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The Validity and Reliability of the Turkish Version of the Anxiety Sensitivity Index-3

Atıl MANTAR[1], Beyazıt YEMEZ[2], Tunç ALKIN[3]

Abstract

Objective: *Anxiety sensitivity has been defined as an excessive fear from senses and symptoms of anxiety. The aim of the present study is to investigate the validity and reliability of Anxiety Sensitivity Index-3 (ASI-3) and adapting it into Turkish.*

Method: *The study group consisted of 150 healthy individuals without any psychiatric disorder and 300 patients with an anxiety disorder and/or major depressive disorder according to DSM-IV criteria. All subjects included in the study were evaluated by means of the Mini International Neuropsychiatric Interview, ASI-3, Anxiety Sensitivity Index (ASI), State-Trait Anxiety Inventory-Trait Form (STAI-T), Beck Depression Inventory (BDI) and Somatosensory Amplification Scale (SAS).*

Results: *The validity part of the study revealed that the scale differentiates the patients from the healthy group in all patient subgroups except for anxiety disorder NOS. The scale was found to be highly correlated to ASI (r= 0.85) and moderately correlated to STAI-T (r= 0.68), BDI (r= 0.57) and SAS (r=0.47). In factor analysis, ASI-3 was found to be composed of 3 factors: physical, cognitive and social. It was also found that ASI-3 had a high internal consistency (Cronbach α= 0.93) and the scale had a fairly good test-retest reliability (r= 0.64, p< 0.001).*

Conclusion: *According to the present study, the ASI–3 Turkish version was shown to be a valid and a reliable scale.*

Key Words: *Anxiety sensitivity, Anxiety Sensitivity Index–3, validity, reliability*

INTRODUCTION

Anxiety sensitivity (AS) was characterized as "an excessive fear towards the sensations and symptoms of the anxiety believed to arise from harmful physical and/or social consequences". It was first defined by Reiss and McNally (1985) and constitutes the basis of the "fear expectation model". According to this model, the basis of the drive towards evasion of a fear-inducing event or situation consists of processes referred to as "anxiety expectation and AS". "Anxiety expectation" is the expectation of fear or anxiety that one would experience in a particular situation, whereas AS is a kind of basic fear that exists in the structure of the self that shows continuity, and was proposed that it creates susceptibility for various anxiety disorders (Reiss and McNally 1985).

AS differs from one person to another genetically according to how disturbing one perceives the anxiety and also one's beliefs concerning the consequences of the anxiety experience. This definition was arrived at through the integration of catastrophic misinterpretation in panic disorder and the expectation model (Starcevic and Berle 2006). Individuals with high AS have a tendency towards evasion and are susceptible to the misinterpretation of suddenly-appearing physical symptoms of anxiety, which are relatively more intense and inexplicable, as dangerous.

The concept of AS seems to be related to "*anticipation anxiety*" and, clinically, these terms partially overlap. However, anticipation anxiety is an anxiety that develops after panic attacks and concerns the fear that an-

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[1] Specialist , Ataturk Training and Research Hospital Narlıdere District Outpatient Clinic Department of Psychiatry İzmir, [2]Assoc. Prof., [3]Prof., Dokuz Eylül Univ School of Medicine, Department of Psychiatry, İzmir.

Atıl Mantar MD., e-mail: atlmantar@yahoo.com

other, inevitable danger (i.e., panic attack) will happen again. Another controversy is whether AS is different from "*trait anxiety*" or not. Trait anxiety has nothing to do with a fear of anxiety symptoms, rather it is defined as a tendency to react fearfully towards stressful events, or a structural susceptibility to the experience of generalized anxiety symptoms. Moreover, trait anxiety does not explain the fear of self anxiety and anxiety sensations for some people (Donnell and McNally 1990). However, it has also been suggested that individuals might theoretically have low AS levels while continuously experiencing high levels of anxiety, or visa versa (Cox et al., 1991).

According to Reiss et al., AS is of crucial importance in the development of anxiety disorders (especially panic attacks) and alcohol or substance abuse in the patients with these disorders (Reiss et al., 1986). There are also some interpretations indicating that AS could be a personality trait. For instance, a study by Zinbarg and Barlow (1996) showed that AS could be a subcomponent of neuroticism or negative affect.

In order to evaluate AS, the *Anxiety Sensitivity Index (ASI)* has been developed (Reiss et al., 1986). While there is no consensus in the studies regarding the factor structure of ASI, the most appropriate one was indicated to be the one factor structure (Reiss et al., 1986). However, a structure with four factors was detected in some studies applying the scale. The testing of the validity and reliability of the Turkish version of the scale was carried out in 2000. The name was translated into Turkish as "*Kaygı Duyarlığı İndeksi*" *(KDİ).* Although four factor structures were detected in this study, the one factor structure was indicated to be more reliable (Ayvaşık 2000). The imprecision in the factor structure of the scale was indicated to be due to its low number of items like 16 and unequal distribution of items into the factors (Taylor and Cox 1998a). The number of items evaluating physical area is eight, while the number of items for the other two areas is four each. Additionally, some items that do not correspond to a specific area also create a problem. For this reason, some researchers have intended to improve the scale and thus the "Anxiety Sensitivity Index–Revised" (ASI-R) form with 36 items and the "Anxiety Sensitivity Profile" (ASP) with 60 items were developed (Taylor and Cox, 1998a, Taylor and Cox 1998b).

Recently, for AS to be evaluated more effectively and in a multidimensional way, Taylor et al. (2007) developed the *Anxiety Sensitivity Index–3 (ASI-3).* Because of the complicated results of studies related to the factorial structures of both ASI and ASI-R, some of the items of ASI-R evaluating AS were selected and the new form of the scale was called ASI-3.

In the present study, we aimed to determine the psychometric features of ASI-3, which was developed to evaluate AS in a multifactorial way, by carrying out the validity and reliability study, both on patients and on healthy volunteers in order to translate it into Turkish.

MATERIAL AND METHOD

Firstly, permission was obtained from the author who developed the scale (Steven TAYLOR) in order to make the validity and reliability study of the Turkish form of ASI-3; and the study was also approved by the ethics committee of Dokuz Eylül University. ASI-3 was translated into Turkish, and named *"Anksiyete Duyarlılığı İndeksi–3"*, by five academic faculty members with a good level of English. The text in Turkish was then retranslated into English by another academic faculty member and compared with the original text. The items that were considered inadequate in conveying the precise meaning of the sentences were then reviewed and the final form of the Turkish scale was developed accordingly.

Study Design

The patient group was composed of patients applying to the Dokuz Eylül University Hospital Psychiatry outpatient clinics between January 2008 and May 2008. A total of 300 patients were included in the study. While the control group, made up of 150 healthy subjects, were also included. The mean age for the patient group was 36.55 (sd= 12.09) and 35.29 (sd= 10.02) for the control group.

The diagnoses of the participants were made by psychiatrists working at the outpatient clinic of the hospital according to DSM-IV diagnostic criteria. After the required explanation of the study to the participants by these physicians, those accepted as participants were then directed to the psychiatrist carrying out the study (A.M.). The participants were then interviewed for the second time with the M.I.N.I (Mini International Neuropsychiatric Interview, Turkish version 5.0.0) for their diagnoses to be confirmed. The participants between 18 and 65 years of age with a primary diagnosis of Panic Disorder (PD) with or without agoraphobia, agoraphobia without PD, Social Anxiety Disorder (SAD), Obsessive-Compulsive Disorder (OCD), Posttraumatic Stress Disorder (PTSD), Generalized Anxiety Disorder (GAD), Anxiety Disorder Not Otherwise Specified (NOS) and Major Depressive Disorder (MDD) were included in the

study. The participants with anxiety disorder due to general medical condition, anxiety disorder due to substance abuse, any cognitive disorder, any psychotic disorder and severe personality disorder diagnoses were excluded.

A set of case report forms (CRF) were prepared for each participant. The CRF set included ASI-3, Anxiety Sensitivity Index (ASI), State-Trait Anxiety Inventory (STAI-T), Beck Depression Inventory (BDI) and Somatosensory Amplification Scale (SAS). The self report scales given to each participant were put in order randomly to assure the least influence possible.

The healthy controls were interviewed with M.I.N.I. as well, in order to exclude any psychiatric disorder. The participants in the healthy control group accepting retesting (n=61) were interviewed for the second time within 15 to 30 days after the first evaluation and were required to answer certain scales again. The results of 450 participants both in the patient group and in the control group were evaluated in the study.

Assessment Tools

The participants were requested to answer 5 different self-report scales.

Anxiety Sensitivity Index-3 (ASI-3): The scale is composed of 18 items total which consists of three dimensions: physical, social, and cognitive each containing six items like the original ASI. Five out of 18 items exist on the original scale as well. The scale provides a 5-point Likert type evaluation making the possible range of points between 0 and 72. While "0" means very little, "4" means very much. The participants are asked to respond to the expression in each item according to their personal life experience up to that time, or according to how they might feel if such thing were to happen to them, in the event that this situation has not been experienced by the patient (Taylor et al. 2007). The validity and reliability study of the scale was done in six countries (USA, Canada, France, Mexico, Netherlands and Spain) both in clinical and in non-clinical populations. The corroborative factor analysis revealed a three-factored structure which revealed a 76% total variance. The Cronbach α reliability coefficient was calculated separately for each country group and evaluated in comparison to ASI. Finally, the Cronbach α reliability coefficient was found to be significantly higher in ASI-3 compared to ASI for the social and the cognitive subfactors, while there was no statistically significant difference in reliability coefficient in physical subfactors between ASI-3 and ASI (Taylor et al. 2007).

Anxiety Sensitivity Index (ASI): This is the first scale developed to evaluate AS by Reiss et al (1986). The scale consists of 16 items providing five-point Likert type assessments. Each item determines both respondents' anxiety symptoms and their beliefs about the consequences of their anxiety. Items are evaluated as "0" for none and "4" for very much. There are 8 items in the physical, and six items each in the cognitive and the social subscales. The internal consistency of the scale ranged between 0.80 and 0.90 and the test-retest reliability coefficients were between 0.71 and 0.75 in various studies. The validity and reliability study of the scale was made in Turkish (Ayvaşık 2000) and the scale was used in this study to detect its correlation with ASI-3.

State-Trait Anxiety Inventory (STAI): State Trait Anxiety Inventory was developed by Spielberger et al. (1970) and in the present study, only the Trait Anxiety part (STAI-T) of the inventory was used. The inventory was adapted into Turkish in 1985 (Öner and Le Compte, 1985). The scale determines how an individual would feel, independently of a particular situation he was in. The inventory is made up of 20 items and provides a four-point Likert type assessment (1 is for almost never, 4 is for almost always) and was used for overlap validity in the present study.

Beck Depression Inventory (BDI): This inventory was developed by Beck et al in 1961 and its second form was also developed in 1978 (Beck eta al. 1961). Individuals are asked to determine "the best sentence defining how they felt in the last week" on a scale that consists of 21 items questioning depressive symptoms. Each item has four alternatives and grades between 0 and 3. The validity and reliability study of the inventory is provided in Turkish (Hisli, 1989).

Somatosensory Amplification Scale (SAS): This self-rating scale was developed in order to evaluate the exaggeration of the individuals somatizing their complaints and is made up of 10 items regarding a series of disturbing physical sensations, mostly not indicating a particular disorder (Barsky et al. 1990). The Turkish validity and reliability study of the scale is provided (Güleç et al., 2007). Each item is scored between 1 and 5. A point of exaggeration is calculated by the summation of each item score. This scale was used for overlap validity in the present study.

STATISTICAL PROCEDURE

For the statistical evaluation of the data obtained from the study, the SPSS for Windows 11.0 program

was used. For the analysis of socio-demographic data, a t-test for the independent samples and a Chi-square test was used. For the differential validity procedures, a t-test for independent samples was used. ANOVA was used in order to assess whether there was a difference between the ASI – 3 scores of the patients and that of the healthy controls or not. In order to evaluate the structural validity of ASI–3, ASI–3 scores were compared with the scores of other scales by Pearson correlation. For the determination of the factor structure of ASI–3, the principle component analysis procedure was utilized. Regarding the reliability analysis, the Cronbach alpha coefficient was used for the internal validity and, for test-retest reliability, the Pearson correlation coefficient and the paired sample t-test were used.

RESULTS

The study sample was made up of 450 participants, including patients with PD with agoraphobia (N= 49, 10.89%), PD without agoraphobia (N= 23, 5.11%), GAD (N= 93, 20.67%), OCD (23, 5.11%), SAD (N= 19, 4.22%), anxiety disorder not otherwise specified (NOS) (N= 12, 2.67%), major depressive disorder (N= 81, 18%) and the healthy controls (N= 150, 33.33%). In the recruitment phase of the study, care was taken for demographic variables to be distributed evenly in each participant group. The socio-demographic data of the participants are presented in Table 1.

The Validity Measurements

1. Differential Validity: In terms of ASI–3 scores, the t-test for independent samples was used to analyze whether there was any difference between the patient group and the healthy controls. The ASI–3 scores of the patient group (mean= 32.48, SD= 15.69) were found to be significantly higher than that of the healthy controls (mean= 12.82, SD= 8.32) statistically. ASI–3 was found to significantly differentiate the patients from the healthy controls (t= -14.362, df= 447, p < 0.001).

ASI–3 total mean scores of the patient group and the healthy controls are presented in Figure 1. The highest scores obtained from the scale belong to the patient group with PD and agoraphobia. The second highest scores belong to the patients with major depressive disorder which is followed by the patients with PD without agoraphobia. ANOVA revealed a significant difference between the patient groups (F= 31.35, df= 7, p < 0.001). Post Hoc analyses applied for this reason revealed that the healthy control group had lower scores than all other groups (p< 0.001) except for the anxiety NOS group (p= 0.289). However in the comparison of patient groups, no statistically significant difference was detected.

2. Similar Scale Validity: The Pearson correlation analysis was applied to determine the relationship between ASI–3 and ASI. In the whole study group, the mean ASI–3 test score was 25.97 (sd= 16.50) and the mean ASI score was 26.26 (sd= 14.19). When ASI–3 and ASI scores were compared for each participant, a high correlation between the two scores was detected (r= 0.85, p< 0.001). In the patient group (n= 299), ASI–3 mean scores were found to be 32.48 (sd= 15.69) and ASI mean scores were 31.69 (sd= 13.16). These two scales were found to be highly correlated in the patient group as well (r= 0.80, p< 0.001).

TABLE 1. Socio-demographic Features of Healthy Control and Patient Groups

	PATIENTS		HEALTHY CONTROL		SIGNIFICANCE
	N	%	N	%	
GENDER					
Female	212	70.7	99	66	χ2= 1.020
Male	88	29.3	51	34	p= 0.312
MARITAL STATUS					
Married	180	60	102	68	χ2= 5.96
Single	86	28.7	41	27.3	p= 0.051
Divorced and Widowed	34	11.3	7	4.7	
EDUCATION					
Primary	60	20.0	29	19.3	χ2= 4.28
Secondary and High School	152	50.7	63	42.0	p= 0.118
Collage and University	88	29.3	58	38.7	
AGE (mean)	36.55		35.29		t= -1.095
Standard Deviation (sd)	12.09		10.02		p= 0.274
EDUCATION PERIOD (mean)	10.49		10.84		t= 0.918
Standard Deviation (sd)	3.60		4.21		p= 0.359

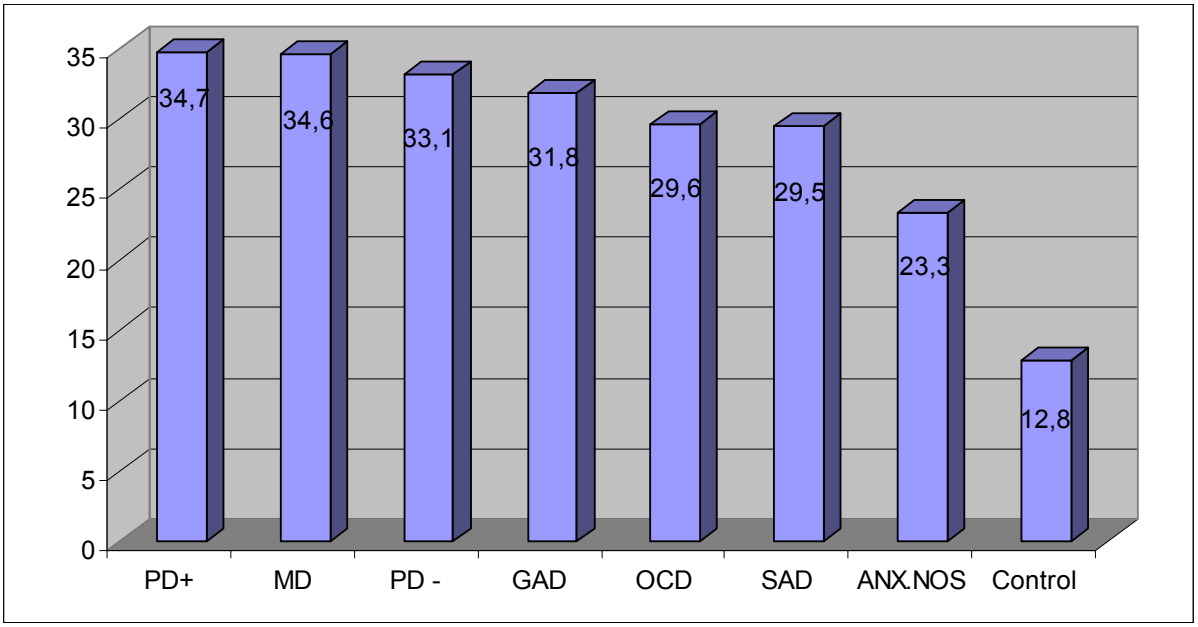

FIGURE 1. ASI–3 mean scores according to disorder groups
PD+: Panic Disorder with Agoraphobia, **PD-**: Panic Disorder without Agoraphobia, **MD**: Major Depressive Disorder, **GAD**: Generelized Anxiety Disorder, **OCD**: Obsessive Compulsive Disorder, **SAD**: Social Anxiety Disorder, **ANX NOS**: Anxiety Disorder Not Otherwise Specified

By means of this procedure, besides ASI which we accepted to be the gold standard scale, STAI- T, BDI, and SAS were also used as a similar scale validity measure for the comparison with ASI–3 scores. A significant positive relationship was detected between ASI–3 scores and ASI and other scale scores as expected. The highest correlation was detected between ASI–3 and ASI among all scales used in the study, while ASI–3 also showed a high correlation with other scales used in the study (Table 2).

3. Structural Validity: Structural validity is the process of determining whether a particular measuring scale is working in the way it was intended to or not. In order to evaluate the structural validity of ASI–3, an exploratory factor analysis technique was used. In order to test the sufficiency of the sample size, the Kaiser-Meyer-Olkin (KMO) test was applied (Baydur and Eser 2006). In this study, the KMO value calculated for the whole study group was 0.94 which was considered to be perfect, as it approaches 1. For the determination of factor structure of ASI–3, the principle component analysis was applied to the data according to "Kaiser Normalization" and "varimax transformation". For the determination of the factors, the factors with eigen value greater than 1 were considered to be significant. The aim of the rotation of the variables is to obtain interpretable and significant factors. For this reason, varimax rotation results are presented in Table 3. The items 3, 4, 7, 8, 12, and 15 were collected under factor 1 (physical symptoms); items 1, 2, 5, 10, 14, 16, and 18 were collected under factor 2 (cognitive symptoms); and items 6, 9, 11, 13, 17 were collected under factor 3 (social symptoms) with the highest values.

TABLE 2. The Distribution of Correlation Coefficient between The Scales (n= 449).

	ASI-3	ASI	STAI-T	BDI	SAS
ASI-3	1				
ASI	.850(**)	1			
STAI-T	.679(**)	.632(**)	1		
BDI	.571(**)	.561(**)	.774(**)	1	
SAS	.466(**)	.548(**)	.440(**)	.375(**)	1

** p< 0.01,

Common variance is the quantity of variance that one particular variable shares with other variables in the analysis. The highest variance in the scale was detected in the 12th item ("When I notice my heart skipping a beat, I worry that there is something seriously wrong with me") as 0.754, and the lowest variance value was detected in the first item ("It is important for me not to appear nervous") as 0.252. The common variance of all items was observed to be higher than 0.30 except for the first one (Table 3). These evaluations supported the structural validity of the scale. While the first factor explained 45.73% of the total

TABLE 3. Component distribution of the scale

	Physical	Cognitive	Social	Common variance
I 8- When I feel pain in my chest, I worry that I'm going to have a heart attack.	.828			.745
I 12- When I notice my heart skipping a beat, I worry that there is something seriously wrong with me.	.789			.754
I 7- When my chest feels tight, I get scared that I won't be able to breathe properly.	.758			.681
I 3- It scares me when my heart beats rapidly.	.755			.670
I 4- When my stomach is upset, I worry that I might be seriously ill.	.644			.494
I 15- When my throat feels tight, I worry that I could choke to death.	.636			.590
I 16- When I have trouble thinking clearly, I worry that there is something wrong with me.		.749		.688
I 14- When my thoughts seem to speed up, I worry that I might be going crazy.		.716		.657
I 18- When my mind goes blank, I worry there is something terribly wrong with me.		.711		.727
I 2- When I cannot keep my mind on a task, I worry that I might be going crazy.		.698		.549
I 10- When I feel "spacey" or spaced out I worry that I may be mentally ill.		.696		.652
I 5- It scares me when I am unable to keep my mind on a task.		.626		.536
I 1- It is important for me not to appear nervous.		.428	.255	.252
I 11- It scares me when I blush in front of people.			.806	.695
I 13- When I begin to sweat in a social situation, I fear people will think negatively of me.			.790	.694
I 6- When I tremble in the presence of others, I fear what people might think of me.			.750	.707
I 9- I worry that other people will notice my anxiety.			.615	.607
I 17- I think it would be horrible for me to faint in public.	.386		.467	.412

variance, the first and the second factor together explained 54.84% and the three-factor structure detected in the scale explained 61.72% of the total variance.

The Reliability Measurements

1. Internal Consistency (Cronbach Alpha): The internal consistency of ASI–3 was calculated using Cronbach Alpha reliability analysis. The Cronbach Alpha value of the ASI–3 was calculated to be 0.93 from the data obtained from a total of 449 subjects. The internal consistency between the items of the scale was high. The Cronbach Alpha value for the sub items was calculated to be 0.89 for physical symptoms; 0.88 for cognitive symptoms and 0.82 for the social symptoms.

2. Item Analysis: The item total score correlation procedure was used for the item analysis. The total item correlation is generally expected not to be negative and higher than 0.20. The results of the study showed that the item total correlation of all items was greater than this value. Also the validity of all items with the whole scale was determined to be sufficient.

In the item total correlation, the first item of the scale ("It is important for me not to appear nervous"), included in the social symptoms subscale, had the lowest coefficient. Other items' item total correlation ranged between 0.53 and 0.75 (Table 4).

3. Test–Retest Reliability: Sixty one healthy subjects included in test–retest reliability had the mean ASI–3 score of 12.34 (sd= 8.32) in the first evaluation, while displaying 10.70 (sd= 8.81) in the retest evaluation. These two values did not have a statistically significant

TABLE 4. Item Total Score Correlations.

	Corrected Item Total Score Correlation	Alpha Value (in case the item removed)
ASI-3 I-1	.3800	.9300
ASI-3 I-2	.5716	.9259
ASI-3 I-3	.6656	.9238
ASI-3 I-4	.5564	.9262
ASI-3 I-5	.5932	.9255
ASI-3 I-6	.6516	.9241
ASI-3 I-7	.6684	.9237
ASI-3 I-8	.6503	.9242
ASI-3 I-9	.6679	.9238
ASI-3 I-10	.6966	.9230
ASI-3 I-11	.5312	.9269
ASI-3 I-12	.7056	.9228
ASI-3 I-13	.5729	.9259
ASI-3 I-14	.6911	.9233
ASI-3 I-15	.6187	.9249
ASI-3 I-16	.6871	.9234
ASI-3 I-17	.5477	.9266
ASI-3 I-18	.7559	.9218

difference (t= 1.756, df= 60, p= 0.084). The Pearson correlation coefficient for ASI–3 total scores, and each item's score, was calculated for the test–retest procedure. The total scores of the scale were detected to reveal an intermediate level of correlation (r= 0.64, p<0.001).

DISCUSSION

The validity and reliability study of ASI–3 was carried out on a wide sample of patients with anxiety disorders and/or major depressive disorder according to DSM-IV diagnostic criteria in this study and the results revealed that the Turkish version of ASI–3 had quite good psychometric features.

Since almost equal distribution of the two groups in terms of socio-demographic features was provided in the recruitment phase, the possible confounding factors that might affect anxiety sensitivity were excluded.

The differential validity procedure is the most widely used technique to test the validity of a scale. The scale is expected to differentiate between the patients and the healthy individuals (Baydur and Eser 2006). The healthy participants in the study had lower scores than all of the patient groups except for anxiety disorder NOS. However, when the patient groups were compared with each other, no significant difference was found. Regarding the scores of the patient groups, other than anxiety disorder NOS, on the scale; it was observed that they could be differentiated from the healthy group. When we consider the whole sample, the patients with anxiety disorder NOS had the lowest rank. Since the patients in this group were too few, this could be the reason why a statistically significant difference could not be detected between this group and the healthy subjects. The clear differentiation of the patient group and the healthy subjects in terms of ASI–3 scores is an indicator of the structural validity of ASI–3.

Since both the development of the scale and its validity study have been carried out recently, no study was found in the literature utilizing ASI–3. However, the team developing the scale used a rather large sample in their study. The highest ASI–3 scores were detected in the PD group (mean= 32.6) in a sample of 390 patients carried out in Canada and the U.S.A. In the second rank, social anxiety disorder (mean= 31.6) and in the third, generalized anxiety disorder (mean= 27.5) was found (Taylor et al. 2007). Similarly, the highest scores belonged to the PD patients in our study as well (mean= 34.7). We thought that the scale is valuable in differentiating the patients with psychiatric disorders, since our AS scores are quite similar with those of the original study. The healthy participants had mean scores of 12.8 in Canada and in the United States, 16.4 in France, 15.2 in Mexico, 10.7 in the Netherlands and 10.7 in Spain. Concordantly, the mean scores of healthy subjects were 12.8 in our study.

Another evaluation measure for the validity of a scale is similar scale validity (Baydur and Eser 2006). In our study, ASI–3 total scores showed a great correlation with the total scores of STAI–T, SAS, BDE and ASI whose validity and reliability study in the Turkish version has been done. As expected, the highest correlation was found with ASI, while the lowest was with the Somatosensory Amplification Scale (SAS). However, even this lowest correlation reflected a level of medium correlation.

AS, has long been believed to be independent from trait anxiety. Reiss indicated that in 11 studies evaluating the correlation between AS and trait anxiety, the overlapping variance between AS and trait anxiety had ranged from 0% to 36% (Reiss 1991). That is, the overlap was quite small in range. Ayvaşık (2000) found the correlation of ASI with STAI–T as r= 0.47 (p< 0.001), in the validity and reliability study of the Turkish form of ASI. This value was r= 0.63 (p< 0.01) in our study which was an intermediate range of correlation. Additionally, the correlation of ASI–3 with STAI–T was found to be r= 0.68 (p< 0.01) in our study. These results may support the hypothesis that these two structures do not overlap totally.

The sufficiency of the sample size is important in factor analysis in terms of the reliability of the correlation. The Kaiser-Meyer-Olkin test for the sufficiency of the sample size used in our study revealed our sample sufficiency criterion as 0.94 which was a great value and the result of Barlett's test showed a significant difference (p< 0.001). For this reason, our data sample is thought to be appropriate for the factor analysis.

The principal component analysis and varimax rotation revealed three factors with eigen value greater than 1 and that explained 61.72 % of the total variance. While physical symptoms indicated Factor 1, cognitive symptoms indicated Factor 2 and social symptoms factor 3. Similarly in the study of Taylor et al., three factors have been detected explaining 76% of the variance and eigen value with greater than 1 (Taylor et al., 2007). It is important for the validity of ASI–3 to have the same factor structure as the original study. The cutting point ranges from 0.30 to 0.32 for factor loads. In our study, all fac-

tor loads were above this range. However, the first item of the scale designated the social factor in the study by Taylor et al, but denoted the cognitive factor in our study. Appearing or being nervous, rather than its social consequences, may be perceived instead as losing one's mind or going insane, among Turkish people. The factor load of the first item had the lowest value in the original study as well (Taylor et al., 2007). And this question is one of the five questions in common with ASI. In the validity and reliability study of ASI, this item was also found to have low item-total correlations and factor loads and thus it was thought it might be due to the Turkish expression. Therefore the expression was changed and retested, but the factor load again was found to be low (Ayvaşık 2000).

When we evaluated the items in terms of factor load, another finding was that although the 17th item of the scale ("I think it would be horrible for me to faint in public") was designated as belonging to the social factor, as in the study of Taylor et al (2007), the physical factor load for this item was quite high. The reason for this situation might be cultural factors. It is possible in our country, that the symptom of fainting in public might also be associated with a physical disease apart from social anxiety. In the study of Taylor et al (2007), we can see that the factor load of item 17 had one of the two lowest values. We want to indicate that items 1 and 17 were, in both cases, the lowest contributors to the scale (Item 1= 0.252, Item 17= 0.412). All of these parameters evaluated indicated that ASI–3 was a valid scale.

The internal consistency coefficient was calculated in order to evaluate internal consistency. Through this technique, the Cronbach alpha value of ASI–3 was detected as 0.93. This is quite a high value and could be accepted as an indicator of a very good internal consistency and high level of reliability. Furthermore, internal consistency reliability evaluations were also done for sub factors; and the Cronbach alpha value was found to be 0.89 for physical symptoms, 0.88 for cognitive symptoms and 0.82 for social symptoms. These results indicate that each sub factor is consistent within itself and with the whole scale and that they complete each other. In the study of Taylor et al (2007), internal consistency coefficients were found to range between 0.79 – 0.86 for the physical factor, 0.79 – 0.91 for the cognitive factor and 0.73 – 0.86 for the social factor in five different countries. The reliability coefficients found in our study seem to be quite similar to the results of this study.

For the evaluation of the internal consistency, the correlation coefficients between item and total, or item and dimension are calculated and the condition between the item and dimension to be measured is determined (Baydur and Eser 2006). The first item was shown to have the lowest item total score correlation coefficient. However, this correlation value can be considered to be nearly a medium level correlation. The consistency of the other items with the whole scale was observed to be sufficient. Also, the removal of any item other than the 1st item made the Cronbach alpha smaller. On the other hand, the increase in the Cronbach alpha value was made as little as 0.0013 by the removal of the first item. However, since the Cronbach alpha internal consistency coefficient of the scale was high, the correlation of the first item with the whole scale was at medium level and if it were removed, it would make it more difficult to compare future studies in our country with the international ones by utilizing the scale. We thought it would be more beneficial to keep the original form of the scale.

The test-retest correlation, another reliability evaluation, was also determined. While AS has been indicated to be a trait marker or a personality feature, this procedure is an important reliability measurement for a scale to detect this sensitivity. The test-retest correlation coefficient was calculated as 0.64 ($p< 0.001$). When considering the items' correlation one by one, the lowest correlation was found in the 3rd item ("It scares me when my heart beats rapidly") ($r= 0.26$, $p<0.043$) and the 1st item ($r= 0.26$, $p<0.041$). Other items had shown an intermediate level correlation. In the original study, test-retest reliability was not evaluated. We can conclude that the test-retest value of ASI–3 is high, though a consensus does not exist concerning this concept. Our data is concordant with the original form of ASI–3 data and supports the reliability of our scale measuring AS (Taylor et al., 2007).

CONCLUSION

Finally, the data of our study demonstrated that ASI–3 is a reliable and valid measurement tool in assessing anxiety sensitivity. We thought that the Turkish form of ASI–3 would be beneficial in better understanding and treating anxiety disorders, especially PD, and depression by means of this study. Additionally we believe that this scale, applied as a self-test within five or ten minutes, could lighten the unresolved issues concerning the anxiety sensitivity concept for future studies.

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