# Validation of the French Version of a Structured Interview for Assessing the Impact of Traumatic Stress

Marjolaine Rivest-Beauregard

Department of Psychiatry

McGill University, Montreal

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**Abstract**

The Clinician-Administered PTSD Scale for DSM-5 (CAPS-5) is a structured interview that allows the assessment of current or lifetime PTSD, and provides a diagnosis congruent with the fifth version of the Diagnostic and Statistical Manual of Mental Disorders of the American Psychiatric Association. Its French version has yet to be translated and validated. As a means to do that, trauma-exposed participants were recruited and assessed in clinical settings in France and in Canada ($N$ = 161). Overall, the psychometric properties of the French CAPS-5 were found to be excellent. Good-to-strong inter-item consistency was found across the CAPS-5 items ($\alpha$ = .89; *ITC* = .50; *ICC* = .29), while also finding strong convergent validity with the PCL-5, a well-established self-report PTSD measure ($r$ = .82). The one-month test-retest reliability was excellent (Cohen's $\kappa$ = 1.00; *ICC* = .94). These results are consistent with the psychometric properties of the original CAPS-5 interview, with the caveat that no latent factor structure model was deemed a strong fit to the French data. The instability of the 20-items CAPS-5 latent factor structure should be further investigated.

**Résumé**

La *Clinician-Administered PTSD Scale* pour DSM-5 (CAPS-5) est une entrevue diagnostique structurée évaluant la présence de trouble de stress post-traumatique (TSPT) actuel ou au cours de la vie et qui produit un diagnostic congruent avec les critères de la cinquième édition du Manuel Diagnostique et Statistiques des Troubles Mentaux *de l'American Psychiatric Association*. Cependant, la version française de l'entrevue n'a pas encore été traduite et validée. Dans ce but précis, des individus exposés à des événements traumatiques ont été recruté et évalués à travers différents sites hospitaliers et cliniques en France et au Canada ($N$ = 161). Globalement, les propriétés psychométriques de la version française de la CAPS-5 sont excellentes. Une bonne-à-excellente cohérence interne a été trouvée à travers le CAPS-5 ($\alpha$ = .89; *ITC* = .50; *ICC*= .29), en plus d'avoir trouvé une forte validité convergente avec la PCL-5, une mesure auto-rapportée de la sévérité des symptômes de TSPT bien établie ($r$ = .82). La fiabilité test-retest rapportée est excellente ($\kappa$ de Cohen= 1.00; *ICC* = .94). Ces résultats correspondent aux résultats psychométriques rapportés de la version originale de la CAPS-5, à l'exception qu'aucun des modèles de structure de composantes principales proposés ne correspondait à la structure des données françaises. L'instabilité des composantes principales des 20 items du CAPS-5 devra être examinée lors d'études futures.

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Preparing this thesis has been highly educational both from a professional and personal perspective. I have learned a great deal in the past two years, including how to conceptualize a research project and bring it to life, how to talk about research to a lay audience, and much more.

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## Contribution of Authors

This thesis was written in the context of a larger international validation study of the French language *Clinician-Administered Scale for DSM-5* (CAPS-5), designed by Drs. Alain Brunet (Québec), Wissam El-Hage (France), and Sami Richa (Lebanon). Drs. Louise Gaston and Alain Brunet translated to French the CAPS-5. Dr. Daniel Saumier back translated it to English. I participated in the data collection in Québec. I obtained local ethics approval for the project, executed the research assessments, and added these assessments to the data collected in France, by Drs. El-Hage and Brunet. Finally, I conducted the literature review, performed the statistical analyses, interpreted the results, and wrote the thesis under the supervision of Dr. Brunet. Dr. Michelle Lonergan offered support and constructive feedback on preliminary versions of this thesis.

## Introduction

Posttraumatic stress disorder (PTSD) is a debilitating disorder that involves symptoms of re-experiencing, avoidance, negative alterations in mood and cognitions, and alterations in arousal and reactivity (American Psychiatric Association [APA], 2013). Considering the burden of PTSD, the decrease in quality of life associated to this diagnosis (Olatunji, Cisler, & Tolin, 2007; Monson et al., 2015; Monson et al., 2017), its impact on social functioning (Scott et al., 2015; Kaniasty & Norris, 2008), and its economic burden (Kessler & Greenberg, 2002; Wilson, Guliani, & Boichev, 2016), it is the duty of clinical researchers to carefully investigate PTSD, its underlying causes and, ultimately, its treatment. However, to advance knowledge, it is helpful to use the same diagnostic tools. This can be achieved through the use of clinician-administered interviews, based on recognized diagnostic criteria, which provide a reliable form of assessment. The Clinician-Administered PTSD Scale (CAPS-5) is a semi-structured diagnostic interview that draws on the 5th version of the Diagnostic and Statistical Manual (DSM-5; APA, 2013) PTSD criteria; it is considered the gold standard in the field of traumatic stress (Wilson & Keane, 2004). Although the CAPS-5 is available in four languages, a validated version is not yet available in French. Given the usefulness of the CAPS-5 in research and for clinical and forensic purposes, the lack of validation of the French CAPS-5 represents a knowledge gap which we aimed to fill.

## Comprehensive Review of the Literature

### Posttraumatic Stress Disorder

#### History and conceptualization of PTSD.

PTSD made its official appearance in the DSM-III psychiatric nosology, where it was classified as an anxiety disorder (APA, 1980; North, Suris, Smith, & King, 2016). Although this disorder was already carrying the same name as it does today, the definition of a traumatic event was not quite the one we are now familiar with. In the DSM-III, a traumatic event was defined as a "recognizable stressor that would evoke significant symptoms of distress in almost everyone" (APA, 1980). Along this definition, the DSM-III provided examples of traumatic events, such as natural disasters, and examples of non-traumatic events, such as chronic illness or marital conflict (APA, 1980; North et al., 2016). However, one of the main criticisms of PTSD in the DSM-III (and its revised version, DSM-III-R) was the vague and unreliable definition of a traumatic event (the so-called Criterion A; Frances et al., 1991). Therefore, the original PTSD diagnosis was reconceptualized accordingly.

Following the apparition of the DSM-III-R, in 1988, a new process to update the definition of PTSD was initiated (Frances et al., 1991): a systematic review of the literature, the examination of unpublished data, and the initiation of field trials (Frances et al., 1991). The DSM-IV (APA, 1992) field trials for PTSD in which the definition of criterion A (trauma exposure) included the subjective experience of fear, helplessness or horror (criterion A2) in addition to life threat (Criterion A1; APA, 1992), provided similar proportions of PTSD cases compared to the DSM-III (Frances et al., 1991). The main revisions to the diagnostic criteria of PTSD from the DSM-III to the DSM-IV were primarily focused on the definitions of the traumatic event, on top of the addition of an entire cluster of symptoms, namely hyper-arousal.

However, when the DSM-5 PTSD task force began its work in 2008 (Friedman, 2013), it brought the most changes to this diagnosis as in any of its previous revisions. After extensive review of the existing literature, reviews from the psychiatry community, and test-retest reliability performed amongst diagnosticians, criterion A was redefined to include secondary exposure. Criterion A2 was removed. Three symptoms were added to increase the clinical utility of the diagnosis (Friedman, 2013). Additionally, the three clusters of symptoms were reorganized into four to better match the literature on the latent factor structure of PTSD (Friedman, 2013).

Nowadays, DSM-5 PTSD (APA, 2013) is defined as a mental health disorder that can be diagnosed after exposure to a life-threatening event which may be experienced directly or indirectly (i.e., witnessing the event or learning about it). This diagnosis involves symptoms that are divided into (i) re-experiencing, (ii) avoidance, (iii) alterations in mood and cognitions, and (iv) alteration in arousal and reactivity. Additionally, symptoms must be present for a minimum of one month, be causing significant distress or impairment in social functioning (APA, 2013), and not be explained better by another DSM diagnosis.

**Traumatic events in the DSM-5.**

A traumatic event is defined as a highly stressful event that involves a serious injury, a threat to one's life, or sexual violence (APA, 2013). Such event may include interpersonal violence (e.g., sexual or physical assault), natural (e.g., earthquake, hurricane) and man-made disasters (e.g., car crash, work accident). Exposure to such events in the general population is not as rare as one may think. Worldwide epidemiological studies conducted by the World Mental Health Survey (World Health Organisation [WHO]) between 2001 and 2012 suggest that 70.4% of the surveyed population across 24 countries have been exposed to a traumatic event at least once in their lifetime (Kessler et al., 2017), while slightly higher rates were found in some

French-speaking countries, including Canada and France with 75.9% and 72.7%, respectively (Van Ameringen et al., 2008; Husky et al., 2015). Exposure to a traumatic event can result in a variety of psychiatric symptoms and disease entities, including PTSD.

**Symptoms of Posttraumatic Stress Disorders in the DSM-5.**

The DSM-5 (APA, 2013) lists 20 PTSD symptoms that are further separated into different clusters. Aside from trauma-exposure, the first symptom cluster is the re-experience of the traumatic event, which includes nightmares, intrusive thoughts or memories, flashbacks, as well as emotional or physiological reactivity upon trauma reminders (APA, 2013). At least one of those five symptoms must be present to meet the criterion of the 'B' symptom cluster. The symptom cluster C is comprised of avoidance of stimuli associated with the traumatic event and avoidance of external reminders of the traumatic event (APA, 2013), of which at least one must be endorsed. The symptoms cluster D entitled negative alteration in mood and cognitions includes amnesia regarding important aspects of the traumatic event, negative beliefs about the self or the world, and various other ego-dystonic and dysphoric symptoms related to mood and cognition. This cluster has seven symptoms, from which at least two must be present. The E cluster of symptoms entitled alteration in arousal and reactivity is composed of six symptoms: irritability, hypervigilance, trouble concentrating, reckless behaviours, sleep problems, and exaggerated startle, of which at least one must be endorsed.

The symptoms must be accompanied by significant distress or impairment in social functioning and must last at least for one month (Criteria F and G; APA, 2013). Moreover, given the DSM-5 PTSD criteria involving the endorsement of at least one or two symptoms per cluster (APA, 2013), there is a total of 636,120 different clinical profiles corresponding to PTSD (Galatzer-Levy & Bryant, 2013). Such profiles are likely to change according to a multitude of

factors, which includes individuals and environmental differences, such as gender and type of traumatic event, and many more (Chung & Breslau, 2008; Shevlin & Elklit, 2012).

**Quality of life.**

Multiple studies suggest an association between PTSD and lower levels of quality of life, especially with respect to mental health and work (Olatunji et al., 2007). Additionally, significant decrease in general physical health associated with PTSD is reported in the literature (e.g., Pacella, Douglas, & Delahanty, 2013). A recent Canadian epidemiological study replicated and extended these findings (Monson, Brunet, & Caron, 2015), suggesting that individuals with current PTSD report lower quality of life than those any other group across the trauma spectrum (i.e., remitted PTSD; trauma-exposed, no PTSD; and no trauma exposure). These results persisted even one-to-two years later (Monson, Caron, McCloskey, & Brunet, 2017). This study clearly underlines the burden of PTSD on the quality of life of those affected.

**Impairments in functioning.**

The decrease in quality of life is only one of the many consequences associated with PTSD. PTSD is also associated with impairments in the cognitive domains including, although not exclusively, memory and attention, executive functioning and verbal learning (Scott et al., 2015). However, such impairment is not only directly detrimental to individuals with PTSD but can also lead to serious indirect consequences. Being diagnosed with PTSD is further associated with an increased risk of suicidal ideation and attempts (Krysinska & Lester, 2010), which could be mediated by the impairment in social functioning and lack of social support associated with PTSD (Dutton et al., 2016). Therefore, the burden of PTSD can also cascade into potentially fatal consequences. However, there are also distressing consequences of PTSD, such as significantly higher risk of being diagnosed with other comorbid psychiatric conditions. Some of

the most prevalent psychiatric comorbidities of PTSD include major depressive disorder and substance abuse disorders, among others (Kessler et al., 1995).

### Economic costs of PTSD.

PTSD has also been associated with large economic losses. For instance, individuals suffering of PTSD are more likely to seek unnecessary medical care, which in turn is associated with increased costs for society (Kessler & Greenberg, 2002). In fact, 28.2% of individuals with PTSD reported using medical services at least once within a 12-month period for vaguely defined medical complaints (Kessler & Greenberg, 2002). Additionally, it has been documented that one of the economic consequences of incurred mental health is the loss of labour force, which consists of one of the largest economic losses in society (Wilson et al., 2016).

## Diagnosis and Assessment of PTSD

There are multiple assessment tools that exist to screen and assess the presence of PTSD and its severity. Assessment tools for PTSD symptoms can be divided into two broad categories: self-reported measures and structured interviews (Reyes, Ford, & Elhai, 2013). Although both assessment methods can be used for screening and/or diagnosis purposes, they also both have their strengths and limitations that must be carefully considered. Self-reported measures are typically used in large empirical studies, to conduct quick initial evaluation of PTSD symptoms and assess the need of further clinical evaluation, to monitor symptoms severity over time, or to assess for the presence of a probable diagnosis (Reyes et al., 2013). However, self-report measures may lead to discrepancies of psychiatric symptoms severity when compared to clinician ratings (Dorz et al., 2004). Therefore, pairing this type of assessment with a structured clinical interview can provide more accurate diagnostic and severity ratings of PTSD (Reyes et al., 2013; Wilson & Keane, 2004).

Structured interviews, and specifically clinician-administered interviews, are considered the most appropriate assessment method for diagnosing PTSD, as they provide a standardized method used by trained experts that results in the most reliable and valid form of diagnosis (Ford et al., 2015; Wilson & Keane, 2004). However, the main limitation of such assessment method is its time-consuming nature, as a diagnostic interview can take up to 2 hours to administer (Wilson & Keane, 2004).

In 1991, Wilson and colleagues published a comprehensive set of five criteria that should be met by a sound diagnostic interview. The content of the interview should: 1) reflect up-to-date PTSD diagnostic criteria, 2) show strong reliability and validity, 3) provide a dichotomous diagnosis algorithm as well as a continuous symptom severity score, and 4) be simple enough to be administered by a trained non-clinician (Watson et al., 1991). Following the publication of these criteria was designed a new diagnostic interview, which is now the most widely used interview for PTSD in adult population: the Clinician-Administered PTSD Scale (CAPS; Weiss, 2004b; Blake et al., 1995).

Praised for its design around previous criticisms of PTSD diagnostic interviews, the CAPS (Blake et al., 1995) has been considered to be the gold standard when diagnosing PTSD in adults for many years now (Weiss, 2004b). The CAPS addressed issues and criticisms raised toward other diagnostic interviews by following closely the DSM diagnosis criteria (DSM-IV; APA, 1994), by providing a diagnosis and a symptom score, and by being easily used by trained professional coming from a wide range of fields (Weathers, Keane and Davidson, 2001). In contrast to other widely used diagnostic interviews based on the DSM, such as the MINI (Sheehan et al., 1998) and the SCID (First et al., 2015), the CAPS provides an in-depth evaluation of PTSD diagnosis and symptoms with both continuous and dichotomous outcomes.

However, the CAPS does not allow for the assessment of comorbidities as the above-mentioned interviews do, making it a specialize diagnostic interview specific to PTSD.

**The CAPS**

As a result of its meticulous construction, one of the strengths of the CAPS was also its reliable results across various trauma populations and settings. Indeed, the CAPS has been validated in veteran samples, Dutch trauma survivors, and many more, although it has not been validated in any French-speaking populations until now (Weathers, Keane, and Davidson, 2001). However, in 2013, the fifth version of the DSM came out (APA, 2013), calling for a revision of the CAPS interview in order to fit the updated PTSD criteria.

The CAPS was modified to ensure its correspondence with the new DSM-5 PTSD criteria, which led to the CAPS-5 being now composed of 20 symptom items (Weathers et al., 2014). Also, the CAPS-5 scoring system was simplified by its authors in response to previous critics (Weathers et al., 2014). Additional assessment of the CAPS-5 includes ratings of global validity and severity to provide respectively an estimate of the overall reliability of the interviewee's answers and of the overall severity of PTSD symptoms. Overall, the CAPS-5 provides ratings of severity (continuous) to Criteria B to E and of overall PTSD severity, while also providing a present/absent assessment of Criterion A (trauma exposure) and of the PTSD diagnosis.

**Initial Psychometric Properties and Factors Analyses of the CAPS-5**

The CAPS-5 was initially validated by Weathers and colleagues (2018) in its original language, namely English. The initial psychometric properties of the CAPS-5 demonstrated good internal consistency on the symptom severity scale ($\alpha = .88$) and adequate internal consistency on its various subscales ($\alpha = .55$-$.77$), along with a good intra-class correlation coefficient (ICC)

of .78. The diagnostic decision of the CAPS-5 also presents good test-retest capacities ($k$ = .83), on top of good test-retest reliability on its global severity scoring ($ICC$ = .78). These initial results suggest that the CAPS-5 is a psychometrically sound measure and provides strong evidence that it can assess the presence and severity of PTSD as accurately as its predecessor (Weathers et al., 2018).

Although the underlying factor structure that was adopted for the DSM-5 PTSD diagnosis is composed of four factors that are represented by its core symptom clusters, many other structures were also proposed and suggested to be better fits (APA, 2013; Simms, Watson & Doebbeling, 2002; Elhai et al., 2012; Liu et al., 2014; Tsai et al., 2015; Armour et al., 2015). Simms and colleagues (2002) suggested the underlying factor structure of PTSD to include intrusion, avoidance, dysphoria as a broader factor for emotional numbing, and hyperarousal. This four-factor model was labelled as the dysphoria model (Simms et al., 2002). Building on this model, a five-factor model was later hypothesized by creating dysphoric arousal as a new factor distinct from dysphoria and relabelling hyperarousal as anxious arousal (Elhai et al., 2012). This proposed set of factors was named the dysphoric arousal model (Elhai et al., 2012). The six-factor anhedonia model was suggested by Liu and colleagues (2014) by building on the dysphoric arousal model and testing the distinction of two factors within the negative alteration in mood and cognition by separating this factor into two constructs: negative emotional states and anhedonia (reduced positive affect) (Liu et al., 2014). From the five-factor model dysphoric arousal model, another six-factor model was suggested. Tsai and colleagues (2015) added a sixth factor, namely externalizing behaviours that include the symptoms of irritable and aggressive behaviours, and self-destructive or reckless behaviours to the existing dysphoric arousal model to create the externalizing behaviours model.

Most recently, the hybrid seven-factor model was hypothesized based on both the six-factor models of anhedonia and externalizing behaviours by including the following factors: re-experiencing, avoidance, negative affect, anhedonia, externalizing behaviour, anxious arousal, and dysphoric arousal (Armour et al., 2015). In sum, the number of factors for the new set of PTSD DSM-5 symptoms remains a matter of controversy. Given the adaptation of the CAPS to the DSM-5 criteria, it is important to examine the psychometric validity and reliability of the French version, and to examine its latent structure according to the existing models.

**The Translations of the CAPS-5**

As of today, the CAPS-5 is available and validated in English (Weathers et al., 2018), Turkish (Boysan et al., 2017), German (Müller-Engelmann et al., 2020), Dutch (Boeschoten et al., 2018), and Spanish (Zenteno Salazar & Fresno Rodríguez, 2018). Overall, the psychometric properties of the CAPS-5 across all its available languages are adequate-to-excellent. Its internal consistency for the total scale is good on the English, Dutch and German versions ($\alpha$ = .88 - .93; Weathers et al., 2018; Müller-Engelmann et al., 2020; Boeschoten et al., 2018), while its internal consistency at the symptom cluster level is adequate-to-excellent across all its versions ($\alpha$ = .55 - .94; Weathers et al., 2018; Müller-Engelmann et al., 2020; Boeschoten et al., 2018; Boysan et al., 2017). The CAPS-5 diagnostic inter-rater reliability has been shown to be adequate in both the English and Dutch version ($\kappa$ = .78 and .59 respectively; Weathers et al., 2018; Boeschoten et al., 2018), while demonstrating good-to-excellent interrater reliability on its total severity score across the English, German and Dutch versions (*ICC* = .81 - .98; Weathers et al., 2018; Müller-Engelmann et al., 2020; Boeschoten et al., 2018). The CAPS-5 test-retest reliability in its original version has been found to be good for its diagnosis and for its total severity score ($\kappa$ = .83 and *ICC* = .78; Weathers et al., 2018). As expected, the 15 days test-retest reliability did not result in

any statistically significant difference in dichotomous outcomes at the symptom cluster levels in the Turkish versions when using McNemar's test (ranging from $X^2 = 0.25$, $p = .617$ to $X^2 = 1.778$, $p = .182$; Boysan et al., 2017), underlying the stability of its outcomes. When looking at the underlying factor structure of the CAPS-5, the best fitting model is the seven-factor hybrid for all versions but the Dutch CAPS-5, which suggested the six-factor anhedonia model to be a better fit (Weathers et al., 2018; Müller-Engelmann et al., 2020; Boysan et al., 2017; Boeschoten et al., 2018).

It is important to keep translating the CAPS-5 in various languages to ensure that it can be used for diagnostic and research purposes across different parts of the world. Since French is a widely used language worldwide, the lack of a validated French translation of the CAPS-5, or of any of its predecessors, represents a gap within the psychotraumatology literature. The purpose of this thesis was to produce a French version of the CAPS-5, to investigate its psychometric properties, and to examine its latent structure. We hypothesized that, like the other existing versions of the CAPS-5, its psychometric properties would be strong and that the best-fitting model would be the seven-factor solution.

## Body of the Thesis

### Methods

#### Participants.

The study sample was composed of 161 French-speaking trauma-exposed individuals. Participants were recruited in several clinical and research settings located in two different francophone countries: the research center of the Douglas Mental Health University Institute (IUSMD), in Montreal, Canada ($n = 5$), and eight participating outpatient PTSD clinics in France (Bordeaux, Brest, Montpellier, Rouen, Tours, Paris, Saint-Étienne, & Uzes; $n = 156$). (A clinic in

Lebanon participated in the linguistic validation but did not recruit any research subject for the purposes of this study). Eligible participants had to be at least 18 years or older, having been exposed to a traumatic event, and speaking fluently French. Ethics approval for the project was obtained at the IUSMD (No. 19-40) and at the University of Tours (CERNI-2016-10-01).

**Procedure.**

Participants were recruited through billboard advertisements and in PTSD clinics. Interested participants were screened by phone to confirm preliminary eligibility. Seemingly eligible participants were invited on site (or via videoconference given the COVID-19 pandemic) to finalize their study inclusion. Therefore, our sample was composed of trauma-exposed and assessment/treatment-seeking participants. After providing written informed consent, the participants completed a battery of self-reported questionnaires and a structured interview conducted by trained clinicians, or trained/supervised graduate students. Participants were re-contacted by the same interviewer via phone or videoconference one month later to proceed to the test-retest interview ($n$ = 100). There was no financial compensation offered to the participants.

**Measures.**

The *Clinician-Administered PTSD Scale for DSM-5* (CAPS-5; Weathers et al., 2018) is a structured interview administered by a trained clinician to assess the presence and frequency of the 20 DSM-5 PTSD symptoms over a given 1-month period. For each symptom, frequency is measured as reported by the participant; meanwhile the clinician rates the intensity of the symptom on a 4-point scale (minimal, clearly present, pronounced, extreme). The ratings for frequency and intensity are then unified to create a severity score ranging from 0 (absent) to 4 (extreme). To be deemed present, symptoms must be scored to a severity of at least 2 (SEV2

scoring rule). Initial psychometric properties of the CAPS-5 demonstrated good internal consistency on the symptoms total scale ($\alpha$ = .88) and adequate internal consistency on its subscales ($\alpha$ = .55-.77), along with a good intra-class correlation coefficient (*ICC* = .78). The diagnosis of the CAPS-5 also presents good test-retest capacities ($k$ = .83), on top of good test-retest reliability for its global severity score (*ICC* = .78). In the context of this study, the CAPS-5 was translated to French. Initially translated by a bilingual expert in the field of psychotraumatology (Dr. Louise Gaston), its translation was revised by Alain Brunet and a small group of experts (Wissam El-Hage, Sami Richa) and back translated to English by a clinical psychologist with PTSD expertise, Dr. Daniel Saumier.

The *Life Events Checklist for DSM-5* (LEC-5; Weathers et al., 2018) is a 17-item checklist used to assess the exposition to various potentially traumatic events. Each item represents an event, on which the participants report whether they were directly exposed (happened to me), indirectly exposed (witnessed it, learned about it), or does not apply to them. The initial psychometric properties of its precedent version suggest adequate validity and reliability over a 7-day period, and strong convergent validity with PTSD measures such as the CAPS (Gray, Litz, Hsu, & Lombardo, 2004). In the context of this study, the LEC was administered by the interviewers without discriminating the level of exposure (direct or indirect) to each of the events endorsed. However, the level of exposure was specified for the index event, which is the one event for which the CAPS-5 evaluation was administered.

The *PTSD Checklist for DSM-5* (PCL-5; Blevins et al., 2015) is a self-reported questionnaire that assesses the presence and severity of the 20 DSM-5 symptoms for PTSD within the past month. Each item is rated on a five-points scale ranging from 0 (not at all) to 4 (extremely). It is divided into four subscales corresponding to the DSM-5 symptoms clusters (re-

experiencing, avoidance, arousal and numbing, and alterations in mood and cognitions). Its initial psychometric properties suggested strong internal consistency ($\alpha$ = .94) and strong test-retest reliability ($r$ = .82). The questionnaire has previously been translated to French and validated (Ashbaugh et al., 2016), also demonstrating good psychometric properties with excellent internal consistency ($\alpha$ = .94) and good test-retest reliability ($r$ = .89).

**Statistical Analyses.**

All statistical analyses were carried using IBM SPSS (version 27) while latent factor structure analyses were performed using IBM Amos (version 26). The internal consistency of the French version of the CAPS-5 was investigated using Cronbach's alpha at the total scale and subscale levels, item-total correlations, and interitem correlations. Convergent validity between PCL-5 total score and CAPS-5 total severity score was also calculated using Pearson's product moment correlation. Test-retest reliability was calculated for diagnostic decisions using Cohen's kappa (measurement time 1 vs. time 2), while continuous severity scores were examined using intraclass correlations (ICC; Shrout & Fleiss, 1979) and Pearson's correlation. Sociodemographic characteristics of the sample used for the test-retest analysis were compared to those of the remaining of the sample. For continuous variables, such as age, age at the time of the traumatic event, and age when symptoms of posttraumatic stress started, non-parametric Mann-Whitney tests were used, as the homogeneity of variance assumption was violated ($p$ < .05). For nominal variables including sex, marital status, and country of evaluation, chi-square analyses were used.

To replicate Weathers and colleagues' validation study (2013), the same structural models were tested, namely the DSM-5 model (APA, 2013), the dysphoria model (Simms, Watson & Doebbeling, 2002), the dysphoric arousal model (Elhai et al., 2012), the externalizing

behaviour model (Liu et al., 2014), the anhedonia model (Tsai et al., 2015), and the hybrid model (Armour et al. 2015, see Table 1). Latent factor structure analyses were carried on the sample from France only to promote homogeneity, while following a similar confirmatory factor analysis (CFA) approach, as previously done by Gilmour and Romaniuk (2020). The univariate and multivariate normality assumptions were verified and found to be violated in our data. For this reason, the Bollen-Stine bootstrap $\chi 2$ was used to estimate overall model fit of each model, rather than the maximum-likelihood $\chi 2$ significance test. Model fit was also evaluated using the following goodness-of-fit indexes: Bollen-Stine bootstrap $\chi 2$ (Bollen & Stine, 1992), the Bentler comparative fit index (CFI), Tucker-Lewis Index (TLI), root mean square error of approximation (RMSEA), and standardized root mean residuals (SRMR; Bentler, 1990), as recommended by Kline (2015).

## Research Findings

### Sample.

The sociodemographic characteristics of the sample are shown in Table 2. The sample was mainly composed of working ($n$ = 76, 47.2%) women ($n$ = 87, 54.0%) from France ($n$ = 156, 96.9%). A total of 156 (96.9%) participants received a diagnosis of PTSD, representing most of the study sample. The most widely reported index events were interpersonal violence, which included sexual ($n$ = 20, 12.4%), physical ($n$ = 16, 9.9%) assault, or with a weapon ($n$ = 29, 18.0%). The distribution of potentially traumatic events identified as the participants' index events can be found in Table 3.

### Missing Data.

The number of missing values on the CAPS-5 and the PCL-5 was assessed. Missing values analysis revealed that 0.6% of the CAPS-5 severity score was missing ($n$ = 1), along with

0.6% of the ratings of the symptom D7 (persistent inability to experience positive emotions; *n* = 1), compared to 14.3% of the PCL-5 total. Little's MCAR test was found to be non-significant ($\chi^2$ = 55.70, df = 43, p = .093), suggesting that the data was missing completely at random. The data was therefore imputed using the Expectation-Maximization algorithm (Moon, 1996) in order to create a complete dataset and preserve sample size and power.

**Internal Consistency.**

Cronbach's alpha coefficients, both at the full-scale and subscale levels, were computed to verify how consistent the CAPS-5 items are with the concept of PTSD and its subscales. The structured interview presented strong internal consistency both at the full-scale and subscale levels (see Table 4).

Item-total correlations (ITC) were performed to evaluate whether individual items discriminate between those who endorse PTSD, and those who do not. Mean ITC of 0.50 suggests very good discrimination. However, two of the items presented poor ITC, namely amnesia (D1, ITC = .10) and irritability (E1, ITC = 0.32), suggesting poor discrimination between individuals with and without PTSD. The remaining 18 symptoms presented ITC ranging between .42 and .71, with an average ITC of .54 (see Table 5). The interitem correlations (IIC) were calculated for all 20 symptoms, which resulted in most interitem correlations falling between the recommended range of .15-.50 (Clark & Watson, 1995) and a mean interitem correlation of .29. However, amnesia (D1) presented low levels of IIC (range: -.11 to .13). The low levels of ITC and IIC of this symptom may be explained by the low level of endorsement of this item (28.57%; *n* = 46), which result in a restrained range of variability in responses. The remaining of the 19 symptoms resulted in an average IIC of .35. All inter-item correlations can be found in Table 6.

**Convergent Validity.**

Convergent validity between the severity scores of the CAPS-5 and of the PCL-5 were calculated using Pearson's correlation. Severity scores of both measures positively and statistically significantly strongly correlated with one another ($p < .05$; see Table 4).

**Test-retest Reliability.**

One hundred participants completed the 'one month' test-retest after an average of 47 days ($SD = 35.70$) since the first administration of the CAPS-5. However, since the CAPS-5 measures symptoms from the past month, it was decided that any test-retest performed 21 days beyond the scheduled one-month test-retest assessment would be considered out of scope, and be excluded from the analyses ($n = 25$). The final analytic sample for the test-retest data was composed of 75 participants whom, on average, were interviewed for a second time 31 days ($SD = 6.89$) after their first interview. Sociodemographic characteristics of the sample used for test-retest were compared to those of the remaining of the sample.

The test-retest reliability of PTSD diagnosis on the CAPS-5 (present vs. absent) was excellent (Cohen's $\kappa = 1.00$, $p < .001$), suggesting perfect agreement between the diagnoses at the first and second evaluations. The test-retest reliability of the CAPS-5 total severity rating was very strong (ICC = .94, $p < .001$), while being statistically significant (all $p$-values < .001) and strong to very strong on all its symptom cluster ratings: reexperiencing (cluster B, ICC = .89), avoidance (cluster C, ICC = .87), Negative alterations in cognition and mood (cluster D, ICC = .93), and alteration in arousal and reactivity (cluster E, ICC = .92). Similarly, the stability of the CAPS-5 total severity rating at retest yielded a Pearson correlation of 0.90 ($p < .05$). When comparing the sample who completed the test-retest to the remaining sample on

sociodemographic variables, there were no statistically significant differences (all *p*s > .05, see Tables 7 and 8)

**Confirmatory Factor Analysis.**

None of our tested confirmatory analyses models suggested a good fit for our data according to the Bollen–Stine bootstrap $\chi 2$ values ($p < 0.05$), the CFI (< .90), the TLI (< .95), and the RMSEA (90% CI < .08) as all the values fell outside of the cut-off scores for good fit (Kline, 2015). However, the SRMR values suggested that our models are a good fit for out data, as all values fall below the goodness-of-fit cut-off score of 0.08 (Kline, 2015; see Table 9).

## Discussion

We aimed to validate the French version of the CAPS-5 in an international French-speaking sample and to compare the findings to those of Weathers and colleagues (2018). In line with our first hypothesis, our results demonstrated that the French CAPS-5 presents excellent validity and reliability. The interview presents strong convergent validity with an already established measure of symptom severity, the PCL-5, suggesting that both tools measure similar constructs. Additionally, as measured by various indicators of internal consistency as well as test-retest, our results suggest strong overall reliability. Finally, as demonstrated in Table 4, the psychometric properties in our study are like those of the English CAPS-5 (Weathers et al., 2018), suggesting that diagnoses and symptom severity ratings stemming from the French version are as sound as those derived from the original version.

However, contrary to our second hypothesis, all the latent factor models that were tested (i.e., DSM-5, dysphoria, dysphoric arousal, externalizing behaviour, anhedonia, hybrid) failed to meet the required goodness-of-fit values. This suggests that there is variance in our data that is left unexplained by the existing CAPS-5 latent factor models. One potential explanation for this

is the heterogeneity of our sample: although the factor analysis was conducted in a sample from France, participants reported a wide range of traumatic events. These different subgroups of trauma-exposed individuals are likely to present different symptom profiles (Chung & Breslau, 2008; Shevlin & Elklit, 2012), which in turn, could affect the latent variables identified in our data. This is in line with the recent formulation of PTSD as a spectrum disorder, as of DSM-5. To further explore these possibilities, a larger sample is required, where subgroups could be created and analyzed.

The inability to find a structural model that provides a good fit for this data also underlines an important concern regarding the factor structure of the CAPS-5, which directly reflects the PTSD diagnostic criteria according to the DSM-5 (APA, 2013). Based on these criteria, many structural models have been developed over time (APA, 2013; Liu et al., 2014; Tsai et al., 2015; Armour et al., 2015). However, to date, there has been no consensus as to which one is the best fit for the CAPS-5 (see Weathers et al., 2018; Boeschoten et al., 2018; Hunt et al., 2018), which raises important issues that need to be further explored. Such structural variation could be the result of an arguably broad definition of the construct of PTSD that has been adopted in the DSM-5, leading to many potential symptom profiles that can fulfill the diagnostic requirements of PTSD (Friedman, 2013). Additionally, the large number of PTSD symptoms in the DSM-5 and, therefore, in the CAPS-5 (20 symptoms), captures a broad range of psychological reactions to traumatic events. This could result in high rates of comorbidities and overlaps with other DSM disorders (Brewin, 2013), which may affect the structure of latent factors across studies. Not only has this broad definition of PTSD adopted by the DSM-5 been criticized (Brewin, 2013; Maercker & Perkonigg, 2013), but, also, the World Health Organization (WHO) committee which was preparing the initial proposals that will later result in

the newly updated PTSD criteria of the International Classification of Diseases (ICD-11), opted for a narrow definition, emphasizing on the core symptoms of PTSD (Maercker et al., 2013). The criticisms and debates in the construction and definition of PTSD across diagnostic manuals raise issues that will require further studies exploring and comparing structural models stemming from the DSM-5 and ICD-11.

This study represents an important addition to the literature of the CAPS-5 as it is the first validation study of the French CAPS-5 where participants from both France and Canada were included. Indeed, all validation studies up until now have been focusing on national samples, such as American, Dutch, or Turkish samples (see Weathers et al., 2018; Müller-Engelmann et al., 2020; Boysan et al., 2017; Boeschoten et al., 2018). Our results provide preliminary evidence for the validity and reliability of the PTSD diagnosis stemming from this interview, which could likely be generalized to multiple French-speaking regions around the world. This opens the door to many exciting opportunities to work with the CAPS globally.

It is important to underline the fact that our study has certain limitations. First, participants were comprised of a convenience sample of individuals who were exposed to potentially traumatic events. Therefore, our sample was more likely to report distress and PTSD-related symptoms, which may explain the high prevalence of diagnoses in our study. As a result, the high levels of distress reported throughout the sample may have affected the correlation between PCL-5 and CAPS-5 severity scores, thus inflating convergent validity results. Additionally, our sample size, although sufficient for validation purposes, was not very large, thus potentially yielding more unstable results (Kyriazos, 2018). Finally, although our goal was to validate the CAPS-5 in an international sample, most of our participants were recruited in France, thus limiting the international generalizability of our results. These limitations underline

the need for further research, which should attempt to replicate these results in an international study using larger, representative samples from multiple French-speaking countries while taking into consideration cultural differences. Even considering the aforementioned limitations, our study provides strong evidence that the French CAPS-5 is a psychometrically sound measure that is both valid and reliable across an international sample. Our results suggest that the French CAPS-5 can be used by clinicians and researchers to assess and study French-speaking populations while providing PTSD diagnosis and severity scores with the same validity and reliability that the English CAPS-5, or any other version available until now, would provide them.

## Final Conclusion and Summary

There are many reasons why providing valid and reliable diagnoses is crucial to help individuals suffering from PTSD. The impact that is associated with this diagnosis, such as impairments in one's life (Scott et al., 2015), decrease in quality of life (Olatunji, Cisler, & Tolin, 2007; Monson et al., 2015; Monson et al., 2017), and large societal costs (Kessler & Greenberg, 2002; Wilson et al., 2016), can only be addressed with a proper diagnosis. This thesis provides a much-needed assessment of the psychometric properties of the CAPS-5 for one of the most popular languages in the world, namely French. To do so, PTSD assessments of French and Canadian trauma-exposed individuals were carried using the French CAPS-5 and analyzed to evaluate its validity and reliability. Results demonstrated that diagnoses stemming from this translation are valid and reliable, with psychometric properties that are comparable to its existing versions and translations (Weathers et al., 2018; Boysan et al., 2017; Müller-Engelmann et al., 2020; Boeschoten et al., 2018; Zenteno Salazar & Fresno Rodríguez, 2018). This confirms that the French CAPS-5 can be used in research and clinical contexts. The results provided by this

study will lead to the further validation of the CAPS-5 in an international sample of French-speakers coming from different cultural and linguistic backgrounds. This represents an important step to the psychotraumatology literature, as it will work towards the cultural inclusivity of PTSD assessment using the DSM-5.

However, this thesis also underlines an important concern regarding the factor structure of the CAPS-5, and the construct of PTSD within the DSM-5 (APA, 2013). A broad construct of PTSD, as adopted in the DSM-5, could potentially explain difficulties in identifying an appropriate and stable structural model. Although recent investigations suggest that a narrower construct of PTSD, such as the one proposed by ICD-11, may yield better structural results (Hunt et al., 2018), further work is still needed. Nevertheless, PTSD remains a global mental health burden, and the development of sound clinician-administered diagnostic interviews across languages and cultures remains of the upmost importance.

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Table 1

*Structure and Item Mappings of the CAPS-5 according to Factor Models Tested using CFA*

| CAPS-5 items | Model | | | | | |
|---|---|---|---|---|---|---|
| | **DSM-5** | **Dysphoria** | **Dysphoric arousal** | **Externalizing behaviour** | **Anhedonia** | **Hybrid** |
| B1. Intrusive thoughts | In | In | In | In | In | In |
| B2. Nightmares | In | In | In | In | In | In |
| B3. Flashbacks | In | In | In | In | In | In |
| B4. Emotional reactivity | In | In | In | In | In | In |
| B5. Physiological reactivity | In | In | In | In | In | In |
| C1. Avoidance of thoughts | Av | Av | Av | Av | Av | Av |
| C2. Avoidance of reminders | Av | Av | Av | Av | Av | Av |
| D1. Trauma-related amnesia | NACM | D | NACM | NACM | NA | NA |
| D2. Negative beliefs | NACM | D | NACM | NACM | NA | NA |
| D3. Distorted cognitions | NACM | D | NACM | NACM | NA | NA |
| D4. Negative emotional state | NACM | D | NACM | NACM | NA | NA |
| D5. Diminished interest | NACM | D | NACM | NACM | An | An |
| D6. Detachment | NACM | D | NACM | NACM | An | An |
| D7. Difficulty experiencing positive emotions | NACM | D | NACM | NACM | An | An |
| E1. Irritability | AR | D | DA | EB | DA | EB |
| E2. Self-destructive behaviour | AR | D | DA | EB | DA | EB |
| E3. Hypervigilance | AR | AA | AA | AA | AA | AA |
| E4. Exaggerated startle | AR | AA | AA | AA | AA | AA |
| E5. Concentration disturbance | AR | D | DA | DA | DA | DA |
| E6. Sleep disturbance | AR | D | DA | DA | DA | DA |

*Note.* In = intrustion, Av = Avoidance, NACM = Negative Alterations in Cognitions and Mood, NA = Negative Affect, An = Anhedonia, AR = Alterations in Arousal and Reactivity, EB = Externalizing Behavior, AA = Anxious Arousal, D - Dysphoria, DA = Dysphoric Arousal.

Table 2
*Sociodemographic Characteristics and Clinical Variables*

| **Characteristics** ($n$ = 161) | | |
|---|---|---|
| | *M* | *SD* |
| Age (years) | 39.38 | 11.42 |
| Age (years) at the time of the index event | 30.86 | 13.56 |
| Formal Education (years) | 13.25 | 3.12 |
| [1, 2]Self-reported PTSS | 42.31 | 15.28 |
| [3]Clinician-rated severity of PTSS | 1.89 | 0.73 |
| | **N** | **%** |
| Sex | | |
| Female | 87 | 54.03 |
| Male | 73 | 45.34 |
| Undisclosed | 1 | 0.62 |
| Marital Status | | |
| Single | 44 | 27.33 |
| In a Relationship/Married | 81 | 50.31 |
| Separated/Divorced/Widowed | 28 | 17.39 |
| Undisclosed | 8 | 4.97 |
| Country of Evaluation | | |
| France | 156 | 96.89 |
| Canada | 5 | 3.11 |

1. PTSS = Posttraumatic Stress Symptoms

2. Based on the PTSD Checklist for *DSM-5*

3. Based on the Clinician Administered PTSD Scale for *DSM-5*. A score between 1 and 2 represents moderate severity.

Table 3
*Distribution of potentially traumatic events identified as index event*

| **Potentially traumatic events** | | |
|---|---|---|
| | N | % |
| Natural disaster | 9 | 5.6 |
| Fire/Explosion | 3 | 1.9 |
| Motor vehicule accident | 9 | 5.6 |
| Other serious accident | 4 | 2.5 |
| Exposure to toxic substance | 1 | 0.6 |
| Physical assault | 16 | 9.9 |
| Assault with weapons | 29 | 18.0 |
| Sexual assault | 20 | 12.4 |
| Other unwanted sexual experience | 3 | 1.9 |
| Combat | 16 | 9.9 |
| Captivity | 4 | 2.5 |
| Life-threatening injury/illness | 2 | 1.2 |
| Severe human suffering | 4 | 2.5 |
| Witness violent death | 13 | 8.1 |
| Sudden, unexpected death of loved one | 10 | 6.2 |
| Caused serious injury/death of another | 1 | 0.6 |
| Other very stressful event | 8 | 7.5 |

*Note.* $n = 161$

Table 4

*Psychometric Characteristics across the French and English CAPS-5*

| Psychometric Characteristic | CAPS-5 French | CAPS-5 English (Weathers et al., 2018) |
|---|---|---|
| **Internal Consistency** | | |
| Cronbach for total scale | $\alpha = .89$ | $\alpha = .88$ |
| Cluster B | $\alpha = .77$ | $\alpha = .77$ |
| Cluster C | $\alpha = .71$ | $\alpha = .55$ |
| Cluster D | $\alpha = 77$ | $\alpha = .77$ |
| Cluster E | $\alpha = .71$ | $\alpha = .65$ |
| Item-total correlation total | $M = .50$ | $M = .48$ |
| Interitem correlation total | $M = .29$ | $M = .26$ |
| **Convergent validity** | | |
| PCL-5 | $r = .82$[1] | $r = .66$ |

[1]The Pearson correlation is statistically significant ($p < .05$)

Table 5
*Item-Total Correlations and Cronbach's alpha coefficient if item deleted of the French Clinician-Administered PTSD Scale for DSM-5*

| **Items** | **Corrected Item-Total Correlation** | **Cronbach's Alpha if Item Deleted** |
|---|---|---|
| B1 | 0.55 | 0.88 |
| B2 | 0.59 | 0.88 |
| B3 | 0.45 | 0.88 |
| B4 | 0.48 | 0.88 |
| B5 | 0.59 | 0.88 |
| C1 | 0.55 | 0.88 |
| C2 | 0.48 | 0.88 |
| D1 | 0.10 | 0.89 |
| D2 | 0.61 | 0.88 |
| D3 | 0.42 | 0.89 |
| D4 | 0.71 | 0.88 |
| D5 | 0.52 | 0.88 |
| D6 | 0.56 | 0.88 |
| D7 | 0.61 | 0.88 |
| E1 | 0.32 | 0.89 |
| E2 | 0.36 | 0.89 |
| E3 | 0.55 | 0.88 |
| E4 | 0.58 | 0.88 |
| E5 | 0.52 | 0.88 |
| E6 | 0.53 | 0.88 |

*Note*. Each item corresponds to one of the 20 symptoms assessed in the Clinician-Administered PTSD Scale.

Table 6
*Inter-Item Correlations of the 20 Items of the French Clinician-Administered PTSD Scale for DSM-5*

| Item | B1 | B2 | B3 | B4 | B5 | C1 | C2 | D1 | D2 | D3 | D4 | D5 | D6 | D7 | E1 | E2 | E3 | E4 | E5 | E6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| B1 | - | | | | | | | | | | | | | | | | | | | |
| B2 | 0.43 | - | | | | | | | | | | | | | | | | | | |
| B3 | 0.38 | 0.34 | - | | | | | | | | | | | | | | | | | |
| B4 | 0.51 | 0.33 | 0.32 | - | | | | | | | | | | | | | | | | |
| B5 | 0.40 | 0.38 | 0.45 | 0.62 | - | | | | | | | | | | | | | | | |
| C1 | 0.38 | 0.34 | 0.32 | 0.46 | 0.48 | - | | | | | | | | | | | | | | |
| C2 | 0.43 | 0.41 | 0.22 | 0.30 | 0.31 | 0.54 | - | | | | | | | | | | | | | |
| D1 | -0.02 | -0.11 | 0.07 | 0.04 | 0.10 | 0.13 | 0.02 | - | | | | | | | | | | | | |
| D2 | 0.32 | 0.28 | 0.13 | 0.25 | 0.37 | 0.35 | 0.33 | 0.12 | - | | | | | | | | | | | |
| D3 | 0.27 | 0.36 | 0.36 | 0.19 | 0.28 | 0.36 | 0.16 | 0.05 | 0.38 | - | | | | | | | | | | |
| D4 | 0.45 | 0.40 | 0.40 | 0.44 | 0.45 | 0.42 | 0.37 | 0.20 | 0.51 | 0.43 | - | | | | | | | | | |
| D5 | 0.27 | 0.33 | 0.14 | 0.23 | 0.33 | 0.17 | 0.23 | 0.05 | 0.42 | 0.09 | 0.37 | - | | | | | | | | |
| D6 | 0.29 | 0.37 | 0.23 | 0.21 | 0.34 | 0.22 | 0.24 | 0.03 | 0.47 | 0.24 | 0.54 | 0.50 | - | | | | | | | |
| D7 | 0.31 | 0.39 | 0.21 | 0.15 | 0.32 | 0.24 | 0.30 | 0.00 | 0.58 | 0.23 | 0.43 | 0.54 | 0.60 | - | | | | | | |
| E1 | 0.22 | 0.21 | 0.08 | 0.18 | 0.16 | 0.19 | 0.11 | 0.00 | 0.27 | 0.06 | 0.28 | 0.24 | 0.16 | 0.22 | - | | | | | |
| E2 | 0.13 | 0.30 | 0.28 | 0.13 | 0.17 | 0.14 | 0.15 | 0.05 | 0.26 | 0.22 | 0.24 | 0.31 | 0.24 | 0.25 | 0.19 | - | | | | |
| E3 | 0.36 | 0.37 | 0.31 | 0.23 | 0.25 | 0.32 | 0.35 | 0.07 | 0.41 | 0.24 | 0.44 | 0.26 | 0.35 | 0.37 | 0.32 | 0.06 | - | | | |
| E4 | 0.31 | 0.41 | 0.30 | 0.27 | 0.38 | 0.33 | 0.32 | 0.19 | 0.33 | 0.22 | 0.43 | 0.26 | 0.31 | 0.41 | 0.19 | 0.23 | 0.50 | - | | |
| E5 | 0.28 | 0.28 | 0.17 | 0.25 | 0.27 | 0.24 | 0.14 | 0.15 | 0.37 | 0.24 | 0.43 | 0.44 | 0.40 | 0.38 | 0.23 | 0.21 | 0.40 | 0.40 | - | |
| E6 | 0.28 | 0.48 | 0.23 | 0.16 | 0.33 | 0.30 | 0.32 | -0.05 | 0.37 | 0.18 | 0.29 | 0.46 | 0.30 | 0.50 | 0.17 | 0.32 | 0.29 | 0.41 | 0.31 | - |

*Note*. Each item corresponds to one of the 20 symptoms assessed in the Clinician-Administered PTSD Scale.

Table 7
*Mann-Whitney Test Results of Sociodemographic Variables Across Participants Included in the Test-Retest vs. Not*

| | No Test-Retest | | Test-Retest | | | | |
|---|---|---|---|---|---|---|---|
| | Mean Rank | *n* | Mean Rank | *n* | *U* | *z* | *p* |
| Age in years | 79.00 | 85 | 82.20 | 75 | 3060.00 | -.436 | .663 |
| Age at the time of the traumatic event | 75.75 | 72 | 71.97 | 68 | 2548.00 | -.536 | .592 |

Table 8
*Chi-Square Results of Sociodemographic Variables Distribution Across Participants Included in the Test-Retest vs. Not*

| Variable | | *N* in No Test-Retest Group | N in Test-Retest Group | $\chi^2$ | df | *p* |
|---|---|---|---|---|---|---|
| Sex | Man | 42 | 31 | 1.05 | 1 | .306 |
| | Woman | 43 | 44 | | | |
| Marital Status | Single | 20 | 24 | 1.45 | 2 | .485 |
| | In a Relationship/Married | 45 | 36 | | | |
| | Separated/Divorced /Widowed | 13 | 15 | | | |
| Country of Evaluation | France | 84 | 72 | 0.37 | 1 | .541 |
| | Canada | 2 | 3 | | | |

Table 9

*Goodness-of-fit indices for the DSM-5, dysphoria, dysphoric arousal, externalizing behaviour, anhedonia, and hybrid models on the France sample (N = 156).*

| Model | Bollen–Stine bootstrap $\chi 2$ | *df* | CFI | TLI | SRMR | RMSEA (90% CI) |
|---|---|---|---|---|---|---|
| 1. DSM-5 | 314.56 | 164 | .83 | .80 | .075 | .075 (.063-.086) |
| 2. Dysphoria | 310.96 | 164 | .83 | .81 | .074 | .076 (.063-.089) |
| 3. Dysphoric arousal | 305.01 | 160 | .83 | .80 | .074 | .076 (.063-.089) |
| 4. Externalizing behaviour | 301.71 | 155 | .83 | .80 | .074 | .078 (.065-.091) |
| 5. Anhedonia | 276.41 | 155 | .86 | .83 | .068 | .071 (.057-.085) |
| 6. Hybrid | 271.29 | 149 | .86 | .82 | .067 | .073 (.059-.086) |

*Note.* $\chi 2$ all *p*-values > .05; CFI = Bentler's comparative fit index, goodness-of-fit cut-off > = .90; TLI = Tucker Lewis Index, goodness-of-fit cut-off > = .95; SRMR = Standardized root mean square residual, goodness-of-fit cut-off < .08; RMSEA = Root mean square error of approximation, goodness-of-fit cut-off < .08