



Psychometric Properties of the Farsi Version of the Schwartz Outcome Scale

Leili Jamil^{1,2}, Mahmood Dehghani^{3,*}, Fahimeh Fathali Lavasani³ and Behzad Mahaki⁴

¹School of Behavioral Sciences and Mental Health, Tehran Institute of Psychiatry, Iran University of Medical Sciences, Tehran, Iran

²Student Research Committee, Iran University of Medical Sciences, Tehran, Iran

³Department of Clinical Psychology, School of Behavioral Sciences and Mental Health, Tehran Institute of Psychiatry, Iran University of Medical Sciences, Tehran, Iran

⁴Department of Biostatistics, School of Health, Kermanshah University of Medical Sciences, Kermanshah, Iran

*Corresponding author: Department of Clinical Psychology, School of Behavioral Sciences and Mental Health, Tehran Institute of Psychiatry, Iran University of Medical Sciences, Tehran, Iran. Tel/Fax: +98-2166551668, Email: dehghani.m@iums.ac.ir

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Abstract

Background: Although improving well-being and psychological health is an important goal in the treatment of inpatient and outpatient populations, there are few measures in this field to assess such an important concept. The Schwartz Outcome Scale-10 (SOS-10) is a brief, cost-effective and user-friendly tool that could be used for this purpose in a wide variety of populations and clinical situations.

Objectives: In this study, the psychometric properties of the SOS-10 were investigated among the Iranian population.

Methods: The participants consisted of 181 non-patients selected from among students of Iran University of Medical Sciences and Tehran University and 97 psychiatric patients recruited from Iran Psychiatric Hospital, Clinic of Tehran Psychiatric Institute, and one private clinic. The instruments used included Schwartz Outcome Scale-10, Inventory of Interpersonal Problems (IIP-32), Ryff's Psychological Well-Being Questionnaire (PWB-18), Syndrome Checklist (SCL-25), Health Survey- Short Form (SF-12), Satisfaction with Life Scale (SWLS), and Beck's Hopelessness Scale (BHS).

Results: The findings revealed high internal consistency (Cronbach's α : 0.913) and high test-retest reliability with intraclass correlation coefficients ranging between 0.910 - 0.971. The SOS-10 showed strong and positive correlations with SWL (r : 0.624, P < 0.001), SF-12 (r : 0.762, P < 0.001), and RWQ-18 (r : 0.656, P < 0.001) and strong negative associations with IIP-32 (r : -0.569, P < 0.001), BHS (r : -0.701, P < 0.001), and SCL-25 (r : -0.653, P < 0.001). According to principal component analysis, results indicated that the scale was unifactorial, and this uni-factor structure explained 56.37% of the variance of the scale and was well-fitted to the original version.

Conclusions: Generally, findings indicated that the Farsi version of SOS-10 has good reliability and validity and may therefore be used as a measure for assessing psychological health and well-being by researchers and clinicians in various settings.

Keywords: Psychometric Properties, Schwartz Outcome Scale, Well-Being, Psychological Health

1. Background

In recent decades, great attention has been paid to the necessity of evidence-based interventions for psychiatric disorders (1-4). Thus, it is critical to devise measures for efficient and reliable evaluations in clinical contexts (5, 6). Most measures assessing the outcomes of therapies address particular changes including a reduction in symptoms and pathological behaviors/thoughts. However, nowadays health care services focus on promoting well-being and making an important distinction between mental health and mental disorder to demonstrate that the polar opposite of mental disorders is not the absence of symptoms but well-being (7, 8). Although changes in well-being and psychological health are among the most

important treatment goals for inpatients and outpatients, there are a few measures for this purpose, which are too lengthy and time-consuming or based on a theoretical stance (9, 10).

Schwartz Outcome Scale-10 (SOS-10) is a brief, user-friendly and cost-efficient tool assessing well-being and psychological health in a wide variety of populations and clinical situations. Naturally, SOS-10 is atheoretical, therefore, clinicians with any approach can use this measure to assess the effectiveness of their intervention; this scale can also be applied in both research and practice settings (11-14). This scale has been translated into several languages such as French (6), Czech (15), Spanish (16), and Arabic (17), indicating that the use of SOS-10 has been extended since its development. Psychometric analysis of this scale has

demonstrated good reliability and validity in both clinical and nonclinical settings among adults and adolescents (10, 15, 18-20). Also, its psychometric features make it a noteworthy measure due to its generality, promptness and ease of administration and scoring (7, 14, 21-24).

Also, in Iran, most validated and used measures are problem-specific or symptom-based such as Beck Depression Inventory (25), Beck Anxiety Inventory (26), and Hamilton Depression Rating Scale (27), and some quality of life scales such as the World Health Organization Quality of Life-100 (WHOQOL-100) (28) and SF-36 (29) are applied as outcome measures. In addition, the main tool used for evaluating an individual's well-being is Ryff's Scale of Psychological Well-being. This scale is a philosophical stance-based instrument that measures theoretically derived facets of psychological well-being, Eudaimonia, which emphasizes being meaningful (11, 12). This means that no instrument in Iran can be used as a general outcome measure for assessing psychological well-being and investigating treatment outcomes in an extensive variety of clinical situations and populations regardless of clinicians' therapeutic approach. Since the SOS-10 is a well-suited measure for assessing psychological health and well-being in various settings and populations, developing the Farsi version of SOS-10 is specifically valuable in treatment outcome studies.

2. Objectives

The main objective of the present study was to investigate the initial psychometric properties of the Farsi version of SOS-10. The hypotheses included: SOS-10 will correlate significantly with Inventory of Interpersonal Problems (IIP-32), Psychological Well-Being Questionnaire-18 (PWB-18), Syndrome Checklist-25 (SCL-25), 12 Item Short-Form Health Survey (SF-12), Satisfaction with Life Scale (SWLS) and Beck's Hopelessness Scale (BHS), and factor analysis will show that the scale is unifactorial like its original version.

3. Methods

3.1. Participants

The participants consisted of 181 non-patients and 97 psychiatric patients. The non-patients were selected from among students of Iran University of Medical Sciences and Tehran University, and patients were recruited from Iran Psychiatric Hospital, Clinic of Tehran Psychiatric Institute, and one private clinic. All the patients had been previously visited and diagnosed by psychiatrists and had psychiatric records. Patients were excluded from the study if they were

diagnosed with organic mental disorders, mental retardation, psychotic disorders, and bipolar disorders.

3.2. Procedure

The translation and back translation of the SOS-10 were conducted by two bilingual experts and modified by two university professors in order to agree on the final version of the translation; two of the authors of this paper supervised the translation process.

After translation of the scale, the next stage of the study entailed establishing the reliability and validity of the SOS-10. For this purpose, before data collection, ethical approval was obtained from the Ethics Committee of the university (IR.IUMS.REC.1397.876). Written informed consent that described the objective and procedures of the study was also obtained from all the students and patients, and anonymity was assured. After signing an informed consent form, the participants were asked to fill out a set of self-report questionnaires including SOS-10, IIP-32, PWB-18, SCL-25, SF-12, SWLS, and BHS. The participants did not receive any payments for their participation.

3.3. Measures

3.3.1. Schwartz Outcomes Scale-10

SOS-10 is a self-report measure of general well-being and psychological health which consists of 10 items. Each item is rated on a 7-point Likert scale ranging from 0 (never) to 6 (all or nearly all the time). Total SOS-10 scores range from 0 to 60 with higher scores indicating greater well-being and psychological health. This scale's psychometric properties show high internal consistency (Cronbach's alpha = 0.96), and the item-scale correlation was between 0.74 and 0.90. The test-retest reliability of this scale was reported to be 0.87 with a one-week interval. The validity of this scale was measured by using many other psychological measures. Overall, the results show that SOS-10 is a valid and reliable scale for adults and adolescents (10, 11, 19, 30, 31).

3.3.2. Inventory of Interpersonal Problems

The IIP-32 is a self-report measure designed to assess the most salient difficulties that people experience in relation to others. Items are rated on a 5-point scale from 0 (not at all) to 4 (extremely). Higher scores on the IIP-32 demonstrate poorer interpersonal functioning. The scale includes eight subscales: assertiveness and sociability, openness, caring, aggression, supportiveness, involvement, and dependency. Previous results show that the IIP-32 is a reliable and valid measure, with Cronbach's alpha coefficient ranging from 0.71 to 0.89 for the subscales' internal consistency and 0.86 for total internal consistency

(32). The Farsi version of IIP-32 includes 29 items (6, 19 and 31 were removed) and six factors: supportiveness, assertiveness, openness, aggression, sociability, caring, dependency and involvement. In another study, Cronbach's alpha coefficient for the internal consistency of the subscales ranged from 0.60 to 0.83, and it was 0.82 for the total scale (33).

3.3.3. Psychological Well-Being Questionnaire-18 Items

The PWB-18 is a self-report scale with subscales: autonomy, environmental mastery, purpose in life, positive relations with others, personal growth, and self-acceptance. Each factor includes three items rated on a 6-point Likert scale ranging from 1 (strongly disagree) to 6 (strongly agree) (34). The Farsi version of the PWB-18 includes 18 items and 6 factors. Internal consistency coefficients of the factors spanned from 0.51 to 0.76, and it was 0.71 for the whole the questionnaire (35).

3.3.4. Syndrome Checklist-25 Items

SCL-25 is a short form of SCL-90 that was created by Najarian and Davodi, based on an exploratory factor analysis on the original version. It assesses general psychopathology. Statements are rated on a 5-point scale ranging from 0 (never) to 4 (severe) with higher scores representing more psychopathology. Results show high internal consistencies among the male (0.97) and female (0.98) populations. Test-retest reliability of this scale was reported to be 0.78 for five weeks (36).

3.3.5. 12 Item Short-Form Health Survey

SF-12 is a short form of SF-36 that assesses health status and functioning during the past week. It includes two summary scores, MCS12 (mental health) and PCS12 (physical health), and eight subscales (i.e., role physical, role emotional, physical function, social function, mental health, vitality, pain, and general health) (37). The Farsi version of the SF-12 contains 12 items and 8 factors as the original one. It has good reliability with Cronbach's alpha coefficients 0.72 and 0.73 for MCS12 and PCS12, respectively (38).

3.3.6. Satisfaction with Life Scale

This scale assesses an individual's arbitration about life satisfaction. This scale initially had 48 questions, which was reduced to 10 questions after factor analysis. Because of the semantic similarity between the questions, the final version's questions reduced to five questions. All the statements are rated on a 7-point scale ranging 1 (strongly disagree) to 7 (strongly agree) (39). Internal consistency and test-retest reliability coefficients for the Farsi version of SWLS are 0.85, and 0.77, respectively (40).

3.3.7. Beck's Hopelessness Scale

This self-report scale includes 20 items measuring loss of motivation, feeling of hopelessness and expectations about the future. Each question is answered as yes or no and the total score ranges from 0 to 20. Cronbach's alpha coefficient of the scale in the general population ranged from 0.82 to 0.93 (41). The Cronbach's alpha for the Farsi version of BHS is 0.79 (42).

3.4. Statistical Analysis

All the analyses were performed using IBM SPSS for Windows, V. 22.0 (43). First, descriptive statistics for the participants' demographic data were calculated. Then, internal consistency, test-retest reliability, convergent and divergent validity and factor analysis of the Farsi version of SOS-10 were analyzed.

4. Results

4.1. Descriptive Statistics

Table 1 shows the demographic characteristics of the patient and none-patient sample.

4.2. Correlations of the Original and Back-Translated Versions of the SOS-10

After completing the translation process, both versions of SOS-10 (original and the back-translated) were given to 30 bilingual participants who were professional English teachers, 23 women and 7 men with a mean (SD) age of 36.87 (3.72) years, in a counter-balanced fashion with an interval ranging from 1 to 7 days ($M = 3.25$ days, $SD = 1.75$ days; range 1 to 6 days). Table 2 shows that the original and the back-translated versions were highly correlated. In detail, the total scores' correlation was 0.98 and the correlations for the items of SOS-10 ranged from 0.71 to 0.96 and were significant ($P < 0.01$).

4.3. Internal Consistency

The internal consistency of the SOS-10 was assessed using Cronbach's alpha, showing an excellent Cronbach's alpha of 0.913 (95% CI: 0.897 - 0.927).

4.4. Test-Retest Reliability

For assessing test-retest reliability, 50 students, 25 males and 25 females, with a mean (SD) age of 26.46 (4.35) years were selected from Iran University of Medical Sciences. They were asked to fill out the SOS-10 within one week. ICC between the first and second measurement scores was significant with a coefficient of 0.95 (95% CI: 0.910 - 0.971).

Table 1. Demographic Characteristics of the Participants^a

	Patient	None-Patient
Sex		
Male	49 (50.5)	88 (48.6)
Female	48 (49.5)	93 (51.4)
Age, mean ± SD	23.13 ± 3.99	34.71 ± 11.03
Marital status		
Single	48 (49.5)	152 (84)
Married	40 (41.2)	28 (15.5)
Divorced	9 (9.3)	1 (.6)
Educational level		
Under diploma	22 (22.7)	1 (.6)
Diploma	28 (28.9)	1 (.6)
Associate's degree	4 (4.1)	1 (.6)
Bachelor's degree	30 (30.9)	94 (51.9)
Master's degree	7 (7.2)	36 (19.9)
General practitioner	2 (2.1)	39 (21.5)
PhD	4 (4.1)	9 (5)
Receiving psychotherapy (missing: 1.8%)		
Yes	52 (29.5)	87 (89.7)
No	124 (70.5)	10 (10.3)
Hospitalization (missing: 3.2%)		
Yes	6 (3.4)	45 (48.4)
No	170 (96.6)	48 (51.6)

^aValues are expressed as No. (%) unless otherwise indicated.

4.5. Convergent and Divergent Validity of Schwartz Outcome Scale-10

The convergent validity of the SOS-10 was investigated through assessing the relationship between SOS-10 total score and the SF-12 Health Survey, SWLS and Ryff's PWB scores, using Pearson product-moment correlations (Table 3). As expected, results showed significant positive correlations between the SOS-10 and these three scales ($P < 0.001$).

For evaluating the divergent validity of SOS-10, the relationship between SOS-10 and SCL-25, IIP-32, and BHS was evaluated (Table 3). As hypothesized, scores on the SOS-10 were negatively correlated with SCL-25, IIP-32 and BHS scores ($P < 0.001$).

4.6. Factor Analysis

Principal component analysis (PCA) was run to evaluate the construct validity of SOS-10 and determine the fitness of factor structure obtained by Blais. The resulting KMO (0.92) indicated that the factor analysis was appropriate and the chi-square test of covariance equivalence was

significant ($\chi^2 = 1537.639$, $P < 0.001$). All the 10 items had a loading ranging from 0.613 to 0.85 (Table 4), and PCA revealed that the scale was unifactorial and accounted for 56.37% of the variance. Also, the results showed acceptable correlations between the scale items, ranging from 0.276 to 0.687 ($P < 0.001$; Table 5).

5. Discussion

The main objective of this study was to examine the psychometric properties of the SOS-10, and the results of the study confirmed the reliability and validity of the SOS-10 in the Iranian population. In addition to the analysis of the psychometric properties of the Farsi version of SOS-10, which were acceptable, the translated version was approved for use in the Farsi speaking population and the back translated version was well-adjusted with the original English version.

Internal consistency coefficient of the SOS-10 was acceptable and compared well with the original English version reported by Blais et al., demonstrating a high internal consistency (11, 19, 31). Furthermore, the scale's test-retest reliability among the 50 selected non-patients over one week indicated significant reliability, and the results were consistent with those of the original and other validation and adaptation studies (12, 13, 17).

Convergent and divergent validity of the Farsi version of the SOS-10 was similar to the findings of the relevant studies (7, 10, 11, 19, 44). The results showed a significant positive correlation with general life satisfaction, health-related quality of life, and Ryff's Psychological Well-Being. Specifically, participants who scored higher on the SOS-10 were more likely to have life satisfaction, better health status and meaningful life than those who scored lower on the SOS-10. Participants who tended to express less life satisfaction and had lower mental or physical health status were found to have a lower level of psychological health on the SOS-10.

It is worthwhile to mention that RWQ is based on eudaimonic perspective, a highly specific philosophical theory of well-being that measures the components of meaningful life, namely, autonomy, environmental mastery, purpose in life, positive relations with others, personal growth and self-acceptance, whereas the SOS-10 has been designed as a measure of general well-being and psychological health and has not been limited by any theory (11, 45). As expected, these two scales were positively correlated which means that participants who had purpose in life, positive relations with others and self-acceptance, and generally had a meaningful life reported a higher level of well-being and psychological health on the SOS-10.

Table 2. Means, Standard Deviations, Correlations and *t*-Values for the Original and the Back-Translated Versions of the Schwartz Outcome Scale-10 Item (N = 30)^a

SOS-10 Item	Original, Mean ± SD	Back-Translated, Mean ± SD	r	t Value
Physical functioning	5.16 ± 0.64	5.20 ± 0.66	0.96	-0.99
Confidence	4.90 ± 0.66	4.86 ± 0.57	0.87	0.57
Hopefulness	4.83 ± 0.80	4.73 ± 0.83	0.85	1.36
Interested in life	4.56 ± 0.67	4.70 ± 0.70	0.80	-2.69
Having fun	4.60 ± 0.49	4.63 ± 0.49	0.95	-1.43
Psychological health	4.56 ± 0.67	4.70 ± 0.70	0.87	-2.11
Forgive self	4.60 ± 0.50	4.63 ± 0.49	0.80	-0.57
Life is progressing	4.60 ± 0.85	4.50 ± 0.82	0.88	1.36
Handle conflicts	4.86 ± 0.73	4.73 ± 0.63	0.81	1.68
Peace of mind	4.66 ± 0.60	4.60 ± 0.56	0.71	0.81
Total scores	47.53 ± 4.86	47.56 ± 4.76	0.98	-0.21

^aAll *t*-values are for paired *t*-tests with 1 and 29 degrees of freedom, and all the values are nonsignificant. *P* < 0.01.

Table 3. Convergent and Divergent Validity of the SOS-10

SOS Total	SWL	SF	IIP-29	SCL-25	BHS	RWQ
R	0.642	0.762	-0.569	-0.653	-0.701	0.656
P	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	<0.001

Table 4. Component Matrix

	Factor Loading
SOS6	0.850
SOS10	0.818
SOS4	0.807
SOS5	0.795
SOS8	0.790
SOS3	0.786
SOS1	0.683
SOS7	0.677
SOS2	0.647
SOS9	0.613

The SOS-10 score also revealed a significant negative correlation with psychiatric symptoms, hopelessness and interpersonal difficulties. These results are consistent with the findings of other studies (10, 11, 17, 19). Explicitly, participants who suffered from more psychiatric symptoms and felt worthless and hopeless and had higher levels of interpersonal problems scored lower on psychological health (7, 46).

The results of PCA supported the unifactorial structure of the Farsi version of the SOS-10 as reported by Blais et al. in the original version that indicated its excellent goodness

of fit (11, 17, 19).

Finally, this study has some limitations. First, the measures used were all self-report questionnaires and the participants evaluated their own interpersonal difficulties and psychological functions. Future research would do well to use observer-rated, performance-based measures and apply clinical rating measures to compare participants' self-evaluations with clinicians' evaluations with regard to psychological well-being. Second, the sample was not sufficiently diverse and was just selected from Tehran's universities, hospitals, and clinics, which may hamper the generalizability of the results. Further studies replicating this study in other cities of Iran with more diverse populations are warranted. Despite the limitations, powerful and precise statistical methods were applied for data analysis assuring the accuracy and validity of the results.

In conclusion, the results of the study showed that the Farsi version of SOS-10 is a reliable and valid scale, and may therefore be a substantial measure for assessing psychological health and well-being by researchers and clinicians in various settings.

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Table 5. Correlation Matrix for the 18 SOS Items

	SOS1	SOS2	SOS3	SOS4	SOS5	SOS6	SOS7	SOS8	SOS9	SOS10
SOS1	1.000									
SOS2	0.481 ^a	1.000								
SOS3	0.497 ^a	0.448 ^a	1.000							
SOS4	0.541 ^a	0.468 ^a	0.686 ^a	1.000						
SOS5	0.484 ^a	0.486 ^a	0.588 ^a	0.687 ^a	1.000					
SOS6	0.501 ^a	0.478 ^a	0.640 ^a	0.635 ^a	0.623 ^a	1.000				
SOS7	0.435 ^a	0.403 ^a	0.425 ^a	0.431 ^a	0.422 ^a	0.589 ^a	1.000			
SOS8	0.485 ^a	0.381 ^a	0.575 ^a	0.595 ^a	0.536 ^a	0.628 ^a	0.504 ^a	1.000		
SOS9	0.276 ^a	0.460 ^a	0.332 ^a	0.328 ^a	0.434 ^a	0.511 ^a	0.377 ^a	0.499 ^a	1.000	
SOS10	0.452 ^a	0.359 ^a	0.615 ^a	0.589 ^a	0.636 ^a	0.699 ^a	0.534 ^a	0.669 ^a	0.493 ^a	1.000

^aP < 0.001

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Footnotes

Authors' Contribution: Leili Jamil carried out the project as the main researcher and drafted the manuscript. Mahmood Dehghani was the supervisor of the project and contributed to data gathering. Fahimeh Fathali Lavasani supervised the translation process and contributed to revising the manuscript and Behzad Mahaki contributed to the analysis and interpretation of the findings. All the authors read and approved the final manuscript.

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