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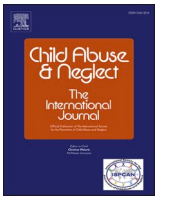

French translation and validation of the International Trauma Questionnaire in a Canadian community sample

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ABSTRACT

Background: The diagnosis of complex post-traumatic stress disorder (CPTSD) was recently included into the 11th edition of the International Classification of Diseases (ICD-11). Recognizing the need for a brief and specific measure CPTSD symptoms as defined by the ICD-11, Cloitre and her team (2018) developed the original English version of the International Trauma Questionnaire (ITQ). The ITQ is composed of two scales—'post-traumatic stress disorder (PTSD)' and 'disturbances in self-organization' (DSO), respectively subdivided into three subscales. It was found to be psychometrically valid but has yet to be available in French.
Objective: The purpose of this study was to provide a French version of the ITQ and to examine its factorial validity, internal consistency, and convergent validity in a French-speaking Canadian sample.
Participants: The sample included 335 French-Canadian adults from the community.
Methods: The ITQ was translated in French, back translated into English, and deemed equivalent by the original ITQ's author. Participants answered the French version of the ITQ, as well as measures of convergent validity, via phone interview.
Results: Confirmatory factorial analyses revealed that the French ITQ presented the same factor structure as the original ITQ. Composite reliability scores revealed good internal consistency for both scales, and all but one subscale. Pearson's correlation and Steiger's Z test revealed good convergent validity.
Conclusion: This study supports the factorial validity, internal consistency, and convergent validity of the French version of the ITQ, suggesting that it is a psychometrically sound measure of CPTSD.

1. Introduction

The World Health Organization's (WHO) 11th edition of the International Classification of Diseases (ICD-11), which came into effect in January of 2022, includes the new diagnosis of complex post-traumatic stress disorder (CPTSD; World Health Organization, 2019). Addressing a concern that has been raised by clinicians and researchers for decades (e.g., Herman, 1992), the WHO has extended upon the post-traumatic stress disorder (PTSD) diagnosis to better represent the symptoms that often occur among individuals who experienced chronic, prolonged or multiple types of trauma exposure, usually of an interpersonal nature (e.g., childhood

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sexual abuse, intimate partner violence). Indeed, individuals with this type of trauma tend to present a range of symptoms that exceed classical PTSD symptoms of re-experiencing in the here and now, avoidance and sense of threat, which affect core abilities and adaptation processes (Briere, 2002; Cyr et al., 2022). Aiming to bridge this gap, CPTSD regroups, in addition to the classical PTSD symptoms of re-experiencing, avoidance and perception of heightened current threat, disturbances in self-organization (DSO) affecting three domains: affective dysregulation, negative self-concept (i.e., as diminished, defeated or worthless, with feelings of shame, guilt or failure) and disturbances in relationships (i.e., problems in sustaining relationships and in feeling close to others) (World Health Organization, 2019). The affective dysregulation difficulties in CPTSD are conceptualized as including both hyper-activation (i.e., heightened emotional reactivity) and hypo-activation (i.e., numbness and dissociation; Maercker et al., 2013).

With the novelty and cultural relevance of the CPTSD diagnosis, a growth in research needs and interest has been observed in recent years. Recognizing the need for a disorder-specific measure for the new diagnosis of CPTSD, Cloitre et al. (2018) developed the International Trauma Questionnaire (ITQ). The ITQ is a brief self-reported questionnaire specifically created to measure symptoms of CPTSD, based on the ICD-11's criteria. To our knowledge, the ITQ is the only self-reported questionnaire available to measure ICD-11's PTSD and CPTSD symptoms (Redican et al., 2021). It includes a 'PTSD' and a 'DSO' scale. The PTSD scale is subdivided into three subscales: 're-experiencing', 'avoidance' and 'sense of threat'. The DSO scale includes three subscales: 'affective dysregulation' (including items measuring hyper-activation and hypo-activation), 'disturbances in relationships' and 'negative self-concept' symptoms. Validation studies of the original English version of the ITQ showed good psychometric properties as well as clinical utility (Cloitre et al., 2018, 2021). Studies conducted with the ITQ in the general population revealed that past-month prevalence ranges between 3.4% and 5.0% for ICD-11 PTSD, and between 3.8% and 7.7% for ICD-11 CPTSD (Cloitre et al., 2019; Hyland et al., 2021).

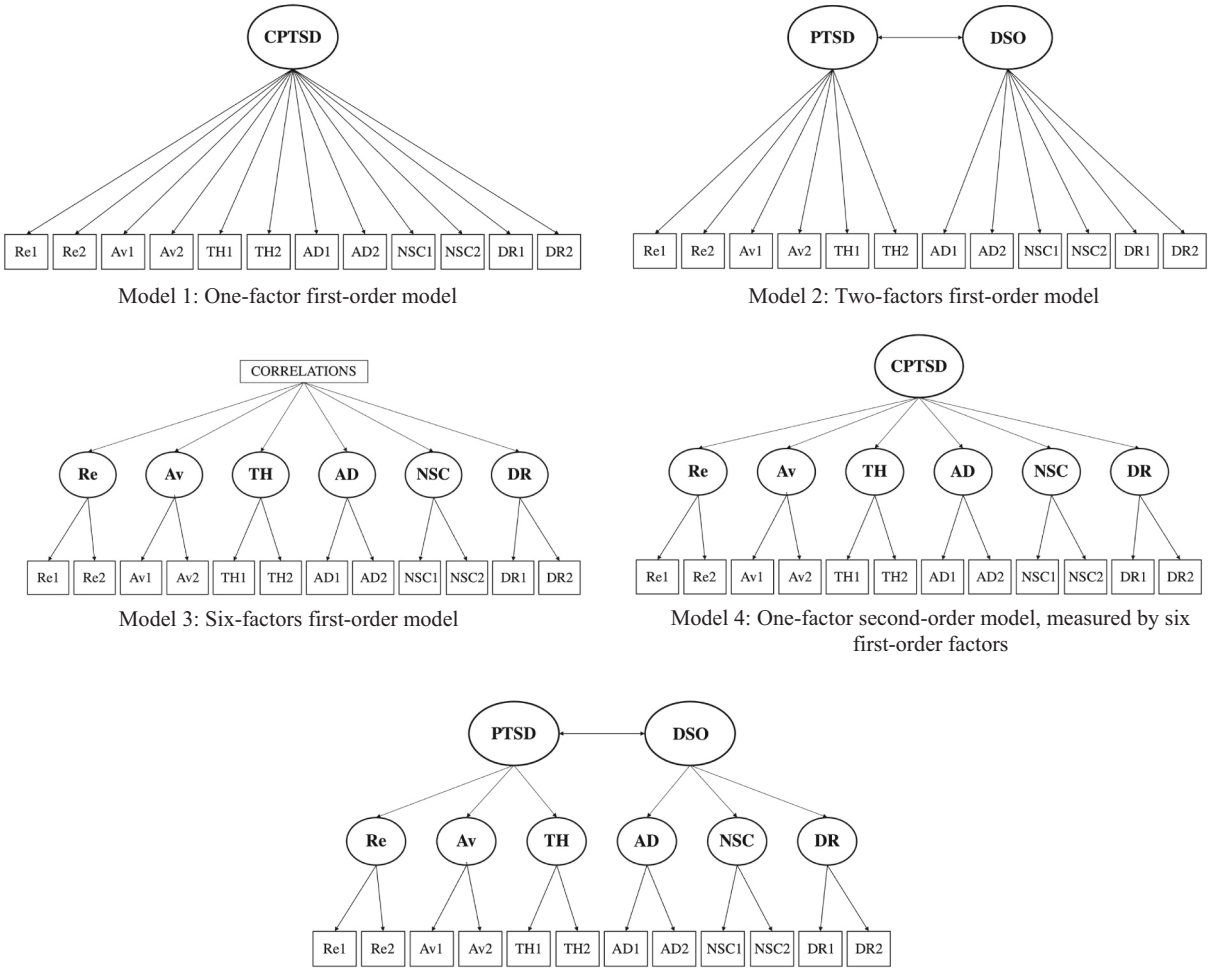

Fig. 1. Five alternative models for the ITQ's factor structure.
PTSD = post-traumatic stress disorder, DSO = disorders in self-organization, Re = 're-experiencing', Av = 'avoidance', TH = 'sense of threat', AD = 'affective dysregulation', DR = 'disturbances in relationships', NSC = 'negative self-concept'.

The ITQ has proven itself to be a clinically useful and psychometrically valid measure and has been used in 29 countries across six continents (Karatzias et al., 2018) and translated into 25 different languages (all versions including the French version presented in this article are publicly available on the International Trauma Consortium's website). It presents a factor structure that is coherent with ICD-11's conceptualization of the disorder (see Redican et al., 2021 for a review): a second-order PTSD factor comprising first-order factors of 're-experiencing', 'avoidance' and 'sense of threat', and a second-order DSO factor comprising first-order factors of 'affective dysregulation', 'disturbances in relationships' and 'negative self-concept' (see Fig. 1, Model 5). Psychometric studies also revealed that the ITQ presented satisfactory internal consistency (Cloitre et al., 2018). Finally, convergent validity was demonstrated, with measures of cumulative trauma, emotional dysregulation, interpersonal problems, low self-esteem, functional impairment, and psychological distress (e.g., anxiety and depression) more strongly associated with the DSO scale (Ho et al., 2019; Murphy et al., 2020; Vang et al., 2021), whereas measures of specific PTSD symptoms were more strongly associated with the PTSD scale (Hyland et al., 2017).

Despite the efforts to make the ITQ available for researchers worldwide, it has yet to be validated in French. Accordingly, the current study aimed to provide a validated French version of the ITQ that is adapted to a French-speaking population. More specifically, the objectives were to: (1) test the factorial validity of the French version of the ITQ, (2) document the reliability of each scale and subscale in term of internal consistency, (3) study the convergent validity of the French version of the ITQ with related measures of cumulative trauma, altered self-capacities and life satisfaction. It was expected that the psychometric properties of the French version of the ITQ would be equivalent to the original English version of the ITQ. First, satisfactory factorial validity was expected—as indicated by a factorial structure representative of the ICD-11 conceptualization of CPTSD (see Fig. 1, Model 5). Second, satisfactory internal consistency was expected—as indicated by satisfactory composite reliability. Third, satisfactory convergent validity was expected—as indicated by (a) positive associations between the ITQ's scales and subscales, and childhood cumulative trauma, altered self-capacities (i.e., affect dysregulation, identity impairment, interpersonal conflict) and life satisfaction; (b) stronger associations between the ITQ's DSO scale (as opposed to the ITQ's PTSD scale) and childhood cumulative trauma, altered self-capacities and life satisfaction; and (c) stronger associations between each DSO subscales and the altered self-capacities affecting a related life domain (i.e., DSO's 'affective dysregulation' and the altered self-capacity of affect dysregulation, DSO's 'negative self-concept' and the altered self-capacity of identity impairments, and DSO's 'disturbances in relationships' and the altered self-capacity of interpersonal conflict).

2. Methods

2.1. Procedure

A sample of 335 French speaking participants from the Québec community was included in this study. Participants were randomly selected by a survey firm from a list of telephone numbers (landline and mobile) from the province of Québec, Canada. Trained and experienced interviewers administered the questionnaires over the phone, between January and March of 2018. Participants gave informed consent and received a CAD $10 compensation for their participation. The participants were informed that the study aimed to examine the links between potentially traumatic experiences and their correlates in adulthood. The study was approved by the University of Quebec in Montreal's ethics committee. The inclusion criteria were: being an adult ($\geq$18 years old), residing in the Province of Québec (Canada), being in a romantic relationship, and being able to speak and understand French. Reporting at least one potentially traumatic experience in childhood or adulthood was a prerequisite to answer ITQ. This was determined by the following gateway question: "Please indicate the experience that disturbs you most and answer the following questions in regard to this experience". It was accompanied by a list of eight different types of potentially traumatic experiences (i. e., sexual and physical violence, neglect, witnessing violence, bullying, parental mental illness or addiction, death of a close one, and natural catastrophe or accident), as well as the choices "other" and "none." Participants who endorsed "none" (48% of the original sample) did not complete the ITQ and were not included in this study.

2.2. Participants

The sample was composed of 222 women (66.3%) and 113 men (33.7%), aged from 18 to 84 years old. The average age of the participants was 49.6 years old ($\pm$13.6 years; vs. M = 41.9 in the general Quebec population; Statistics Canada, 2017). Most participants were born in Canada (92.8%; vs. 86.2% in the general Quebec population; Statistics Canada, 2017) and 92.8% spoke French as a first language (vs. 77% in the general Quebec population; Statistics Canada, 2017), with 2.1% speaking English and 5.1% speaking another first language. Most participants identified as heterosexual (95.5%; vs. 96% in the general Canadian population; Statistics Canada, 2021), with 2.1% identifying as homosexual, 1.8% as bisexual, and 0.6% reporting another sexual orientation. Most participants were parents (84%; vs. 50% in the Quebec general population; Statistics Canada, 2017), with an average of 1.9 children ($\pm$1.2). Participants were married (56.7%), cohabitating with their partner (41.8%) or dating a romantic partner (1.5%), with a mean length of couple relationship being 21.7 years ($\pm$14.1 years). In the general Quebec population, 56.3% of individuals report being married or cohabiting with a partner (Statistics Canada, 2017). Participants were mostly workers (47.8% full-time and 12.5% part-time; vs. 60% in the general Quebec population, Statistics Canada, 2017), with 24.2% being retired, 4.2% being students, 1.5% being unemployed and 9.9% reporting "other". Annual personal income was less than CAD $20,000 for 12.8% of the sample (vs. 29.2% in the general Quebec population), between CAD $20,000 and CAD $39,999 for 26% (vs. 27.0% in the general Quebec population), between CAD $40,000 and CAD $59,999 for 26.3% (vs. 19.0% in the general Quebec population), and more than CAD $59,999 for 34.9% (vs. 24.7% in the general Quebec population, Statistics Canada, 2017). Most participants completed a college (40.3%; vs. 53.7% in the general population) or university degree (41.8%; vs. 17% in the general Quebec population; Statistics Canada, 2017).

2.3. Measures

The ITQ (Cloitre et al., 2018) was translated in French and back translated to English, using the backtranslation method (Vallerand, 1989). The back translated English version of the questionnaire was then examined by the original ITQ's authors and deemed equivalent. The French version of the ITQ is a 12-items self-reported measure, answered on 5-point Likert scales ranging from (0) *not at all* to (4) *extremely*. It contains a PTSD and a DSO scale, each comprising three 2-item subscales: PTSD's 're-experiencing', 'avoidance' and 'sense of threat', and DSO's 'affective dysregulation', 'disturbances in relationships' and 'negative self-concept'. A total score is obtained for each subscale by averaging the score on its two items (range = 0 to 4), with a higher score indicating higher symptomatology. Endorsement (score of 2 or above) of at least one item from each PTSD subscale indicates probable PTSD diagnosis, whereas endorsement of at least one item from each of the PTSD and DSO subscales indicates probable CPTSD diagnosis (Cloitre et al., 2018). See Table 4 for a list of the ITQ's original English items and translated French items, and see Supplementary Material for the French ITQ with coding instructions.

The French Childhood Cumulative Trauma Questionnaire (CCTQ; Godbout et al., 2017) was used to measure childhood cumulative trauma. This 15-item questionnaire measures the experience of eight different types of traumas: sexual abuse (2 items), physical abuse (4 items), psychological abuse (2 items), physical neglect (1 item), psychological neglect (3 items), witnessed physical violence (1 item), witnessed psychological violence (1 item) and sustained bullying (1 item). The items measuring sexual abuse items are in a yes-or-no format and refer to any incidence before the age of 18 based on the Canadian Criminal Code. The items measuring the other types of traumas are responded on a Likert scale ranging from (0) *never happened* to (6) *happened every day or almost every day in a typical year before the age of 18*. Each scale is dichotomized as (1) *presence of trauma* (score of 'yes' or $\geq$1 on at least one item of the scale) and (0) *absence of trauma*. The dichotomous scores for each scale are then summed into a continuous childhood cumulative trauma score ranging from 0 to 8 types of traumas. Past studies indicated good internal consistency both in clinical and community samples (e.g., Bigras & Godbout, 2020; Bolduc et al., 2018). In the present study, the internal constancy was satisfactory ($\alpha = 0.88$).

Interpersonal conflicts, identity impairments and affect dysregulation were measured using the French version of the Inventory of Altered Self-Capacities (IASC; Briere, 2000; translated and validated by Bigras & Godbout, 2020). The 9-items Affect Dysregulation scale measures respondents' emotional regulation difficulties and reactivity. The 9-items Interpersonal Conflicts scale measures respondents' tendency to be involved in conflictual, chaotic relationships. The 9-items Identity Impairments scale measures respondents' difficulties in maintaining a coherent sense of self. Each item measures the presence of symptoms in the past six months and is accompanied by a 5-point Likert scale ranging from (1) *never* to (5) *always*. Total scores for each scale are measured by summing the scores of relevant items (range from 9 to 45, a higher total representing higher dissociative symptomatology). Clinical cut-off taking age and gender into account are established in the original English version by Briere (2000). The original English version (Briere, 2000) as well as the French version of the questionnaire (Bigras & Godbout, 2020) present good factorial validity, convergent validity, and internal consistency. The three scales presented good internal consistency in the present sample (α ranged from 0.87 to 0.89).

The French version of the Satisfaction with Life Scale (SLS; Blais et al., 1989; original English version by Diener et al., 1985) was used to measure life satisfaction. This 5-item questionnaire is answered on 7-point Likert scales ranging from (1) *strongly disagree* to (7) *strongly agree*. The score on each item is summed to obtain a total score ranging from 5 to 35 (higher scores representing higher life satisfaction). The participants can be categorized as presenting very high (30–35), high (25–29), average (20–24), low (15–19), and very low (15–19) life satisfaction according to norms developed by Pavot and Diener (2013). The English (Diener et al., 1985) and French (Blais et al., 1989) versions or the questionnaire showed good psychometric properties (i.e., good factorial validity and internal consistency). In the present sample, the internal consistency was satisfactory ($\alpha = 0.90$).

2.4. Analyses

Descriptive statistics were performed using the Statistical Package for Social Sciences 25.0 (SPSS 25.0; IBM, 2017). To measure factorial validity (objective 1), confirmatory factor analyses (CFA) were performed using Mplus 7.0 software (Muthén & Muthén, 2015). Five alternative models were specified and tested (see Fig. 1); Models 1 and 2 were based on previously tested factor structures (Karatzias et al., 2016) and Models 3, 4 and 5 were based on alternative theoretical models for CPTSD factor structure suggested in Brewin et al.'s (2017) review. The aim of testing alternative models was to confirm that the hypothesized model best represented the observed data—namely that PTSD and DSO were distinct scales, represented by 're-experiencing', 'avoidance', 'sense of threat' and by 'affective dysregulation', 'disturbances in relationships', and 'negative self-concept' respectively, and that a hierarchical structure (second-order factors) could explain the relationship between the scales and subscales (Model 5). The five alternative models are depicted in Fig. 1.

Model 1 estimates a first-order model in which all indicators load on one first-order factor: CPTSD. Model 2 estimates a first-order model in which indicators load on two correlated first-order factors representing PTSD (six items) and DSO (six items). Model 3 estimates a first-order model in which indicators load on six correlated factors: 're-experiencing', 'avoidance', 'sense of threat', 'affective dysregulation', 'disturbances in relationships' and 'negative self-concept' (two items each). Model 4 estimates a second-order model in which indicators load on six first-order factors ('re-experiencing', 'avoidance', 'sense of threat', 'affective dysregulation', 'disturbances in relationships', and 'negative self-concept'), which in turn load on one second-order factor (CPTSD). Model 5 is a second-order model representing the hypothesized structure of CPTSD as described in the ICD-11: indicators load on six first-order factors ('re-experiencing', 'avoidance', 'sense of threat', 'affective dysregulation', 'disturbances in relationships', and 'negative self-concept'), which in turn load on two correlated second-order factor: PTSD and DSO.

The CFA were estimated using robust maximum likelihood estimation (Yuan & Bentler, 2000). Several indices were used to

determine the best fitting solution among the five alternative models, with the following indicating a good fit to the data according to standard procedures (Hu & Bentler, 1999): nonsignificant ($p < .05$) chi-square test of model fit (χ^2); ratio of chi-square to degrees of freedom (χ^2/df) lower than 3; Root-Mean-Square Error of Approximation value (RMSEA) with 90% confidence intervals (CI) and Standardized Root-Mean-Square Residual (SRMR) values smaller than 0.06; as well as Comparative Fit Index (CFI) and Tucker-Lewis Index (TLI) values greater than 0.90. It should be noted that the chi-square test of model fit is sensitive to large sample size, situations in which the ratio of chi-square to degrees of freedom may be a more appropriate measure (Kline, 2015). The Bayesian Information Criteria (BIC) was used to compare goodness of fit between models, with a smaller value indicating better fit and a ten-points difference between two models indicating "very strong" evidence in favor of the model with a lower BIC value (Raftery, 1995). To measure internal consistency (objective 2), composite reliability (CR) was calculated for each scale and subscale of the ITQ using Mplus 7.0 software (Muthén & Muthén, 2015). CR uses standardized factor loadings and errors of variance to estimate internal consistency (Raykov, 1997). A CR value > 0.60 indicates acceptable internal consistency. CR is most appropriate to measure internal consistency of short scales such as in the present study (e.g., two-item subscales) as it does not require essential tau-equivalence (Raykov, 1997).

To measure convergent validity (objective 3), Pearson's correlations between each scale of the ITQ and measures of childhood cumulative trauma, altered self-capacities (affect dysregulation, interpersonal conflict and identity impairments) and life satisfaction, were performed on SPSS 25.0 (IBM, 2017). Steiger's Z tests (Lee & Preacher, 2013; Steiger, 1980) were then performed to compare the correlations between the PTSD and DSO scales and related variables, as well as the correlations between the 'affective dysregulation', 'disturbances in relationships' and 'negative self-concept' subscales and measures of affect dysregulation, interpersonal conflict and identity impairments. This test indicates whether two correlations that share one variable can be deemed equal in strength, while taking into account the correlation between the unshared variables. A value of $p < .05$ indicated statistical significance, with a Bonferroni correction when multiple comparisons were executed.

3. Results

3.1. Descriptive statistics

The following descriptive variable were obtained in accordance with the questionnaire's cut-offs (see Measures). The cut-off score for probable ICD-11 PTSD diagnosis was reached by 5.1% ($n = 17$) of the sample, and the cut-off score for probable ICD-11 CPTSD diagnosis was reached by 2.7% ($n = 9$) of the sample. In their answers to the items related to the different subscales, 18.2% ($n = 61$) of the sample reported 're-experiencing' symptoms ($M = 0.51$, $SD = 0.83$), 18.2% ($n = 61$) reported 'avoidance' symptoms ($M = 0.55$, $SD = 0.88$), 21.8% ($n = 73$) reported 'sense of threat' symptoms ($M = 0.58$, $SD = 0.93$), 33.1% ($n = 111$) reported alterations in 'affective dysregulation' ($M = 0.75$, $SD = 0.73$), 11.9% ($n = 40$) reported alterations in 'negative self-concept' ($M = 0.43$, $SD = 0.79$), and 18.8% ($n = 63$) reported alterations in 'disturbances in relationships' ($M = 0.63$, $SD = 0.74$). All correlations between the French version of the ITQ subscales were positive and significant, ranging from $r = 0.30$ to $r = 0.65$. Scores of childhood cumulative trauma ranged from 0 to 8, with a mean of 3 types of trauma (±2). The most frequently reported type of trauma was psychological neglect (76.4%; $n = 256$), followed by sustained bullying (47.5%; $n = 159$), witnessed psychological violence between parents (43%; $n = 144$), psychological violence (38.2%; $n = 128$), physical violence (33.1%; $n = 111$), sexual abuse (29.6%; $n = 99$), physical neglect (15.5%; $n = 52$) and witnessed physical violence between parents (14.6%; $n = 49$). Clinically significant scores were reported by 11.3% ($n = 38$) of the sample on the affect dysregulation scale ($M = 13.14$, $SD = 5.44$), 14% ($n = 47$) on the interpersonal conflicts scale ($M = 14.82$, $SD = 4.78$), and 11.9% ($n = 40$) on the identity impairments scale ($M = 13.03$, $SD = 5.14$). Finally, reported life satisfaction ($M = 27.14$, $SD = 2.36$) was very high for 47.5% ($n = 159$) of the sample, high for 26.9% ($n = 90$), average for 11.6% ($n = 39$), slightly low for 9% ($n = 30$), low for 3.9% ($n = 13$) and very low for 1.2% ($n = 4$) of this community sample.

3.2. Factorial validity

Fit indices for the five alternative models can be found in Table 1. Models 1, 2 and 4 were rejected due to unsatisfactory fit to the data. Model 5 was chosen as the final choice over Model 3 because it presented the lowest BIC value and was supported by theoretical rational and results from past studies. Although the 32-point difference in BIC represents strong evidence in favor of Model 5 (Raftery,

Table 1
Fit indices for all CFA models tested.

	χ^2 (*df*)	RMSEA (90% CI)	SRMR	CFI	TLI	BIC
Model 1	571.460 (55)***	0.167 (0.155–0.180)	0.144	0.608	0.529	9537
Model 2	303.457 (53)***	0.119 (0.106–0.132)	0.078	0.810	0.763	9091
Model 3	69.792 (39)**	0.049 (0.029–0.067)	0.028	0.977	0.960	8824
Model 4	150.279 (48)***	0.080 (0.066–0.094)	0.066	0.922	0.893	8895
Model 5	**79.379 (47)****	**0.045 (0.027–0.062)**	**0.034**	**0.975**	**0.965**	**8792**

χ^2 = chi-square goodness of fit statistic, *df* = degrees of freedom, RMSEA = root mean square error of approximation, SRMR = standardized square root mean estimate, CFI = comparative fit index, BIC = Bayesian information criteria.
Chosen solution (Model 5) is in bold.
** $p < .01$.
*** $p < .001$.

1995), it may not disperse all uncertainty. For interested readers, factor loadings and correlations for Model 3 can be found in Table 1 of Supplementary Material. Model 5 presented good fit to the data (χ^2[47] = 79.38, $p < .01$, $\chi^2/df = 1.69$, RMSEA = 0.045 [0.027–0.062], SRMR = 0.03, CFI = 0.98, TLI = 0.97). Factor loadings for Model 5 can be found in Table 2. All items significantly loaded on their respective first-order factors, and all first-order factors significantly loaded on their respective second-order factors. The second-order factors ('PTSD' and 'DSO') were significantly correlated ($r = 0.698$, $p < .001$).

3.3. Internal consistency

Internal reliability analyses were performed on the scales and subscales from the final model (Model 5). CR values for both scales were good: *CR* = 0.88 for 'PTSD' and *CR* = 0.96 for 'DSO'. CR for five out of six subscales of the ITQ indicated good internal consistency: *CR* = 0.73 for 're-experiencing', *CR* = 0.83 for 'avoidance', *CR* = 0.79 for 'sense of threat', *CR* = 0.85 for 'disturbances in relationships' and *CR* = 0.94 for 'negative self-concept'. CR values for the 'affective dysregulation' subscale indicated poor internal consistency (*CR* = 0.33).

3.4. Convergent validity

Results from Pearson's correlations and Steiger's Z tests are presented in Table 3. Pearson's correlations indicated significant associations between all scales and subscales of the ITQ and the related variables in expected directions, ranging from weak to moderate. Steiger's Z test revealed no strength difference in the correlations between the ITQ scales (PTSD and DSO), and childhood cumulative trauma and life satisfaction. Results revealed that affect dysregulation, interpersonal conflict and identity impairments were more strongly correlated with DSO than PTSD.

Steiger's Z tests were also performed to investigate whether the DSO 'affective dysregulation', 'disturbances in relationships' and 'negative self-concept' subscales were equally correlated to affect dysregulation, interpersonal conflict and identity impairments. Results revealed that the DSO 'affective dysregulation' subscale's correlations with affect dysregulation and identity impairment were stronger (medium effect size) than with interpersonal conflict (small effect size). The DSO 'disturbances in relationships' subscale's correlation with identity impairment was stronger (medium effect size) than its correlation with affect dysregulation and interpersonal conflict (small effect size). Finally, the 'negative self-concept' subscale's correlation with identity impairment was stronger (medium effect size) than its correlation with affect dysregulation and interpersonal conflict (small effect size).

4. Discussion

The aim of the present study was to translate the ITQ (Cloitre et al., 2018) in French, and to validate it in a French-Canadian community sample in terms of factorial validity, internal consistency and convergent validity. Overall, results suggest that the French version of the ITQ is a psychometrically sound questionnaire, equivalent to its original English version.

Five models were compared, with the alternative 1 to 4 models shown to be statistically inferior and less representative of the data than the hypothesized Model 5. Results support this study's first hypothesis: the factor structure of the French version of the ITQ corresponds to the structure that was postulated by the ICD-11's criteria (World Health Organization, 2019), found in the original English version of the ITQ (Cloitre et al., 2018), and in past studies (for reviews, see Brewin et al., 2017 and Redican et al., 2021). Precisely, findings suggest that the French version of the ITQ form two distinct scales (PTSD and DSO), each subdivided into three subscales (PTSD: 're-experiencing', 'avoidance' and 'activation'; and DSO: 'affective dysregulation', 'disturbances in relationships' and

Table 2
Standardized first- and second-order factor loadings for Model 5.

	Items	2nd order factor	1st order factor					
			Re	Av	TH	AD	NSC	DR
1st order factor loading	Re1		0.807***					
	Re2		0.800***					
	Av1			0.946***				
	Av2			0.790***				
	TH1				0.865***			
	TH2				0.800***			
	AD1					0.441***		
	AD2					0.484***		
	NSC1						0.942***	
	NSC2						0.916***	
	DR1							0.894***
	DR2							0.828***
2nd order factor loading		PTSD	0.843***	0.903***	0.839***			
		DSO				1.121***	0.913***	0.756***

PTSD = post-traumatic stress disorder, DSO = disorders in self-organization, Re = 're-experiencing', Av = 'avoidance', TH = 'sense of threat', AD = 'affective dysregulation', DR = 'disturbances in relationships', NSC = 'negative self-concept'.
*** $p < .001$.

Table 3
Pearson's correlations and Steiger's Z tests for the associations between the ITQ and related variables.

Correlations							Steiger's Z test[a]		
ITQ		CCTQ	AD	IC	II	SLS	AD v. II	II v. IC	AD v. IC
PTSD		0.305***	0.372***	0.320***	0.412***	−0.407***			
	Re	0.245***	0.308***	0.271***	0.352***	−0.318***			
	Av	0.289***	0.307***	0.262***	0.364***	−0.342***			
	TH	0.256***	0.345***	0.293***	0.350***	−0.388***			
DSO		0.366***	0.496***	0.439***	0.611***	−0.492***			
	AD	0.298***	0.516***	0.337***	0.481***	−0.361***	1.016[ns]	3.249**	4.480***
	NSC	0.297***	0.393***	0.365***	0.516***	−0.473***	3.479**	3.483**	.674[ns]
	DR	0.323***	0.357***	0.398***	0.537***	−0.404***	5.103***	3.268**	.986[ns]
Steiger's Z test	PTSD v. DSO	1.290[ns]	2.786**	4.811***	2.582**	2.926[ns]			

PTSD = post-traumatic stress disorder, DSO = disorders in self-organization, CCTQ = childhood cumulative trauma questionnaire, AD = affect dysregulation, IC = interpersonal conflict, II = identity impairment, SLS = Satisfaction with life scale, Re = 're-experiencing', Av = 'avoidance', TH = 'sense of threat', AD = 'affective dysregulation', DR = 'disturbances in relationships', NSC = 'negative self-concept'.
[ns] Non-significant.
** $p < .01$.
*** $p < .001$.
[a] Bonferroni-corrected *p*-values.

Table 4
Original English items and translated French items.

	Original English items	Translated French items
Re1	Having upsetting dreams that replay part of the experience or are clearly related to the experience?	Avoir des rêves perturbants dans lesquels se rejoue une partie de l'expérience ou qui sont clairement en lien avec l'expérience?
Re2	Having powerful images or memories that sometimes come into your mind in which you feel the experience is happening again in the here and now?	Avoir des images ou des souvenirs forts qui vous viennent à l'esprit, comme si l'expérience se passait à nouveau ici et maintenant?
Av1	Avoiding internal reminders of the experience (for example, thoughts, feelings, or physical sensations)?	Éviter les rappels internes de l'expérience (ex., pensées, sentiments ou sensations physiques)?
Av2	Avoiding external reminders of the experience (for example, people, places, conversations, objects, activities, or situations)?	Éviter les rappels externes de l'expérience (ex., personnes, lieux, conversations, objets, activités ou situations)?
TH1	Being "super-alert", watchful, or on guard?	Être « super-alerte », vigilant ou sur ses gardes?
TH2	Feeling jumpy or easily startled?	Vous sentir « sur les nerfs » ou sursauter facilement?
AD1	When I am upset, it takes me a long time to calm down.	Quand je suis bouleversé, ça me prend beaucoup de temps pour me calmer.
AD2	I feel numb or emotionally shut down.	J'ai l'impression d'être insensible ou émotionnellement éteint.
NSC1	I feel like a failure.	J'ai l'impression d'être un échec.
NSC2	I feel worthless.	J'ai l'impression que je ne vaux rien.
DR1	I feel distant or cut off from people.	Je me sens distant ou coupé des autres.
DR2	I find it hard to stay emotionally close to people.	Je trouve difficile de rester proche des autres émotionnellement.

Re = 're-experiencing', Av = 'avoidance', TH = 'sense of threat', AD = 'affective dysregulation', DR = 'disturbances in relationships', NSC = 'negative self-concept'.

'negative self-concept' symptoms).

Internal consistency was good for both scales and for all but one subscale, partly supporting our second hypothesis regarding the reliability of this measure. The lower internal consistency for DSO's 'affective dysregulation' subscale could be explained by its measure of two related but distinct constructs, namely hyper-activation and hypo-activation (Cloitre et al., 2018). Indeed, trauma survivors' clinical portraits may lean toward hypo-activation—with chronic emotional numbing and avoidance in the foreground, and/or hyper-activation—with emotional reactivity and difficulties in self-soothing in the foreground, or both (Terpou et al., 2019). It is therefore theoretically sound that both items would correlate but fail to demonstrate strong internal consistency, thus representing the clinical reality of trauma survivors. These results are in line with past studies, which have also found similarly lower internal consistency for this subscale (Sele et al., 2020) or considered hypo- and hyper-activation as separate first-order factors rather than second-order factors (see the review by Redican et al., 2021). Our study is among the first (with Sele et al., 2020) to examine the internal consistency of the 12-item ITQ's six subscales, whereas previous studies mainly reported internal consistency for the PTSD and DSO scales (Cloitre et al., 2018; Murphy et al., 2020; Vallières et al., 2018). Because the 'affective dysregulation' subscale assesses complementary dimensions and contributes to the reliable scale of DSO, it should not be readily excluded. However, researchers and clinicians are invited to be mindful of this conceptual distinction within the DSO's 'affective dysregulation' subscale. Accordingly, the examination of patients' specific responses is advised for clinicians to assess potential hypo- and hyper-activation.

The results are in support of this study's third hypothesis, postulating satisfactory convergent validity of the French ITQ. The measures of childhood cumulative trauma, altered self-capacities, and life satisfaction were associated with scales and subscales of the French ITQ in the expected direction, with strengths similar to those found in past studies (e.g., Murphy et al., 2020). Results revealed stronger associations between the DSO scale and measures of altered self-capacities (i.e., affect dysregulation, interpersonal conflicts,

and identity impairments), paralleling results from past studies (Ho et al., 2019; Hyland et al., 2017). These correlations were of moderate strength, which is coherent with the fact that they measure similar but distinct alterations affecting the same life domains. The DSO scale also presented stronger correlations than the PTSD scale with measures of childhood cumulative trauma and life satisfaction, although no statistical differences were found between the strengths of these correlations using Steiger's Z test. These correlations were of weak strength, which is coherent with the fact that the ITQ does not measure these constructs directly, which represent associated feature of CPTSD. It should be kept in mind that testing the statistical differences between the strength of correlations is a conservative approach requiring high power, especially within a community sample. Moreover, our life satisfaction measures differed from measures used in previous studies—which instead focused on functional impairment or well-being—perhaps lacking the necessary specificity for significant results to emerge. Regarding cumulative trauma, a national survey indicated that adverse childhood experiences (e.g., psychological abuse and neglect) were equally correlated with PTSD and CPTSD, while traumatic events as defined in the criterion A of DSM-5's PTSD (e.g., childhood physical and sexual abuse) were more strongly associated with CPTSD. Since our measure of cumulative trauma did not make this distinction, these subtleties could not be observed and may explain the non-significance of the results.

Lastly, stronger associations were found between the DSO and IASC subscales. As expected, the DSO's 'affective dysregulation' subscale was more strongly associated with the IASC subscale of affect dysregulation, and the DSO's 'negative self-concept' subscale was more strongly associated with the IASC subscale of identity impairment. For all these preferential associations, the effect size was moderate, indicating that the variables are related, but different. These results highlight the specificity of the ITQ as a measure of CPTSD symptoms, which affect the same life domains as altered self-capacities but in meaningfully different ways. Indeed, CPTSD's 'affective dysregulation' symptoms include both hyper-activation and hypo-activation, whereas the IASC's affect dysregulation subscale only measures hyper-activation. CPTSD's 'relationship' symptoms refer to a tendency to be distrustful and avoid relationships, whereas the IASC's interpersonal conflict subscale measures the tendency to engage in chaotic relationships. Finally, CPTSD's 'negative self-concept' symptoms refer to a sense of self that is negative (and stably so), whereas the IASC's identity impairment subscale refers to a sense of self that is unstable. These important conceptual differences between the IASC and ITQ's DSO subscales might explain why the DSO's 'disturbances in relationships' subscale was more strongly associated with the identity impairments subscale rather than its the IASC of interpersonal conflict. The constructs measured by the IASC's interpersonal conflict subscale and the ITQ's 'relationship' subscale might be so different that, even if they affect the same life domain, only a correlation of small effect size was observed. Overall, the results indicate that the French version of the ITQ is precise in its measure of DSO symptoms, demonstrating its relevance in measuring complex trauma symptomatology as specifically defined by the ICD-11.

4.1. Practical implications

This study falls within a worldwide research and clinical interest in the newly recognized CPTSD diagnosis. By suggesting a psychometrically valid French translation of the ITQ, this study seeks to facilitate the continuation of these investigations in French-speaking populations. Since more studies are needed to eventually include CPTSD in the next DSM version or encourage the use of ICD-11's CPTSD among clinicians, it is useful to have a brief self-reported measure of CPTSD translated in many languages, and specifically in French with the present study. Results replicated the recognized factorial organization of CPTSD symptoms, as measured by the ITQ, thus suggesting, along with other studies (see the review by Brewin et al., 2017), that the symptoms identified in the ICD-11 are nested in scientific evidence. This study stands out by its meticulous examination of the French ITQ convergent validity, especially in its exploration of the DSO subscales. By showing an association between CPTSD symptoms and measures of childhood cumulative trauma, altered self-capacities and life satisfaction, the present results highlight the relevance of CPTSD to explain the sequalae of trauma and the substantial impact of CPTSD symptoms on survivors' well-being. Therefore, our results further emphasize the importance of developing a strong conceptualization of CPTSD and effective evidence-based treatments for clients suffering for CPTSD.

4.2. Limitations and future studies

Although this study presents important contributions, results should be appreciated in the context of its limits. First, it would be relevant to include adulthood trauma, as well as childhood trauma, as a measure of convergent validity, since adulthood trauma—especially of chronic or sustained nature—are also posited to predict the development of CPTSD symptomatology (Herman, 1992). Second, the measure was answered via a phone interview, rather than in the originally intended paper-and-pencil format, potentially inducing a social desirability bias. It must be noted that the interviewers simply read the items and gave no other instructions than those specified in the French version of the ITQ. Moreover, while validating the questionnaire in a community sample opens the door to the use of the French version of the ITQ in community samples, future studies could benefit from replicating the results in a clinical sample presenting higher levels of symptomatology. Plus, although the sample used in this study showed strong similarities with the general population of Quebec and Canada (e.g., regarding age, sexual orientation, employment status), it also showed higher levels of education, income, and romantic involvement. Because relationship difficulties are an integral part of CPTSD (World Health Organization, 2019), it is conceivable that including participants engaged in a romantic relationship may have resulted in higher levels of functioning in our sample, which is also coherent with their higher levels of education and income. To widen the generalization of the results, future research should replicate them in more diversified samples, examining whether the ITQ has differential validity in different populations (e.g., different socioeconomic groups). Results should also be replicated in other French-speaking populations (e.g., in Europe, Africa), with some modifications perhaps being useful to better match the vernacular of specific regions. As an example, a French of France version of the ITQ with slightly different formulations was developed but has yet to be validated. Finally, by

highlighting the conceptual distinctions between both items measuring 'affective dysregulation', this study opens the door to eventually expand the ITQ to include distinct hypo- and hyper-activation subscales, perhaps by including additional items (see Cloitre et al., 2018).

4.3. Conclusion

In conclusion, our study aimed to examine the French version of the ITQ's psychometric properties. The findings suggest that the French ITQ is a valid measure of ICD-11 PTSD and CPTSD, as indicated by satisfactory factorial validity, internal consistency, and convergent validity. In the context of a growing interest in the diagnosis of CPTSD and its recent inclusion into the ICD-11 (World Health Organization, 2019), having access to a brief, validated measure of CPTSD is worthwhile. Future research could explore the French ITQ's properties in other French-speaking population and perhaps expand its 'affective dysregulation' subscale to reflect the opposing constructs it measures. Hopefully, the French ITQ can represent a useful tool for researchers and clinicians from the Francophonie aiming to expand knowledge in the field CPTSD.

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Declaration of competing interest

None.

Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.chiabu.2022.105627.

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