Validity of a Short Functioning Test (FAST) in Brazilian Outpatients with Bipolar Disorder

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ABSTRACT

Objectives: As the use of functioning outcomes is increasingly being advocated in multinational clinical trials and comparative studies, making available instruments with known validity and reliability in several languages is required. Here we present data on the Portuguese validation of the Functioning Assessment Short Test (FAST), which was explicitly designed to gauge functioning dimensions empirically linked to bipolar disorder.
Methods: One hundred patients with bipolar disorder and matched controls were assessed with the FAST, which was evaluated regarding discriminant, content and construct validity, concurrent validity with functioning instruments, internal consistency and test–retest reliability.

Results: The FAST displayed a five-factor structure very similar to its conceptualization, successfully discriminated patient and control groups, and correlated highly with other functioning measures; it also showed excellent test–retest reliability and internal consistency.
Conclusions: The FAST is a measure with sufficient validity and reliability, with potential for the use in international clinical trials and comparative studies.
Keywords: bipolar disorder, disability, functioning, rehabilitation, validation.

Introduction

Commonly misconceived as a relatively treatment responsive condition with a favorable prognosis, bipolar disorder (BD) is severe, persistent, and affects major areas of patients' life and functioning, often resulting in dire disability and dependency [1,2]. Even using a conservative lifetime prevalence estimate of around 1%, BD is the sixth leading cause of disability among all medical disorders in market societies worldwide [3]. In population-based studies, people with BD are consistently more affected by work absenteeism when compared with the general population, other mental disorders, or major depression [4–6]. Regarding indirect costs of disability in the United States alone, it is projected that each year 96.2 million workdays and $14.1 billion salary equivalents are lost because of BD [7]. As a substantial upward revision of the 1% prevalence figure is occurring, total disease burden is likely to be even higher.

Measuring disability in mood disorders, however, is more complex than estimating loss of workdays or productivity. As much as measuring functioning with simple outcomes such as absenteeism is obviously relevant, it does not permit a richer characterization of disability associated with mood disorders [8]; important domains of functioning may be left out, such as cognition, interpersonal relationships, and autonomy [1]. The most frequently used interviewer administered functioning measures are global rating scales—such as the Global Assessment of Functioning (GAF) Scale—which notoriously fail to distinguish clinical and functional recovery [8]. Also, questionnaires based on self-report may be problematic as results may be distorted by the patient's current mood [9]. Partially because of the scarcity of adequate methods for measuring disability, only a few studies

have evaluated functioning in BD. Because data on functioning have been obtained using instruments not designed for assessing the main impairing domains in BD, studies may have yielded inaccurate or clinically irrelevant information.

As a result, the International Society for Bipolar Disorders has constituted a functionality committee devoted to promote research in this area [10]. The Functioning Assessment Short Test (FAST) was developed as a brief, international measure, designed to be sensitive to change and capture the main areas of disability for patients with BD [11]. The use of functional and patient-centered outcomes is increasingly being advocated in multinational clinical trials and comparative studies; making available instruments with known validity and reliability in several languages is required [12,13]. Here we present data on the Portuguese version of the FAST regarding reliability and content, construct, discriminant, and concurrent validity.

Methods

Participants

One hundred outpatients of the Bipolar Disorder Program at a university hospital were consecutively recruited from September to November 2006 for this validation study. Patients had a clinical diagnosis of BD type I, type II, or BD not otherwise specified, confirmed with the Structured Clinical Interview for Diagnostic and Statistical Manual of Mental Disorders-Fourth Edition (SCID-I), and were further classified as euthymic (those with scores below 8 in the Hamilton Depression Rating Scale and in the Young Mania Rating Scale) or symptomatic. Patients with comorbid mental retardation were excluded. One hundred control subjects were recruited from the hospital catchment area, matched for type of health service used, sex, age, and educational level. This group was screened with the non-patient version of the SCID to exclude current psychiatry morbidity, had no first-degree relatives with BD, schizophrenia, or other

psychotic disorders. Participants gave written informed consent before entering the study, which was approved by the local ethics committee.

Instruments

The FAST is a 24-item interview constructed to assess areas impaired in BD. Autonomy refers to the capacity of the patient of doing things alone and taking his/her own decisions; occupational functioning refers to the capacity to maintain a paid job, efficiency of performing tasks at work, working in the field in which the patient was educated and earning according to the level of the employment position; cognitive functioning is related to the ability to concentrate, perform simple mental calculations, solve problems, learn new information, and remember learned information; financial issues involve the capacity of managing the finances and spending in a balanced way; interpersonal relationships refer to relations with friends, family, involvement in social activities, sexual relations, and the ability to defend ideas and opinions; leisure time refers to the capacity of performing physical activities (sport, exercise) and the enjoyment of hobbies [11]. Scores are determined by the sum of items, which range from 0 (indicating no problems) to 3 (indicating a severe limitation) in the 15 days before assessment.

The FAST was developed by the Bipolar Disorder Program in Barcelona to assess functional impairment focusing on the main problems experienced by the mentally ill. After preliminary analysis, the scale was discussed in a meeting with experts from Spain, Brazil, and England, and several changes were made and some items were rejected. This version of the FAST was translated into Portuguese from the original Spanish version. After translation/back-translation, items with optimal word equivalence were analyzed and discussed by three independent investigators who agreed upon the final version. The understanding of each item was assessed in a pilot sample of 10 healthy controls and 10 patients with BD and was found to be correctly understood by interviewers and patients, thus providing content validity to the scale. A semistructured manual was developed for uniform understanding of item scoring.

Interviewers blinded to FAST scores administered the Sheehan Disability Scale [14] and the GAF to assess overall functioning of participants. Test–retest reliability was checked 1 week after the original interview in 17 patients and 25 controls.

Statistical Analyses

Construct validity was assessed through factor analysis; we used maximum likelihood with promax rotation to extract FAST factors. The number of factors were selected both by using a scree plot and the most parsimonious theoretical solution to the data; items with loadings greater than 0.3 were retained. As homogenous samples tend to have less variance concerning common factors, and thus result in falsely low factor loadings, we included controls to add heterogeneity to the analysis [15].

To evaluate internal consistency, Cronbach's alpha was employed. We used Wilcoxon's signed-rank test to compare patient and control group scores, and Mann–Whitney's U for comparisons within BD subgroups. Concurrent validity was studied in comparison with the GAF and the Sheehan Disability Scale using Spearman's rho. Test–retest reliability was assessed with intraclass correlation. All tests are two-tailed.

Results

Interviewers had no problems in completing the FAST and there were no missing items, indicating high feasibility. Bartlett's test for sphericity was highly significant ($P < 0.001$), indicating factorability of the FAST. After rotation, a five-factor solution provided the best theoretical and most parsimonious account for the data and was responsible for 72.11% of the total variance; items essentially loaded in factors as theoretically intended; Cronbach's alpha was 0.95 for the whole scale and 0.82 or higher for the subscales (Table 1). Test–retest agreement for total FAST scores was excellent ($r = 0.90$; $P < 0.001$).

Patient and control groups were well matched regarding age, sex, and level of education. Table 2 shows sociodemographic and clinical variables of the sample. FAST median total scores were

Table 1 Item loadings and reliability of FAST factors

Item	Occupational factor	Interpersonal factor	Autonomy factor	Cognition factor	Finance factor
FAST8	1.03				
FAST9	0.99				
FAST5	0.95				
FAST7	0.94				
FAST6	0.94				
FAST19		0.96			
FAST17		0.80			
FAST20		0.76			
FAST18		0.41	0.37		
FAST22		0.39			
FAST21		0.35			
FAST24		0.31			
FAST3			0.78		
FAST4			0.78		
FAST1			0.78		
FAST2			0.67		
FAST14				0.88	
FAST10				0.74	
FAST11				0.70	
FAST13				0.69	
FAST12				0.55	
FAST23					
FAST15					0.95
FAST16					0.86
Cronbach's α	0.99	0.86	0.82	0.88	0.92

FAST, Functioning Assessment Short Test.

Table 2 Demographic and clinical characteristics of the study sample and discriminant validity of the FAST

| Characteristic | Bipolar sample (n = 100) | | Control group (n = 100) |
	Symptomatic (n = 53)	Euthymic (n = 47)	
Age[†]	45.98 ± 9.54	42.41 ± 12.94	43.60 ± 12.00
Years of education[†]	9.40 ± 4.50	9.84 ± 4.25	9.42 ± 4.29
Female sex	75%	74%	74%
Global Assessment of Functioning[‡]	55 (50–61)	81 (60.5–90)**	95 (91–100)*
Sheehan Disability Scale—work domain[‡]	8 (5–10)	0 (0–5)**	0 (0–0)*
Sheehan Disability Scale—social domain[‡]	8 (5–10)	2 (0–5.5)**	0 (0–0)*
Sheehan Disability Scale—family life domain[‡]	7 (4–8)	0 (0–5)**	0 (0–0)*
Total FAST score[‡]	37 (24–44)	16 (3.5–26)**	3 (0–7)*

*P < 0.001 for difference between symptomatic and euthymic bipolar patients (Mann–Whitney's U).
**P < 0.001 for difference between bipolar and control groups (Wilcoxon signed-rank test).
[†]Results are shown as means (±standard deviations).
[‡]Results are shown as median (interquartile range).
FAST, Functioning Assessment Short Test.

26.5 (interquartile range 14–41) for the patient group and 3 (interquartile range 0.25–7) for the control group ($Z = 8.28$, $P < 0.001$). FAST scores were also higher for the patient group when only euthymic patients were selected ($Z = 5.32$, $P < 0.001$). Differences were found for every FAST factor ($P < 0.001$ for all). Total FAST scores were strongly correlated with the GAF ($rho = -0.70$, $P < 0.001$) and somewhat less so with the Sheehan Disability Scale regarding work ($rho = 0.62$; $P < 0.001$), social ($rho = 0.55$; $P < 0.001$), and family life domains ($rho = 0.54$, $P < 0.001$).

Discussion

The FAST, a brief interview designed to evaluate the impact of mental illness on functioning, has proven to be a reliable and a valid measure in a sample of patients with BD in a Brazilian specialized treatment facility. The FAST was able to successfully discriminate patients and controls and, moreover, discriminated controls and currently euthymic patients. Furthermore, with the exception of a leisure factor, the FAST is able to capture different dimensions of disability associated with BD, as theoretically designed, demonstrating both content and construct validity.

Although affective morbidity associated with BD, especially depressive symptoms do impair functioning and autonomy [1], a failure to achieve full functional recovery has been described even after symptom remission [16]. This version of the FAST successfully demonstrates this important illness impact. In this sense, this report not only replicates findings previously reported from the Spanish version of the instrument [11], such as construct and discriminant validity—and the more evidence that the instrument is reliably measuring what it is specifically supposed to be measuring the more confidence one has in it—but also reinforces the presence of BD-associated disability even in the absence of syndromic-level morbidity. This should be taken to reinforce the use of the FAST as an international instrument.

Being a complex construct, there is more than one way of measuring disability associated with mental illness. Most of the general instruments that assess functioning have important limitations for the use in psychiatry, as mentioned before. One interesting alternative, which has been validated in a sample of patients with BD, is the Multidimensional Scale of Independent Functioning (MSIF) [8]. The MSIF takes a different perspective from the FAST, as it attempts to gauge functional roles, support to these roles, and quality of the performance; as it does not assess the FAST domains, the two instruments may be actually evaluating two different and complementary aspects of functioning. Also, as far as we are aware of, the MSIF is not validated in languages other than English.

One important limitation regarding both the MSIF and the FAST validations, including the present one, is the inclusion of only those patients seen in tertiary care centers, and hence most severely affected by BD, as these do not represent people with the whole spectrum of affective illness. As mentioned before, however, adding heterogeneity to the sample generally increases factor loadings [15]. The lack of a consensual gold standard for measuring disability in severe mental illness is a further difficulty. Consequently, criterion validity was measured as compared with the Sheehan Disability Scale and the GAF, which are general scales, but nonetheless of widespread use. Additionally, as an instrument designed to detect effectiveness of treatments in functional recovery, the performance of the FAST still needs to be evaluated in an interventional setting to confirm feasibility and psychometric properties [17].

The burden of BD is large and growing, resulting in both direct [18] and indirect costs. Rehabilitation research in BD has been hindered by the lack of specific and valid functioning measures [10]; in treatment studies, the instrument used to quantify functional outcomes may critically influence effectiveness estimates [16]. With valid and reliable measures, interventions targeted at improving functioning could minimize both the chronic morbidity and burden associated with BD.

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