

Psychometric Properties of The Turkish Version of The Scale For the Assessment of Illness Behaviour (SAIB): A Preliminary Study

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ABSTRACT

Psychometric properties of the Turkish version of the Scale for the Assessment of Illness Behaviour (SAIB): a preliminary study

Objective: In this study, the reliability, validity and factorial analysis of the Turkish version of the Scale for the Assessment of Illness Behaviour (SAIB) which was developed by Rief et al., were evaluated. In contrast to other similar scales, SAIB focuses on genuine behavioral aspects and it reflects the multidimensional structure of illness behaviour.

Method: The study was carried out with 200 patients in Erenköy Training and Research Hospital for Psychiatric and Neurological Diseases, Erenköy Physical Therapy and Rehabilitation Hospital, and Kartal Research and Training Hospital, and 240 healthy students in Karadeniz Technical University as the control group. Participants were investigated with the SAIB, the Beck Depression Inventory (BDI) and the Symptom Check List-revised form (SCL-90R). SAIB were given to sixty of the student group a month later. Factor analysis for the SAIB items was performed. Internal consistency was examined through Cronbach's alpha test evaluation. Besides this, test-retest reliability was viewed and the interrelationships with other measures (BDI and SCL-90R) were examined.

Results: A modest correlation level was obtained for the scale total ($r: 0.68$) score. The scale also showed acceptable internal consistency (Cronbach alpha: 0.81). Whereas 5 item (item#6, 11, 18, 19, 20) in the control group had low item-total score correlation. The Turkish version of SAIB showed a four factor model and explained 44.7% of the total variance. The validity analysis of the scale resulted in a significant difference between total scores of the control and patient's group. Criterion related validity of the SAIB was shown to have medium-low associations with some aspect of the SCL-90R, BDI and the number of the SCL-90R somatization subscale.

Conclusion: The findings of the preliminary study of the internal reliability, test-retest and item-total score correlation, factorial construct, discriminating power for specific groups and criterion related validity of the SAIB indicated that the scale could be used in Turkish population, keeping in mind its limitations.

Key words: Scale for the assessment of illness behaviour-SAIB, factor analysis, reliability, validity

ÖZET

Hastalık Davranışını Değerlendirme Ölçeği'nin Türkçe uyarlamasının geçerlilik ve güvenilirliği:
Bir ön çalışma

Amaç: Bu çalışmada, Rief ve arkadaşları tarafından geliştirilmiş olan Hastalık Davranışını Değerlendirme Ölçeği'nin (HaDDÖ*) Türkçe uyarlamasının güvenilirlik, geçerlilik ve faktöryel yapısı çalışılmıştır. Benzer ölçeklerden farklı olarak, HaDDÖ, davranışsal görünüme ve hastalık davranışı yapısına çok boyutlu olarak yaklaşmaktadır.

Yöntem: Bu çalışmanın katılımcıları, Erenköy Ruh ve Sinir Hastalıkları Eğitim Araştırma Hastanesi, Erenköy Fizik Tedavi ve Rehabilitasyon Hastanesi ve Kartal Eğitim Araştırma Hastanesi'ne ayakta tedavi için başvuran 200 hasta ile kontrol grubu olarak seçilen, Karadeniz Teknik Üniversitesinde eğitim gören 240 üniversite öğrencisinden oluşmaktadır. Katılımcılara HaDDÖ'yle birlikte, Beck Depresyon Ölçeği (BDÖ), Semptom Tarama Anketi'nin 90 maddelik gözden geçirilmiş hali (SCL-90R) de uygulandı. Öğrenci grubundan 60 kişiye 1 ay sonra HaDDÖ tekrar verildi. İç tutarlılığı incelemek için ölçeğin ve alt-ölçeklerin Cronbach's alfa katsayılarına ve her bir maddenin iç tutarlılığı etkisini görmek için düzeltilmiş madde-toplam korelasyonlarına bakıldı. Güvenilirlik analizi için ayrıca, test-tekrar test korelasyonlarına ve diğer ölçeklerle (BDÖ ve SCL-90R) ilişkisine bakıldı.

Bulgular: Ölçeğin toplam puan test-tekrar test tutarlılığı ($r: 0.68$) olarak bulundu. Ölçeğin iç tutarlılık incelenmesinde Cronbach alfa değeri 0.81 bulundu. Sorular tek tek ele alındığında; 6, 11, 18, 19 ve 20 numaralı soruların kontrol grubunda yetersiz madde-toplam puan ilişkisi gösterdiği saptandı. Açıklayıcı faktör analizine göre, 4 faktörlü örüntüye sağladığı, toplam varyansın %44.7'sini açıkladığı görüldü. Geçerlilik analizinde, hasta grubu ile kontrol grubu ortalamaları arasında HaDDÖ'nün anlamlı seviyede farklı olduğu tespit edildi. Ölçüt bağıntılı geçerliliği için, HaDDÖ toplam ve alt boyutlarının bazıları ile BDÖ, SCL-90R, SCL-90R bedenselleştirme alt-ölçeği semptom sayısının ilımlı-zayıf düzeyde bağıntı gösterdiği bulundu.

Sonuç: HaDDÖ'nün iç tutarlılık, test-tekrar test tutarlılığı ve madde toplam korelasyonu, faktöryel yapısı, özel grupları ayırt edici geçerlilik ve ölçüt bağıntılı geçerlilik ön çalışma bulguları, ölçeğin Türk toplumunda, kısıtlılığı dikkate alınarak kullanılabileceğini göstermektedir.

Anahtar kelimeler: Hastalık davranışını değerlendirme ölçeği-HaDDÖ, faktör analizi, geçerlilik, güvenilirlik

*This implementation method was preferred for not becoming confused with widely-used Hamilton Depression Rating Scale

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INTRODUCTION

Sensky et al. proposed that illness behavior (IB) is not much related with severity and magnitude of the illness but more with people's interpretation styles of their illnesses and their other cognitive schemas (1). IB is defined as all behavioral expressions that a person uses to cope with his/her illnesses. Abnormal IB (2) term is often used for excessive interest in his/her illness, excessive search for physicians, doing unnecessary medical examinations and taking unnecessary medications. For this reason, it is generally accepted as an economical characteristic of the illness. IB is within definition of somatoform disorder and hypochondriasis and part of the illness itself. Moreover, it has an important role in development and course of medically unexplained symptoms (MUS). MUS is one of the most important reasons of seeking for treatment as expected (3). It has been proposed that IB should not only be considered as a consequence of the illness but was also proposed to have an impact on maintenance of the illness due to exaggeration of complaints (4).

Some investigators emphasize the continuity aspect of IB. It is not clear whether this structure which can be evaluated as a permanent personality trait has a single dimension or not. Taking medication, seeking medical help, complaining, avoidance of work and reduction of physical activity are only some of the presentations of IB (4).

Illness Behavior Questionnaire (IBQ) which has been developed by Pilowsky and Spence (5) is the most widely used scale to evaluate IB in clinical studies. Scale has 8 sub-dimensions: general hypochondriasis, disease conviction, psychological vs. somatic concern, affective inhibition, affective disturbance, denial, irritability and Whiteley Index (WI) of hypochondriasis. Dimensions of the scale provide important information to investigators by focusing on subjective experiences and, cognitive, affective and emotional presentations of somatic complaints such as health anxiety and disease attributes. Rief et al (4) emphasized that these characteristics which Illness Behavior Questionnaire focused did not meet illness behavior completely and

even has an opposite aspect. However, in another study, there is a warning-type criticism for not interpreting high IBQ scores as an abnormal illness behavior as well (6). It has also been proposed that although IBQ is a scale quite sensitive to emotional and other presentations of hypochondriasis, abnormal illness behavior may be important for all medical conditions so information obtained from conditions other than hypochondriasis will be debatable (4).

There are other scales trying to evaluate IB at conceptual level. Illness Attitude Scale (IAS) developed by Kellner (7) and Somatosensory Amplification Scale (SSAS) developed by Barsky et al. (8) can be used for this purpose. Sub-dimensions of IAS are worry about illness, concern about pain, health habits, hypochondriac belief, thanatophobia, disease phobia, bodily preoccupation, treatment experience and effects of symptoms. IAS was criticized for having low number of items about behavioral presentation of the syndrome. SSAS focuses on emotional and attributed aspect of the illness rather than its behavioral aspect.

Rief et al. (4) developed a scale of interest by considering not having a scale adequately evaluating IB from different aspects and emphasized that they evaluated illness behaviour from a multi-dimensional approach. The scale is a tool having characteristics allow to examine illness behaviour seen in every disease particularly MAS, psychosomatic diseases, hypochondriasis and somatoform disorders. Scale for the Assessment of Illness Behavior (SAIB) has 5 factors (4+1) and consists of 25 items. Examining Turkish version of SAIB was aimed in this study.

METHODS

Participants and Process

This study was conducted as part of a study examining characteristics of somatization dimension in patients with Major Depressive Disorder (MDD) between August 2010 and January 2011. Two hundred patients which were admitted to psychiatry outpatient clinic of Erenköy Training and Research Hospital for Psychiatric and Neurological Diseases, physical therapy

and rehabilitation outpatient clinic of Erenköy Physical Therapy and Rehabilitation Hospital, and cardiology outpatient clinic of Kartal Training and Research Hospital. Healthy control group consisted of 240 university students from Karadeniz Technical University.

Inclusion criteria were being over 18 years old, absence of suicidal ideation and absence of any somatic, neurological and psychiatric disorder impairing their general health or lives. No further interview or research was done to examine the above conditions; individuals' statements were accepted as correct. IB specific to a particular patient group was not examined so disease diagnoses were not evaluated. Only seeking treatment due to being "ill" was accepted. Admitting to hospital with or without consent was also not taken into account.

Winfried Rief who developed the scale was contacted by e-mail. Turkish adaptation was learned not to be done previously within his knowledge and permission required was taken. Scale was translated to Turkish by a translator who has advanced knowledge of both languages and a back-translation was done by a professional translator. Missing points were re-evaluated and a final text was reconciliated. Factor burdens and distribution were discussed after analyses. Developing a more economic or shortened form and evaluating the factor structure of the form by Confirmatory Factor Analysis after completion of the study was planned.

SAIS was re-administered to 60 healthy university students one month later and test-re-test was done. Inner consistency and correlation between each item and total score was also examined. Cronbach alpha value of total scale was also calculated. Scale items underwent Factor Analysis by Basic Components Analysis (BCA). Inner consistency of factors obtained by Varimax rotation was re-evaluated and Cronbach alpha values of each sub-factor were calculated. For discriminative validity of groups, patient and healthy groups were compared for scale score averages. Criteria-related validity was calculated by number of symptoms obtained from BDI, SCL-90R and somatization sub-score of SCL-90R and their

correlations.

Approval was taken from Ethical Committee of Kahramanmaraş Sütçü İmam University Medical School. All participants were informed about the study and written consents were taken from whom accepted to participate in the study.

Data Collection Tools

Scale for the Assessment of Illness Behaviour (SAIB): It consists of 25 items according to study conducted by analysis of 53 items developed by specialists experienced in follow-up of patients with MUS and has a 4+1 factor structure: verification of diagnoses – 5 items, expression of symptoms – 6 items, medication/treatment – 5 items, consequences of illness – 5 items and scanning – 4 items as additional factor. It is scored between 1 and 3 according to Likert scale. Lower scores indicate increased illness behaviour and higher scores indicate decreased illness behaviour (4).

Beck Depression Inventory (BDI): This scale assesses somatic, emotional, cognitive and motivational symptoms seen in depression. It does not aim to diagnose depression but to determine severity of depressive symptoms in an objective manner. Each 21 item has 4 choices. Each item is scored between 0 and 3. Depression score is achieved by sum of these scores. The higher the score, more severe is depression (9). Validity and reliability study in Turkish was done (10). In the validity and reliability study done with outpatient clinic patients, 17 points was determined as cut-off point for BDI (10).

Symptom Check List-Revised Form of 90 Items (SCL-90R): This scale is used to determine to examine ongoing mental symptoms. It is a Likert type, self-rating scale scored between 1 and 5 and consists of 90 items. There are sub-dimensions of somatization, obsessive-compulsive, interpersonal sensitivity, depression, anxiety, hostility, phobic anxiety, paranoid ideation and psychoticism. General symptom level (GSL) scores are also used (11,12).

Statistics

Numeric data were assessed by Student's t-test and categorical data were assessed by chi-square test to compare socio-demographic variables. For reliability assessment, inner consistency and test-re-test correlation was assessed. For test-re-test consistency, scale was re-administered to university students one month after. Total score was assessed by Spearman's correlation test. All subject groups were examined by Cronbach's alpha test for inner consistency. Student's t-test was used to assess validity and for discriminative validity of special groups and due to normal distribution of scale total score and scores of sub-groups used in the study according to Kolmogorov-Smirnov test. Paraphrasing factor analysis was performed to show structural validity of scale. Varimax rotational factor analysis results of items taken to basic components analysis. For criteria-related validity analysis, correlations between SCL-90R, BDI and number of symptoms from somatization sub-scale of SCL-90R were examined. SPSS 9.0 statistical software was used to evaluate research data.

RESULTS

For validity and reliability study of the scale, 200 patients and 240 healthy students were recruited. When socio-demographic characteristics of groups in the study were examined, control group consisted of 111 women (46.3%). Age range was between 18 and 23 and mean age was 18.67 ± 1.15 . Duration of education was between 11 and 15 years and mean duration was 11.05 ± 0.43 . There were 123 women in the patient group (61.5%). Age range was between 18 and 56 and mean age was 38.98 ± 9.33 . Duration of education was between 5 and 15 years and mean duration was 7.41 ± 3.37 .

Scale was re-administered to 60 university students one month after for test-re-test reliability. Total score consistency was obtained by Spearman's correlation method. According to this, Turkish version of SAIB was found to be consistent by performing a moderate correlation at the level of 0.68.

Inner consistency, total item correlation and alpha values other than items are shown in Table 1. When each item was evaluated one-by-one and item-total score correlation was considered, questions 6, 11, 18, 19 and 20 were found to be correlated at a lower level in the control group. After eliminating items with lower scores, Cronbach alpha value of SAIB was not elevated much and number of items were preserved as in its original version.

Factorial structure having Factor Analysis results performed for structural validity and results of item burdens were shown in Table 2. It was seen that the scale comes under 4 factors after Varimax rotation. Inner consistency results of sub-scales formed were found between (alpha) 0.57 and 0.70. It was seen that the 4 factor pattern was sustained and 44.7% of the total variance was explained with regard to factor analysis. Findings of Rief et al. were put under Table 2 for comparison.

Table 1: Inner consistency assessment, impact of each item on scale and non-item alpha values of scale

Item no.	Corrected item-total correlation	Non-item alpha value of scale
SAIB-1	0.32	0.79
SAIB-2	0.37	0.78
SAIB-3	0.45	0.78
SAIB-4	0.32	0.79
SAIB-5	0.46	0.78
SAIB-6	0.20	0.79
SAIB-7	0.42	0.78
SAIB-8	0.28	0.79
SAIB-9	0.31	0.79
SAIB-10	0.29	0.79
SAIB-11	0.18	0.79
SAIB-12	0.42	0.78
SAIB-13	0.40	0.78
SAIB-14	0.40	0.78
SAIB-15	0.31	0.79
SAIB-16	0.40	0.78
SAIB-17	0.25	0.79
SAIB-18	0.19	0.79
SAIB-19	0.12	0.79
SAIB-20	0.09	0.81
SAIB-21	0.36	0.78
SAIB-22	0.49	0.78
SAIB-23	0.47	0.78
SAIB-24	0.44	0.78
SAIB-25	0.32	0.79

SAIB -Standardized Cronbach alpha: 0.80 (when 19 and 20 were extracted, Cronbach alpha: 0.81)
Total SAIB test-re-test correlation, r: 0.68, $p < 0.01$ (Spearman's correlation)

Table 2: Cronbach alpha values of SAIB factorial structure, item distribution, factor burdens and sub-dimensions

	Turkish version				Study of Rief et al*				
	F1 5, 4, 3, 2, 13	F2 23, 24, 22, 11, 16, 1, 25	F3 21, 12, 17, 14, 15	F4 9, 10, 7, 18, 6, 8	F1 1, 8, 15, 20, 23	F2 6, 18, 33, 35, 47, 55	F3 10, 24, 32, 56, 58	F4 19, 27 28, 45, 48	F5 2, 13, 43, 57
SAIB_5 (SAIB_23)	0.74				0.70				
SAIB_4 (SAIB_20)	0.68				0.71				
SAIB_3 (SAIB_15)	0.65				0.67				
SAIB_2 (SAIB_8)	0.62				0.41				
SAIB_13 (SAIB_24)	0.42						0.71		
SAIB_23 (SAIB_13)		0.67				0.36		0.35	0.52
SAIB_24 (SAIB_43)		0.67			0.35	0.37		0.28	0.61
SAIB_22 (SAIB_2)		0.57			0.53	0.37			0.39
SAIB_11 (SAIB_55)		0.55				-0.45			
SAIB_19 (SAIB_28)		0.49							
SAIB_16 (SAIB_58)		0.42					0.48		
SAIB_1 (SAIB_1)		0.41			0.52				
SAIB_25 (SAIB_57)		0.23				0.31	0.35	0.36	0.58
SAIB_21 (SAIB_48)			0.64					0.63	
SAIB_12 (SAIB_10)			0.52				0.64		
SAIB_17 (SAIB_19)			0.49					0.50	
SAIB_14 (SAIB_32)			0.46				0.64		
SAIB_15 (SAIB_56)			0.36				0.54		
SAIB_9 (SAIB_35)				0.70		0.45			
SAIB_10 (SAIB_47)				0.67		0.52			
SAIB_7 (SAIB_18)				0.61		0.56			
SAIB_18 (SAIB_27)				0.52				0.67	
SAIB_6 (SAIB_6)				0.51		0.45			
SAIB_20 (SAIB_45)				0.35					
SAIB_8 (SAIB_33)				0.33		0.57			
Cronbach alpha	0.70	0.70	0.57	0.64					
Core value	3.80	2.04	1.46	1.34					
Declared change percent	19.98	10.71	7.71	6.07					

*Rief et al. emphasized that 4+1 factor was loaded but in order to accept an item loaded under an appropriate factor, it should be over 0.40 and under 0.30 so items which do not fit this rule were shown as a separate factor (+1) (due to being an important dimension).

Numbers shown in bold characters indicate factors of scale items.

Table 3: Correlations of SAIB and BDI, SCL-90R and number of somatic symptoms (n:240)

	Factor 1	Factor 2	Factor 3	Factor 4	SAIB-total
Number of somatic symptoms	-0.12	-0.13*	-0.02	-0.05	-0.14*
Beck Depression Inventory	-0.01	0.11	0.01	0.03	-0.16*
SCL-90R					
Somatization	-0.07	-0.06	0.03	-0.04	-0.14*
Obsessive-compulsive	-0.01	0.10	-0.02	0.01	-0.11
Interpersonal sensitivity	-0.04	0.11	0.03	-0.10	-0.17*
Depression	-0.03	0.05	0.03	-0.04	-0.14*
Anxiety	-0.13	-0.01	-0.05	-0.15*	-0.17**
Aggression	-0.13*	-0.03	-0.07	-0.15*	-0.14*
Phobic anxiety	-0.05	0.07	-0.06	-0.06	-0.08
Paranoid ideation	-0.09	0.05	0.01	-0.10	-0.21**
Psychoticism	-0.09	0.03	-0.06	-0.10	-0.13*
Total	-0.09	0.04	-0.01	-0.10	-0.19**

*p<0.05, ** p<0.01

Correlations between total score and sub-scale scores and number of symptoms obtained from BDI, SCL-90R and SCL-90R somatization sub-scale scores separately. Criteria-related validity results of the scale were shown in Table 3.

When differences between SAIB and groups were examined, mean score of control group was found 43.88 ± 9.81 and patient group was found 39.20 ± 16.63 . Difference between groups was statistically significant ($t = -2.065$, $df = 234.551$, $p = 0.04$).

DISCUSSION

In this study, validity and reliability of Turkish version of Scale for the Assessment of Illness Behavior were investigated. SAIB focuses on behavioral representation of illnesses and approaches by a multi-dimensional style make it to have a different position among other assessment material. Inner consistency, test-re-test consistency, total item correlation were investigated for reliability and preliminary study findings in Turkish sample on psychometric characteristics containing factorial structure, criteria-related and discriminating specific groups were investigated for validity.

To examine test-re-test sensitivity of SAIB, the test was re-administered to subjects of the control group 1 month after. A positive correlation of 0.68 was found between total test scores of two tests. Our findings showed that the structure is consistent over time. Relatively lower test-re-test coefficient may be due to group characteristics. In other words, this may be due to younger age of group members and not experiencing too many illnesses. Inner consistency analysis and total item correlations were also assessed for reliability of SAIB. Cronbach alpha coefficient for inner consistency analysis was found 0.81. Rief et al. (4) found Cronbach alpha coefficient 0.90 when developing the scale. Our findings showed that inner consistency coefficient is adequate. According to total item correlation results, there were 5 items (items 6, 11, 18, 19 and 20) having an item-total score correlation value under 0.20. According to Cronbach alpha values after subtracting item, it was thought that there will not be a problem for

items 6, 11 and 18 to remain in the scale due to being lower than total scale value. Item 19 (“Even when suffering from pain I often manage to concentrate on other things”) and item 20 (“Illnesses influence the way I act towards my family and my friends”) seem to represent a condition other than illness behaviour generally expected from the scale. Most of the items in this dimension which are under consequences of illness sub-factor in the original scale showed different factorial representations. This may be due to not being much experienced for this group of pain experience and its impact on family. It was thought that when other two items (items 19 and 20) were extracted elevation of alpha value became negligible; so item elimination was avoided.

First dimension obtained in factor analyses was consistent with first dimension of the original study. This factor (2, 3, 4, 5, 13) was named as “Confirmation of Diagnosis” consistent with the original study. 13. item (“ I always have the most important medicines at home.”) may have been understood as a cautiousness behavior consisting of responsibility and represented under consequence of the first factor. First item (“I take more heed of my health than most other people do”) seemed to be overestimated as health anxiety or preoccupation with the body. Second factor of SAIB was similar to original 5. factor and 4. factor had similar items with 4. factor. Original study was not changed for naming of both factors [“Survey” for 2. factor (1, 11, 16, 22, 23, 24, 25); “Expression of Complaints” for 4. factor (6, 7, 8, 9, 10, 18)]. Third factor of Turkish version (12, 14, 15, 17, 21) seemed to be similar to combination of 3. and 4. factors by Rief et al. This factor was just named as “Treatment”. When inner consistency of sub-factors were examined, 3. factor was found low (Cronbach alpha: 0.57), other factors were found between 0.64 and 0.70. It was observed that while one should be cautious when utilizing the 3. factor, there was also an adequate inner consistency.

BDI and SCL-90-R scales were administered to control group for similar scale validity. In the study of Rief et al. (4) which they developed the scale, scale was found to be correlated with number of somatic symptoms (somatoform symptoms obtained by

SOMS) and general somatization (obtained by SCL) and commented on the presence of expected consistent correlation showed by similar scales (IBQ) previously as repetition. However, despite strong correlation with IBQ (13), they found in their own study that correlation with BDI was low and no correlation was found with SCL-90R depression sub-scale. They commented on this finding as evidence of illness behaviour indication of SAIB instead of emotional and hypochondriac characteristics. Our findings showed that there is a weak correlation between number of somatic symptoms and general somatization (as indicated by SCL-90-R somatization sub-scale), BDI and SCL-90-R depression sub-scale and partially inconsistent with findings of Rief et al. This finding showed that there is a weak correlation of Turkish version of SAIB with emotional characteristics. A negative correlation was also found between SAIB and SCL-90-R symptom level which is consistent with the original study. No

correlation with phobic anxiety was found contrary to original study. In conclusion, correlation analyses between SCL-90R and BDI and SAIB can be interpreted as number of symptoms and emotional burden may trigger illness behaviour.

Difference between exaggeration score averages of patient group and student group for validity of differentiating special groups of SAIB was examined and total SAIB score average of the patient group was found high. Our study is a preliminary study conducted considering that structural validity studies of the scale will continue further. Re-evaluation of scale items taking cultural characteristics of the sample into account is a further step planned. Our findings should be supported by different patient groups with higher numbers. In conclusion, our findings showed that Scale for the Assessment of Illness Behavior (SAIB) can be used by considering its limitation in Turkish sample.

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