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The validity and reliability study of the Turkish version of the Brief Social Phobia Scale

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ABSTRACT

OBJECTIVES: Social anxiety disorder (SAD) can be described as a clear and constant fear of the individual for being judged by others in the social milieu and being mocked by others. Although SAD is a treatable disorder, there is a diagnostic confusion due to many factors such as the difficulty in recognizing the symptoms of the disease. There are several scales currently available for SAD symptom measurement; however, some of them are long scales and should be answered by the patient and do not include physiologic manifestations. The Brief Social Phobia Scale (BSPS), which is a scoring system scored by the clinician, has an important place among these scales. There are three different subscales, which are fear, avoidance, and physiological symptoms on the BSPS. The aim of this study is to test the validity and reliability of the Turkish version of the BSPS.

METHODS: The BSPS, sociodemographic data form, Liebowitz Social Anxiety Scale (LSAS), Spielberger State-Trait Anxiety Inventory (STAI I-II), Beck Depression Inventory (BDI), Beck Anxiety Inventory (BAI), Global Assessment of Functioning (GAF) Scale were applied to 55 patients with social phobia (31 males, 24 females) who met the Diagnostic and Statistical Manual of Mental Disorders IV (DSM-IV) criteria. Internal consistency of the scale was measured and the factor analysis was performed after applying Kaiser Meyer Olkin and Bartlett tests to assess the construct validity. To test the concurrent validity of the scale, Pearson correlation coefficient was computed between the BSPS and the LSAS. Its correlation with STAI I-II, BDI, BAI, and GAF was also investigated.

RESULTS: The Turkish version of the BSPS showed sufficient internal consistency. As a result of the factor analysis, a five-factor structure that accounts for 71.4% of the total variance was obtained and the loading of factors differs from the original study. Moderately strong correlation was found between the BSPS and the LSAS scores. There was a mild correlation between the total score of the BSPS and the STAI-I and BDI. There was a moderate correlation between the total scale score of the BSPS and the STAI-II and BAI scores.

CONCLUSIONS: As a result of the validity and reliability studies, it has been determined that the Turkish version of the BSPS can be used as a valid and reliable measurement tool in detecting SAD. It was found that there were unique anxiety findings that distinguish SAD from the other anxiety disorders. It is thought that the inclusion of such important symptoms within the applied scale will also benefit clinical practice.

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Introduction

Social anxiety disorder (SAD)/Social Phobia is a disorder characterized with having a distinct and constant fear of one or more social situations in which the individual is afraid of attracting others' attention and for this reason s/he is anxious and avoids being in certain social settings [1]. The person knows that fear is excessive or meaningless. Physical signs such as trembling, blushing, and sweating may accompany [1].

In community-based epidemiological studies, the incidence of SAD was found to be 7–13%, and it was shown to be one of the most common psychiatric disorders [2,3].

Studies have shown that there is a significant delay between the introduction of the diagnosis of SAD and the start of the treatment compared to other anxiety disorders. Leaving SAD untreated causes other comorbid conditions to be added to the clinic. The best example for this could be it is being the most common anxiety disorder associated with depression [4,5]. Disability is further increased in the presence of another accompanying disorder [6]. Despite numerous studies on SAD, it still continues to be under-diagnosed and only 3% of the patients are treated with correct diagnosis [7–9]. SAD responds well to pharmacological treatment and cognitive behavioural therapy. Therefore, early diagnosis is

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needed to prevent the development of comorbid conditions and to improve the prognosis.

In a study with psychiatric outpatients; it was found that SAD was diagnosed nine times more using a semi-structured interview format when compared with the unstructured interview format [10]. Although the use of structured or semi-structured interview methods for the detection of SAD is more appropriate, such methods can be time-consuming in routine clinical practice [11]. From this point of view, the development of scales that can make precise diagnosis in a brief time has become important.

Several self-reporting and interviewer-focused scales were developed to measure SAD symptoms and severity [12–16]. Most of these scales are self-reporting scales, and some are long. Today among the scales that the interviewer scores, only the Liebowitz Social Anxiety Scale (LSAS) has validity and reliability in Turkish. However, this scale also has some limitations. LSAS is not designed for diagnostic purposes but is often used for SAD scanning in studies [17]. One of the limitations of the scale is that it does not cover cognitive schemas and physiological complaints that are common in SAD patients [17].

In 1991, Davidson et al. [18] developed the Brief Social Phobia Scale (BSPS). The scale, scored by the observer, has an important role in the evaluation of SAD since patients with SAD tend to devalue their symptoms [18]. Moreover, the scale becomes advantageous as it is short and easy to implement and include physiological symptoms different from the LSAS. The scale consists of 11 items and is applied by the interviewer. There are three different subscales, which are fear, avoidance, and physiological symptoms on the scale [18]. This study is needed because of the lack of scales, except for the LSAS, that have validity and reliability to help with the diagnose of SAD to determine the severity of the disease.

Method

Translation process

At the first stage of the Turkish adaptation study of the BSPS we contacted with JR Davidson, who is the developer of the scale. After having his permission, translation studies were started. Firstly, the scale was independently translated from English to Turkish by three translators who know English well and specialists in psychiatry. Subsequently, translations were compared in term of meaningfulness and grammar, required corrections were done. Then, the scale was translated back into English by another translator who knew the English well and blind to the other's translation. This final translation text and the original form were compared by all translators with regard to the inclusion of the whole content. To test the

intelligibility of the translated text, the scale was applied to 10 patients with SAD. As a result of the evaluation, it was determined that the patient had no problem understanding the text.

Participants

After the determination of the final version of the BSPS applied to 55 patients with SAD who were referred to Ankara Diskapi Yildirim Beyazit Training and Research Hospital, psychiatry outpatient clinic between February and April 2017. There are different opinions in the literature about the size of the sample to be selected. One of the frequently used suggestions is that the sample size should be at least 5 or 10 times the number of the items. In this context, we included 55 patients in the study [19]. Inclusion criteria for the study were assigned as being aged between 15 and 65 years of age and volunteer for participation, being literate and meeting the criteria for SAD according to the DSM-IV. Exclusion criteria included having a physical or neurological disorder that would require continuous treatment, any psychotic disorder and mental retardation. The patients who were included in this study were informed about the purpose and method of the study and they gave their approval. Ankara Diskapi Yildirim Beyazit Training and Research Hospital ethics committee approval was taken (Approval date: 12/12/2016, number: 33/26). All patients were interviewed face to face. A structured interview form based on DSM-IV (SCID-I) was used to identify or exclude existing psychiatric disorders by the corresponding author.

The sociodemographic data form, BSPS, LSAS, Spielberger State-Trait Anxiety Inventory (STAI) I–II, Beck Depression Inventory (BDI), Beck Anxiety Inventory (BAI), and Global Assessment of Functioning (GAF) were applied to each included patient.

Measures

DSM-IV TR; structured interview form for Axis-I disorders (SCID-I)

This is a semi-structured clinical interview form developed by the American Psychiatric Association to diagnose major DSM-IV Axis-I disorders. The validity and reliability studies were carried out in Turkish [20].

Brief Social Phobia Scale

The BSPS, which is administered by the clinician, evaluates the fear and avoidance associated with the seven social situations and the severity of the four physiological manifestations. It is developed by JR Davidson in 1991 (Brief Social Phobia Scale, 1991) [18]. In the first chapter, the clinician questions the severity of fear and avoidance within the past week with a Likert-type scale between 0 and 4 points. If

people have not experienced any fear and avoidance within the past week, they are asked to respond by thinking how they would feel if they encountered such a situation. In the second part, the physical signs are scored again in the same way. Thus, a total of three scores on three fields including fear, avoidance, and physical symptoms are obtained.

Liebowitz Social Anxiety Scale

This scale was developed by Liebowitz in 1987 [14] to assess social interactions and performance situations in which individuals with SAD exhibit fear and avoidance behaviours. Validity and reliability studies were carried out by Heimberg et al. [21]. The LSAS, clinician-administered scale consisting of 24 items includes two subscales in which 11 social interaction items and 13 performance items are observed. The clinician questions the severity of anxiety and avoidance within the past week with a Likert-type scale between 0 and 4 points. Turkish validity and reliability studies were carried out by Dilbaz and Güz [22].

Spielberger State and Trait Anxiety Inventory

The STAI I-II, self-report scale has two sub-dimensions that are state anxiety and trait anxiety and it consists of 40 questions. The Turkish version of the scale was shown to be valid and reliable [23].

Beck Depression Inventory

The BDI is a 21-item self-assessment questionnaire that measures the symptoms occurring in vegetative, emotional, cognitive, and motivational areas of depression. Its validity and reliability in a Turkish sample were studied by Hisli [24].

Beck Anxiety Inventory

The BAI was developed in 1988 by Beck et al. [25]. It is a scale based on self-report and validity and reliability studies in Turkey were carried out by Ulusoy et al. [26]. On this scale of 21 items, each item is scored between 0 and 3 [26].

Global Assessment of Functioning scale

GAF is a measurement tool that evaluates the psychological, social, and occupational functionality of a person other than deterioration caused by physical or environmental factors. Clinician administers the scale. High scores from the scale indicate that your functionality is high.

Statistical analysis

The data collected from participants were analysed statistically using SPSS (Statistical Package for the Social Sciences) 15.0 version. The Cronbach's alpha coefficient was calculated to evaluate the internal consistency reliability of the Turkish form of the BSPS. The factor analysis was carried out after the Kaiser-Meyer-

Olkin and Barlett tests to evaluate construct validity. To test the convergent validity of the scale, Pearson correlation coefficients were computed between the BSPS scores and the LSAS, STAI I-II, BDI, BAI scores and the correlation between the BSPS and the GAF was investigated. A two-tailed p -value of .05 was set as the cutoff for statistical significance.

Results

The sociodemographic data were shown in Table 1.

In the reliability study of the BSPS, Cronbach alpha value was calculated for internal consistency measurement. The Cronbach's alpha coefficient was 0.87. However, the alpha coefficient is not sufficient alone, the contribution of each element to this coefficient has also been examined in order to make a sound evaluation (Table 2).

The values in the column "Cronbach's alpha if item deleted" show how much the reliability will be reduced in case of an omission of any item from the scale.

The construct validity analysis of the BSPS was conducted. Kaiser-Meyer-Olkin and Barlett tests were performed in order to determine whether it was suitable for factor analysis. In this sample, the Kaiser-Meyer-Olkin value was 0.675 and the Barlett's sphericity test was significant ($p < .00$). In the direction of these findings, it was seen that there was a relationship between the variables and it was seen that the factor analysis could be used for the scale. As can be seen, the subfactors are related to each other; the principal component analysis and promax technique were used in the analysis of the construct validity. The factor analysis of the BSPS resulted in five factors. The first factor accounted for a variance of 34.254% with 6.166 eigenvalue, the second factor accounted for a variance

Table 1. Clinical and sociodemographic characteristics of the patients ($n = 55$).

| | Clinical descriptor | Number of patients | Percentages |
|-----------------------|-----------------------------------|--------------------|-------------|
| Age | Average | 22 | |
| | Max | 33 | |
| | Min | 15 | |
| Gender | Male | 24 | 43.6% |
| | Female | 31 | 56.4% |
| Marital status | Married | 3 | 5.5% |
| | Single | 51 | 92.7% |
| | Divorced | 1 | 1.8% |
| Education level | Middle School | 14 | 25.5% |
| | High School | 26 | 47.3% |
| | University | 15 | 27.3% |
| Profession | Employed | 10 | 18.1% |
| | Student | 37 | 67.2% |
| | Unemployed | 8 | 14.5% |
| Substance-alcohol-use | Substance | 1 | 1.8% |
| | Alcohol | 8 | 14.5% |
| Comorbidity | Current major depressive disorder | 13 | 23.6% |
| | Past major depressive disorder | 15 | 27.3% |
| | Dysthymia | 3 | 5.5% |
| | Simple phobia | 9 | 16.4% |

Table 2. Internal consistency feature of the BSPS.

| BSPS | Scale mean if item deleted | Scale variance if item deleted | Corrected item-total correlation | Cronbach's alpha if item deleted |
|--------------------|----------------------------|--------------------------------|----------------------------------|----------------------------------|
| Fear 1 | 42.09 | 139.38 | 0.13 | 0.87 |
| Fear 2 | 42.58 | 127.87 | 0.63 | 0.86 |
| Fear 3 | 42.76 | 127.33 | 0.53 | 0.86 |
| Fear 4 | 42.47 | 131.10 | 0.47 | 0.86 |
| Fear 5 | 42.83 | 130.21 | 0.53 | 0.86 |
| Fear 6 | 42.74 | 125.00 | 0.64 | 0.85 |
| Fear 7 | 43.10 | 126.02 | 0.52 | 0.86 |
| Avoidance 1 | 42.20 | 133.42 | 0.31 | 0.87 |
| Avoidance 2 | 42.63 | 123.86 | 0.68 | 0.85 |
| Avoidance 3 | 42.85 | 125.53 | 0.59 | 0.86 |
| Avoidance 4 | 42.61 | 125.09 | 0.62 | 0.85 |
| Avoidance 5 | 42.83 | 126.13 | 0.55 | 0.86 |
| Avoidance 6 | 42.61 | 122.53 | 0.69 | 0.85 |
| Avoidance 7 | 42.90 | 130.64 | 0.41 | 0.86 |
| Physical symptom 1 | 43.29 | 129.06 | 0.37 | 0.87 |
| Physical symptom 2 | 43.38 | 131.94 | 0.28 | 0.87 |
| Physical symptom 3 | 43.43 | 130.39 | 0.33 | 0.87 |
| Physical symptom 4 | 43.18 | 124.26 | 0.49 | 0.86 |

Note: BSPS: Brief Social Phobia Scale.

of 10.877% with 1.958 eigenvalue, the third factor accounted for a variance of 10.171% with 1.831 eigenvalue, the fourth factor accounted for a variance of 9.424% with 1.696 eigenvalue, and the fifth factor accounted for a variance of 6.720% with 1.210 eigenvalue. The sum of the factor dimensions of the scale accounted for a variance of 71.445%. How the factors were loaded was shown in Table 3.

Taking into account the original form of the scale, the factors were named. Accordingly, factor 1: interaction with important people, factor 2: socially disapproved, factor 3: being monitored by others, factor 4: physical symptoms, and factor 5: showing performance.

The correlation of the factors was also investigated with the BDI, BAI, and LSAS (Table 4).

For convergent validity studies of the BSPS, the previously tested LSAS was used. The correlation between

Table 3. Factor loadings of the scale.

| | Factor | | | | |
|--------------------|--------|------|------|------|------|
| | 1 | 2 | 3 | 4 | 5 |
| Fear 3 | .892 | | | | |
| Avoidance 3 | .832 | | | | |
| Fear 2 | .740 | | | | |
| Avoidance 2 | .634 | | | | |
| Physical symptom 1 | .511 | | | | |
| Fear 4 | | .867 | | | |
| Avoidance 4 | | .743 | | | |
| Fear 5 | | .704 | | | |
| Avoidance 5 | | .687 | | | |
| Fear 6 | | .471 | | | |
| Fear 7 | | | .910 | | |
| Avoidance 7 | | | .887 | | |
| Avoidance 6 | | | .498 | | |
| Physical symptom 2 | | | | .778 | |
| Physical symptom 3 | | | | .765 | |
| Physical symptom 4 | | | | .601 | |
| Fear 1 | | | | | .869 |
| Avoidance 1 | | | | | .850 |

Table 4. Correlations between factors and the LSAS total score, BDI, and BAI.

| | LSAS total score | BDI | BAI |
|----------|------------------|----------|----------|
| Factor 1 | 0.60(**) | 0.22 | 0.29(*) |
| Factor 2 | 0.57(**) | 0.43(**) | 0.44(**) |
| Factor 3 | 0.45(**) | 0.22 | 0.24 |
| Factor 4 | 0.32(*) | 0.25 | 0.43(**) |
| Factor 5 | 0.21 | -0.18 | 0.06 |

Note: LSAS: Liebowitz Social Anxiety Scale; BDI: Beck Depression Inventory; BAI: Beck Anxiety Inventory.

* $p < .05$, ** $p < .01$.

the LSAS and the BSPS subscales and the total score was compared (Table 5). A moderately strong correlation ($r = .666$, $p < .01$) was found between total scores of the BSPS and the LSAS.

As can be seen in Table 5, the correlations between the BSPS and the BDI, BAI, STAI I-II, GAF were investigated.

Discussion

The data obtained from the study of reliability and validity of the scale show that the BSPS supports reliability and validity in the Turkish population. The BSPS showed adequate internal consistency (0.87). The factorial analysis demonstrated the presence of five factors that jointly accounted for 71.4% of data variance. The correlations were significant between the total scores of the BSPS and the LSAS.

When the sample group was examined, it was seen that the average age of young population was 22. The number of male patients is higher than that of the females; and this seems to be consistent with the finding in some literature that the number of male patients referred to hospital for treatment is more than female patients [27,28]. The majority of individuals in the sample was single, and this was thought to be related to low age average of the sample group. At the same time, this finding supports the fact that SAD starts at an early age [29]. The presence of a comorbid psychiatric disorder is 45.4% of the group, leading major depressive disorder and simple phobia seem to be consistent with the literature [30].

In the internal consistency analysis, the Cronbach alpha coefficient of 0.87 was similar to the original version (0.81) of the scale and similar to the study results of Osorio et al. (0.85) [31]. The scale seems to have strong internal consistency.

In the Turkish version of the BSPS, a five-factor structure emerged. This situation differs from the original form of the scale, which reveals a six-factor structure. There are differences in the distribution of the items loaded in the factors. In the original version of the scale made by Davidson et al., the avoidance and fear scores of all items were loaded on factor 1 and this factor was named as the general fear and avoidance factor. In our example, Fear and Avoidance 2, 3

Table 5. Correlation between the BSPS and the LSAS, STAI I-II, BDI, BAI, GAF.

| BSPS | LSAS | STAI-I | STAI-II | BDI | BAI | GAF |
|------------------|----------|----------|----------|----------|----------|-----------|
| BSPS fear | .671(**) | .388(**) | .479(**) | .344(*) | .348(**) | -.579(**) |
| BSPS avoidance | .604(**) | .334(*) | .439(**) | .284(*) | .398(**) | -.590(**) |
| Physical symptom | .385(**) | .219 | .241 | .248 | .408(**) | -.402(**) |
| BSPS total | .666(**) | .374(**) | .465(**) | .346(**) | .454(**) | -.630(**) |

Note: BSPS: Brief Social Phobia Scale; LSAS: Liebowitz Social Anxiety Scale; STAI: Spielberger State-Trait Anxiety Inventory; BDI: Beck Depression Inventory; BAI: Beck Anxiety Inventory; GAF: Global Assessment of Functioning Scale.

* $p < .05$, ** $p < .01$.

(talking to people in authority, talking to strangers) and physical symptom 1 (blushing) were loaded to the same factor. In our study, Fear and Avoidance 4, 5 (being embarrassed or humiliated, being criticized) and Fear 6 (social gatherings) were loaded to the same factor (factor 2). Loading Fear and Avoidance 4, 5 on the same factor was similar to the study of Osorio et al. [30]. However, the other item in this factor was Fear and Avoidance 3 in their study (talking to strangers). Although loading Fear and Avoidance 7 (doing something while being watched-except speaking) on separate factors rather than on Factor 3 was consistent with the original study and the results of Osorio et al., Avoidance 6 (social gatherings) was also loaded to this factor in our study. Another remarkable finding in our study was the loading of physiological symptoms, except blushing, to one factor (factor 4). In the original study conducted by Davidson et al. [9], all physiological symptoms, including blushing, were loaded on the same factor. Similar to other studies, Fear and Avoidance 1 (speaking in public or in front of others) was loaded to the last factor, that is, factor 5. This is actually a finding that supports performance type of social phobia as a separate sub-category. When the factorial distributions were examined, especially in the case of interaction with other people, some social phobic individuals (when talking to strangers and having conversations with important people such as a celebrity, a director, and his/her boss) experience more anxiety. In some people, cognitive content is more pronounced (being humiliated, embarrassed, and criticized) or the physical symptoms are more evident, these conditions constitute the disease process. Determining which sub-feature is dominant can be important in terms of the planning of the treatment (cognitive behavioural therapy or pharmacological treatment).

One notable finding in the correlation analysis of the factors is that factor 2 (named as socially disapproved) was the only factor that was correlated with the BDI. When the items that this factor contains are investigated, it is possible to say that anxiety because of being embarrassed or humiliated and criticized is the type of fear that is mostly associated with depression. However, a study regarding this correlation in the literature has not been found. When accompanying depression is considered to be associated with treatment seeking, increased symptom severity, severe loss

of disability and suicidality, the detection of this symptom becomes more important.

Just like in the original version of the scale ($r = 0.70$), a moderately strong correlation was also found ($r = 0.666$) between the BSPS and the LSAS which was the other SAD scale in this study. It was observed that the values were close to each other. When the correlation between the physical symptom items and the LSAS scores was examined, this ratio was found to be 0.385. In the original version of the scale, this ratio was 0.04. Comparatively high correlation values between the BSPS physiological symptom subscale and the LSAS total score in this study might be related to smaller sample size. Davidson et al. noted that while the total, fear, and avoidance scores of the BSPS showed a significant correlation with the LSAS, the physical symptom subscale did not show any correlation and this was because these physical symptoms are separate factors independent of the fear and avoidance components of social phobia [9]. Fear and avoidance can be found in some individuals with SAD, but it may not be found in individuals with performance-related anxiety. These features also provide monitoring of treatment efficacy.

When the correlation with other scales was examined, a mild correlation of 0.45 between the BAI total score and the BSPS total score was observed. This ratio is similar to the 0.48 ratio found by Osorio et al. [30]. Davidson et al. used the Hamilton Anxiety Scale in their study and found a correlation value of 0.34 [9]. The fact that having different findings is probably related to the different scoring forms of the scales (self-report or interviewer-focused). Compared to scales with specific for SAD with more general anxiety findings such as the BAI, it was also found in earlier studies that the distinction power of the first scale is higher [32].

When the correlation of the scale with the STAI-I and II is examined, it has been found that it has a mild correlation with the STAI-I. When the STAI-I is considered to measure state anxiety, this result is not surprising. The BSPS showed a mild correlation with the BDI. The low correlation rates obtained with these instruments that measure general anxiety and depression levels are accepted as indicators that these scales cannot adequately assess SAD-specific findings. It is also believed that the presence of other anxiety disorders (such as simple phobia) and depression, which

are associated with some of the cases, are also among the possible causes. As a matter of fact, it is supported by the literature that most SAD patients seek treatment for more acute problems such as depression or other anxiety disorders [33].

When the correlation between the GAF and the BSPS was compared, there was a negative correlation. In other words, the view that SAD is related to disability is supported.

This study has some limitations. One of these limitations is that the test retest reliability has not been established. Another limitation of the study is that the sample group consists only of individuals with SAD. The ability of scale to distinguish individuals with SAD from healthy subjects was not assessed. Another limitation is the relatively small sample size.

Conclusion

This study aims to adapt the BSPS to the Turkish and show that the scale is significantly valid and reliable.

In addition, the fact that loading the performance-based anxiety and avoidance, such as speaking in public to a separate factor, is a finding consistent with the DSM-V diagnostic criteria. In DSM-IV, the “generalized” definition of anxiety was used to describe the majority of social situations without a separate emphasis on performance type.

When compared to other measures of anxiety such as the BAI and the STAI I-II, it was seen that the anxiety symptoms in the individuals with SAD were different and the physical symptoms that could be noticed from outside such as blushing were more preliminary. As a result, it was found that there were unique anxiety findings that distinguish SAD from other anxiety disorders. It is thought that the inclusion of such important indications within the applied scale will also benefit clinical practice.

A remarkable feature of the scale when applied to the patients is it is being easy to understand by patients and its ease of application for clinicians. Especially, when the limited number of scales in Turkish whose validity and reliability were performed regarding SAD is considered, it is thought that this work will provide a significant contribution to this field and it will pave the way of the works to be done in the future.

Disclosure statement

No potential conflict of interest was reported by the authors.

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