Eur J Psychiat. 39 (2025) 100325

Contents lists available at ScienceDirect

The European Journal of Psychiatry

journal homepage: www.elsevier.com/locate/ejpsy

Original article

Psychometric validation of the self-administered *French version of the Functioning Assessment Short Test* (FAST): Factor structure, reliability, validity, and sociodemographic predictors

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ARTICLE INFO

Keywords:
Functioning Assessment Short Test
FAST
Self-administration
Depression
Psychometric properties
French

ABSTRACT

Background and objectives: The *Functioning Assessment Short Test* (FAST) is widely used to assess psychosocial functioning across psychiatric conditions. Despite extensive international validation, a validated French version of the self-administered FAST is currently lacking. This study aimed to evaluate the psychometric properties of the self-administered French FAST in a general adult population.

Methods: A total of 508 French-speaking adults aged 18–65 completed the FAST alongside standardized measures of depression and anxiety. Exploratory and confirmatory factor analyses and bifactor modeling evaluated the original six-factor structure. Reliability was assessed using Cronbach's alpha and McDonald's omega. Convergent validity was evaluated through multitrait-multimethod (MTMM) analysis and correlations with depression and anxiety. Generalized additive models (GAMs) examined non-linear associations between symptom severity and FAST scores, controlling for demographic covariates.

Results: The original six-factor structure was confirmed, and the bifactor model further supported interpretation of both total and subscale scores. Reliability was strong for the total FAST score ($\alpha = .86$; $\omega = .90$), whereas subscale reliability ($\alpha = .58$–$.80$), with lower values for autonomy, cognitive, and leisure. MTMM analysis demonstrated moderate-to-high monotrait correlations (.51–.84), and moderate correlations with depressive ($r = .46$) and anxiety ($r = .35$) symptoms, supporting convergent validity. GAM analyses revealed a non-linear relationship between depressive symptoms and psychosocial impairment ($edf = 2.91$, $F = 19.87$, $p < .001$), alongside significant effects of anxiety ($p = .024$) and employment status ($p = .003$).

Conclusions: The French self-administered FAST demonstrates robust psychometric properties and appears suitable for assessing psychosocial functioning in general adult populations, though caution is advised when interpreting autonomy, cognitive, and leisure subscales in non-clinical samples until further clinical validation is available.

Introduction

The *International Classification of Functioning, Disability and Health* (ICF) provides a comprehensive framework for assessing functioning and disability, encompassing body structures and functions, activities and participation, and environmental factors.[1] In depression, two ICF categories are particularly relevant: (1) *body functions*, which include mental functions (*i.e.*, emotional, energy, cognition, temperament, sleep, psychopathology) and pain; and (2) *activities and participation*, covering interpersonal relationships, work, self-care, and community engagement.[2] Emotional dysfunctions (19 %) and energy loss (17 %) are among the most frequently reported impairments.[2]

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https://doi.org/10.1016/j.ejpsy.2025.100325
Received 23 June 2025; Accepted 12 September 2025
Available online 26 September 2025

While psychosocial functioning is an essential indicator of treatment effectiveness in depression,[3] research has historically focused on symptom reduction rather than functional recovery. Indeed, 80 % of studies prioritize assessment of symptomatology over functional impairment and quality of life.[4,5] Even among the studies addressing functional outcomes, many rely solely on global impairment scores rather than evaluating specific functional domains.[5] This methodological gap limits the development of targeted interventions tailored to daily functional difficulties.

There is growing recognition of the need for brief, efficient, and clinically applicable tools to assess psychosocial functioning across psychiatric populations (see OSF link[1] for main measures). An ideal instrument should be rapid, easy to interpret, and sensitive to domain-specific impairments.[5,6] Cognitive domains—particularly executive functioning, working memory, attention, and processing speed—are also crucial, given their strong links to psychosocial adaptation, particularly in occupational and social contexts.[7,8] Deficits in these domains are associated with poorer quality of life, diminished social interactions, and impaired occupational performance.[3,9] Importantly, subjective cognitive complaints often correlate with psychosocial dysfunction,[10] though objective deficits do not always show the same association.[11,12]

The relationship between depression severity and psychosocial functioning remains complex and bidirectional. Functional impairments may persist beyond symptom remission, highlighting the need for rehabilitation strategies that extend beyond symptom reduction.[4,13] Specific symptoms such as fatigue, sleep disturbances, and anhedonia appear particularly detrimental to social and occupational functioning.[14] Functional assessment may therefore provide better guidance for treatment decisions, as recovery often lags behind symptom remission.[2,4]

Among existing measures, the *Functioning Assessment Short Test* (FAST)[15] is widely recognized. This 24-item tool covers six domains: autonomy, occupational functioning, cognitive functioning, financial issues, interpersonal relationships, and leisure time. Each item is rated on a four-point scale (0 = "no difficulty" to 3 = "severe difficulty"), with total score ranging from 0 to 72. The FAST was initially intended to assess functioning over the 15 days preceding the evaluation.[15] In bipolar disorder, FAST scores classify impairment as none (0–11), mild (12–22), moderate (23–40), and severe (>40).[16] It aligns with ICF standards,[17] and measures psychosocial functioning independently of quality of life or symptom severity. Notably, it also assesses perceived cognitive functioning, which strongly contribute to psychosocial outcome.[7,8]

Despite its broad international use, and its use in large observational studies in France,[18] no validated French version of the FAST exists. This represents a critical gap, especially given the tool's successful adaptation and validation in multiple languages (Spanish,[15] Chinese,[19] Brazilian Portuguese,[20] Turkish,[21] Italian,[22,23] Mexican Spanish,[24] Finnish[25]) and conditions (bipolar disorder,[15,16,20] depression,[26] schizophrenia,[27,28] first psychotic episode,[29,30] autism,[31] Attention Deficit Hyperactivity Disorder,[17] Alzheimer's disease[32]). An adapted version for older adults (FAST-O) has also been validated in Dutch[33] (see OSF link for summary of psychometrics properties across FAST versions).

The FAST was also adapted for self-administration to allow individuals to assess their functioning quickly and effectively. The German version, based on the English interview format, included slight modifications—removal of item 12 (problem-solving) and modification of item 21 (sexual satisfaction)—to better suit the general population.[34] Validated in a pilot study with 54 adults with various clinical diagnoses, it showed acceptable internal consistency (α = .70), though limited by sample size, lack of factorial analysis, and participant homogeneity (middle-to-late adulthood, cohabiting). The self-administered FAST was also validated in an English-speaking outpatient sample (n = 84).[35] Items matched those in the clinician-administered version, differing only in the administration method. The two formats were strongly correlated (Spearman's ρ = .75), and both showed high internal consistency (α = .91), even when administered within 24 hours. However, this version also lacks factorial validation.

Regarding the digital format, a self-administered version is also available, accompanied by brief explanations for each item to enhance respondents' understanding.[36] The factor structure of this version was analyzed. The items 'participating in social activities' and 'having satisfactory sexual relationships' were shifted from the interpersonal relationships factor to the leisure time factor due to their strong association, resulting in adjusted maximum scores of 12 for both factors instead of 18 and 6, respectively, as in the original scale. The interview-administered FAST takes 7–8 minutes,[23,27] and the FAST-O about 15 minutes,[33] while the self-administered version reduces completion time to ~2 minutes.[35]

The present study aims to validate the French self-administered FAST in a general adult population. Following best-practices guidelines,[37] we conducted exploratory and confirmatory factor analyses (CFA) to test whether the original six-factor model is replicated,[36] and whether a bifactor model better accounts for variance across domains. We further examined the influence of sociodemographic variables (gender, age, education level, employment, marital and parental status) and depressive/anxiety symptomatology on FAST scores. Consistent with prior research, we hypothesized that older age, higher education, employment, and being in a relationship would be associated with better functioning, that parental status would be associated with lower impairment, and that here would be no significant effects of gender.[36] We also hypothesized higher depressive and anxiety symptoms would predict impairment.[38]

By validating the self-administered French FAST in a non-clinical population, this study also aimed to explore its utility for detecting functional vulnerability related to depressive symptoms in the general population. This could support early detection and broaden research on psychosocial functioning beyond clinical diagnoses.

Materials and methods

Participants

A total of 671 French-speaking adults aged 18–65 completed online questionnaires after providing informed consent via REDCap.[39] No compensation was provided, and anonymity was assured. Ethical approval was obtained from the University Ethics Committee. Exclusion criteria included medical conditions (*e.g.,* stroke, head injury), psychiatric disorders, or past/current substance dependence. Participants were excluded if they did not meet the inclusion criteria (n = 19) or had any missing data on the FAST (n = 61), Center for Epidemiologic Studies Depression Scale (CES-D; n = 26), or Depression, Anxiety, and Stress Scales - short form (DASS-21; n = 23). We also removed all cases with missing sociodemographic data (educational levels: n = 3; employment status: n = 12). Gender was assessed by self-report, with participants selecting from the following options: female, male, non-binary, transgender, or other. In line with Tabachnick and Fidell,[40] categories with fewer than 10 observations (non-binary gender: n = 1; transgender person: n = 3; other gender: n = 1; retired: n = 10) were excluded from both correlation and regression analyses to prevent unstable estimates and ensure sufficient statistical power. Consequently, a total of 159 participants were excluded. To detect outliers in FAST total scores, the median absolute deviation (*MAD*) method was employed.[41] Using a highly conservative outlier detection criterion (±3MAD),[42] four participants were identified as outliers and were thus excluded. The final sample included 508 participants (51.38 % females) with an average age of 30.70 years (SD = 12.57, *range* = 18–65). A substantial proportion of

[1] Open science framework (OSF) link: https://osf.io/tpjwv/?view_only=34c66d31ddd04f8d9d086dc87196b821

participants (41.34 %) were students. Demographics are summarized in Table 1.

Measures

Sociodemographic variables. Participants reported age; self-identified gender (female, male, non-binary, transgender, or other); educational level (no degree, primary, lower secondary, upper secondary, bachelor's, master's, doctorate), employment status (profession, with instructions to indicate "student" if still in education or "incapacity" if on sick leave for more than three months for a reason other than pregnancy), marital/familial status (single, relationship/cohabiting, separated/divorced/widowed), and parental status (no children, children). For analyses, variables were regrouped as follows: gender (female vs. male), education (high school diploma or less vs. bachelor's degree or higher), employment (student, worker, unemployed), marital/familial status (single, relationship/cohabiting, separated/divorced/widowed), and parental status (no children, children, or unspecified, corresponding to missing responses).

Self-administered FAST. Authorization to translate the FAST into French was obtained from the original author.[15] The translation followed a rigorous process: Spanish-to-French translation, back-translation, and verification by a native Spanish speaker. To ensure validity, translators had no affiliation with the study. Adaptations for self-administration were based on the structured interview guidelines developed by the Barcelona team at the Bipolar and Depressive Disorders Unit, Hospital Clinic of Barcelona. After expert consultation, several item-level clarifications were introduced to enhance feasibility in self-report format. The finalized French version is available on OSF. This version emphasizes 'participants' subjective evaluation of psychosocial functioning, consistent with prior validation studies,[34,36] but differs from the standardized scoring rules of the clinician-administered format. The self-administered questionnaire assesses current psychosocial functioning.

Table 1
Descriptive and comparative statistics on demographic variables and FAST total scores.

Demographic variables	N (%), M ± SD	Statistic results[a]	Post-hoc analyses
Age (years)	30.70 ± 12.57	$r = -.27$ ***	
Gender		$t(506) = 1.94$†, $d = .17$	
- Female	261 (51.38 %)	15.9 ± 9.47	
- Male	247 (48.62 %)	14.4 ± 8.62	
Education		$t(506) = -4.44$ ***, $d = .40$	
- High school diploma or less	291 (57.28 %)	16.7 ± 9.15	
- Bachelor and higher	217 (42.72 %)	13.1 ± 8.62	
Occupation		$F(2, 42.35) = 19.55$ *** $\eta^2 = .08$	
- Student	210 (41.34 %)	17.7 ± 9.39	$d = .29$ (unemployed > student)
- Worker	281 (55.31 %)	12.9 ± 7.98	$d = .56$ (student > worker***)
- Unemployed	17 (3.35 %)	20.5 ± 12.2	$d = .92$ (unemployed > worker)
Marital Status		$F(2, 505) = 11.68$ *** $\eta^2 = .04$	
- Single	267 (52.56 %)	16.9 ± 9.39	$d = .39$ (single > relationship***)
- Relationship/ Cohabitation	216 (42.52 %)	13.4 ± 8.37	$d = .25$ (relationship > separated***)
- Separated/ Divorced/ Widowed	25 (4.92 %)	11.4 ± 7.96	$d = .60$ (single > separated**)
Parental Status		$F(2, 505) = 12.4$ *** $\eta^2 = .05$	
- No children	195 (38.39 %)	16.4 ± 8.67	$d = .47$ (no children > children***)
- Children	168 (33.07 %)	12.4 ± 8.52	$d = .48$ (unspecified > children***)
- Unspecified	145 (28.54 %)	16.7 ± 9.59	$d = .04$ (unspecified > no children)

Note. r = Pearson's correlation; $t(df)$ = t-test statistic; W = Mann-Whitney U test statistic; d = Cohen's d;
p-values: $p < .05$ (*), $p < .01$ (**), $p < .001$ (***).

[a] Effect sizes are classified as negligible ($d < .2$; $r < .1$), small ($.2 \leq d < .5$; $.1 \leq r < .3$), moderate ($.5 \leq d < .8$; $.3 \leq r < .5$), and large ($d \geq .8$; $r \geq .5$).

CES-D. The 20-item French version of the CES-D is a self-report measure designed to assess depressive symptoms severity over the past week using a 4-point Likert scale (0–3; *range* = 0–60).[43,44] The CES-D consists of four subscales: depressed affect, positive affect (reverse scored), somatic complaints, and interpersonal relationship disturbances. In our sample ($M = 17.92$, $SD = 10.99$, range = 0–54), internal consistency was excellent for the total score ($\alpha = .91$).

DASS-21. The French DASS-21 assesses depression, anxiety, and stress severity over the past week on a 4-point Likert scale (0–3).[45,46] Subscale scores (*range* = 0–42) are obtained by summing the items and multiplying the result by two. In our sample ($M = 9.11$, $SD = 8.57$, *range* = 0–42), internal consistency was excellent for the total scale ($\alpha = .93$).

Statistical analysis

Analyses were conducted using RStudio (v4.4.3).[47]

Factor structure. FAST factorial structure and reliability were analyzed via descriptive statistics, covariance matrices,[48] normality tests (Shapiro-Wilk, Kolmogorov-Smirnov, $p < .05$),[49,50] skewness (-2 to +2), kurtosis (<3), visual methods, and Mardia's multivariate normality test.[48,51] Factor analysis suitability was assessed by Kaiser-Meyer-Olkin (KMO ≥ .70)[52] and Bartlett's test ($p < .05$).[53]

Exploratory factor analysis (EFA) with promax rotation was guided by scree plots,[40] Kaiser's criterion (>1 eigenvalues),[54] and Horn's parallel analysis.[55] CFA validated the proposed six-factor model using WLSMV for ordinal data.[56] Fit indices included RMSEA (≤.06), PCLOSE (≥.05), CFI/TLI (≥.95), and SRMR (≤.08).[57] Loadings ≥.40 or slightly lower with theoretical justification were retained.[58]

Additional models tested were (1) a bifactor model (one general, six specific factors) and (2) a higher-order model (six factors, one second-order factor).[59,60] Model comparisons utilized CFI, TLI, RMSEA, and SRMR.

Reliability. Reliability metrics included Cronbach's alpha ($\alpha \geq .70$),[61] item-total correlations ($r > .30$),[62] and average inter-item correlations (.15–.50).[63,64] Subscale reliability was item-based to prevent underestimation.[65] Omega Total (ωt) and Omega Hierarchical (ωh) were computed. A threshold of ωh ≥ .70 validated total FAST scores; ωh ≤ .50 indicated subscale scores interpretation.[60] Schmid-Leiman transformation and PRMSE assessed variance contributions.[60]

Validity. A Multitrait-Multimethod (MTMM) matrix evaluated convergent and discriminant validity,[66,67] comparing CFA and bifactor-derived subscale scores via Pearson correlations. Higher monotrait correlations indicated construct validity. Convergent validity involved correlations between FAST total and CES-D/DASS anxiety (expected $r = .30$–$.50$).[68]

Demographic Effects. Pearson correlations assessed age effects (small $r < .30$, moderate .30–.50, large ≥.50). Independent t-tests (gender, education) utilized Levene's test for variance homogeneity. Employment differences were analyzed by Welch's ANOVA ($F = 7.485$, $p < .001$) with Bonferroni corrections; marital/parental status via ANOVA (Levene's $p > .05$) and Tukey's post hoc tests. Effect sizes (η^2, Cohen's d) were interpreted conventionally (negligible <.20, small .20–.50, moderate

.50–.80, large ≥.80).

Predictive Modeling. Regression models assessed clinical (depression, anxiety) and demographic predictors on FAST impairment. Predictors included age, gender (reference: female), education (≥bachelor), employment (worker), marital/parental status. Model assumptions were verified using diagnostic plots, RESET, Breusch-Pagan tests, and VIF.[62] AIC and BIC guided model selection; predictive accuracy employed cross-validation metrics (RMSE, MAE, R^2).

A generalized additive model (GAM), incorporating smooth terms (depression/anxiety) and demographic covariates, captured nonlinear relationships. GAM was preferred over polynomial regression, with fit validated via diagnostic checks (K-index~1, $p > .05$) and cross-validation metrics (RMSE, MAE, R^2).

Illustrative Profile for Risk Stratification. Three real-case profiles were created (High-Risk: ≥90th percentile CES-D/DASS anxiety, low education, unemployment, separated; Low-Risk: ≤10th percentile, protective factors; Standard: median CES-D/DASS anxiety). CES-D scores (0–60) were simulated; GAM predicted FAST scores with robust 95 % confidence intervals.

Results

Descriptive analyses

Descriptive Analyses FAST total scores ($n = 508$) averaged 15.2 (*SD* = 9.07; *median* = 14; *range* = 0–40), indicating generally low impairment (Fig. 1). Significant non-normality ($p < .001$) was confirmed by Mardia's test (skewness=7449.9, kurtosis=53.5, $p < .001$). Univariate skewness (.49–2.26) and kurtosis (2.02–8.24) suggested leptokurtic distributions. Robust parametric methods were appropriate due to sample size.[62]

Construct validity

Factor structure. High KMO (.85 overall; .74–.92 per item) and significant Bartlett's test ($\chi^2 = 3342.73$, $df = 276$, $p < .001$) supported factor analysis. Parallel analysis indicated a six-factor structure (eigenvalues >1), explaining 43 % variance, with inter-factor correlations (.37–.62). CFA demonstrated good fit (RMSEA=.048[90 % CI=.042–.054], PCLOSE=.70, SRMR=.06, CFI=.96, TLI=.95), significantly outperforming the null model. Loadings ranged from .35 to .94. Items with weaker contributions included those assessing difficulties in mental calculation ('cognitive_2', λ = .35), self-care ('autonomy_4', λ = .41), attention/concentration ('cognitive_1', λ = .47), recent memory ('cognitive_4', λ = .47), and family relations ('social_4', λ = .41). Those items were retained due to their theoretical relevance and contribution to content validity. Managing finances ('Finance_1', λ = .94) had a high loading, suggesting redundancy with the related item on spending habits ('Finance_2', λ = .72). Further details are provided in **Supplementary Result S1** (**Figures S1-S2, Table S1**).

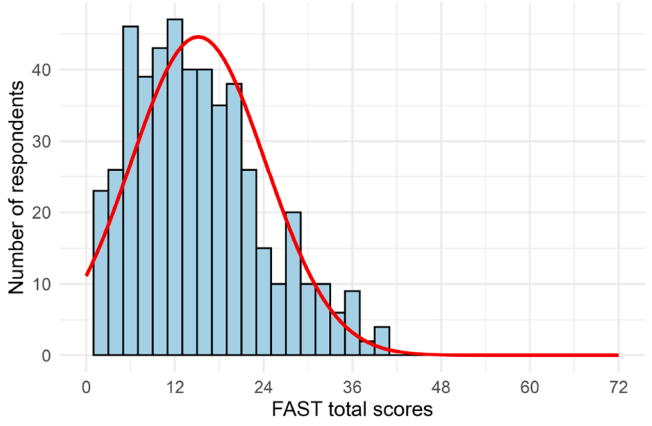

Fig. 1. *FAST total scores distribution (histogram).*
Note. FAST = Functioning Assessment Short Test.

Model-based reliability. The bifactor model (CFI = .99, TLI = .98, RMSEA = .04, SRMR = .06) outperformed the second-order hierarchical model, supporting multidimensionality. Schmid-Leiman transformations indicated stronger subscale than general factor loadings for several items.

Reliability

Internal consistency. FAST total indicated strong internal consistency ($\alpha = .86$). Subscale α ranged .58–.80, highest for 'professional', 'financial', and 'social', lowest for 'autonomy', 'cognitive' and 'leisure'. Removing the self-care item ('autonomy_4') from the autonomy subscale improved α from .59 to .64. Average inter-item correlation (.26) was acceptable. Stable α values after item removal confirmed consistent item contributions (Table 2).

Subscale contribution. Omega Total (ωT = .90) indicated high reliability of the total score, whereas Omega Hierarchical (ωh = .64) suggested that much of this reliability was attributable to the general factor. Although the ECV (.37) pointed to some multidimensionality, the PRMSE values (*range* = .41–.81, M ≈ .63) showed only modest to moderate reliability for the subscales compared to the general factor (.66). This suggests that while reliability varied across subscales, some of them captured their specific dimensions more effectively than the total score captured the general factor.

Convergent/discriminant validity

Validity MTMM correlations (.51–.84 monotrait-heteromethod; −.16 to .31 heterotrait-heteromethod) indicated robust convergent and discriminant validity. The general factor correlated strongly (up to .93) with most subscales (see **Supplementary Result S2, Table S2**). FAST correlated moderately with CES-D ($r = .46$, 95 % CI[.38–.52], $p < .001$) and DASS anxiety scores ($r = .35$, 95 % CI[.28–.43], $p < .001$).

Demographics effects

Moderate negative correlation between age and FAST ($r = -.27$, $p < .001$). Gender differences marginally non-significant ($p = .053$).

Table 2
Descriptive statistics, internal consistency, and items analysis for the FAST.

FAST scale	M (SD)	Cronbach's alpha	Average inter-item correlation	Alpha if item deleted	item-total correlation
Autonomy (4 items)	1.8 (1.8)	.58	.26	.54, .42, .41, .64	.34, .48, .49, .19
Professional (5 items)	2.4 (2.6)	.78	.41	.72, .75, .74, .73, .73	.60, .50, .53, .57, .56
Cognitive (5 items)	3.7 (2.6)	.65	.27	.62, .63, .59, .60, .54	.34, .32, .42, .39, .52
Financial (2 items)	1.1 (1.4)	.80	.67	.67, .67	.67, .67
Social (6 items)	4.6 (3.4)	.74	.32	.67, .65, .67, .74, .73, .73	.59, .64, .58, .32, .35, .37
Leisure (2 items)	1.6 (1.6)	.67	.50	.50, .50	.50, .50
TOTAL scores	15.2 (9.1)	.86	.20	–	–

Note. Cronbach's alpha values are standardized for consistency across subscales and the total FAST score. Values in the "Alpha if item deleted" and "Item-total correlation" columns represent statistics calculated for each individual item within the subscale.

Education showed significant effects ($p < .001$, $d = -.40$). Employment differences were significant ($F = 19.55$, $p < .001$), with workers showing lower impairment than students ($p < .001$, $d = .56$). Marital status significantly influenced FAST ($F = 11.68$, $p < .001$), single individuals scoring higher than those in relationships ($p < .001$, $d = -.39$) and separated individuals ($p < .008$, $d = –.60$). Parental status also affected scores ($F = 12.4$, $p < .001$), non-parents scoring higher than parents ($p < .001$, $d = .45$).

Predictive modeling

GAM (Model 6) was compared to linear (Models 1–3), quadratic (Model 4), and interaction models (Model 5), with full details and model comparisons in **Supplementary Result S3** (**Table S3**).

A quadratic regression model incorporating depression (CESD_total^2), showed acceptable fit (AIC = 3544.41, BIC = 3603.64) and explained 28 % of the variance (adjusted $R^2 = .26$). Depression was the strongest predictor ($\beta = 0.69$, $p < .001$), with a significant quadratic term ($\beta = -0.01$, $p = .002$), confirming non-linearity. Anxiety had a modest but significant effect ($\beta = 0.12$, $p = .039$). Employment status was the strongest demographic predictor, with unemployed individuals showing significantly higher impairment than workers ($\beta = 5.35$, $p = .044$). Full predicted values are provided in **Supplementary Result S4** (**Tables S4-S6**).

The initial GAM (Model 6) included all variables, with refinement retaining only marginally or significant predictors (optimized Model; see Table 3 for main results, **Supplementary Result S4** with **Table S7** and **Figure S3**). Compared to the quadratic model, the GAM captured a small additional portion of variance ($\Delta RSS = 66.48$) and achieved greater flexibility (≈ 5.7 additional effective degrees of freedom). However, since the models are not strictly nested, AIC/BIC provide the appropriate basis for comparison: the GAM showed better overall fit (AIC = 3533.99; BIC = 3574.05), while explaining a similar proportion of variance (adjusted $R^2 = .27$; 28.2 %). Depression exhibited a non-linear association with impairment (edf=2.91, $F = 19.87$, $p < .001$). Anxiety ($edf = 1.00$, $F = 5.11$, $p = .024$) and employment status ($edf = 1.63$, $F = 4.88$, $p = .003$) were also significant predictors. Age approached significance ($edf = 1.00$, $F = 3.29$, $p = .070$). Other demographic predictors were non-significant ($p > .05$).

Predicted FAST scores differed across profiles (see Table 4 for main results; **Supplementary Result S5** with **Table S8** for detailed estimates): Risk Profiles *High-Risk* profiles showed greatest impairment, followed by *Standard*, then *Low-Risk* ($F = 6.54$, $p = .004$; Fig. 2).

Discussion

This study provides the first psychometric validation of the self-administered French FAST in a non-clinical adult population, applying robust methods consistent with best practices in psychological assessment. Results confirmed strong reliability (Cronbach's $\alpha = .86$; Omega Total $\omega T = .90$) and robust validity, supporting the FAST's utility as a standardized measure of psychosocial functioning among French-speaking adults. Our analyses replicated the original six-factor

Table 4
Summary of clinical profiles based on key variables.

Variable	Low-Risk Profile	Standard Profile	High-Risk Profile
CESD Total	seq(0, 60, by = 1)	seq(0, 60, by = 1)	seq(0, 60, by = 1)
Anx_DASS	0	6	22
Age	33	20	41
Employment status	Worker	Student	Unemployed
Gender	Female	Female	Female
Diploma	Bachelor and higher	Bachelor and higher	CESS and less
Marital status	In a relationship	Single	Separated
Children	Children	Unspecified	Children
Mean predicted FAST	14.96 ± 1.78 [11.48–18.45]	18.43 ± 1.71 [15.08–21.78]	21.38 ± 2.42 [16.64–26.12]

Note. Profiles were constructed for illustrative purposes based on three real cases. The *High-Risk* profile combined high CES-D and anxiety scores (≥90th percentile) with sociodemographic vulnerabilities (low education, unemployment, separated); the most symptomatic case was selected. The *Low-Risk* profile reflected the opposite pattern (≤10th percentile and protective factors), and the *Standard* profile reflected median CES-D and anxiety values. A CES-D range (0–60) was simulated per profile, holding other variables constant. Predicted FAST scores and 95 % confidence intervals were estimated via the optimized GAM with robust standard errors.

Table 3
Predicted FAST total scores based on CESD total scores across different generalized additive models (GAMs)[a].

CES-D	Depression	+ Anxiety	+ Age	+ employment	Optimized Model
0	5.65 (1.35)	6.81 (1.41)	6.40 (1.32)	4.78 (1.33)	6.39 (1.44)
5	8.91 (0.68)	9.76 (0.73)	9.40 (0.67)	7.83 (0.70)	9.15 (0.82)
10	12.13 (0.50)	12.66 (0.53)	12.36 (0.49)	10.86 (0.56)	11.88 (0.66)
15	15.07 (0.53)	15.30 (0.53)	15.07 (0.51)	13.65 (0.60)	14.37 (0.65)
20	17.37 (0.54)	17.33 (0.54)	17.21 (0.53)	15.80 (0.63)	16.28 (0.66)
25	18.94 (0.60)	18.60 (0.61)	18.67 (0.59)	17.23 (0.69)	17.45 (0.71)
30	19.90 (0.68)	19.17 (0.73)	19.56 (0.67)	18.04 (0.77)	17.96 (0.81)
35	20.57 (0.79)	19.33 (0.89)	20.15 (0.78)	18.58 (0.88)	18.09 (0.96)
40	21.31 (1.02)	19.47 (1.19)	20.79 (1.01)	19.22 (1.09)	18.28 (1.22)
45	22.33 (1.51)	19.88 (1.71)	21.71 (1.49)	20.21 (1.55)	18.80 (1.72)
50	23.59 (2.37)	20.53 (2.59)	22.84 (2.31)	21.50 (2.38)	19.59 (2.56)
55	24.98 (3.60)	21.31 (3.85)	24.10 (3.49)	22.95 (3.61)	20.55 (3.79)
60	26.39 (5.05)	22.11 (5.33)	25.38 (4.87)	24.44 (5.05)	21.53 (5.24)
Var. (%)	23.16	24.54	25.67	26.95	28.21
β (SE)	15.16 (0.35)	15.16 (0.35)	18.60 (0.92)	16.28 (1.61)	16.32 (1.53)
F	42.84***	21.98***	36.35***	36.87***	19.87***
AIC	3560.46	3553.22	3545.56	3538.86	3533.99

Note. FAST = Functioning Assessment Short Test; CES-D = center for epidemiological studies depression scale; Var. (%) = percentage of explained variance; β(SE) = regression coefficient (standard errors); F = F-statistic; AIC = Akaike information criterion. The table presents predicted FAST scores based for varying CES-D total scores under different generalized additive models (GAMs). Sets of predictions are provided: (1) Predictions based solely on depression, without controlling for additional variables. This model highlights the direct relationship between depressive symptoms and functional impairment. (2) Predictions incorporating depression and fixed significant covariates (most frequent categories for each variable): a) with anxiety (sample's mean: 9.11); b) age (sample's mean: 30.70 years); c) with employment status (worker). This model offers a more nuanced prediction of functional impairment by accounting for these relevant variables. A CES-D total score of 15 predicts a transition from no to mild impairment in all models.

[a] FAST categories: no impairment: FAST ≤ 11; Mild impairment: 12 ≥ FAST ≤ 22; Moderate impairment: 23 ≥ FAST ≤ 40; Severe impairment: FAST > 40.

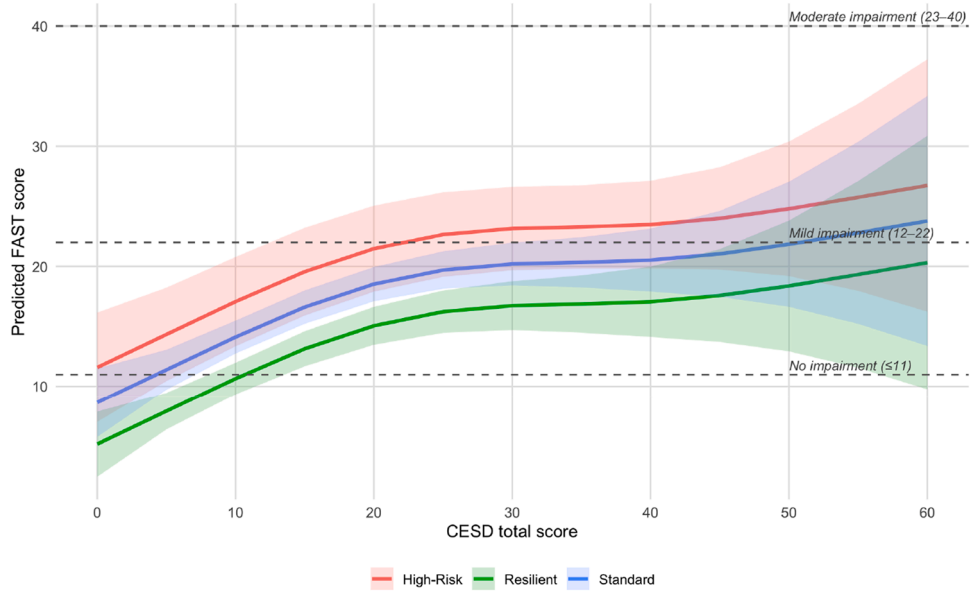

Fig. 2. *Predicted FAST total scores across clinical profiles as a function of depression severity (CES-D total score)*[a].
Note. FAST = Functioning Assessment Short Test. CES-D = Center for Epidemiological Studies Depression Scale. The figure displays predicted FAST total scores across depression severity (CES-D total scores) for three illustrative clinical profiles: *Standard* (blue), *High-Risk* (red), and *Low-Risk* (green). Profiles were derived from actual combinations of sociodemographic and clinical characteristics, representing average, vulnerable, and protective constellations, respectively. Predictions and 95 % confidence intervals were obtained from a GAM with robust standard errors.
[a]Dashed lines indicate clinically relevant thresholds,[16] categorizing individuals into no impairment (≤11), mild impairment (12–22), and moderate impairment (23–40).

structure[36] and additionally supported a bifactor model, emphasizing the relevance of interpreting both total and domain-specific scores.

Subscale analyses indicated high internal consistency for the professional and financial domains, while autonomy, cognitive, and leisure subscales exhibited relatively lower reliability. In particular, the 'autonomy' subscale (α = .58) falls below the commonly accepted .70 threshold, indicating higher measurement error and reduced score stability.[69] Similarly, the 'cognitive' (α = .65) and 'leisure' (α = .67) subscales also demonstrated only modest reliability. This findings suggest that their use as standalone scores should be interpreted with caution, particlarly in individual-level or non-clinical applications.[69] Clinically, these lower reliability estimates may, in part, reflect sensitivity to impairments typically associated with depression, such as reduced self-care, cognitive problem-solving difficulties, or diminished engagement in leisure activities.[70] The limited variability observed within this non-clinical sample potentially constrains the detection of subtle deficits, suggesting that these subscales could be particularly informative and discriminative in clinical populations or among individuals experiencing more pronounced depressive symptoms. Future studies should explicitly validate these subscales within clinical contexts to clarify their utility and potential areas of improvement. Furthemore, the use of a general population with few symptoms—particularly with a high proportion of students—introduces a restriction of variance in impairment levels. This methodological artifact tends to underestimate both reliability coefficients (particularly for subscales) and validity coefficients with other measures.[70] Consequenlty, the associations and reliability indices observed here may appear more robust in a clinical samples.

Convergent validity analyses showed moderate correlations between FAST scores and measures of depression and anxiety, reinforcing the FAST's primary role in assessing psychosocial functioning rather than psychological symptom severity. Notably, these correlations, which significant, were lower than typically reported in clinical populations,[19,34] further demonstrating the FAST's specificity in evaluating functional impairments independently from psychological symptoms. The MTMM analysis reinforced construct validity, supporting its application in research and non-clinical settings.

Sociodemographic analyses confirmed our initial hypotheses. Older age, higher education, and stable employment status were significantly associated with improved psychosocial functioning.[36] Parenthood was identified as protective against impairment, while relationship status also positively influenced functioning, underscoring the importance of social support networks. The marginal significance of unemployment as a predictor of higher impairment suggests considerable variability within subgroup, warranting further investigation. Interestingly, the positive effect of older age observed here contrasts with findings typically reported in clinical findings,[19] potentially indicating healthier coping mechanisms or more resilient profiles in older individuals within a non-clinical population.

In predictive modeling analyses, depressive symptom severity emerged as the most significant predictor of psychosocial impairment, demonstrating a pronounced non-linear relationship. This finding underscores the critical need for early interventions, as functional impairment escalates significantly at higher symptom levels. Anxiety was also a significant predictor, although with a lesser impact than depression. Employment status notably predicted impairment, highlighting its importance for psychosocial stability. These outcomes align with prior research by Rabelo-da-Ponte et al.,[38] emphasizing that anxiety and perceived failure substantially contribute to functional impairment, especially among individuals experiencing significant psychiatric symptoms and socioeconomic challenges.

GAM outperformed linear and quadratic regression models, providing a nuanced understanding of psychosocial impairment trajectories. This non-linear approach emphasizes the importance of early intervention to mitigate pronounced impairments as severe depressive symptom levels. The illustrative risk profile analyses further demonstrated distinct impairment patterns, highlighting the critical need for targeted psychosocial interventions to supplement conventional treatments, particularly within vulnerable subgroups.

The self-administered format of the FAST offers practical advantages, notably efficiency in administration, facilitating its integration into large-scale epidemiological studies and clinical practice, especially in resource-limited settings. The robust psychometric properties

demonstrated in this French-speaking context strongly advocate for its broader adoption.

Strengths of this study include its substantial sample size, rigorous methodology, and use of advanced statistical models (e.g., GAM), enhancing clinical and research utility. Examining depressive symptoms in a general population highlights the FAST's potential to detect functional vulnerability beyond clinical samples. Limitations include the high proportion of students, which may constrain generalizability; reliance on self-report, which may introduce response bias; and the small size of some employment subgroups despite 'worker' being the reference category.[71]

Future research should validate the French FAST in clinical populations and assess its responsiveness to treatment-induced functional changes over time.

Conclusions

The self-administered French FAST is a reliable and valid instrument for assessing psychosocial functioning in general adult populations. Given its robust psychometric properties, we recommend prioritizing the use of the total score, which demonstrates high reliability and suitability for assessing global psychosocial functioning in the general population. However, caution is advised in the interpretation of subscale scores—particularly autonomy, cognitive and leisure—until further validation is conducted in clinical populations where greater variability in functional impairment can be expected. Future research should focus on these clinical samples and on evaluating the tool's sensitivity to changes following treatment to further substantiate its practical utility.

Publication ethics

Informed consent was obtained from all participants included in the study. All procedures in studies involving human participants were performed in accordance with the ethical standards of the Ethics Committee of the first author's institution.

Funding

This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

Declaration of competing interest

EV has received grants and served as consultant, advisor or CME speaker for the following entities : AB-Biotics, Abbott, AbbVie, Adamed, Alcediag, Angelini, Biogen, Beckley-Psytech, Biohaven, Boehringer-Ingelheim, Casen-Recordati, Celon Pharma, Compass, Dainippon Sumitomo Pharma, Esteve, Ethypharm, Ferrer, Gedeon Richter, GH Research, Glaxo-Smith Kline, HMNC, Idorsia, Johnson & Johnson, Lundbeck, Luye Pharma, Medincell, Merck, Mitsubishi Tanabe Pharma, Newron, Novartis, Organon, Orion Corporation, Otsuka, Roche, Rovi, Sage, Sanofi-Aventis, Sunovion, Takeda, Teva, and Viatris, outside the submitted work; **AU** has received grants and served as speaker for Johnson & Johnson, outside the submitted work; The other authors have no relevant interests to disclose.

Supplementary materials

Supplementary material associated with this article can be found, in the online version, at doi:10.1016/j.ejpsy.2025.100325.

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