



Investigation of the Psychometric Properties of the Persian Version of the Functioning Assessment Short Test (FAST) in Bipolar Patients

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Abstract

Background: This study assessed the Persian version of the Functioning Assessment Short Test (FAST) in bipolar disorder patients to determine its reliability and validity, as currently no specialized tools are available to evaluate functional impairment in this population.

Methods: A cross-sectional study was conducted with 240 bipolar disorder patients at Shafa Hospital in Rasht in 2023. The Persian version of the FAST was translated and reviewed for content validity, reliability, and factor analysis. Data analysis was done using IBM SPSS version 26, and confirmatory factor analysis (CFA) was performed with LISREL version 8.8.

Findings: The results indicated a content validity ratio (CVR) above 0.62. To assess convergent validity, the Short Form Health Survey (SF-36) was used, yielding a direct and significant correlation ($P < 0.001$, $r = 0.675$). The FAST exhibited a Cronbach's alpha of 0.953, indicating robust internal consistency. The intraclass correlation coefficient (ICC) ranged from 0.74 to 0.98, signifying excellent reliability. The correlation coefficient between scores from repeated tests demonstrated strong reliability. CFA was employed to confirm the dimensions of the FAST, and the construct validity was considered satisfactory.

Conclusion: The Persian version of the FAST demonstrated strong psychometric properties in the study, making it useful for evaluating rehabilitation interventions, assessing medication effects, and supporting research efforts.

Keywords: Bipolar disorder, Functioning, Rehabilitation, Psychometrics

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Introduction

Bipolar disorder is a category of mood disorders that can lead to functional disorders, even among patients whose symptoms have remitted.¹ Functioning is a complex concept that includes various domains. Cognitive disorder, occupational impairment, challenges in fulfilling household responsibilities, interpersonal relationship issues, leisure and sexual problems are key functional impairments reported by patients.²⁻⁶ Understanding the factors that contribute to the improvement of outcomes related to this functional impairment can aid in the advancement of therapeutic interventions, necessitating tools that assess various domains of functioning in these patients. However, there is currently no specific instrument designed to assess the different areas of functional impairment in bipolar disorder, and most available tools are time-consuming. The most commonly

used scale for assessing functioning is the Global Assessment of Functioning scale (GAF), but the GAF is structured to rate symptoms as functioning.^{7,8} Other scales, such as the Social Adjustment Scale (SAS), Life Functioning Questionnaire (LFQ), Short Form-36 (SF-36), and WHO-DAS, are commonly used tools to assess functional impairment in bipolar disorder, although they are not specifically designed for this purpose.⁹ They often prioritize global measures or limited criteria for functional recovery instead of analyzing specific and distinct aspects of psychosocial functioning.^{4,9}

The Functioning Assessment Short Test (FAST) is used to assess functional impairment in patients with psychiatric disorders, such as bipolar disorder. It consists of 24 items across six domains: autonomy, occupational functioning, cognitive functioning, financial issues, interpersonal relationships, and leisure time. Its advantages include



simplicity, ease of use, and a brief administration time. In terms of psychometric properties, the original FAST is a reliable tool with high internal consistency. It improves the evaluation of functional impairment in patients with bipolar disorder and can be beneficial in evaluating supplementary interventions aimed at rehabilitation and improving the functioning of bipolar patients, as well as assessing the pharmacological effects and psychosocial interventions.¹⁰

In recent years, FAST has become one of the most widely used instruments in clinical practice and research for assessing the functioning of bipolar patients globally,¹¹ yet it has not been psychometrically evaluated in Persian. The study will assess the reliability and validity of the Persian version of the FAST in individuals with bipolar disorder.

Methods

In the first stage, after obtaining the consent of the original designers—Rosa et al—the questionnaire was translated into Persian by two native Persian speakers proficient in English. The translation was then discussed with researchers, resulting in a unified version. For back-translation, two additional translators, also native Persian speakers and fully proficient in both languages, who had not seen the original English version, translated the questionnaire. The Persian version was prepared after comparing the two English versions produced by the translation team and researchers.

To assess content validity, the questionnaire was provided to 20 bipolar disorder patients to evaluate and refine the writing style and ease of understanding of the words and sentences. The reduction and elimination of inappropriate items and the determination of the importance of each item were conducted using a quantitative item impact method. Ultimately, a 5-point Likert scale was used to assess the impact coefficient of the questions. In this method, questions with an impact coefficient of 1.5 or higher were retained, while decisions regarding those with lower values were made after consulting with the original questionnaire designer and the research team.

For content validity, feedback was gathered from 10 faculty members in the field of psychiatry using the content validity ratio (CVR) and the content validity index (CVI). In this study, a 3-point Likert scale was established to calculate CVR. This index was determined for each question based on the Lawshe table for a panel of ten, aiming for a CVR value greater than 0.62. To evaluate the CVI, the relevance of each item was assessed based on four-point responses and scored accordingly. The CVI index in the simplicity and clarity domains was calculated in the same way. In the construct validity, we used confirmatory factor analysis (CFA). For CFA and determining the scope of this 24-question questionnaire,

the data of at least 240 bipolar disorder patients referred to Shafa Rasht Hospital in 2023 were used. The patient sampling method for this study was based on consecutive sampling.

To determine convergent validity, the Short Form Health Survey (SF-36), which has also been psychometrically evaluated in Iran, was administered to 40 patients, and the correlation between the scores of the two instruments was calculated.

For reliability, the internal consistency method was employed. To determine internal consistency for the entire instrument and by domain, a Cronbach’s alpha value of 0.7 or higher was used as an indicator of good internal consistency of the questions for measuring treatment progress. The test-retest reliability of the scale was assessed using the intraclass reliability coefficient (ICC). This involved a retest with 30 patients over a minimum of 10 days, classified as a test-retest method.

Data analysis

CFA was conducted using LISREL 8.8 software to assess construct validity, and model fit indices were calculated. For external reliability, the ICC was used, while Cronbach’s alpha was employed for assessing internal reliability. Data analysis was conducted using SPSS 26 software.

Results

The study included participants aged 40-60 years, with an average age of 47.4 ± 13.8 years. The majority were female (53%) and married (55%) (Table 1). To assess item impact for quantitative face validity, 20 bipolar disorder patients

Table 1. Frequency Distribution of Study Samples According to Individual Factors (n = 240)

Variables	No.	%	
Age	<40	73	30.42
	40-60	128	53.33
	>60	39	16.25
	Mean ±SD	47.35 ± 13.83	
	(Min, Max)	(16.0, 89.0)	
Sex	Male	112	46.67
	Female	128	53.33
Education	Under diploma	125	52.08
	Diploma	79	32.92
	Post graduate	8	3.33
	Bachelor's degree	18	7.50
	Master's degree	5	2.08
	Ph.D.	5	2.08
	Marital status	Single	66
Married		132	55.00
Divorced		26	10.83
Widow		16	6.67

rated the importance of each item on a 5-point Likert scale (1 = not important at all, 5 = very important) based on their experiences. All calculated impact scores were above 1.5, indicating that all questions in the questionnaire were confirmed concerning quantitative face validity. The CVR for each of the 24 questions in the questionnaire was greater than 0.62, demonstrating acceptable CVR, and there was no need for the removal or modification of any questions (Table 2). For all items, the CVI was above 0.8, confirming the content validity as well (Table 3).

CFA was used to validate the dimensions of the FAST for patients with bipolar disorder, which includes six domains. All factor loading values were greater than 0.4, indicating acceptable construct validity. In assessing the significance of the relationship between variables, the t-test results showed that the t-values were outside of -1.96 to 1.96 for each item, indicating a statistically significant association between the items of each subscale and respective subscales. Therefore, none of the items were removed (Figures 1 and 2).

All fit indices, except for the Adjusted Goodness of Fit Index (AGFI) and the Parsimonious Goodness of Fit Index (PGFI), had acceptable values, indicating a good model fit (Table 4).

To assess convergent validity, the SF-36 health-related

quality of life questionnaire was utilized, revealing a direct and significant relationship between the short performance assessment test and the SF-36 ($P < 0.001$, $r = 0.675$).

For evaluating internal consistency of the FAST in bipolar disorder patients, Cronbach's alpha was employed and indicated high internal stability (Table 5).

To determine test-retest reliability of the scale, intraclass correlation coefficient (ICC) and Spearman correlation coefficient were used. The ICC values for each of the subscales and the overall scale ranged from 0.740 to 0.980, reflecting high test-retest reliability of the questionnaire (Table 6). The high correlation coefficient between retest scores in each subscale and the total score indicates good reliability of the tool.

Discussion

The FAST consists of 24 items that assess six specific performance domains, including autonomy, occupational functioning, cognitive functioning, financial issues, interpersonal relationships, and leisure time. The Persian version of FAST showed strong internal consistency, with all items having a Cronbach's alpha above 0.90. The reliability of the instrument was also very good, and these findings align with the psychometric results of this tool

Table 2. CVR values, acceptance or rejection of items

Items	E	U	N	CVR	Results
1	10	0	0	1	Acceptable
2	10	0	0	1	Acceptable
3	8	2	0	0.8	Acceptable
4	10	0	0	1	Acceptable
5	10	0	0	1	Acceptable
6	10	0	0	1	Acceptable
7	8	2	0	0.8	Acceptable
8	8	2	0	0.8	Acceptable
9	10	0	0	1	Acceptable
10	10	0	0	1	Acceptable
11	10	0	0	1	Acceptable
12	10	0	0	1	Acceptable
13	10	0	0	1	Acceptable
14	10	0	0	1	Acceptable
15	10	0	0	1	Acceptable
16	10	0	0	1	Acceptable
17	10	0	0	1	Acceptable
18	10	0	0	1	Acceptable
19	8	2	0	0.8	Acceptable
20	8	2	0	0.8	Acceptable
21	10	0	0	1	Acceptable
22	8	2	0	0.8	Acceptable
23	8	2	0	0.8	Acceptable
24	8	2	0	0.8	Acceptable

Table 3. CVI values, acceptance or rejection of items

Items	CVIs	CVIr	CVIc	Results
1	1	1	1	Acceptable
2	0.9	1	1	Acceptable
3	1	0.9	0.9	Acceptable
4	0.8	1	0.8	Acceptable
5	1	1	1	Acceptable
6	1	1	1	Acceptable
7	1	0.9	0.9	Acceptable
8	0.9	1	1	Acceptable
9	0.8	0.9	0.8	Acceptable
10	1	1	1	Acceptable
11	0.8	1	1	Acceptable
12	0.8	1	0.8	Acceptable
13	1	1	1	Acceptable
14	1	1	1	Acceptable
15	1	1	1	Acceptable
16	1	1	1	Acceptable
17	1	1	1	Acceptable
18	1	1	1	Acceptable
19	1	1	1	Acceptable
20	1	1	1	Acceptable
21	1	1	1	Acceptable
22	0.9	1	0.8	Acceptable
23	1	1	1	Acceptable
24	1	1	1	Acceptable

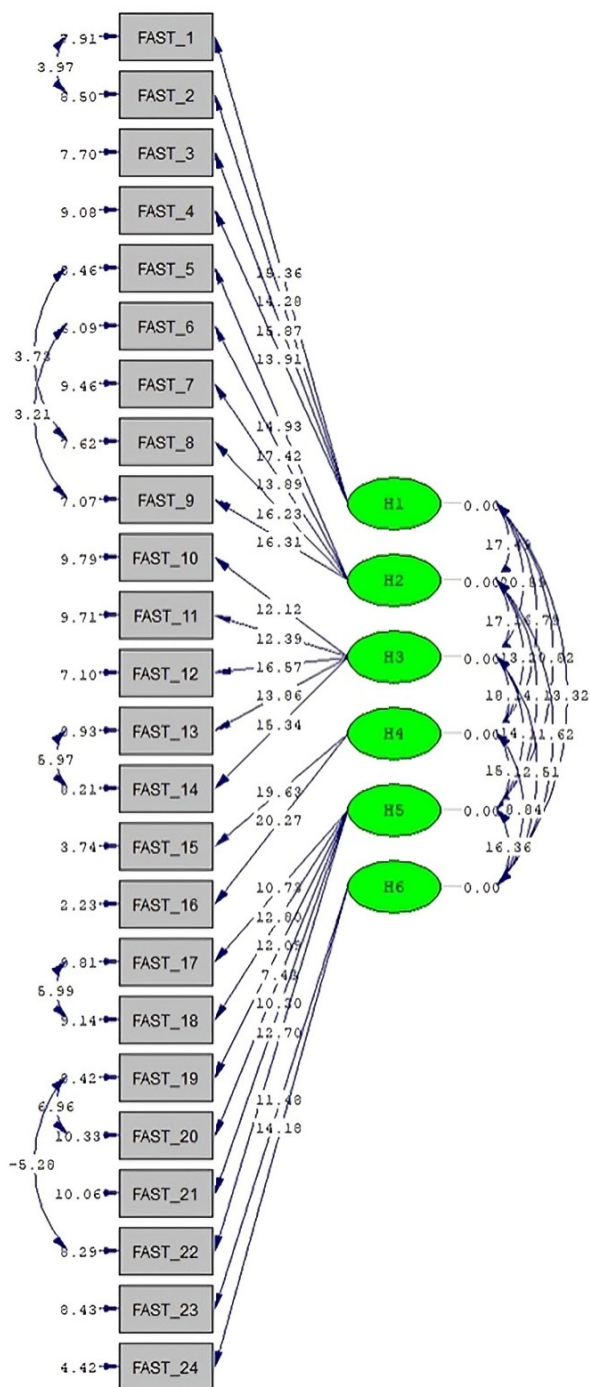


Figure 1. First-order confirmatory factor analysis model for factor estimation of the Persian version of the FAST

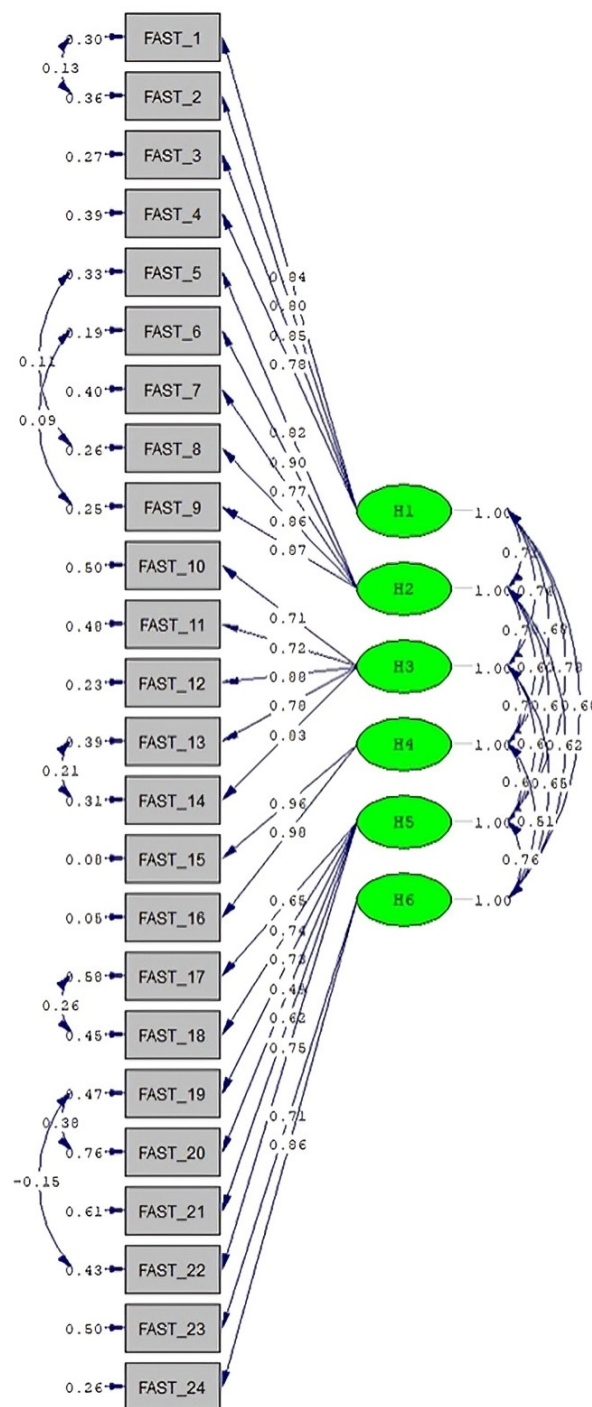


Figure 2. T-values of items of the Persian version of the FAST in a first-order confirmatory factor analysis model

in various countries such as China, Italy, Brazil, Finland, Turkey, and France.¹²⁻¹⁶

The test-retest reliability in this study was assessed over 10 days, indicating high test-retest reliability for this questionnaire. Similar findings regarding test-retest reliability were reported in the initial study in Turkey.^{2,15}

In our study, convergent validity was determined using the SF-36, and a direct and significant relationship was found between the FAST and the SF-36. In China and

Italy, the GAF scale was used, while in Finland, the Social Disability Scale (SDS) and the Structured Interview for the Social and Occupational Functioning Assessment Scale (SOFAS) were utilized, and in Turkey, the Bipolar Disorder Functioning Questionnaire (BDFQ) was administered, all of which demonstrated significant associations with the FAST.^{12-14,16}

The initial study on the FAST found that more severe symptoms are linked to higher FAST scores and lower

Table 4. First-order confirmatory factor analysis model fit indices

Fit indices	χ^2/df	TLI-NNFI	CFI	IFI	RMSEA	AGFI	PGFI
Result	2.14	0.98	0.98	0.98	0.07	0.88	0.81
Criterion	>2 and <5	>0.85	0.9	0.9	0.08	0.9	0.9
Interpretation	Accepted	Accepted	Accepted	Accepted	Accepted	Rejected	Rejected

Table 5. Cronbach's alpha coefficient for internal consistency of FAST subscales

	Number of items	Cronbach's alpha	internal stability
Autonomy	4	0.899	High
Occupational functioning	5	0.933	High
Cognitive functioning	5	0.896	High
Financial issues	2	0.966	High
Interpersonal relationships	6	0.842	High
Leisure time	2	0.757	High
FAST	24	0.953	High

functioning. A hypothetical cutoff score of 11 was proposed, which enhances diagnostic accuracy, exhibiting a sensitivity of 72% and a specificity of 87%.² In the Chinese study, a hypothetical cutoff of 29 was proposed to differentiate between acutely ill bipolar patients and euthymic patients.¹³

Other studies have shown that FAST is a sensitive tool for diagnosing different mood states, based on the observation that euthymic patients demonstrate twice the functional outcomes compared to depressed and manic patients.^{2,13} Our study did not include a healthy control group to assess the tool's ability to differentiate between patients and healthy individuals, but a study in Turkey demonstrated that FAST can differentiate between bipolar patients in acute phases and those in recovery from healthy individuals on average.¹⁶ It was also found that depressed patients showed greater functional impairment than manic patients.^{13,17} However, this may not be the most interesting feature of the scale, as a screening tool may not be particularly useful for diagnosing patients' clinical status.¹²

A study in France found that this tool could also be used to assess the impact of residual symptoms of bipolar disorder on performance levels.¹⁸ Clinical status is a key factor in social functioning, however, other cultural factors such as stigma, opportunities, and overall well-being also play a role. This can lead to variations in social functioning related to clinical disorders across different cultures.¹² For example, in the Chinese tradition, autonomy often encompasses financial issues, family financial management, leisure activities, hobbies, and personal pursuits.¹³

Due to the lack of long-term follow-up in our study, the long-term stability of FAST in bipolar patients could not be assessed, but previous studies show that it maintains high consistency even when assessments are conducted 6

Table 6. ICCs of FAST subscales

Items	ICC	95% confidence interval		P value
		Lower limit	Upper limit	
Autonomy	0.942	0.887	0.970	<0.001
Occupational functioning	0.939	0.881	0.968	<0.001
Cognitive functioning	0.976	0.953	0.988	<0.001
Financial issues	0.874	0.756	0.935	<0.001
Interpersonal relationships	0.940	0.883	0.969	<0.001
Leisure time	0.741	0.497	0.867	<0.001
FAST	0.944	0.891	0.971	<0.001

to 12 months apart.^{19,20}

The main limitation of this study was the lack of access to two separate sample sizes, which prevented the conduct of exploratory factor analysis for construct validity.

Conclusion

The Persian version of the FAST demonstrated favorable psychometric properties in this study. This tool enhances the evaluation of specific functional domains in bipolar disorder patients and represents a significant advancement compared to existing assessment tools. Given its simplicity and the ease with which it can be administered and executed by an interviewer in a short amount of time, it can be valuable in evaluating supplementary interventions aimed at rehabilitation and improving the functioning of bipolar patients, as well as assessing pharmacological effects, psychosocial interventions, and research purposes.

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Authors' Contribution

Conceptualization: All authors.

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Supervision: Kiomars Najafi, Robabeh Soleimani, Mohammad Hasan Novin.

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Writing—review & editing: All Authors.

Competing Interests

The authors declared no conflict of interests.

Ethical Approval

This study received approval from the Ethics Committee of

Guilan University of Medical Sciences (Ethical code: IR.GUMS.REC.1402.096) and was carried out in compliance with the ethical principles outlined in the 2013 Declaration of Helsinki.

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References

1. Keck PE Jr. Long-term management strategies to achieve optimal function in patients with bipolar disorder. *J Clin Psychiatry*. 2006;67 Suppl 9:19-24. doi: [10.4088/jcp.1206e17](https://doi.org/10.4088/jcp.1206e17).
2. Martínez-Aran A, Vieta E, Torrent C, Sánchez-Moreno J, Goikolea JM, Salamero M, et al. Functional outcome in bipolar disorder: the role of clinical and cognitive factors. *Bipolar Disord*. 2007;9(1-2):103-13. doi: [10.1111/j.1399-5618.2007.00327.x](https://doi.org/10.1111/j.1399-5618.2007.00327.x).
3. Tohen M, Hennen J, Zarate CM Jr, Baldessarini RJ, Strakowski SM, Stoll AL, et al. Two-year syndromal and functional recovery in 219 cases of first-episode major affective disorder with psychotic features. *Am J Psychiatry*. 2000;157(2):220-8. doi: [10.1176/appi.ajp.157.2.220](https://doi.org/10.1176/appi.ajp.157.2.220).
4. Strakowski SM, Williams JR, Fleck DE, Delbello MP. Eight-month functional outcome from mania following a first psychiatric hospitalization. *J Psychiatr Res*. 2000;34(3):193-200. doi: [10.1016/s0022-3956\(00\)00015-7](https://doi.org/10.1016/s0022-3956(00)00015-7).
5. Vieta E, Cieza A, Stucki G, Chatterji S, Nieto M, Sánchez-Moreno J, et al. Developing core sets for persons with bipolar disorder based on the International Classification of Functioning, Disability and Health. *Bipolar Disord*. 2007;9(1-2):16-24. doi: [10.1111/j.1399-5618.2007.00322.x](https://doi.org/10.1111/j.1399-5618.2007.00322.x).
6. Zarate CA Jr, Tohen M, Land M, Cavanagh S. Functional impairment and cognition in bipolar disorder. *Psychiatr Q*. 2000;71(4):309-29. doi: [10.1023/a:1004632206684](https://doi.org/10.1023/a:1004632206684).
7. First MB, Spitzer RL, Gibbon M, Williams JB. Structured Clinical Interview for DSM-III-R Personality Disorders (SCID-II). Washington, DC: APA PsycTests; 1995. doi: [10.1037/t07827-000](https://doi.org/10.1037/t07827-000).
8. Altshuler LL, Gitlin MJ, Mintz J, Leight KL, Frye MA. Subsyndromal depression is associated with functional impairment in patients with bipolar disorder. *J Clin Psychiatry*. 2002;63(9):807-11. doi: [10.4088/jcp.v63n0910](https://doi.org/10.4088/jcp.v63n0910).
9. MacQueen GM, Young LT, Robb JC, Marriott M, Cooke RG, Joffe RT. Effect of number of episodes on wellbeing and functioning of patients with bipolar disorder. *Acta Psychiatr Scand*. 2000;101(5):374-81. doi: [10.1034/j.1600-0447.2000.101005374.x](https://doi.org/10.1034/j.1600-0447.2000.101005374.x).
10. Rosa AR, Sánchez-Moreno J, Martínez-Aran A, Salamero M, Torrent C, Reinares M, et al. Validity and reliability of the functioning assessment short test (FAST) in bipolar disorder. *Clin Pract Epidemiol Ment Health*. 2007;3:5. doi: [10.1186/1745-0179-3-5](https://doi.org/10.1186/1745-0179-3-5).
11. Akers N, Lobban F, Hilton C, Panagaki K, Jones SH. Measuring social and occupational functioning of people with bipolar disorder: a systematic review. *Clin Psychol Rev*. 2019;74:101782. doi: [10.1016/j.cpr.2019.101782](https://doi.org/10.1016/j.cpr.2019.101782).
12. Moro MF, Colom F, Floris F, Pintus E, Pintus M, Contini F, et al. Validity and reliability of the Italian version of the functioning assessment short test (FAST) in bipolar disorder. *Clin Pract Epidemiol Ment Health*. 2012;8:67-73. doi: [10.2174/1745017901208010067](https://doi.org/10.2174/1745017901208010067).
13. Zhang Y, Long X, Ma X, He Q, Luo X, Bian Y, et al. Psychometric properties of the Chinese version of the functioning assessment short test (FAST) in bipolar disorder. *J Affect Disord*. 2018;238:156-60. doi: [10.1016/j.jad.2018.05.019](https://doi.org/10.1016/j.jad.2018.05.019).
14. Suominen K, Salminen E, Lähteenmäki S, Tupala T, Isometsä E. Validity and reliability of the Finnish version of the functioning assessment short test (FAST) in bipolar disorder. *Int J Bipolar Disord*. 2015;3:10. doi: [10.1186/s40345-015-0025-1](https://doi.org/10.1186/s40345-015-0025-1).
15. Cacilhas AA, Magalhães PV, Ceresér KM, Walz JC, Weyne F, Rosa AR, et al. Validity of a short functioning test (FAST) in Brazilian outpatients with bipolar disorder. *Value Health*. 2009;12(4):624-7. doi: [10.1111/j.1524-4733.2008.00481.x](https://doi.org/10.1111/j.1524-4733.2008.00481.x).
16. Aydemir Ö, Uykur B. [Reliability and validity study of the Turkish version of functioning assessment short test in bipolar disorder]. *Turk Psikiyatri Derg*. 2012;23(3):193-200. [Turkish].
17. Aparicio A, Santos JL, Jiménez-López E, Bagney A, Rodríguez-Jiménez R, Sánchez-Morla EM. Emotion processing and psychosocial functioning in euthymic bipolar disorder. *Acta Psychiatr Scand*. 2017;135(4):339-50. doi: [10.1111/acps.12706](https://doi.org/10.1111/acps.12706).
18. Claire D, Raust A, Fouques D, Barbato A, Etain B, Henry C. Validation of the French version of the functioning assessment short test (FAST) in patients with bipolar disorder. A study from the French bipolar expert centers network. *Int Clin Psychopharmacol*. 2012;28:e62-3. doi: [10.1097/01.yic.0000423355.40365.cb](https://doi.org/10.1097/01.yic.0000423355.40365.cb).
19. González-Ortega I, Rosa A, Alberich S, Barbeito S, Vega P, Echeburúa E, et al. Validation and use of the functioning assessment short test in first psychotic episodes. *J Nerv Ment Dis*. 2010;198(11):836-40. doi: [10.1097/NMD.0b013e3181f97bf9](https://doi.org/10.1097/NMD.0b013e3181f97bf9).
20. Strejilevich SA, Martino DJ, Murru A, Teitelbaum J, Fassi G, Marengo E, et al. Mood instability and functional recovery in bipolar disorders. *Acta Psychiatr Scand*. 2013;128(3):194-202. doi: [10.1111/acps.12065](https://doi.org/10.1111/acps.12065).