

# French adaptation of the Brief Irritability Test

## Factor Structure, Psychometric Properties, and Relationship with Associated Constructs

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Introduction

Irritability is defined as an increased proneness to anger. Very common in the general population, it is also a transdiagnostic symptom observed in both *externalizing* and *internalizing* disorders. However, its understanding has been challenged by limitations in previous assessment methods. To advance the field, the Brief Irritability Test (BITe, Holtzman et al., 2015)<sup>1</sup> was developed. In this study, 63 candidate items assessing irritability, measures of associated constructs (i.e., depression, anger, aggression, and hostility) and well-being (i.e., life satisfaction and perceived social support) were completed by 1116 Canadian subjects. Using Item response theory, the authors developed a 5-item scale showing a unidimensional factor structure with excellent internal consistency ( $\alpha = 0.88$ ). Moreover, the BITe showed no gender bias and only a little conceptual overlap with associated constructs, allowing a great specificity of the measurement of irritability. Despite the growing scientific interest to understand the underlying causes and consequences of irritability, this questionnaire has not been developed and validated for a French-speaking population yet.

This study is a first step in the validation of a French version of the Brief Irritability Test.

Methodology

Results

- Participants

- N = 413 participants (313 women)
  - 28.31 years of age (SD = 12.81)
  - 55.4% were students
  - Exclusion criteria: non-native French speaker, past or current drug/alcohol dependence, medical, or psychiatric condition.
- Correlations between BITe and measures of associated constructs and well-being

	<i>r</i>	<i>p</i>
<b>Beck Depression Inventory</b>	.56	< .001
<b>Aggression Questionnaire</b>	.45	< .001
<b>Physical Aggression</b>	.08	0.123
<b>Hostility</b>	.40	< .001
<b>Anger</b>	.49	< .001
<b>Satisfaction With Life Scale</b>	-.39	< .001
<b>Social Support Questionnaire</b>		
<b>Availability</b>	-.31	< .001
<b>Satisfaction</b>	-.23	< .001

- Questionnaires

All participants completed an online version of the following questionnaires.

The five items of the BITe were translated in French and then back into English by two independent bilingual adults. Discrepancies between the original BITe and the back-translation were discussed between the two translators until a satisfactory solution was found. Participants completed the questionnaire using a 6-point Likert scale from 1 (*never*) to 6 (*always*).

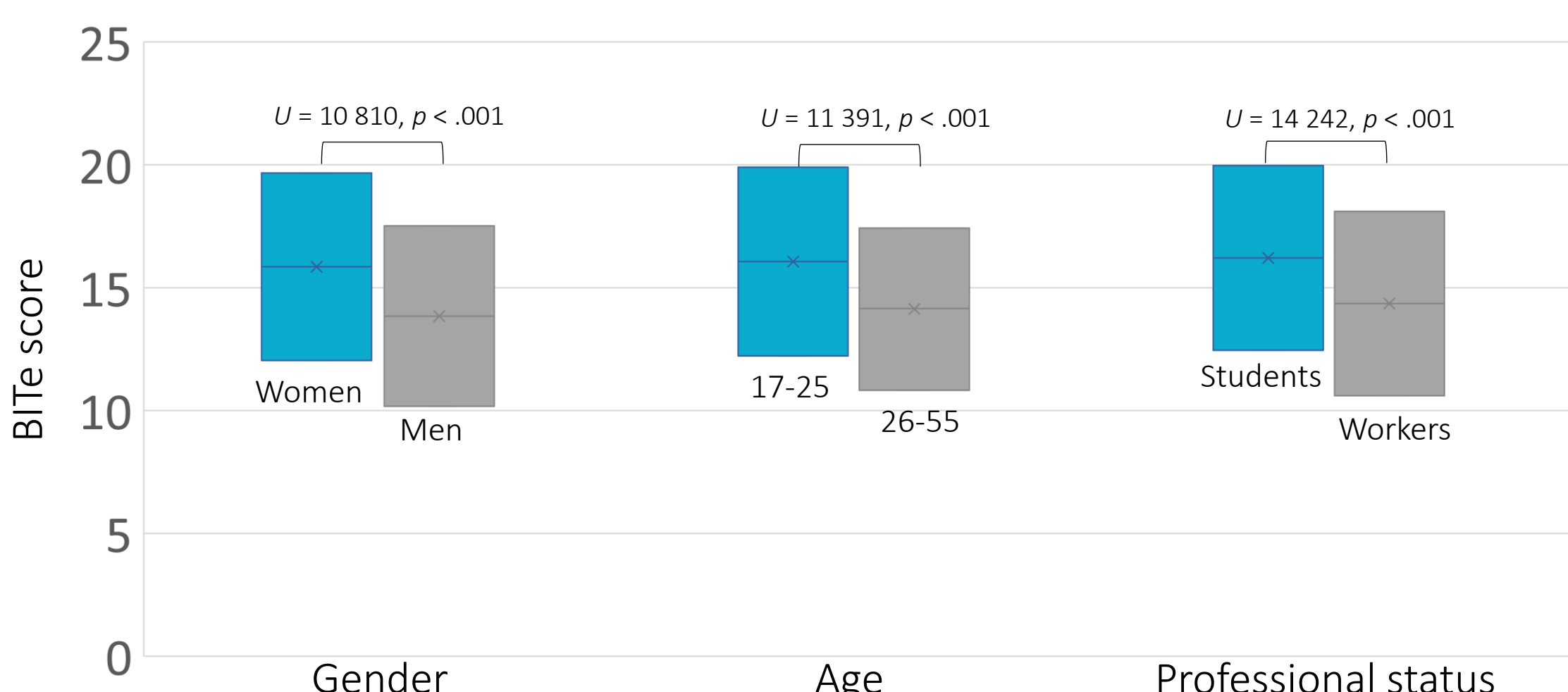
Internal consistency coefficients, means, and standard deviations

	$\alpha$	<i>M</i>	<i>SD</i>
<b>French BITe</b>	.80	15.36	3.87
<b>Beck Depression Inventory</b>	.81	5.96	4.78
<b>Aggression Questionnaire</b>	.76	25.15	7.32
<b>Physical Aggression</b>	.73	4.98	2.54
<b>Verbal Aggression</b>	.45	6.92	2.26
<b>Hostility</b>	.71	6.23	3.02
<b>Anger</b>	.71	7.01	2.93
<b>Satisfaction With Life Scale</b>	.86	24.34	6.47
<b>Social Support Questionnaire</b>			
<b>Availability</b>	.88	25.93	11.58
<b>Satisfaction</b>	.91	29.20	5.61

■

Gender, age, and professional status effects

Kolmogorov-Smirnov test revealed that the BITe scores were not normally distributed in our sample. Thus, non-parametric Mann-Whitney U tests were conducted to assess these effects.



Category	Group	BITe score (approx.)	U test
Gender	Women	16.5	U = 10 810, p < .001
	Men	14.5	
Age	17-25	16.5	U = 11 391, p < .001
	26-55	14.5	
Professional status	Students	16.5	U = 14 242, p < .001
	Workers	14.5	

- Factor analyses

A random split sample procedure was performed in the total sample, yielding two independent samples.

- Sample 1: Exploratory analysis

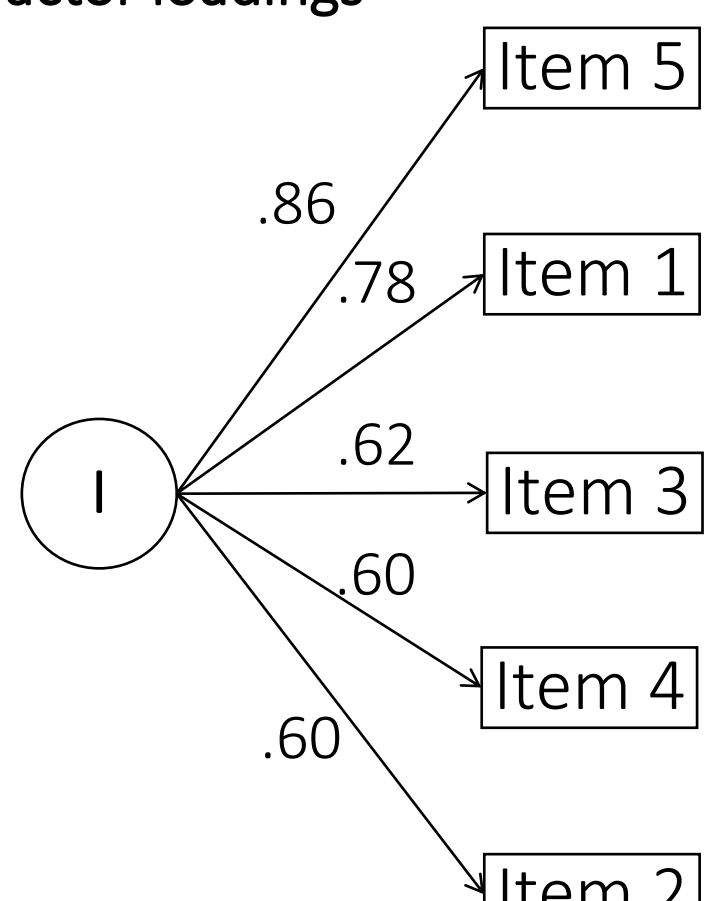
Data of sample 1 (n = 209) was suitable for factor analysis (KMO = .808, Bartlett = .000). Both the scree plot and the Horn’s parallel analysis suggested the extraction of a single factor. The single factor model explained 55.5% of the variance and had a strong internal consistency ( $\alpha = .80$ ).
- Sample 2: Confirmatory analysis

The single factor model that emerged in sample 1 was evaluated with a Confirmatory Factor Analysis in sample 2 (n = 204) and fitted reasonably well.

Item factor loadings

Description of item content	Factor « Irritability »
<b>5. Je me sens irritable</b>	.81
<b>3. D’autres personnes m’énervent</b>	.80
<b>4. Des choses me dérangent plus qu’elles le font d’habitude</b>	.78
<b>1. J’ai été grincheux</b>	.75
<b>2. J’ai eu l’impression que j’allais craquer</b>	.55

Measurement model with factor loadings



Fit indexes

<b>Root Mean Squared Error of Approximation (RMSEA)</b>	.096
<b>Standardized Root Mean Residual (SRMR)</b>	.035
<b>Confirmatory Fit index (CFI)</b>	.973
<b>Tucker–Lewis Index (TLI)</b>	.95

Discussion and conclusion

This research was a first step toward validating a French version of the Brief Irritability Test (Holtzman et al., 2015)<sup>1</sup>. The single factor structure has been confirmed in two samples using exploratory and confirmatory factor analyses. Compared to the original English questionnaire, our French version shares similar correlations with related constructs, although a gender bias was identified. We hypothesized that the gender bias might be attributed to cultural differences, as emotional experiences are influenced by the cultural environment (Lim, 2016)<sup>2</sup>. Irritability was higher among respondents in the age range 17-25, compared to older adults. In summary, this questionnaire appears to have good psychometric properties as the first French self-report scale to measure irritability. Future studies are needed to examine its test-retest reliability, psychometric properties in clinical population in which irritability is a common feature (e.g., major depressive disorder), as well as the roles of language and culture on the expression of irritability.

1.

Holtzman, S., O’Connor, B. P., Barata, P. C., & Stewart, D. E. (2015). The Brief Irritability Test (BITe) : A Measure of Irritability for Use Among Men and Women. *Assessment*, 22(1), 101-115.

2.

Lim, N. (2016). Cultural differences in emotion: differences in emotional arousal level between the East and the West. *Integrative Medicine Research*, 5(2), 105–109.