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## Reliability and Validity of A Persian Version of Substance Dependence Severity Scale (SDSS)

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<b>Background:</b>	<b>Abstract</b> Iran (I.R.) is suffering the growing problem of opiate abuse. In evaluation of the treatment plan for opium dependent patients, a valid and reliable instrument is needed to measure patients' severity of dependence. This study aimed to assess the reliability and validity of the Persian version of the "Substance Dependence Severity Scale" (SDSS).
<b>Methods:</b>	After translating the English version of SDSS to Persian and then back translating it to English, a structured interview with 200 opium dependent patients was conducted to collect data. Then, reliability (internal consistency and test-retest procedure) and construct validity were tested.
<b>Findings:</b>	The alpha coefficient was 0.77 and the correlation between test and retest results showed a high correlation coefficient (0.97) which confirmed the reliability. Construct validity was assessed by a cross-check against General Health Questionnaire (GHQ) and the results were in favor of its validity. But the correlation between the amount of substance usage and scores of the 1 <sup>st</sup> and 2 <sup>nd</sup> questions were not within the acceptable range.
<b>Conclusion:</b>	The results support the reliability of the Persian version of SDSS, but to confirm its validity further studies are needed.
<b>Key words:</b>	<b>Substance abuse, questionnaire, psychometrics, Iran.</b>
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## Introduction

Iran is a big country with a great cultural and social history. In past three decades, Iran has faced deep social changes.<sup>1</sup> Important economic, political and social events including emerge of oil-based economy, the Islamic revolution, political tensions after the revolution, 8 years of imposed war, development of global communication technology, increase of youth expectations, industrial development process and related problems including immigration and unemployment have exposed Iranian society to difficult social changes. In addition, in spite of poppy eradication after the Iranian revolution in Iran, access to opium and heroin has not decreased due to significant increase of its production in the Eastern neighbor countries.<sup>1-3</sup>

In past decade, researchers and clinicians have great progress in diagnosis and treatment of opiate related disorders. Strategies of determine behavior patterns, medication, treatment direction and diagnosis of disorders have been studied and developed. To show the effects of these treatments for drug dependency and abuse, a suitable, valid and reliable instrument that can assess the severity of dependency should be used.<sup>4</sup> Without such assessments, even one good treatment cannot prove effectiveness. Problems in assessment may undermine the results of a real change. In treatments for drug abuse, several various criteria including cases such as amount and periods of taking drugs, problems related to drug abuse, psychological disorders of withdrawal, eagerness and tendency, and treatment history.<sup>5-11</sup> Determining an instrument for dependency assessment related to DSM-IV and ICD-10, which can show the condition between total dependency diagnosis and complete recovery needs spending more time and more sensitivity.<sup>4</sup>

At the present time in Iran, treatment of drug dependent patients is offered in both public and private centers called "addiction withdrawal centers". In treatment of addicted patients and their prognosis, therapists' knowledge of the severity of addiction is important. This severity is now assessed based on the patients' self-reports of the amount of drug they use, by using an addiction severity assessment instrument which is a summarized form translated from English questionnaires without psychometric research. Therefore, the need for a good instrument to determine the severity of

addiction in patients is obviously felt and it is necessary to design a questionnaire for this purpose. There are several questionnaires in English for this purpose. Substance Dependence Severity Scale (SDSS) is a semi-structured clinical interview which includes two sections.<sup>11</sup> First section is screening and second is measurement of severity of drug abuse disorder. Questions of SDSS are divided into two dimensions: severity of symptoms and frequency of them.

This study was an effort to assess the psychometric (assessment of reliability and validity) of one of the newest<sup>3</sup> questionnaires on the field.

## Methods

Two hundred men with drug dependency were selected, 90 from hospitalizing centers and 110 from out-patient centers. At first, the permission from Gloria Miele, the designer of SDSS, was taken via electronic correspondences and she permitted us to translate the instrument into Persian. Then, the second section of the questionnaire, 11 questions related to assessing severity of dependency, was translated into Persian and the translated version was given to an expert in Persian to English translation to translate it back into English. There were a few differences, which were edited in the Persian version. The final copy was used in the study.

Before starting interviews, the introducing process was followed and then the objectives of the study were explained to the patients. If they were willing to participate, the interview would be conducted to complete the questionnaire. In addition, the Persian version of General Health Questionnaire (GHQ-12), which reliability and validity are proved<sup>12</sup> was completed for patients.

To assess the reliability of the questionnaire, Cronbach's alpha and test-retest were used. The Spearman correlation coefficient was used for test and retest scores. To determine the validity of the questionnaire, construct validity method was used. Statistical analyses were done using SPSS software version 11.5.

## Results

A total of 200 men were interviewed and 30 of them were re-interviewed within two weeks. The mean age of interviewees was  $31 \pm 8.5$  and the age range was within 18 and 59 years. All patients were using one kind of opiate or its

derivatives and some were using several kinds along each other.

They have consumed drugs averagely  $7.1 \pm 6.2$  years and those who were referred for withdrawal had minimum 3 months to maximum 30 years of drug abuse. The mean and standard deviation of 11 questions of the SDSS are presented in table 1.

**Table 1.** The mean and standard deviation of SDSS scores

Item	Mean	SD
1	0.3	5.1
2	9.3	1.1
3	1.1	9
4	9.2	2.1
5	2.3	2.1
6	3.1	7
7	2.1	8
8	2.2	4.1
9	7	8
10	3.1	1.1
11	9	9

The mean of the SDSS total score was  $21.8 \pm 7.6$  and the minimum and maximum scores were 3 and 37, respectively. To evaluate the questionnaire, two methods were used: Cronbach's alpha that was 0.77 and test-retest correlation, whose results are presented in table 2.

**Table 2.** Correlation coefficient results of test-retest

Item	Spearman's correlation coefficient
1	0.94
2	0.61
3	0.91
4	0.90
5	0.91
6	0.93
7	0.98
8	0.92
9	0.98
10	0.87
11	0.94

**Assessing validity**

To assess validity of the questionnaire, construct validity method was used and the results of the questionnaire were evaluated based on the existing structures and concepts.

1. Based on the mean scores of GHQ-12 which was 6 in this study, those with scores lower than 6 were considered normal and those with scores higher than 6 considered problematic (based on the group therapy

examination of psychological health). The mean score of SDSS in the two groups were  $4.18 \pm 2.6$  and  $22.7 \pm 5.6$ , respectively and the difference was significant ( $P < 0.001$ ).

2. A significant and acceptable level of correlation was expected between the questionnaire scores and the number of withdrawal attempts, but the results disproved it ( $P = 0.24$ ,  $r = 0.12$ ).

3. A significant correlation was expected between the questionnaire scores and the duration of drug abuse, which was disapproved by the results ( $P = 0.21$ ,  $r = 0.09$ ).

4. It was expected that the severity of addiction (the mean score of SDSS) in injecting type of drugs be higher than other types, but as table 3 shows, the results did not prove it.

**Table 3.** The mean scores of SDSS based on the drug consumption method

Consumption method	Mean	SD
smoking	6.21	8.6
Oral	8.18	1.6
Injecting	4.28	1.4
A combination of above	4.25	3.4

$P < 0.001$ ,  $DF = 3.196$ ,  $F = 8.087$

5. To assess the concurrent validity with correlation coefficient between questions one and two that were somehow related to withdrawal tolerance and symptoms, with the daily consumption of opium was measured. The results were  $P = 0.84$  and  $r = 0.02$  for the question one and  $P = 0.67$  and  $r = 0.03$  for question 2.

6. It was expected that correlation coefficient between question 3 and the number of withdrawal attempts be significant, but the results did not approve it ( $P = 0.06$ ,  $r = 0.2$ ).

**Discussion**

In this study, which aimed to primarily assess the reliability and validity of a 16 English pages Questionnaire, the first part of the questionnaire that was related to screening questions was omitted and just the second part (page 7 to 13 of the English version), which was related to dependency was assessed. Also, the last 3 pages of the questionnaire (pages 14 to 16) that was related to drug abuse was not included in this study. The questionnaire of severity of dependency includes 11 questions, each of which assess one aspect of DSM-IV diagnostic criteria in form of a question from patients.

The reliability of questions was favorable and for a more precise assessment of reliability of questions, two methods were used. Both methods proved acceptable results, so that Cronbach's alpha was 0.77 and test-retest correlation coefficient was 0.97. These figures represent the internal consistency and repeatability of questions. On the other hand, validity of questions was not in the level to clearly conclude from, it was optimal in some analyses but unacceptable in others.

Since drug dependency is considered a psychological disorder, it is expected that those with more severe dependency based on SDSS, have higher scores in GHQ. In other words, they are expected to have less psychological health. Therefore, patients were divided into two groups of higher than 6 and lower than 6 scores (based on GHQ score)<sup>12</sup> and their SDSS scores were compared with each other. SDSS score in the group higher than 6 was 7.22 and in the group lower than 6 was 4.18 and the difference was significant. This finding was in favor of SDSS validity. In addition, it was expected that the questionnaire score in injecting type show more severity than oral or inhaling types, which was approved by the results, so that in the injecting type, the mean score of questionnaire

was 4.25 and in oral and inhaling type were 8.18 and 21.6, respectively.

To determine the convergent validity 3, the amount of opium used by opium dependents was compared with the scores of questions 1 and 2, which were related to withdrawal tolerance and symptoms. However, the correlation coefficient was not significant. This result can be because of two other reasons: a. In calculation of scores, the time section or the length of symptoms were not considered. b. The amount of consumption by patients was based on non-scientific and non-credible units. In a study by questionnaire makers, reliability and validity of the questionnaire was in an acceptable level.<sup>11</sup>

Considering the above points, it can be concluded that the questionnaire has acceptable reliability, but its validity is questionable and cannot be clearly approved or rejected. Further studies are recommended to include the time section and also to have more emphasize on accuracy of consumption amount and include the screening section of the questionnaire for assessment of validity. In general, the results are in favor of the Persian version of this questionnaire.

**Conflict of interest:** The Authors have no conflict of interest.

## References

1. Nakhaee N, Jadidi N. Why do some teens turn to drugs? a focus group study of drug users' experiences. *Journal of Addictions Nursing* 2009; 20(4): 203-8.
2. Nakhaee N, Divsalar K, Meimandi MS, Dabiri S. Estimating the prevalence of opiates use by unlinked anonymous urine drug testing: a pilot study in Iran. *Subst Use Misuse* 2008; 43(3-4): 513-20.
3. Miele GM, Carpenter KM, Smith CM, Dietz TK, Blaine J, Hasin DS. Concurrent and predictive validity of the Substance Dependence Severity Scale (SDSS). *Drug Alcohol Depend* 2000; 59(1): 77-88.
4. Woody GE, Cottler LB, Cacciola J. Severity of dependence: data from the DSM-IV field trials. *Addiction* 1993; 88(11): 1573-9.
5. Tonigan JS, Miller WR, Brown JM. The reliability of Form 90: an instrument for assessing alcohol treatment outcome. *J Stud Alcohol* 1997; 58(4): 358-64.
6. McLellan AT, Luborsky L, Woody GE, O'Brien CP. An improved diagnostic evaluation instrument for substance abuse patients. The Addiction Severity Index. *J Nerv Ment Dis* 1980; 168(1): 26-33.
7. Drummond DC. The relationship between alcohol dependence and alcohol-related problems in a clinical population. *Br J Addict* 1990; 85(3): 357-66.
8. Kanof PD, Aronson MJ, Ness R, Cochrane KJ, Horvath TB, Handelsman L. Levels of opioid physical dependence in heroin addicts. *Drug Alcohol Depend* 1991; 27(3): 253-62.
9. Halikas JA, Kuhn KL, Crosby R, Carlson G, Crea F. The measurement of craving in cocaine patients using the Minnesota Cocaine Craving Scale. *Compr Psychiatry* 1991; 32(1): 22-7.
10. Tiffany ST, Drobos DJ. The development and initial validation of a questionnaire on smoking urges. *Br J Addict* 1991; 86(11): 1467-76.
11. Miele GM, Carpenter KM, Cockerham MS, Trautman KD, Blaine J, Hasin DS. Substance Dependence Severity Scale: reliability and validity for ICD-10 substance use disorders. *Addict Behav* 2001; 26(4): 603-12.
12. Montazeri A, Harirchi AM, Shariati M, Garmaroudi G, Ebadi M, Fateh A. The 12-item General Health Questionnaire (GHQ-12): translation and validation study of the Iranian version. *Health Qual Life Outcomes* 2003; 1: 66.

**پایایی و روایی نسخه فارسی پرسش نامه SDSS**

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**چکیده**

ایران از یک مشکل در حال رشد اعتیاد به مواد مخدر رنج می‌برد. در ارزیابی طرح درمانی برای بیمار وابسته به تریاک یک وسیله برای اندازه‌گیری شدت اعتیاد بیماران مورد احتیاج می‌باشد که یکی از این ابزارها پرسش‌نامه SDSS می‌باشد. این مطالعه با هدف ارزیابی پایایی و روایی نسخه فارسی این پرسش‌نامه بود.

مقدمه:

بعد از ترجمه نسخه انگلیسی پرسش‌نامه به فارسی و دوباره برگرداندن آن به انگلیسی، یک مصاحبه ساختاری از 200 نفر بیمار وابسته به اپیوم انجام و اطلاعات جمع‌آوری شد و پایایی (سازگاری درونی و روش‌های آزمون-باز آزمون) و روایی ساختار مورد مطالعه قرار گرفت.

روش‌ها:

ضریب آلفا 0/77 بود و ارتباط بین نتایج آزمون-بازآزمون یک ضریب همبستگی بالایی (0/97) را نشان داد که پایایی را تأیید می‌کرد. روایی ساختار با پرسش‌نامه عمومی (GHQ) مورد آزمون متقاطع قرار گرفت و نتایج تا حدی به نفع روایی مطلوب پرسش‌نامه بود ولی همبستگی بین مقدار مصرف مواد و نمره سؤالات 1 و 2 در حد قابل قبولی نبود.

یافته‌ها:

نتایج، پایایی نسخه فارسی شده پرسش‌نامه را مورد تأیید قرار داد، اما برای تأیید روایی آن به تحقیقات بیشتری احتیاج می‌باشد.

نتیجه‌گیری:

سوء مصرف مواد، پرسش‌نامه، روان‌سنجی، ایران.

واژگان کلیدی:

5

تعداد صفحات:

3

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