

The Translation and Psychometric Assessment of the Persian Version of the Sheehan Disability Scale

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Objective: The Sheehan Disability Scale (SDS) assesses disability in four domains of home management, work responsibilities, close relationships and social life. The main objective of this study was to develop the Persian version of the SDS.

Method: Two steps of field work followed the Persian translation and cultural adaptation of the tool: First, the internal consistency and convergent validity was examined in 104 clinical cases recruited from inpatient and outpatient psychiatric services, using 36-item Short Form Health Survey (SF-36) and Global Assessment of Functioning (GAF). Then 88 individuals were randomly selected from the adult general population to assess internal consistency, inter-rater reliability and known group validity.

Results: In the clinical settings, Cronbach's α coefficient was 0.88 and item-total correlation ranged from 0.71 to 0.78 in various domains. The correlation between SDS and SF-36 ($P < 0.001$) was significant in all the areas of the performance; and neither of the correlations was statistically significant when SDS and GAF were compared. In the general population study, the SDS met a good internal consistency ($\alpha = 0.81$) and known group validity, and the inter-rater reliability was perfect for "school/work responsibility."

Conclusion: The Persian translation of the SDS is a simple and short scale, and it seems to be a valid scale for the measurement of disability in clinical settings and in the Iranian general population.

Keywords: Sheehan Disability Scale, functional Impairment, Validation Study, Iran.

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Psychoiatric disorders impact the individual's performance in academic, occupational, social and daily activities (1). Recent epidemiologic studies on psychiatric disorders have paid particular attention to the measurement of the severity of disorders and their impact on the individual's abilities (2). Although functional impairment is considered a diagnostic criterion for almost all the major psychiatric disorders, reaching a diagnosis does not simply determine the magnitude of the disability. The severity of the symptoms is a necessary criterion for determining the severity of a disorder, but it is not adequate (3). The degree of disability associated with

a disorder should also be considered independently (4). It significantly influences the burden of a disorder and is important in the priority setting and service provision, particularly in primary care settings in resource-limited countries.

A simple, applicable and valid tool is required to assess the level of disability associated with mental illnesses. The Sheehan Disability Scale (SDS) as a short, self-reported scale evaluates the disability related to psychiatric problems (4). It has been translated to Spanish and has showed adequate validity and reproducibility for use in clinical researches and primary care settings (5). It has also been widely used in the world mental health (WMH)

survey to measure the role of disorder-specific impairment in the general population (6-10).

In this study, we validated the version of "Sheehan Disability Scale" used in WMH survey (2). The SDS assesses the disability of the respondents in four groups of activities including home management, work abilities, ability to form and maintain close relationships and social life. The SDS asks the respondents to think about the period lasting one month or longer in the past twelve months when their psychiatric problems were most severe. It also inquires about the number of days during the past 12 months that an individual has been totally unable to work or carry out normal activities due to psychiatric problems, which is called "days out of role". The scale needs an interviewer to explain 10-point, visual and numeric descriptive anchors for each item. Disability in the four described domains is classified in five categories: zero (No impairment), 1 to 3 (mild disability), 4 to 6 (moderate disability), 7 to 9 (marked disability) and 10 (extreme disability) (4). In the replication of a national co-morbidity survey (NCS-R) (11), global SDS score was measured by the respondents' highest chosen score over the four domains.

This study was a part of the Iran Mental Health Survey (IranMHS) aimed at assessing the national prevalence, severity, service utilization and cost of the psychiatric disorders. The current study was conducted during the preparatory and pilot phase of this national survey in order to provide a valid and reliable instrument for measuring disability in the study population.

Material and Methods

The study was carried out in four stages: 1) translation and cultural adaptation of the SDS; 2) assessment of internal consistency and convergent validity in clinical settings compared to the Global Assessment of Functioning (GAF) and the Short Form Health Survey (SF36); 3) determination of internal consistency and inter-rater reliability in the general population and the assessment of "known groups validity" in differentiating psychiatric cases from healthy individuals; 4) revision and final modification.

First Stage: Translation and Cultural Adaptation

The SDS was translated and culturally adapted to Persian using a previously published guideline (12). The psychiatrist research members (V. Sh., M. A.) translated the scale to Persian independently. In order to check the efficacy of the translation, a bilingual general practitioner back translated it to English. The translated version was reviewed by the research team, and the differences and cultural discrepancies were resolved through a discussion with the translators. Subsequently, the preliminary version was examined in 10 hospitalized patients in Roozbeh Hospital and was then assessed for understandability and clarity of the

items. The mean time to respond to the questions was two minutes, thirty seconds.

Second Stage: Assessing Internal Consistency and Convergent Validity

The aim of this stage was to assess the internal consistency and convergent validity of the SDS in clinical settings compared to SF-36 and GAF.

Instruments:

Global Assessment of Functioning (GAF): GAF was introduced as a rating scale for axis V psychiatric evaluation in the revised third edition of the Diagnostic and Statistical Manual of Mental Disorders (DSMIII-R) (13). This scale is used to assess functional impairments by clinicians and has a value ranging from 0 (hypothetically the sickest person) to 100 (hypothetically the healthiest person) with 10 anchor points at equal intervals. Each interval of the GAF is accompanied by a behavioral descriptor ranging from "superior functioning in a wide range of activities and no symptom" to "persistent danger of severely hurting self or others or persistent inability to maintain minimal personal hygiene." Therefore, the interviewer must first determine the descriptor that summarizes the client's current difficulties and then should indicate the severity of the impairment. The rater must make a single rating based on the patient's overall level of psychological, social and occupational functioning.

The Short Form Health Survey (SF-36): The SF-36 is a general quality of life assessment tool, consisting of eight subscales: physical function, bodily pain, role-physical, general health, vitality, social function, role-emotional and mental health. It is a self-administered questionnaire with a value ranging from 0 to 100 in each subscale and with higher scores indicating better functioning. SF-36 has been translated to Persian, and the psychometric properties of this version have been assessed in a random sample of 4163 healthy individuals aged 15 years and over. The Cronbach's alpha coefficients ranged from 0.65 to 0.90. The known group and convergent validity also showed satisfactory results (all correlations were above 0.40) (14).

Participants:

Outpatient and inpatient cases were selected based on inclusion and exclusion criteria at two academic psychiatric hospitals (Roozbeh and Iran) by two psychiatrists. There was no limitation regarding the psychiatric diagnosis, and all the cooperative patients who presented their consent were recruited. Exclusion criteria were communication problems, speech difficulties, severe behavioral disturbances and prominent cognitive disturbances. Inpatient cases were selected from men's wards, and outpatient cases included both genders.

Interviewers and Training:

Four clinical psychologists with prior clinical and research experience were trained on theoretical and practical aspects in one full day. Then each interviewer completed four interviews with the direct supervision of the research team.

Data Collection and Quality Control:

Data collection for demographic characteristics, psychiatric diagnosis and assessment of functioning was done through two pathways from patients' records and from a non-structured clinical interview using a short form. After the evaluation, the GAF score was recorded in the questionnaire and then the SF-36 and the SDS were filled out by the participants. In cases of illiterate or low- educated patients, the interviewer read the questions to the participants and helped them complete the questionnaires. To ensure quality control, 10% of the interviews were directly supervised, and all the questionnaires were edited.

Statistical Methods:

Statistical analysis was performed using the statistical packages STATA 10.0 (STATA Corporation, College Station, TX, USA, 2009) and PASW 18 (SPSS Inc., Chicago, IL, 2010). Psychometric properties of the SDS were assessed using different statistical methods described below:

Internal Consistency: Internal consistency was calculated by Cronbach's α coefficient. It evaluates the extent that each item in the instrument is consistent with the other items. According to Nunnally's suggestion, $\alpha \geq 0.7$ was considered as "satisfactory" and $\alpha \geq 0.8$ as "good" (15). Corrected item-total correlations were calculated to determine how each item contributed to the overall scale.

Convergent Validity: Convergent validity shows how much a certain tool is correlated with another validated instrument with a similar structure. Correlation was assessed by Pearson's correlation coefficient. We used Spearman's correlation coefficient for GAF scale due to the lack of normal distribution of the scores and considered a correlation of ≥ 0.40 as satisfactory.

Third Stage: Assessing Inter-Rater Reliability of the SDS in the General Population

The aim of this stage was to assess the internal consistency, inter-rater reliability and known group validity of the SDS in the general population.

Instruments:

Composite International Diagnostic Interview (CIDI) version 2.1 was utilized for this purpose. It is a fully structured and comprehensive interview for the diagnosis of psychiatric disorders, which has been developed by the World Health Organization (WHO). The CIDI 2.1 was published in 1994 based on DSM-IV and ICD-10 diagnostic criteria. It had already been translated to Persian and validated in 507 cases in psychiatric clinical settings. The test-retest reliability had been assessed and the kappa statistics was 0.4 or higher for all the diagnoses. The validity indices of CIDI had been assessed in terms of agreement with the diagnoses made by the clinicians using diagnostic checklists. The two diagnostic systems provided more or less similar results. Panic disorder had the highest specificity, and depressive disorders had the highest sensitivity. Among the disorders, substance dependence had the best validity (16). In this study, we used the version that assessed psychiatric diagnosis in the last 12 months.

Participants:

The participants were selected from the general population aged 15 to 64 years during the pilot phase of IranMHS with the same method as was envisaged for the main survey. A multi-stage random household sampling was carried out in three stages: 1) Choosing 32 blocks from the most recent national population census (year 2006); 2) selecting six households by systematic random sampling method from each the block; 3) making a list of family members fulfilling the inclusion criteria and choosing one person by Kish Grid method (17). The clusters of the samples were selected from two urban and one rural area. Those who could not communicate due to a cognitive or psychotic disorder, deafness or other acute medical conditions and those who could not understand the Persian language were excluded.

Interviewers and Training:

All the interviewers were psychologists and indigenous to the region. They participated in an 8-day theoretical training workshop; and they role played and practiced and received a certificate after passing the examination.

Data Collection and Quality Control:

Field work was carried out during May-June 2010. Retest was performed by an independent interviewer with an interval of 5 to 10 days. In order to ensure the quality of data collection, we applied the "quality control protocol" of IranMHS using a cascade supervision method by field managers and headquarter supervisors which included direct observation, telephone monitoring, editing the questionnaires and providing feedback. Data were entered twice by two operators.

Statistical Methods:

Statistical analysis was performed by the same statistical packages used in the second stage. The inter-rater reliability was examined using Interclass Correlation Coefficient (ICC). The value of ICC varies from zero (unreliable) to 1 (perfectly reliable), and a value above 0.8 is considered excellent. ICC between 0.7 and 0.8 and ICC between 0.5 and 0.7 is considered good and fair, respectively (18).

Fourth Stage: the Final Revision of the SDS

In stage 4, a group discussion was held, and comments of supervisors, field managers and interviewers were compiled to revise the Persian version of the SDS and finalize it for use in the general population.

Results

First Stage

The SDS was translated and culturally adapted as described in the methods section; and its Persian version was developed for utilization in the next stages. Leisure activities were added to the items on social life, and the examples of social activities for the Iranian population including participation in parties, religious ceremonies, non-governmental organizations were mentioned. Moreover, school function was added to the domain of work responsibility, and the visual analogue

of the scale was modified for the better understanding of the less educated people (Figure 1).

Second Stage

Demographic Characteristics of the Clinical Sample:

A total of 104 interviews (95 males and 9 females) were conducted; from which, 47 were hospitalized and 57 were outpatient cases. Fifty-three percent of the subjects were single, 37.5% were married and the rest were previously married. Clinical diagnoses based on patients' records were bipolar disorder (in 51 cases), schizophrenia (36 cases), major depressive disorder (8 cases), anxiety disorders (3 cases), epilepsy (1 case) and unspecified (5 cases). The mean years of education was 9.58 (± 3.05) and almost all (96.1%) were urban residents and about half of them were employed.

Descriptive Statistics:

The mean score, standard deviation and the proportion of individuals with severe impairment in each domain of the SDS are presented in Table 1. Severe or very severe functional impairment (score ≥ 7) at least in the two domains of the SDS were found in 69% of the total sample and was significantly higher in the inpatient (80.4%) than the outpatient cases (59.3%). The mean global score of the SDS was 8.3 (± 2.6) and was not significantly different between the inpatients [8.7 (± 2.4)] and outpatients [7.9 (± 2.8)].

Internal Consistency:

Cronbach's α coefficient was 0.88 and met a "good" internal consistency. The corrected item-total correlations were all significant, ranging from 0.71 to 0.78 and higher than the rule of the thumb minimum value of 0.4 (19), indicating that the disability scores measured for all the domains of the SDS were related, but not redundant. The list-wise deletion of each item resulted in only a slightly lower α coefficient, demonstrating that all the four items contributed to the total score.

Convergent Validity:

Contrary to the SDS scores, higher scores in the SF-36 and GAF indicate better functioning, so the correlations have a negative value. Spearman's correlation coefficients of all the domains of the SDS with the other instruments, including GAF and subscales of the SF-36 and also days out of role have been presented in the Table 2.

A negative correlation was found between the SDS and all the subscales of the SF-36. The correlation between domain 1 (home management) and the subscales of SF-36 ranged from -0.39 to -0.52. This coefficient ranged from -0.34 to -0.57, -0.28 to -0.51 and -0.34 to -0.53 for domains 2 (work and school responsibilities), 3 (close relationship) and 4 (social life), respectively. The correlation between severe and very severe functional impairment ranged from -0.32 to -0.59 in at least two domains of the SDS and all the subscales of SF-36. Almost all the correlation coefficients were satisfactory, and all were statistically significant. Days out of role were modestly correlated with all the domains of the SDS.

When comparing GAF as a clinician-rated instrument and the SDS as a self-reported scale, a negative correlation was found between the domain 1 and 4 of the SDS and GAF score, but neither of them was statistically significant.

Third Stage

Demographic Characteristics of the Sample from the General Population:

Eighty-eight individuals participated in the first round of this stage; from which, 73 (83%) participated in the second round (retest) as well. The participants' age range was between 15 to 55 years (a mean of 28.7 ± 9.7), 42.5% were male, 60.3% married, 34.2% single and 5.5% were divorced or widowed. The majority of the sample (83.6%) was living in urban areas, 6.8% were unemployed and the mean years of their fulltime education was 9.9 ± 4.2 ; and the prevalence of any psychiatric disorder among them was 26.4% based on CIDI 2.1. The psychiatric disorders included specific phobias; social phobia; panic disorder with or without agoraphobia; general anxiety disorder; obsessive-compulsive disorder; post-traumatic stress disorder and any mood disorder.

Descriptive Statistics:

The mean and standard deviation of each domain of the SDS and the percentage of people with severe impairment in each domain of the SDS are presented in Table 3. Severe or very severe functional impairment (score ≥ 7) in at least two domains of the SDS was found in 16.2% of the total sample, and the mean global score was 4.9 ± 2.8 .

Internal Consistency:

Cronbach's α coefficient was 0.81 and met a "good" internal consistency. The corrected item-total correlations were all significant, ranging from 0.55 to 0.70 and the list-wise deletion of each item resulted in a lower α coefficient.

Inter-Rater Reliability:

Statistical analyses of inter-rater reliability for the SDS are presented in Table 4. The Interclass correlation coefficients (ICC) showed acceptable agreement between the two rounds of interviews for almost all domains. ICC was perfect for school and work responsibility; fair agreement was found for "maintaining close relationships with other people."

The psychiatric patients were expected to have a poorer functional status than the non-cases. The analysis showed that the psychiatric cases (based on CIDI) had a significantly greater score of disability in all the domains of the SDS and more days out of role than the non-cases (Table 5). This indicated that the SDS truly discriminated people with psychiatric illness.

Fourth Stage

After the completion of the field work, a group discussion was held with the interviewers, field managers and supervisors for the final revision of the SDS.

Table 1: Descriptive statistics of the Sheehan Disability Scale in the clinical sample (n=104)

Domains	Mean (SD)	Severe impairment (%)	Corrected item total correlation (r _{tot})	Cronbach's α if item deleted
Home management	6.22 (±3.51)	54.5	0.71	0.85
Work/school responsibility	6.89 (±3.36)	64.7	0.72	0.84
Close relationship with other people	6.89 (±3.11)	69.2	0.72	0.84
Social life	6.51 (±3.45)	63.5	0.78	0.82

Table 2: Concurrent validity of the Sheehan Disability Scale scale: Spearman correlation between the SDS, GAF and the SF-36 (n=104)

	Home management	Work/ school responsibility	Close relationship	Social life	Score ≥ 7 in at least two domains of SDS
SF-36					
Bodily pain	- 0.41*	- 0.49*	- 0.45*	- 0.48*	-0.56*
General Health	- 0.48*	- 0.35*	- 0.46*	- 0.53*	-0.59*
Vitality	- 0.46*	- 0.34*	- 0.40*	- 0.47*	-0.47*
Physical functioning	- 0.52*	- 0.48*	- 0.44*	- 0.57*	-0.52*
Role physical	- 0.43*	- 0.46*	- 0.28*	- 0.34*	-0.32*
Mental health	- 0.50*	- 0.45*	- 0.51*	- 0.52*	-0.58*
Role emotional	- 0.47*	- 0.57*	- 0.37*	- 0.50*	-0.54*
Social functioning	- 0.39*	- 0.46*	- 0.36*	- 0.46*	-0.43*
Total score in SF36	- 0.57*	- 0.53*	- 0.52*	- 0.62*	-0.60*
Days out of role	0.42*	0.52*	0.48*	0.55*	0.52*
GAF	- 0.05**	0.05**	0.01**	-0.04**	- 0.04**

*Correlation is significant at the 0.01 level.

**Correlation is not significant (P>0.05).

Table 3: Descriptive statistics of the Sheehan Disability Scale in a sample from general population (n=88)

Domains	Mean (SD)	Severe impairment (%)	Corrected item total correlation (r _{tot})	Cronbach's α if item deleted
Home management	3.03 (±2.41)	8.3	0.70	0.73
Work/school responsibility	3.41 (±2.68)	15.7	0.55	0.79
Close relationship with other people	2.86 (±2.64)	11	0.67	0.74
Social life	3.55 (±3.30)	24.7	0.62	0.77

Table 4: Inter-rater reliability of the Sheehan Disability Scale in the general population sample (n=73)

Domains	ICC	Standard error
Home management	0.35	0.13
Work/school responsibility	0.80	0.17
Close relationship with other people	0.27	0.12
Social life	0.42	0.11

Table 5: Known group validity of the Sheehan Disability Scale to discriminate psychiatric cases from non-cases (n=88)

Domains	Psychiatric disorders		P value*
	Yes Mean (±SD)	No Mean (±SD)	
Home management	4.15 (±2.50)	2.28 (±1.97)	0.003
Work/school responsibility	4.89 (±2.64)	2.61 (±2.31)	0.004
Close relationship with other people	3.96 (±2.78)	2.28 (±2.32)	0.01
Social life	4.96 (±3.29)	2.79 (±3.02)	0.007
Days out of role	20.18 (±49.8)	1.98 (±5.40)	0.02

*The t-test results

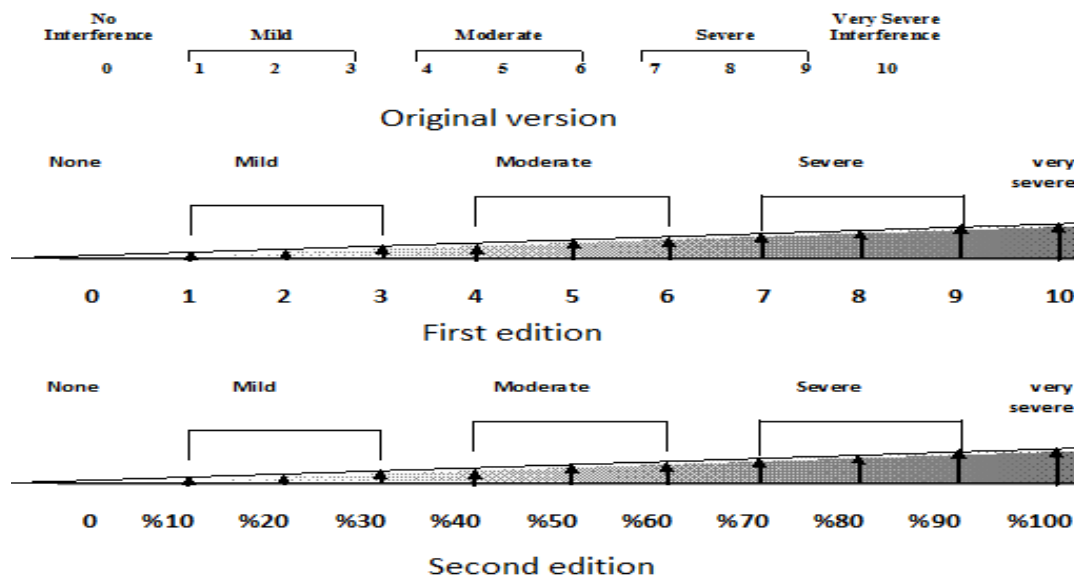


Figure 1: Changes in the visual analogue of the SDS

It was agreed that the initial description of the scale was not sufficient and that it needed more clarifications. The interviewers claimed that the scale would be better understood if it were described in percentages; therefore, the score range was changed to “zero to 100 percent”. The process of the transformation of the visual analogue in the SDS is presented in Figure 1.

Discussion

The SDS is a simple and short scale. The results of this study revealed that the Persian version of SDS met good internal consistency across all domains. The very strong internal consistency in this study (Cronbach’s $\alpha > 0.80$) indicates that each area is consistent with the other areas and represents a single construct, which is similarly shown in other studies.

The study on patients with bipolar disorders reported Cronbach’s α coefficient of 0.89 for the English version of the SDS (20). The Spanish version of the SDS met a strong internal consistency ($\alpha = 0.83$) in the primary care setting as well (5). World Mental Health Survey replicated the same findings (Cronbach’s α coefficient 0.82 to 0.92) for the general population across the participating countries (1).

The SDS is significantly correlated with all the subscales of the SF36 as a self-reported instrument, as well as “days out of role” in the expected direction, supporting the convergent validity of the SDS. These findings are consistent with previous studies that reported a moderate correlation between the SDS and SF-36 in bipolar patients (20). “Severe or very severe scores” in at least two domains of the SDS had the highest correlation with mental and general health subscales of the SF-36. We also found a satisfactory

correlation (0.52) between “severe or very severe scores” in at least two domains of the SDS and the mean of “days out of role.”

However, the SDS was not correlated with GAF in the clinical sample. A majority of the clinical sample consisted of patients with severe mental disorders such as bipolar disorder and schizophrenia. Authors believe that this might have led to the fact that these patients had unintentionally reported a better functional status with the self-administered tools. On the other hand, GAF is a clinician-rated scale and has a scoring system based on observations, interviews and reviews of the medical records which provide a more comprehensive information on functioning and psychiatric symptoms. This finding suggests the lower applicability of the SDS in severe cases in the acute phase of the illness.

According to our knowledge, this was the first time that test-retest reliability of the SDS has been assessed in the general population. One previous reliability study on the clinical cases found acceptable reliability for social life/ leisure activity (20). However, our assessment of reliability showed a strong agreement between the two rounds on work and school functional status, but it was not acceptable in other domains. This difference might be the result of the cultural variations in the perception of major life domains.

The known group validity analysis showed that individuals with a psychiatric disorder could be distinguished from people without a psychiatric illness by the SDS; therefore, the SDS shows a good discriminative validity. In other studies on social phobia and post-traumatic stress disorder, a similarly good discriminative validity has also been reported using the SDS (21, 22).

Validating an instrument, which has originally been developed in a different culture, is generally a difficult

task. Moreover, the multistage design of the current study added to the complexity. However, the results might be considered of significant value because of several reasons. First, this study incorporated the assessments of the samples from both clinical settings and the general population. Moreover, in the general population, the sampling frame included urban areas from both large and small cities as well as rural areas presenting different subcultures. The study also assessed multiple indicators of validity and reliability. However, the sample in our study was not large enough to enable us to explore the effect of demographic variations on the validity and reliability of the instrument.

Conclusion

Validating an internationally standardized tool to evaluate the magnitude of the functional impairment of psychiatric disorders would provide an opportunity for the direct comparison of information across countries. Overall, the SDS seems to be a valid scale for the measurement of disability in clinical settings and the Iranian general population. It is a short, simple and easy to use instrument for large scale population surveys.

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References

- Ormel J, Petukhova M, Chatterji S, Aguilar-Gaxiola S, Alonso J, Angermeyer MC, et al. Disability and treatment of specific mental and physical disorders across the world. *Br J Psychiatry* 2008; 192: 368-375.
- Demyttenaere K, Bruffaerts R, Posada-Villa J, Gasquet I, Kovess V, Lepine JP, et al. Prevalence, severity, and unmet need for treatment of mental disorders in the World Health Organization World Mental Health Surveys. *JAMA* 2004; 291: 2581-2590.
- Ustun B, Kennedy C. What is "functional impairment"? Disentangling disability from clinical significance. *World Psychiatry* 2009; 8: 82-85.
- Sheehan DV, Harnett-Sheehan K, Raj BA. The measurement of disability. *Int Clin Psychopharmacol* 1996; 11 Suppl 3: 89-95.
- Luciano JV, Bertsch J, Salvador-Carulla L, Tomas JM, Fernandez A, Pinto-Meza A, et al. Factor structure, internal consistency and construct validity of the Sheehan Disability Scale in a Spanish primary care sample. *J Eval Clin Pract* 2010; 16: 895-901.
- Alhasnawi S, Sadik S, Rasheed M, Baban A, Al-Alak MM, Othman AY, et al. The prevalence and correlates of DSM-IV disorders in the Iraq Mental Health Survey (IMHS). *World Psychiatry* 2009; 8: 97-109.
- Levinson D, Lerner Y, Zilber N, Grinshpoon A, Levav I. Twelve-month service utilization rates for mental health reasons: data from the Israel National Health Survey. *Isr J Psychiatry Relat Sci* 2007; 44: 114-125.
- Williams DR, Herman A, Stein DJ, Heeringa SG, Jackson PB, Moomal H, et al. Twelve-month mental disorders in South Africa: prevalence, service use and demographic correlates in the population-based South African Stress and Health Study. *Psychol Med* 2008; 38: 211-220.
- Kawakami N, Takeshima T, Ono Y, Uda H, Hata Y, Nakane Y, et al. Twelve-month prevalence, severity, and treatment of common mental disorders in communities in Japan: preliminary finding from the World Mental Health Japan Survey 2002-2003. *Psychiatry Clin Neurosci* 2005; 59: 441-452.
- Karam EG, Mneimneh ZN, Karam AN, Fayyad JA, Nasser SC, Chatterji S, et al. Prevalence and treatment of mental disorders in Lebanon: a national epidemiological survey. *Lancet* 2006; 367: 1000-1006.
- Druss BG, Hwang I, Petukhova M, Sampson NA, Wang PS, Kessler RC. Impairment in role functioning in mental and chronic medical disorders in the United States: results from the National Comorbidity Survey Replication. *Mol Psychiatry* 2009; 14: 728-737.
- Beaton DE, Bombardier C, Guillemin F, Ferraz MB. Guidelines for the process of cross-cultural adaptation of self-report measures. *Spine (Phila Pa 1976)* 2000; 25: 3186-3191.
- American Psychological Association. *Diagnostic and Statistical Manual of Mental Disorders (3rd ed., revised) (DSM-III-R)*. Washington DC: APA; 1987.
- Montazeri A, Goshtasebi A, Vahdaninia M, Gandek B. The Short Form Health Survey (SF-36): translation and validation study of the Iranian version. *Qual Life Res* 2005; 14: 875-882.
- Nunnally JC, Bernstein IH. *Psychometric theory* 3rd ed. New York: McGraw-Hill; 1994.
- Alagband Rad J. Study of the reliability, validity, and feasibility of Farsi translation of the Composite International Diagnostic Interview (CIDI). In: Ahmadi Abhari SA, Malakooti K, Nasr Esfahani M, Razzaghi EM, Sadeghi M, Yasamy MT, editors. *Mental health effects of Iraqi invasion of Kuwait in a war – torn population of Iran: an epidemiological and financial study of the consequences of the Kuwaiti oil well fire disaster in the aftermath of Iraqi invasion of Kuwait in 1991*, United Nations Compensation Commission (UNCC) Monitoring and Assessment Project. Tehran -

- Iran: Islamic Republic of Iran Ministry of Health, Committee for assessment and follow up for damages resulting from the Iraq–Kuwait War; 2003.
17. Kish L. A Procedure for Objective Respondent Selection within the Household. *Journal of the American Statistical Association* 1949; 44: 380-7.
 18. Lee J, Koh D , Ong CN. Statistical evaluation of agreement between two methods for measuring a quantitative variable. *Comput Biol Med* 1989; 19: 61-70.
 19. Kline P. *A handbook of test construction: introduction to psychometric design*. London, UK: Methuen; 1986.
 20. Arbuckle R, Frye MA, Brecher M, Paulsson B, Rajagopalan K, Palmer S, et al. The psychometric validation of the Sheehan Disability Scale (SDS) in patients with bipolar disorder. *Psychiatry Res* 2009; 165: 163-174.
 21. Connor KM, Davidson JR. SPRINT: a brief global assessment of post-traumatic stress disorder. *Int Clin Psychopharmacol* 2001; 16: 279-284.
 22. Hambrick JP, Turk CL, Heimberg RG, Schneier FR, Liebowitz MR. Psychometric properties of disability measures among patients with social anxiety disorder. *J Anxiety Disord* 2004; 18: 825-839.