as 'Social Cognitive Bias' to form a framework for the behavioral indicators of social cognition such as impulsivity, hostility and rigidity. Factor 2 was named as 'Social Cognitive Ability' and comprised the core domains of social cognition as theory of mind (items 6,7,8) and emotion perception (item 1). The test-retest reliability of Factor 1 and Factor 2 were 0.87 and 0.85, respectively.

Translation of the OSCARS to the Turkish Language

For the translation and adaptation of OSCARS to the Turkish language, written communication was established in line with the steps specified in the literature and permission was obtained from the corresponding authors for the use of the original scale (Çapık et al. 2018). Afterwards, the original scale was translated to Turkish by the researcher. In the process, it was particularly aimed to go beyond mere grammar and to provide conceptual equivalence that would enable the reader to understand and express what is being explained. After the translation was completed, both documents were submitted to a professional translator for the conceptual and linguistic assessment and some differences were detected. The researcher and the translator came together to exchange, opinions and determined the most appropriate semantic explanations. Subsequently, a pilot study was conducted with 5 patients by using the final form of the questionnaire. The results of this pilot study indicated that the OSCARS-TR was comprehensible. The data of these patients were not included in the analysis process of the research.

Ethics Committee Approval

Ethical approval was obtained from Kocaeli University Ethical Committee of Non-Invasive Clinical Research in order to conduct the research (KU GOKAEK 2017/1610). In addition, the research was supported by Kocaeli University Scientific Research Projects Commission (Project No=2018/034) and 100 Turkish Liras were paid to each patient participating in the research.

Statistical Evaluation

The analysis of the data was performed by using the SPSS package software (IBM SPSS Statistics for Windows, Version 22.0 Armonk, NY: IBM Corp.). Descriptive statistics as the mean, standard deviation, minimum, median and the maximum were used to define the continuous variables, and frequency (n) and percentages (%) were used to define the categorical variables.

Exploratory factor analysis was carried out for the construct validity of OSCARS-TR and correlation analyses were made for concurrent validity, using different measurement tools such as the FEIT/FEDT and the DEZİKÖ with previously determined validity and reliability in the literature and which can assess the same domain. The Spearman Rho Correlation test was used since the data did not show normal distribution. To determine the reliability of the OSCARS-TR, the Cronbach's alpha coefficient for internal consistency was calculated and the Spearman Rho correlation coefficient was used to evaluate test-retest reliability.

RESULTS

The study included a total of 50 participants comprising 44 schizophrenia and 6 schizoaffective disorder patients, with a mean age of 35.1 (±7.5) years, mean disease duration of 14.0 (±6.9) years and a mean education of 11.5 (±2.9) years.

The mean age of the 50 relatives of the patients was 54.6 (±14.9) years and 43 of these were first-degree family members. Sociodemographic and clinical characteristics of the patients are given in Table 1.

The total scores on the OSCARS-TR as assessed by the interviewer and the relatives of the patients and also the statistically calculated correlation coefficients are given in Table 2.

Table 1. Sociodemographic and Clinical Characteristics of the Participants (n:50)

Variables		**n (%)**
Gender		
Male		38 (76)
Female		12 (24)
Marital Status		
Single		40 (80)
Married		7 (14)
Divorced, seperate		3 (6)
Working Status		
Unemployed		29 (58)
Works regularly		15 (30)
Retired		6 (12)
Life style		
Parents, sibling		36 (72)
Spouse, child		8 (16)
Alone		6 (12)
		M±SD (range)
Age (year)		35.08±7.52 (23-58)
Education year		11.52±2.85 (5-17)
Disease duration (year)		14.00±6.90 (2-34)
Number of hospitalisation		2.22±1.65 (0-7)
Scales	**n**	**M±SD (range)**
FEIT	50	10.9±2.1 (7-16)
FEDT	50	25.2±2.7 (17-30)
DEZİKÖ	50	11.2±2.6 (5-16)
PANSS (+)*	43	17.7±3.4 (11-27)
PANSS (-)*	43	19.2±4.0 (10-26)
PANSS general*	43	38.5±7.0 (23-53)
PANSS total*	43	75.4±13.0 (47-103)
GAF	50	72.7±15.1 (55-95)

*Completed with a total of 43 patients
n: Frequency, %: Percentage, M: Mean, SD: Standard Deviation
FEIT: Facial Emotion Identification Test
FEDT: Facial Emotion Discrimination Test
DEZİKÖ: Dokuz Eylül Theory of Mind Index
PANSS: Positive and Negative Syndrome Scale
GAF: Global Assessment of Functioning

Table 2. Scores on the OSCARS-TR Items as Assessed by the Interviewer (n:50) and Patient Relatives (n:50) and the Respective Correlation Coefficients

Items of OSCARS	M±SD(range) (Interviewer)	M±SD (range) (Patient Relatives)	r_s (Spearman Rho)
Item1. Recognising other people's emotions based on facial expression, body language and/or vocal tone	2.6±1.7 (1-7)	2.5±1.6 (1-7)	
Item 2. Interpreting social interactions in a malevolent, hostile manner	3.0±1.4 (1-7)	2.8±1.5 (1-7)	
Item 3. Making decisions quickly without examining other evidence	3.2±1.3 (1-7)	3.1±1.5 (1-7)	
Item 4. Being flexible in interpreting social situations	3.1±1.6 (1-7)	3.1±1.6 (1-7)	
Item 5. Changing or correcting their interpretation of social interactions when wrong	3.0±1.4 (1-5)	3.1±1.7 (1-7)	
Item 6. Understanding subtle jokes, sarcasm and insults in conversation	2.8±1.6 (1-7)	3.0±1.6 (1-7)	
Item 7. Seeing things from the perspective of others	3.1±2.0 (1-7)	3.0±1.9 (1-7)	
Item 8. Understanding subtle social cues, hints and indirect requests	3.4±1.9 (1-7)	3.4±1.9 (1-7)	
Total	24.2±8.7 (8-44)	24.1±8.9 (8-44)	0.93*
Factor1 (social cognitive bias)	12.2±4.4 (4-22)	12.2±4.5 (4-22)	0.90*
Factor 2 (social cognitive ability)	12.0±5.7 (4-26)	11.9±5.5 (4-24)	0.88*

*p<0.001, n: Frequency, M: Mean, SD: Standard deviation, OSCARS: Observable Social Cognition: A Rating Scale, r_s: Spearman Rho Correlation Coefficient

Reliability of the OSCARS-TR

The internal consistency of the OSCARS expressed by the Cronbach's alpha coefficient was 0.83. The total score of the OSCARS-TR and the internal consistency coefficients of the OSCARS-TR subdimensions are given in Table 3.

A highly significant correlation was found between the test-retest scores, the Spearman test results range being r=0.69-0.87 (p<0.001). Similarly, a high level of significant correlation was found between the scores assessed by the interviewer and the relatives of the patients (r=0.93, p<0.001).

Also, the score given by the interviewer on each subdimension correlated significantly with the total score on each subdimension and with the total score of the OSCARS-TR (Table 4).

Validity of the OSCARS-TR

Results of the exploratory factor analysis carried out to determine the construct validity of the OSCARS-TR demonstrated that the 8 items were grouped under 2 factors. The eigen value line chart of the OSCARS-TR is given in Figure 1. The OSCARS-TR items 2,3,4 and 5 on social cognitive bias and the items 1,6,7 and 8 on social cognitive ability formed the two factors. Although item 5 loaded both factors, it was grouped with factor 1 as in the original version of the questionnaire on grounds of the agreement of its content with that of factor 1 (Table 3). These two factors explain 64.2% of the total variance of the questionnaire, with 46.17% being on factor 1 or the Social Cognitive Bias subdimension representing and 18.07% being on factor 2 or the Social Cognitive Ability subdimension.

Table 3. Factor Analysis* Matrix According to the Assessment of the Interviewer

Items of OSCARS	Factor 1 (Social Cognitive Bias)	Factor 2 (Social Cognitive Ability)	Initial Eigenvalues	
			Total	% of variance
Item1(Emotion Perception)	0.19	0.68		
Item 6 (Theory of Mind)	0.05	0.84	3.69	46.17
Item 7 (Theory of Mind/Empathy)	0.21	0.77		
Item 8 (Theory of Mind)	0.05	0.83		
Item 2 (Attributional Style)	0.70	0.16		
Item 3 (Jumping to Conclusion)	0.86	-0.06	1.45	18.07
Item 4 (Cognitive Rigidity)	0.77	0.40		
Item 5 (Cognitive Rigidity)	0.46	0.61		
Cronbach's Alpha	0.75	0.81		
Cronbach's Alpha (total)	0.83			

*Rotation Method: Varimax with Kaiser Normalization, OSCARS: Observable Social Cognition: A Rating Scale

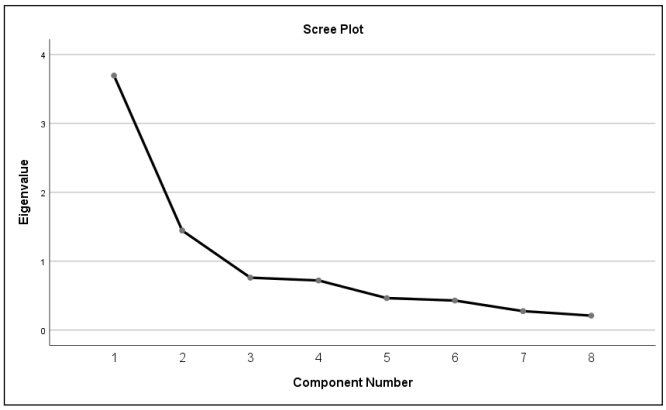

Figure 1. Scree Plot for the OSCARS-TR

Table 4. The Correlation Coefficients Between the OSCARS-TR Total Score and the Scores on the Items as Assessed by the Interviewer

	Factor 1 r_s	Factor 2 r_s	Scale total score r_s
Item1 (Emotion Perception)		0.75	0.66
Item 2 (Attributional Style)	0.69		0.53
Item 3 (Jumping to Conclusion)	0.73		0.48
Item 4 (Cognitive Rigidity)	0.84		0.72
Item 5 (Cognitive Rigidity)	0.72		0.76
Item 6 (Theory of Mind)		0.78	0.70
Item 7 (Theory of Mind/ Empathy)		0.79	0.76
Item 8 (Theory of Mind)		0.85	0.70

r_s: Spearman Rho Correlation Coefficient, OSCARS: Observable Social Cognition-A Rating Scale

Table 5. Correlation Coefficients Between the Total Scores of the OSCARS-TR and Other Scales

Scales	r_s	p
FEIT (n:50)	0.01	0.96
FEDT (n:50)	-0.29	0.04
DEZİKÖ (n:50)	-0.49	<0.001
PANSS (+) (n:43)	0.52	<0.001
PANSS (-) (n:43)	0.42	0.01
PANSS general (n:43)	0.50	0.001
PANSS total (n:43)	0.54	<0.001
GAF (n:50)	-0.50	<0.001

r_s: Spearman Rho Correlation Coefficient, n: frequency, FEIT: Facial Emotion Identification Test, FEDT: Facial Emotion Discrimination Test, DEZİKÖ: Dokuz Eylül Theory of Mind Index, PANSS: Positive and Negative Syndrome Scale, GAF: Global Assessment of Functioning, OSCARS: Observable Social, Cognition: A Rating Scale

Three expert academicians in the field were asked to evaluate the items of the OSCARS-TR in order to assess the content validity. Each item was presented for assessment as 1: Not suitable, 2: Suitable to a degree / needs a major change, 3: Very suitable / needs a small change and 4: Highly suitable. The results were tested statistically to determine the degree of consistency between the measured values. According to the result of Kendall W Concordance Test carried out for the content validity of the OSCARS-TR, expert opinions were found to be consistent (Kendall W=0.58, p=0.095).

In testing the concurrent validity of the OSCARS-TR, a statistically significant weak negative correlation was found between the total scores of the OSCARS-TR and the FEDT (r=-0.29, p<0.04) and a significant moderate negative correlation was determined between the total scores of the OSCARS-TR and the DEZİKÖ (r=-0.49, p<0.001) while a correlation was not observed with the total score on the FEIT (r=0.01, p=0.955) (Table 5).

The Relationship of the OSCARS-TR with Psychiatric Symptoms and Functioning

The OSCARS-TR total score showed a moderate negative correlation with the total score of the GAF (r=-0.50, p<0.001) and moderate positive correlations with the PANSS positive symptoms score (r=0.52, p<0.001), the negative symptoms score (r=0.42, p=0.005), the general symptoms score (r=0.50, p=0.001) and the PANSS total score (r=0.54, p<0.001) (Table 5).

DISCUSSION

This research is the first foreign language adaptation study of the interview-based OSCARS and shows that the Turkish (TR) language version is a reliable and easily applicable measurement tool for evaluating social cognition in individuals with schizophrenia and schizoaffective disorder. The analyses on the test-retest reliability and internal consistency of the OSCARS-TR yielded the appropriate values. Exploratory factor analysis confirmed the two-factor structure of the original version of the OSCARS and also, our result for the mean total scoring on the OSCARS-TR (24.2±8.7) matched the result (24.1±8.3) in the original study of OSCARS (Healey et al. 2015), indicating the similarity of the participants of the two studies on social cognition. Roberts et al (2014) reported the mean score of their patents on the OSCARS as 25.4±8.2. Studies with different groups of patients with similar sociodemographic features have arrived at similar results using the OSCARS.

As seen in the literature, many psychometric tools have been used to assess the core domains of social cognition (Bora et al. 2009). Since these tools assess a specific sub-domain such as only theory of mind or emotion perception, many were used collectively to demonstrate social cognition as the main concept encompassing all domains. Although this approach seems to be functional in general, studies emphasize that it poses some problems in practice (Pinkham et al. 2013, Buck et al. 2016). The psychometric properties of most measurement

tools have still not been demonstrated in schizophrenia or have been shown to be inadequate (Pinkham et al. 2013, Bora et al. 2009, Abdullayev et al. 2018). As the results of these tests rely on individual performance, they have not been evaluated for functioning which is the main indicant of social cognition, and it was argued that the effects of clinical and sociodemographic characteristics on functioning in schizophrenia are being ignored (Bora et al. 2009). The well-being of the patients with relatively better functioning can be overlooked in these test batteries, not to mention the time spent in evaluating the test results (Pinkham et al. 2013). Considering that the assessment of social cognition with performance-based measurements mostly relies on pictures for emotion expression and that there are cultural differences in expressing emotions, the efficacy of the transcultural adaptation of these tools is also questioned in the relevant literature (Bora et al. 2009). Studies have been made in our country. to assess social cognition (Ay et al. 2016, Abdullayev et al. 2018) generally after translating the performance based tests available in the international literature to the Turkish language (Abdullayev et al. 2018, Yücel et al. 2016). The DEZİKÖ, developed in our country, is an effective performance-based measurement tool that assesses social cognition comprehensively with all its core domains (Değirmencioğlu et al. 2018).

Experience in the research process shows that schizophrenia patients have limited motivation and interest to complete the relevant tests as seen in the literature (Bosgelmez et al. 2015). The time taken on conducting these measurement tools are suspected to affect the reliability of the expected outputs and the necessity of faster tools has been emphasised by clinicians and researchers (Bosgelmez et al. 2015, Ventura et al. 2010). Adapting the interview based OSCARS to the Turkish culture is thought to be clinically valuable given its easily applicable structure that lasts approximately 15 minutes by discussing real-life examples. The brief duration also relieves the burden on the patient. Assessment of social cognition provides important clues to the clinician on patient functionality and the need for improvement services. Demonstration of the OSCARS as a tool for evaluating social cognition on the basis of functioning (Healey et al. 2015, Silberstein et al. 2018) has made this research important for providing a previously tested measurement tool to the Turkish literature as a first step for development of psychometric tools specific to the Turkish culture. The combined use of the OSCARS-TR and performance-based measurement tools could increase the reliability of the results.

Reliability of the OSCARS-TR

The strong correlation between the results obtained by the interviewer and the relatives of the patients suggests that rating of the OSCARS-TR by an interviewer may be enough on its own. Also, the significant powerful correlation between the item scores and the total score of the OSCARS-TR is consistent with the results of original article reported by Healey et al. (2015) and stands as a good indicator of the internal consistency of the OSCARS-TR.

Validity of the OSCARS-TR

The results of the factor analysis for determining the construct validity of the OSCARS-TR supported the 2-factor structure shown in the original study by Healey et al. (2015) and explained 64.2% of the scale variance thus reflecting the validity of the OSCARS-TR. It was seen that only item 5 of the scale had a total load of above 0.30 in both factors, with 0.46 in factor 1 and 0.61 in factor 2. The content of item 5 was related to cognitive rigidity and reflected a bias for social cognitive ability. Therefore it was included in factor 1 as done in the original OSCARS. The significant negative correlations of the OSCARS-TR total score with the DEZİKÖ and the FEDT scores indicated that the OSCARS-TR can accurately measure the core domains of social cognition on its own. However, not determining any correlation between the FEIT and OSCARS-TR needs to be interpreted, and this shows that the scope of the OSCARS-TR on the core domain of emotion perception is limited in this study. It was seen that emotion identification abilities of the participants were weaker than their emotion discrimination abilities within the scope of emotion perception core domain of social cognition. Other studies in the literature have also reported that patients have more difficulty with emotion identification ability (Healey et al. 2015, Erol et al. 2009).

There are 19 picture pairs in the emotion identification test and 30 picture pairs in the discrimination test. The small number of questions in the identification test and the possible cultural differences in showing emotions with facial expressions may be associated with the inconsistency in the results. Furthermore, the pairwise pictures shown for the discrimination ability make it easier to find the answer. Thus, the observation made by the researcher during the application process indicated that emotion discrimination ability was perceived an easier task than emotion identification ability. Patients spent more time in the identification test process, experienced indecision, identified positive emotions such as happiness relatively easily and defined negative emotions with difficulty. Extreme emotions such as anger and happiness were more easily identified than neutral facial expressions. It was particularly difficult to discriminate between fear and surprise, shame and sadness were confused frequently and the least accurately defined emotion was embarrassment. It is thought that the results of this study and the observations made will contribute to the research approaches in the literature (Altunel et al. 2008).

The OSCARS-TR and Functionality

Meta-analysis studies show that social cognition is a strong predictor of functioning (Depp et al. 2012). In this study, a significant moderate negative relationship was found between the patient scores on the GAF and the OSCARS-TR. The GAF generally assesses the psychological, social and occupational functionality of an individual. Considering the strong effect of social cognition on functioning (Green 2000), the results of this study show parallelism with the literature in that the patients with good functionality have lower scores on the OSCARS-TR which indirectly indicate disease severity. Silberstein et al. (2018) examined the relationship between social cognition and functioning and found that the scores on the OSCARS, rated by the relatives of the patients, predicted social functioning.

The OSCARS-TR and Psychiatric Symptoms

It is known that psychiatric symptoms are strongly related to social cognition and functioning (Buck et al. 2016). The significant relationship determined in our study between the OSCARS-TR and the severity of psychiatric symptoms is consistent with the reports in the literature (Silberstein et al. 2018, Fett et al. 2011).

Limitations

Inclusion of mostly male participants in this study may limit the generalisation of the results to both genders. Future interviews performed with the OSCARS-TR on larger patient groups should produce more consistent results. The lack of a valid and reliable measurement tool in the literature for assessing the attributional styles of schizophrenia patients prevented the evaluation this core domain in this study. It is important for the interviewer to know the patient well in order to make a correct assessment for scoring on the OSCARS-TR. In this study, the researcher did not know the participants previously. Therefore, the patients and their relatives were separately interviewed to close this gap. Another limitation of this study stems from the researcher personally conducting all tests except the PANSS. The possible contamination in the rating scales should be prevented by using a different interviewer for the clinical measurements. Not being able to demonstrate a relationship between the FEIT and the OSCARS-TR shows that the scope of the OSCARS-TR in detecting emotion perception core domain of social cognition was limited in this study. Given that the mean period of education of the participants of this study was 11.5 (±2.9) - (range=5-17) years, not testing the intelligence levels may also be considered as a limitation.

CONCLUSION

The OSCARS-TR stands out as a psychometric tool that can provide reliable information beyond the performance-based measurement tools with a fast and practical applicability for comprehensive assessment of social cognition that bridges neurocognition and functionality. With its adaptation to the Turkish language and proven validity and reliability it can be used safely by researchers.

In future studies the sensitivity of the OSCARS-TR to clinically significant change in response to the interventions made for improving social cognition in schizophrenia can be experimentally tested. Also, on the basis of reported research results, it is foreseen that the practices for improving emotion identification abilities within the scope of emotion perception should have a positive effect on the recovery processes of the patients with schizophrenia.

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