

Distinguishing Among Symptoms of Posttraumatic Stress Disorder, Complex Posttraumatic Stress Disorder, and Borderline Personality Disorder in a Community Sample of Women

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The diagnosis of complex posttraumatic stress disorder (CPTSD) was included in the *ICD-11* in 2018. Debates are still ongoing in the scientific community regarding the conceptual distinction between CPTSD symptoms and those of comorbid PTSD and borderline personality disorder (BPD). The present study aimed to determine whether (a) patterns of symptoms reported by women in a community sample would reveal a CPTSD profile distinct from PTSD and BPD profiles and (b) the resulting profiles could be compared on measures of cumulative childhood trauma exposure, dissociation, and life satisfaction. Women who reported at least one potentially traumatic experience ($N = 438$) completed questionnaires assessing PTSD, CPTSD, and BPD symptoms. We performed latent profile analyses testing seven models, with the five-profile model emerging as the most appropriate solution. The profiles were characterized as “high PTSD symptoms” (12.0%), “high CPTSD symptoms” (7.6%), “high BPD symptoms” (9.9%), “high CPTSD and BPD symptoms” (3.8%), and “low symptoms” (66.7%). Group comparisons revealed that the profiles characterized by high CPTSD symptoms, high BPD symptoms, and high CPTSD and BPD symptoms tended to include participants with higher levels of cumulative childhood trauma exposure and symptoms of dissociation and lower ratings of life satisfaction compared to the profiles characterized by high PTSD symptoms and low symptoms, $d_s = 0.55$ – 1.06 . These findings support the distinction between *ICD-11* CPTSD symptoms and those of PTSD and BPD, promoting an integrative approach to understanding trauma sequelae, diagnosis, and treatment.

In 2018, the World Health Organization (WHO) included the diagnosis of complex posttraumatic stress disorder (CPTSD) into the 11th revision of the *International Classification of Diseases (ICD-11)*. This diagnosis builds upon the core *ICD-11* posttraumatic stress disorder (PTSD) symptoms of reexperiencing a traumatic event or events in the present via memories; flashbacks or nightmares; avoidance of thoughts, memories, activities, or people associated with the traumatic event; and “persistent perceptions of heightened current threat” (e.g., hypervigilance or enhanced startle response; WHO, 2018). Additional symptoms that specifically characterize CPTSD are referred to as “disturbances in self-organization” (DSO) and include problems in affect regulation, difficulties in sustaining re-

lationships and feeling close to others, and beliefs about oneself as diminished, defeated, or worthless along with feelings of shame, guilt, or failure (WHO, 2018). In both PTSD and CPTSD, symptoms are associated with important functional impairments (WHO, 2018). However, CPTSD has yet to be included in the *Diagnostic and Statistical Manual of Mental Disorders (DSM)* despite the proposition of a similar diagnosis (i.e., developmental trauma disorder) by van der Kolk and colleagues (2009).

To palliate criticisms of PTSD as too narrow to represent the multidimensional experience of survivors of cumulative childhood trauma, the American Psychological Association (APA; 2013) went in another direction, adding a new cluster of symptoms to the existing PTSD diagnosis in the *DSM-5*: negative alterations in cognitions and mood (NACM). Some authors have noted a conceptual overlap between this new symptom cluster and the DSO symptoms in the *ICD-11* CPTSD criteria (Landy et al., 2015); however, to our knowledge, this has yet to be explored empirically. Although this new symptom cluster shows an aspiration to include a broader range of trauma reactions in the PTSD diagnosis (see Zoellner et al., 2013, for more information on changes in the PTSD criteria between *DSM-IV* and *DSM-5*), its introduction was not met without criticism. Experts

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have raised concerns regarding this cluster's lack of focus and specificity as well as the potential it could increase heterogeneity within PTSD patients and comorbidity with other disorders (Brewin, 2013; Zoellner et al., 2013).

A key controversy in the domain of CPTSD concerns its conceptual distinction with borderline personality disorder (BPD; e.g., Macintosh et al., 2015). In the *DSM-5*, BPD features nine diagnostic criteria: emotional instability, impulsivity, suicidal or self-harming behaviors or threats, inappropriate or intense anger or difficulty controlling anger, unstable interpersonal relationships, frantic efforts to avoid abandonment, identity disturbance, chronic feelings of emptiness, and transient stress-related paranoid ideation or severe dissociative symptoms. These symptoms are associated with important functional impairments (APA, 2013). There is a connection between these symptoms and those of CPTSD, with the same life domains (i.e., affect regulation, relationships, and beliefs about oneself) typically affected (see Macintosh et al., 2015). Resick and colleagues (2012) even suggested that all BPD symptoms except those related to suicide and fear of abandonment could be interpreted as overlapping with CPTSD symptoms. In addition, although no research has yet established a causal association between trauma exposure and BPD (Ball & Links, 2009), up to 97% of BPD patients report having experienced childhood trauma (Temes et al., 2017). Findings from neurological studies (Cattane et al., 2017) have shown that brain alterations associated with childhood trauma, such as those that affect the hypothalamic–pituitary–adrenal axis, are risk factors to the development of BPD. Moreover, dissociation has been associated with CPTSD (Hyland et al., 2019) and BPD alike (Scalabrini et al., 2017). These analogies have prompted some authors to suggest the reclassification of BPD as a trauma-related disorder (Lewis & Grenyer, 2009).

Other experts in the field have maintained that CPTSD and BPD can be distinguished and that both diagnoses are relevant for a nuanced understanding of the heterogeneous clinical portraits of survivors of cumulative childhood trauma. Although overlap in the life domains affected by BPD and CPTSD does exist, qualitative differences remain. The general diagnostic criteria specify that BPD traits should be pervasive and present in a variety of contexts since early adulthood, whereas CPTSD symptoms should arise following one or more traumatic events (APA, 2013; WHO, 2018). On one hand, similar affect alterations are observed in BPD and CPTSD, with high emotional reactivity and dissociation in the foreground (Brewin et al., 2017). On the other hand, however, anger and suicidal and self-harm behaviors, albeit sometimes present in CPTSD, are more central to BPD (Cloitre et al., 2014). Moreover, whereas alterations in identity and relationships in BPD are characterized by a view of one's self and others alternating between extremely positive (i.e., idealization) and negative (i.e., devaluation) poles, CPTSD patients have a consistently negative self-concept and tend to be consistently distrustful toward others (Cloitre et al., 2011). As Ford and Courtois (2014, p. 4) summarized, “hypervigilance related to being harmed”

would be at the core of CPTSD, whereas “extreme sensitivity (which may take the form of hypervigilance) to perceiving oneself as being abandoned” would be at the core of BPD.

To date, four empirical studies of which we are aware have investigated whether BPD and CPTSD symptoms can be distinguished. Cloitre and colleagues (2014) used latent class analyses (LCAs) to examine how treatment-seeking sexual abuse survivors could be grouped according to their symptoms. The authors observed four distinct groups, characterized by CPTSD symptoms; BPD symptoms, also presenting certain posttraumatic symptoms; PTSD symptoms; and low symptom levels, respectively. More recently, Jowett et al. (2019) found three groups characterized by PTSD symptoms, CPTSD and high BPD symptoms, and CPTSD and moderate BPD symptoms. The only study to use this method in a community sample was conducted by Frost and colleagues (2018), who observed five distinct groups in a sample of sexual assault survivors, with groups characterized by CPTSD symptoms, PTSD symptoms, PTSD and BPD symptoms, CPTSD and BPD symptoms, and low symptom levels. Two of these studies have found a CPTSD class distinct from BPD symptoms, corroborating the theoretically postulated distinction between these disorders. However, none of the studies has observed a BPD class free of posttraumatic stress symptoms, which could be due to the use of clinical and/or highly traumatized samples. Indeed, a network analysis by Knefel et al. (2016) showed that PTSD and DSO symptoms were highly connected to each other but not to BPD symptoms.

The current study aimed to determine whether patterns of symptoms reported by women from the community who experienced at least one potentially traumatic event would reveal a CPTSD profile distinct from PTSD and BPD profiles. To our knowledge, this was the first time this question was explored in a sample that was neither clinical nor highly traumatized; moreover, this was the first study to take into account the contribution of the *DSM-5* NACM symptom cluster. Given that the *DSM-5* PTSD diagnostic criteria, including the NACM cluster, is broadly used, the inclusion of this category of symptoms in a study aiming to examine profiles related to CPTSD, PTSD, and BPD appeared crucial. Per the results from past studies, we hypothesized that the following profiles would emerge, with the repartition of participants between profiles akin to the prevalence found in the general population: (a) a “high PTSD symptoms” profile, characterized by high scores on measures of PTSD symptoms and low levels of DSO symptoms; (b) a “high CPTSD symptoms” profile, characterized by high scores on measures of both PTSD and DSO symptoms; (c) a “high BPD symptoms” profile, characterized by high scores on measures of BPD symptoms; (d) a “high CPTSD and BPD symptoms” profile, characterized by high scores on all symptom measures; and (e) a “low symptoms” profile, characterized by low scores on all symptom measures. We also aimed to explore how *DSM-5* NACM symptoms would relate to *ICD-11* DSO symptoms by exploring whether NACM symptoms would bring new information to the profiles or correlate with DSO symptoms, showing a redundancy. Finally, the current

study examined whether the resulting profiles differed with regard to scores on measures of childhood cumulative trauma, dissociation, and life satisfaction. We hypothesized that participants in the high CPTSD symptoms, high BPD symptoms, and high CPTSD and BPD symptoms groups would present higher levels of childhood cumulative trauma and dissociation than those in the low symptoms and high PTSD symptoms profiles. We also hypothesized that participants categorized in the low symptoms profile would present higher levels of life satisfaction compared to those in all other profiles.

Method

Participants and Procedure

The present study included a community sample of 438 women from Quebec, Canada. Participants were randomly recruited by a survey firm from the population of telephone-owning adults in the province of Quebec between January 2018 and March 2018. Trained and experienced interviewers administered the questionnaires over the phone. Participants were presented with a detailed consent form and gave their verbal consent before starting the study. Individuals received \$10 (CDN) in compensation. The study was approved by the ethics committee of the University of Quebec in Montreal. The inclusion criteria were: being an adult woman (i.e., 18 years of age or older), residing in Quebec, being in a relationship, and being able to understand French. Participants also reported at least one potentially traumatic experience in childhood or adulthood, as this was a prerequisite for completion of the PTSD measure. The following gateway question was used: "Please indicate the experience that disturbs you most and answer the following questions in regard to this experience;" this question was accompanied by a list of eight different types of potentially traumatic experiences, including sexual violence, 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" were not presented with the PTSD measure.

Participants ranged in age from 18 to 84 years ($M = 48.8$, $SD = 12.8$). Most participants were born in Canada (92.7%), and 92.7% of the sample spoke French as a first language, with 2.5% reporting their first language as English and 4.8% reporting "other." The majority of participants reported identifying as heterosexual (94.5%), with 2.7% identifying as homosexual, 2.5% as bisexual, and 0.2% as another sexual orientation. Most participants were parents (84.0%); the mean number of children was 1.9 children ($SD = 1.3$). All participants were in a relationship, with 1.4% reporting that they were dating their significant other, 41.3% reporting a common-law marriage or cohabitation, and 57.3% reporting being married, with a mean relationship length for all participants of 22 years ($SD = 14$). Participants were mostly full-time workers (46.3%) or retired (23.7%), with 13.7% working part-time; in addition, 4.1%

were students, 1.8% were unemployed, and 10.3% selected "other" on this question. The annual personal income was less than \$20,000 for 15.8% of the sample, \$20,000 to \$39,999 for 29.0%, \$40,000 to \$59,999 for 26.9%, and more than 59,999 for 28.4%. Most participants obtained a college or professional degree (42.0%) or higher (40.9%).

Measures

ICD-11 PTSD and DSO Symptoms

To measure ICD-11 PTSD and DSO symptoms, we used the French-Canadian version of the International Trauma Questionnaire (ITQ; Cloitre et al., 2018). The ITQ is composed of 12 items, each of which is scored on a 5-point Likert scale ranging from 0 (*not at all*) to 4 (*extremely*). The ITQ comprises a PTSD scale composed of Reexperiencing, Avoidance, and Perception of Threat subscales, as well as a DSO scale, which consists of Alterations in Affect, Relationships, and Beliefs About Oneself subscales; each subscale includes two items. Subscale scores were calculated by averaging the scores of its two items (range: 0–4), with higher scores representing higher symptom levels. The endorsement (i.e., score of 2 or above) of at least one item from each PTSD subscale is indicative of PTSD, whereas the endorsement of at least one symptom from each PTSD and DSO subscale is indicative of CPTSD (Cloitre et al., 2018). Validation studies of the original English version of the ITQ have revealed that its scores present good psychometric properties (Hyland et al., 2017; Shevlin et al., 2017). The ITQ has been translated into 24 different languages and dialects, and all versions are publicly available at <https://www.traumameasuresglobal.com/itq>. The French (i.e., Québec) version of the ITQ has been validated and demonstrates good psychometric properties as well (Cyr et al., 2020). Internal consistency was measured by McDonald's omega, a more appropriate measure than Cronbach's alpha for two-items scales (Vaske et al., 2017); a score above .70 suggests good internal consistency, and a score above .90 suggest excellent internal consistency (Béland et al., 2017). In the current study, the internal consistency was good to excellent for all subscales, $\omega_s = .75-.91$, except the Affect Regulation subscale, $\omega = .30$, which contains items designed to measure the related but distinct constructs of hyper- (i.e., "When I am upset, it takes me a long time to calm down") and hypoarousal (i.e., "I feel numb or emotionally shut down;" Cloitre et al., 2018).

NACM Symptoms

To measure the DSM-5 NACM symptoms of PTSD, we used the seven-item NACM subscale from the PTSD Checklist for DSM-5 (PCL-5; Blevins et al., 2015). Each item is scored on a 5-point Likert scale ranging from 0 (*not at all*) to 4 (*extremely*). The mean item score is calculated to create a total score, which ranges from 0 to 4; higher scores indicate more severe symptoms. A score of 2 or higher on at least two items indicates the presence of NACM (Ashbaugh et al., 2016). The French version of the PCL-5 NACM subscale has demonstrated good

psychometric properties (Ashbaugh et al., 2016). In the present sample, the internal consistency was very good, Cronbach's $\alpha = .89$.

BPD Symptoms

The 10-item McLean Screening Instrument for borderline personality disorder (MSI; Zanarini et al., 2003) was used to assess BPD symptoms. Each of the nine *DSM-5* BPD criteria is measured via one item, except for the "transient, stress-related, or severe dissociative symptoms" criterion (APA, 2013), which is measured using two items. The MSI was back-translated into French by the research team using the method suggested by Vallerand (1989). Respondents answer each item with a "yes" or "no." Items were coded as 1 for the presence of symptoms or 0 for the absence of symptoms, then compiled into a continuous BPD score ranging from 0 to 10 symptoms. The endorsement of seven or more items suggests the presence of BPD (Zanarini et al., 2003). The total score of the English version of the questionnaire has demonstrated good psychometric properties (Zanarini et al., 2003). In the present sample, Cronbach's alpha for the total score was .77.

Childhood Cumulative Trauma Exposure

The French version of the Childhood Cumulative Trauma Questionnaire (CCTQ; Godbout et al., 2017) was used to measure childhood cumulative trauma. This 15-item questionnaire is used to assess the incidence of eight different types of traumatic events that the respondent experienced before the age of 18 years (sexual abuse; two items) or in a typical year before age 18: physical abuse (four items), psychological abuse (two items), physical neglect (one item), psychological neglect (three items), witnessing physical violence (one item), witnessing psychological violence (one item), and bullying (one item). Except for the sexual abuse items, which are endorsed in a "yes" or "no" format, each item is scored on a Likert scale ranging from 0 (*never*) to 6 (*every day or almost every day*). Endorsement (i.e., score of 1 or more) of at least one item per scale indicates the presence of the traumatic event. Scores (i.e., 0 or 1) for each trauma type are then compiled into a continuous childhood cumulative trauma score (range: 0–8). The CCTQ total score has demonstrated good internal consistency in past studies (e.g., Bolduc et al., 2018). In the current sample, Cronbach's alpha for the total score was .87.

Dissociation

The 10-item Dissociation subscale from the French version of the Trauma Symptoms Inventory (TSI; 2nd edition; Briere, 2011) was used to measure dissociation. Items are answered on a 4-point Likert scale ranging from 1 (*never*) to 4 (*often*). A total score is obtained by calculating the sum of all items (range: 10–40), with higher total scores representing higher levels of dissociative symptoms. According to norms established by Briere (2011) that take into account age and gender, scores can be categorized as normal, problematic but subclinical, and clinical. The English (Briere, 2011) and French (Bigras et al.,

2015) versions of the TSI Dissociation subscale have demonstrated good psychometric properties and internal consistency. In the present sample, Cronbach's alpha was .84.

Life Satisfaction

The five-item French version of the Satisfaction with Life Scale (SWLS; Blais et al., 1989) was used to assess participants' life satisfaction. Items are scored on a 7-point Likert scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*). A total score is obtained by calculating the sum of all items (range: 5–35), with higher scores representing higher degrees of life satisfaction. Established norms allow for the classification of participants' reported life satisfaction (Pavot & Diener, 2013) as extreme dissatisfaction (score of 5–9), dissatisfaction (score of 10–14), slightly below average satisfaction (score of 15–19), average satisfaction (score of 20–24), high satisfaction (score of 25–29), or very high satisfaction (score of 30–35). The total score has demonstrated good psychometric properties (Pavot & Diener, 2013). In the present sample, the internal consistency was excellent, Cronbach's $\alpha = .90$.

Data Analysis

Descriptive statistics were performed using SPSS (Version 24.0; IBM Corp, 2017). To examine our first hypothesis, LPAs were conducted using *Mplus* (Version 7.0; Muthén & Muthén, 2015). LPA is used to uncover relatively homogeneous latent groups based on observed continuous data (i.e., indicator variables; Oberski, 2016). A total of eight continuous indicator variables were entered into the analyses: three *ICD-11* PTSD symptoms (i.e., reexperiencing, avoidance, and perception of threat), one *DSM-5* PTSD symptom (i.e., NACM), three *ICD-11* DSO symptoms (i.e., alterations in affect regulation, relationships, and beliefs about one's self), and one *DSM-5* BPD symptoms score. The reexperiencing, avoidance, perception of threat, affect regulation, relationships, and beliefs about one's self indicator variables were measured using the continuous scores on the respective ITQ subscales, the NACM indicator variable was measured using the continuous score on the PCL-5 NACM subscale, and the BPD indicator variable was measured using the MSI continuous total score. To facilitate interpretation, all indicator variables were transformed into *z* scores. The profiles were interpreted based on the patterns of indicator variables (i.e., mean scores in each profile and whether they statistically differed from zero at the $p < .05$ level). Missing data (19%) were handled using full-information maximum likelihood as implemented in *Mplus*. Random starts specifications were as follows: 100 initial stages random starts and 20 final stage optimizations.

In total, we tested seven LPA models with two to eight profiles each. As recommended by specialists in the field (Bauer & Curran, 2003; Muthén, 2003; Nylund et al., 2007), solutions were compared according to multiple criteria. The optimal solution should (a) show better model fit than previous solutions, as evidenced by lower Akaike information criteria (AIC;

Akaike, 1987), Bayesian information criteria (BIC; Raftery, 1995), and adjusted BIC (aBIC; Sclove, 1987) values as well as significant Lo–Mendell–Rubin adjusted likelihood ratio test (LMR-A; Lo et al., 2001) and bootstrapped likelihood ratio test (BLRT; McLachlan, 1987) p values; (b) show well-defined profiles, as evidenced by an entropy value greater than .80 (Wickrama et al., 2016), and a high probability that participants belong in their attributed profile and a low probability that they belong in another profile; (c) not contain profiles with small numbers of participants (e.g., less than 5% of the sample; Leiter & Maslach, 2016; Merz & Roesch, 2011); (d) be theoretically interpretable; and (e) be consistent with past studies and contemporary theoretical frameworks (Dziak et al., 2019). Although LPA does not assume the distribution of indicator variables to be normal (Oberski, 2016), nonnormal distribution may lead to an overestimation of the correct number of profiles by model fit indices (Bauer & Curran, 2003; Morgan et al., 2016). In these cases, Masyn (2013) suggests investigating the plot of BIC values for each model to find an “elbow”; that is, the point where the gain in model fit (i.e., reduction of BIC value) obtained by adding one profile diminishes. Additionally, other criteria, such as parsimony and theoretical interpretability, should be given as much weight as model fit in the choice of a final solution (e.g., Bauer & Curran, 2003; Dziak et al., 2019).

Third, group comparisons were performed using the DE3STEP method integrated into *Mplus* (Muthén & Muthén, 2015) to examine the potential differences between the profiles (i.e., our second hypothesis). The DE3STEP method estimates the means of continuous auxiliary variables (i.e., childhood cumulative trauma, dissociation, and life satisfaction) in each latent profile and uses global and pairwise Wald chi-square tests of statistical significance to compare those means across the latent profiles. We chose this group comparison method because it considers the uncertain probability of each participant’s inclusion in their attributed latent profile (Asparouhov & Muthén, 2014).

Results

Descriptive Analyses

According to the established score cutoffs (see Measures), 18.7% of the sample reported the presence of reexperiencing symptoms ($M = 0.51$, $SD = 0.80$), 18.5% reported avoidance symptoms ($M = 0.57$, $SD = 0.88$), 23.7% reported the presence of perception of threat symptoms ($M = 0.61$, $SD = 0.92$), 20.8% reported NACM symptoms ($M = 0.50$, $SD = 0.71$), 38.4% reported affect regulation symptoms ($M = 0.83$, $SD = 0.71$), 11.8% reported alterations in beliefs about one’s self ($M = 0.44$, $SD = 0.75$), and 20.4% reported symptoms related to relationships ($M = 0.64$, $SD = 0.90$). In addition, 8.0% of the sample reached the cutoff score for probable *ICD-11* PTSD, 1.4% reached the cutoff for probable *ICD-11* CPTSD, and 2.1% scored at or above the cutoff for probable *DSM-5* BPD ($M = 1.60$, $SD = 1.83$). All correlations between PTSD, DSO, and

BPD symptoms were positive and significant, $r_s = .15$ – $.66$. Scores on the measure of cumulative childhood trauma ranged from 0 to 8 ($M = 3.06$, $SD = 1.97$). The most frequently reported trauma type was psychological neglect (79.5%), followed by bullying (47.7%), witnessing psychological violence between parents (45.9%), psychological violence (42%), sexual abuse (35.4%), physical violence (28.1%), witnessing physical violence between parents (15.1%), and physical neglect (12.6%). The mean score on the measure of life satisfaction was 27.6 ($SD = 5.9$), indicating a high level of satisfaction according to established norms (Pavot & Diener, 2013). Finally, the mean dissociation score was 4.2 ($SD = 4.3$). According to established norms (Briere, 2011), dissociation scores were normal for 88.8% of the sample ($n = 389$), problematic but subclinical for 3.9% of the sample ($n = 17$), and clinical for 7.3% of the sample ($n = 32$).

LPAs

Seven models, each including between two and eight profiles, were tested. Regarding fit indices (see Table 1), the AIC and A-BIC values systematically decreased as the number of profiles increased, whereas the smallest BIC value was observed for the seven-profile model. Because skewness and kurtosis indicated highly nonnormal distributions of the indicator variables (range: 2.74–12.15), we expected that the fit indices might overestimate the correct number of classes (i.e., systematic bias for solutions comprising a higher number of profiles; Bauer & Curran, 2003; Morgan et al., 2016). Taking this into account, we investigated the BIC plot, finding an elbow at the six-profile model (see Supplementary Materials), suggesting that the fit indices pointed to the six-profile model as the best-fitting solution. Regarding entropy, very good differentiation was observed for the two- to eight-profile models, without clear distinction, (i.e., entropy values higher than .80 for all models). Similarly, the BLRT p values were significant for all solutions. The LMR-A p value was only significant for the three-profile model, indicating that the optimal solution comprised at least three profiles. Regarding profile size (see Table 1), the six-, seven-, and eight-profile models each presented multiple profiles with fewer than 5% of participants. The three- and four-profile models presented no small (i.e., less than 5% of the sample) profiles, whereas the five-profile model presented one small profile.

Balancing these statistical aspects with considerations of interpretability and parsimony, the five-profile model was chosen as the final solution. On one hand, the six-profile model presented a better fit but had the disadvantage of containing two small profiles that did not add substantial theoretical insight. Indeed, these two profiles, categorized by high CPTSD symptoms and high BPD symptoms, respectively, presented the same symptom patterns as two other profiles in the model (i.e., the moderate CPTSD and moderate BPD symptoms profiles) but to a higher extent. On the other hand, the four-profile model had the advantage of being easily interpretable did not include

Table 1
Fit Indices for Two- to Eight-Profile Models

Model	LL ^a	AIC	BIC	aBIC	LMR-A <i>p</i>	BLRT <i>p</i>	Entropy	% of sample per profile
2 profiles	-3,181.36	6,212	6,515	6,435	.098	.000	0.94	84.8, 15.2
3 profiles	-3,050.73	6,165	6,300	6,200	.021	.000	0.94	73.7, 19.7, 6.5
4 profiles	-2,975.25	6,036	6,212	6,076	.486	.000	0.93	70.3, 14.2, 8.8, 6.7
5 profiles	-2,918.82	5,941	6,154	5,989	.513	.000	0.90	66.7, 9.9, 12.0, 7.6, < 5
6 profiles	-2,864.58	5,851	6,100	5,907	.709	.000	0.92	65.1, 11.9, 10.1, 5.3, < 5, < 5
7 profiles	-2,825.18	5,790	6,076	5,854	.489	.000	0.92	64.5, 10.7, 7.5, 6.0, < 5, < 5, < 5
8 profiles	-2,806.55	5,771	6,094	5,717	.651	.000	0.92	63.0, 10.9, 8.6, 5.8, < 5, < 5, < 5, < 5

Note. Bolding indicates the final solution. LL = log-likelihood; AIC = Akaike information criterion; BIC = Bayesian information criterion; aBIC = adjusted BIC; BLRT = bootstrapped likelihood ratio test; LMR-A = Lo-Mendell-Rubin adjusted likelihood ratio test.

^aThe best LL value was replicated in all models except for the eight-profile model.

smaller profiles, but this model presented a worse fit than the five- and six-profile models. The five-profile model was ultimately deemed superior because it fit the data better than the four-profile model while being more parsimonious and having a fewer number of small profiles than the six-profile model. As serious psychopathology was measured in a community sample, we deemed it acceptable that the final solution had one small profile (i.e., the profile with the highest symptom levels). The five profiles in this model were consistent with past research (e.g., Frost et al., 2018) and recognized diagnostic classifications and contemporary theoretical frameworks (e.g., Ford & Courtois, 2014). Moreover, the four- and six-profile solutions each contained the same patterns observed in the five-profile model, plus or minus profile one profile (see Supplementary Material), confirming the relevance of the profiles observed in the five-profile model.

The five-profile model is illustrated in Figure 1. The mean values of the indicator variables in each profile and information on whether they significantly differed from 0 can be found in Table 2. Profile 1, labeled the “high PTSD symptoms” profile, included 12.0% of participants and was characterized by significantly high scores on measures of *ICD-11* PTSD symptoms (i.e., reexperiencing, avoidance, and perception of threat) and significantly low scores on the measure of DSO relationship symptoms. Profile 2, the “high CPTSD symptoms” profile, included 7.6% of participants and was characterized by significantly high scores on measures of all PTSD and DSO symptoms. It should be noted that participants in this profile had relatively high BPD scores, although this result was not statistically significant. Profile 3, the “high BPD symptoms” profile, included 9.9% of participants and was characterized by significantly high *DSM-5* NACM scores as well as high levels of DSO and BPD symptoms. Profile 4, the “high CPTSD and BPD symptoms” profile, included 3.8% of participants and was characterized by significantly high scores on measures of all indicator variables. Profile 5, the “low symptoms” profile, included 66.7% of participants and was characterized by significantly low scores on measures of all indicator variables. The

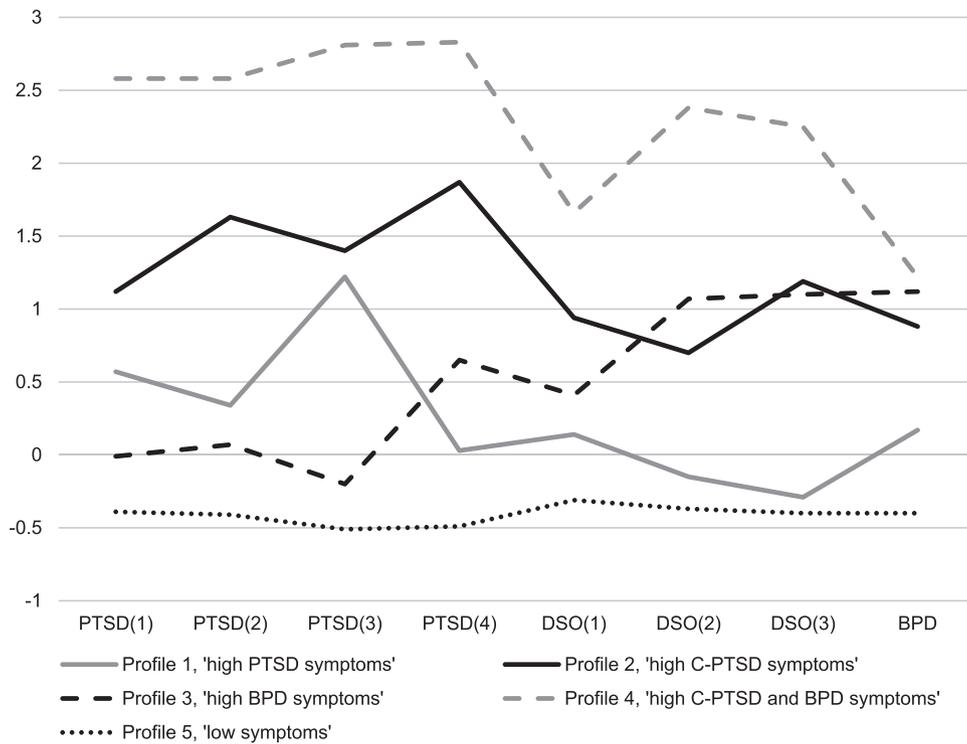
five-profile model presented good differentiation between the profiles, with high average classification probabilities for the assigned profile (range: .87–.97) and low average classification probabilities for the other profiles (range: .00–.08).

Group Comparisons

Results from the group comparisons can be found in Table 3. Results indicated that participants grouped in the high CPTSD symptoms, $\chi^2(1, N = 438) = 9.45, p = .002, d = 0.62$; high BPD symptoms, $\chi^2(1, N = 438) = 17.49, p < .001, d = 0.83$; and high CPTSD and BPD symptoms profiles, $\chi^2(1, N = 438) = 11.069, p = .001, d = 0.82$, presented significantly higher levels of childhood cumulative trauma than those in the low symptoms profile. Individuals in the high BPD symptoms profile also presented significantly higher levels of childhood cumulative trauma than those in the high PTSD symptoms profile, $\chi^2(1, N = 438) = 8.51, p = .004, d = 0.63$. Participants in the high CPTSD symptoms, $\chi^2(1, N = 438) = 5.62, p = .018, d = 0.55$, and high CPTSD and BPD symptom profiles, $\chi^2(1, N = 438) = 10.035, p = .002, d = .1.06$, also presented with significantly higher levels of dissociation than those in the low symptoms profile. Individuals with membership in the high CPTSD and BPD symptoms profile had significantly higher levels of dissociation symptoms than those in the high PTSD symptoms profile, $\chi^2(1, N = 438) = 7.15, p = .008, d = 0.60$. Although the following differences were not statistically significant, it should be noted that the mean dissociation score, and standard error, among participants in the high BPD symptoms profile was numerically higher than scores of participants grouped into all other profiles. Finally, participants in the low symptoms profile scored significantly higher on the measure of life satisfaction than those in the high PTSD symptoms, $\chi^2(1, N = 438) = 14.90, p < .001, d = 0.65$; high CPTSD symptoms, $\chi^2(1, N = 438) = 12.89, p < .001, d = 0.74$; high BPD symptoms, $\chi^2(1, N = 438) = 5.63, p = .018, d = 0.52$; and high CPTSD and BPD symptoms profiles, $\chi^2(1, N = 438) = 10.19, p = .001, d = 0.96$.

Figure 1

Mean z Scores of Posttraumatic Stress Disorder (PTSD), Complex PTSD (CPTSD), and Borderline Personality Disorder (BPD) Symptoms for Each Profile in the Five-Profile Model



Note. DSO = disturbances in self-organization; PTSD(1) = reexperiencing; PTSD(2) = avoidance; PTSD(3) = perception of threat; PTSD(4) = negative alterations in cognitions and mood; DSO(1) = affect; DSO(2) = beliefs about oneself; DSO(3) = relationships.

Discussion

The present study examined the distinction between PTSD, CPTSD, and BPD symptoms in a community sample of women who reported at least one childhood or adulthood traumatic event. Our first hypothesis, that five distinct profiles categorized

by low symptoms, high PTSD symptoms, high CPTSD symptoms, high BPD symptoms, and high CPTSD and BPD would emerge, was generally confirmed. Our less heavily traumatized sample seems to have allowed the emergence of a profile categorized by high levels of BPD symptoms and did not include

Table 2

Mean z Scores of Indicator Variables for Each Profile and Comparison Tests With the Sample Mean

Indicator variable	Profile 1 (high PTSD symptoms)		Profile 2 (high CPTSD symptoms)		Profile 3 (high BPD symptoms)		Profile 4 (high CPTSD and BPD symptoms)		Profile 5 (low symptoms)	
	M	p	M	p	M	p	M	p	M	p
PTSD(1)	0.57	.003	1.12	< .001	-0.01	.987	2.58	< .001	-0.39	< .001
PTSD(2)	0.34	.032	1.63	< .001	-0.07	.856	2.58	< .001	-0.41	< .001
PTSD(3)	1.22	< .001	1.40	< .001	-0.20	.363	2.81	< .001	-0.51	< .001
PTSD(4)	0.03	.829	1.87	< .001	0.65	.027	2.83	< .001	-0.49	< .001
DSO(1)	0.14	.398	0.94	< .001	0.41	.041	1.66	.002	-0.31	< .001
DSO(2)	-0.15	.225	0.70	.019	1.07	.009	2.38	< .001	-0.37	< .001
DSO(3)	-0.29	.003	1.19	< .001	1.10	.012	2.25	< .001	-0.41	< .001
BPD	0.17	.746	0.88	.179	1.12	.004	1.22	.003	-0.40	< .001

Note. PTSD = posttraumatic stress disorder; CPTSD = complex posttraumatic stress disorder; DSO = disturbances in self-organization; BPD = borderline personality disorder; PTSD(1) = reexperiencing; PTSD(2) = avoidance; PTSD(3) = perception of threat; PTSD(4) = negative alterations in cognitions and mood; DSO(1) = affect regulation; DSO(2) = beliefs about oneself; DSO(3) = relationships.

Table 3

Results From Wald Chi-Square Tests of Means Across Profiles for Cumulative Trauma Exposure, Dissociation, and Life Satisfaction

Auxiliary variables	Profile 1 (high PTSD symptoms)		Profile 2 (high CPTSD symptoms)		Profile 3 (high BPD symptoms)		Profile 4 (high CPTSD and BPD symptoms)		Profile 5 (low symptoms)		Global χ^2 test ^a	Pairwise χ^2 tests ^{b,c}
	<i>M</i>	<i>SE</i>	<i>M</i>	<i>SE</i>	<i>M</i>	<i>SE</i>	<i>M</i>	<i>SE</i>	<i>M</i>	<i>SE</i>		
Cumulative trauma exposure	3.26	0.28	4.01	0.41	5.10	0.55	4.24	0.45	2.72	0.11	35.75***	5 < 2**, 3***, 4**; 1 < 3**
Dissociation	-0.03	0.18	0.58	0.34	1.85	1.44	1.40	0.51	-0.23	0.04	35.69***	5 < 2*, 4**; 1 < 4**
Life satisfaction	-0.44	0.18	-0.53	0.22	-1.33	0.65	-0.83	0.34	0.27	0.05	46.83***	5 > 1*, 2***, 3***, 4**

Note. PTSD = posttraumatic stress disorder, CPTSD = complex posttraumatic stress disorder, BPD = borderline personality disorder, M = mean, SE = standard error
^a*df* = 4, *N* = 438. ^b*df* = 1, *N* = 438. ^cBetween-profile comparisons. Only significant pairwise chi-square tests results are presented.

p* < .05. *p* < .01. ****p* < .001.

any core *ICD-11* PTSD symptoms (i.e., reexperiencing, avoidance, and perception of threat), which had not yet been the case in past studies (Cloitre et al., 2014). It should be noted, however, that the profile marked by high-level BPD symptoms did include symptoms of DSO, and participants in the profile categorized by high levels of CPTSD symptoms did present with relatively high, although nonsignificant, BPD symptoms. The fact that these profiles were not absolutely clear-cut highlights the conceptual parallels that exist between these two disorders and is in line with past studies (Cloitre et al., 2014; Frost et al., 2018). Taking these nuances into account, our results add to the current literature pointing toward the validity of CPTSD as a standalone construct that is mostly distinct from BPD. The present results also showed that in all profiles, symptoms of DSO and NACM varied in pairs. This indicates a redundancy between these two additions to traditional PTSD symptoms, suggesting that the *DSM-5* PTSD NACM cluster does not necessarily add new knowledge to what *ICD-11* CPTSD can explain.

Next, the repartition of participants between profiles was relatively close to what would be expected. Most participants were grouped into the profile characterized by low symptom levels, and a minority of participants were grouped into the most symptomatic profile (i.e., high CPTSD and BPD symptoms), which is to be expected in a community sample. Moreover, 12.0% of participants were grouped into the high PTSD symptoms profile, which is close to the 9%–10% usually found in the general population (Kilpatrick et al., 2013). The percentage of participants grouped into the high BPD symptoms profile (9.9%) was higher than the 2%–6% usually found in the general population (APA, 2013; Grant et al., 2008), which could be due to the fact that our sample was composed of women who reported at

least one potentially traumatic experience. This could also explain why 7.8% of the sample displayed high levels of CPTSD symptoms, which seems high, although studies have yet to determine the prevalence of this new diagnosis in the population. It is also important to note that the profiles likely also grouped at least a portion of participants with subclinical symptoms rather than full-blown diagnoses.

Our hypothesis that participants categorized in the high CPTSD symptoms, high BPD symptoms, and high CPTSD and BPD symptoms profiles would present with higher childhood cumulative trauma exposure was partially confirmed. Participants grouped into these expected profiles reported higher levels of cumulative childhood trauma in comparison to those in the low symptoms profile. This suggests that CPTSD, BPD, and comorbidity between these two diagnoses may all be relevant to understand the experience of survivors of cumulative childhood trauma. Only participants in the high BPD symptoms profile could be distinguished from those in the high PTSD symptoms profile with regard to cumulative childhood trauma exposure. Considering that individuals with membership in this profile presented with high scores on measures of DSO and BPD, it is reasonable that a strong association with childhood cumulative trauma exposure was observed (Shevlin et al., 2017). It is possible that levels of childhood trauma presented by participants in other profiles, although relatively high, could not be discriminated from the levels of childhood trauma that are known to be a risk factor for PTSD (Dunn et al., 2017).

The hypothesis that the profiles characterized by high CPTSD symptoms, high BPD symptoms, and high CPTSD and BPD symptoms would include individuals who presented with higher levels of dissociation symptoms was also partially confirmed. As expected, women in the high CPTSD symptoms and

high CPTSD and BPD symptoms profiles reported higher dissociation scores than those in the low symptoms profile. However, only participants in the high CPTSD and BPD symptoms profile scored higher on measures of dissociation than those in the high PTSD symptoms profile. On one hand, these results highlight the importance of trauma-related dissociation in CPTSD (Hyland et al., 2019). On the other hand, careful interpretation of the present results indicates that they replicate, to a certain extent, the association between dissociation and BPD reported in past studies (see Scalabrini et al., 2017, for a meta-analysis). Indeed, scores on the measure of dissociation were especially high among individuals in the high CPTSD and BPD symptoms profile, and the scores of those in the high BPD symptoms profile were, on average, numerically but not statistically significantly higher than the scores of participants in other profiles. The high standard error could explain this statistically nonsignificant result, suggesting a continuum of dissociative symptom severity within BPD. Additional studies are necessary to achieve a better understanding of the role dissociation plays in BPD and CPTSD.

Finally, our hypothesis regarding higher levels of life satisfaction among participants in the low symptoms profile compared to all other profiles was confirmed. Indeed, individuals categorized in the low symptoms profile reported higher ratings of life satisfaction compared to those in the four other profiles, replicating the significant levels of functional impairment and distress generally reported by PTSD, CPTSD, and BPD patients alike (Brewin et al. 2017; IsHak et al., 2013). No other differences were detected, which corroborates findings from other studies highlighting the strong impact of these disorders on quality of life (Olatunji et al., 2007).

The present study adds to the current scientific debate, highlighting the relevance of the CPTSD diagnosis beyond what PTSD or BPD symptoms can explain. These results support an integrative approach in the conceptualization of the long-term impact of cumulative childhood trauma exposure. Indeed, the present findings suggest that CPTSD, BPD, and comorbidity of the two could all be possible clinical portraits for childhood trauma survivors, encouraging clinicians working with this population to be nuanced in their assessment and tailor interventions to their clients' specific needs. Although this study suggests that conceptualizing CPTSD as a simple amalgam of PTSD and BPD would be unwarranted, it also restates the strong association between childhood trauma exposure and BPD, suggesting that trauma should not be overlooked when working with this population. In this vein, evidence-based recommendations for the treatment of these disorders should be mastered by clinicians working with trauma survivors (see Courtois & Ford, 2009; Linehan, 2014). A first step to making this knowledge more widely available among clinician circles would be for the American Psychological Association to replace the *DSM-5* NACM cluster with the more organized and specific symptoms of DSO, thereby recognizing CPTSD as a distinct diagnosis.

There are several study limitations to discuss. First, assessments took place over the phone and were self-report and retrospective, which could entail social desirability and memory biases. Second, due to the lack of validated questionnaires available in French, some measures that have yet to be validated were used; however, internal consistency was mostly excellent in the present sample. Third, the use of a composite BPD measure was a limitation. In previous studies, however, researchers have explored whether distinct latent classes of BPD symptoms would emerge, but could only find classes measuring what they referred to as "BPD-ness" (Conway et al., 2012). Fourth, the measures of BPD and CPTSD did not consider the moment of apparition, lifetime course, and pervasiveness of symptoms, which could have helped differentiate both disorders. It is also important to note that we compared profiles based on *ICD-11* and *DSM-5* disorders. Including *DSM-5* and *ICD-11* disorders was deemed necessary to reflect the actual state of knowledge and enable us to explore the association between *DSM-5* NACM symptoms and *ICD-11* DSO symptoms. In addition, the use of a community sample, while allowing for the generalization of results beyond highly traumatized populations, resulted in low reported symptom levels, posing a challenge for the statistical analyses. The sample also presented homogeneity regarding variables such as gender and age.

In conclusion, the present study aimed to verify whether patterns of symptoms reported by women from the community would reveal a CPTSD profile distinct from PTSD and BPD profiles and whether the resulting profiles could be compared on measures of cumulative childhood trauma, dissociation, and life satisfaction. The present findings corroborated the conceptual distinction between symptoms of CPTSD and those of PTSD and BPD and showed that profiles corresponding to symptoms of CPTSD, BPD, and both CPTSD and BPD tended to include individuals with higher levels of childhood trauma exposure and dissociation as well as lower ratings of life satisfaction. Future research could explore the mechanisms that explain the differential emergence of CPTSD symptoms, BPD symptoms, or both in childhood trauma survivors. Additional clinical studies should be done to better define the best practices in the treatment of each diagnosis, inform clinicians working with childhood trauma survivors, and, ultimately, provide optimal services to this vulnerable population.

Open Practices Statement

The study reported in this article was not formally preregistered. Neither the data nor the materials have been made available on a permanent third-party archive; requests for the data or materials should be sent via email to the lead author at godbout.natacha@uqam.ca.

References

- Akaike, H. (1987). Factor analysis and AIC. In *Selected papers of Hirotugu Akaike* (pp. 371–386). Springer.

- American Psychological Association. (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.). Author.
- Ashbaugh, A. R., Houle-Johnson, S., Herbert, C., El-Hage, W., & Brunet, A. (2016). Psychometric validation of the English and French versions of the Posttraumatic Stress Disorder Checklist for *DSM-5* (PCL-5). *PLoS one*, *11*(10), 1–16. <https://doi.org/10.1371/journal.pone.0161645>
- Asparouhov, T., & Muthén, B. O. (2014). Auxiliary variables in mixture modeling: Using the BCH method in *Mplus* to estimate a distal outcome model and an arbitrary second model. *Mplus Web Notes*, *21*, 1–22. https://www.statmodel.com/download/asparouhov_muthen_2014.pdf
- Ball, J. S., & Links, P. S. (2009). Borderline personality disorder and childhood trauma: Evidence for a causal relationship. *Current Psychiatry Reports*, *11*(1), 63–68. <https://doi.org/10.1007/s11920-009-0010-4>
- Bauer, D. J., & Curran, P. J. (2003). Distributional assumptions of growth mixture models: Implications for overextraction of latent trajectory classes. *Psychological Methods*, *8*(3), 338–363. <https://doi.org/10.1037/1082-989X.8.3.338>
- Béland, S., Cousineau, D., & Loye, N. (2017). Utiliser le coefficient omega de McDonald à la place de l'alpha de Cronbach [Using McDonald's coefficient omega instead of Cronbach's alpha]. *McGill Journal of Education*, *52*(3), 791–804. <https://doi.org/10.7202/1050915ar>
- Bigras, N., Godbout, N., & Briere, J. (2015). Child sexual abuse, sexual anxiety, and sexual satisfaction: The role of self-capacities. *Journal of Child Sexual Abuse*, *24*(5), 464–483. <https://doi.org/10.1080/10538712.2015.1042184>
- Blais, M. R., Vallerand, R. J., Pelletier, L. G., & Brière, N. M. (1989). L'échelle de satisfaction de vie: Validation canadienne-française du "Satisfaction with Life Scale." [The Satisfaction with Life Scale: French-Canadian validation of the "Satisfaction with Life Scale"]. *Canadian Journal of Behavioural Science/Revue Canadienne des Sciences du Comportement*, *21*(2), 210–223. <https://doi.org/10.1037/h0079854>
- Blevins, C. A., Weathers, F. W., Davis, M. T., Witte, T. K., & Domino, J. L. (2015). The Posttraumatic Stress Disorder Checklist for *DSM-5* (PCL-5): Development and initial psychometric evaluation. *Journal of Traumatic Stress*, *28*(6), 489–498. <https://doi.org/10.1002/jts.22059>
- Bolduc, R., Bigras, N., Daspe, M. È., Hébert, M., & Godbout, N. (2018). Childhood cumulative trauma and depressive symptoms in adulthood: The role of mindfulness and dissociation. *Mindfulness*, *9*(5), 1594–1603. <https://doi.org/10.1007/s12671-018-0906-3>
- Brewin, C. R. (2013). "I wouldn't start from here:" An alternative perspective on PTSD from the *ICD-11*: Comment on Friedman (2013). *Journal of Traumatic Stress*, *26*(5), 557–559. <https://doi.org/10.1002/jts.21843>
- Brewin, C. R., Cloitre, M., Hyland, P., Shevlin, M., Maercker, A., Bryant, R. A., Humayun, A., Jones, L. M., Kagee, A., Rousseau, C., Somasundaram, D., Suzuki, Y., Wessely, S., van Ommeren, M., & Reed, G. M. (2017). A review of current evidence regarding the *ICD-11* proposals for diagnosing PTSD and complex PTSD. *Clinical Psychology Review*, *58*, 1–15. <https://doi.org/10.1016/j.cpr.2017.09.001>
- Briere, J. (2011). *Trauma Symptom Inventory* (2nd ed.). Psychological Assessment Resources.
- Cattane, N., Rossi, R., Lanfredi, M., & Cattaneo, A. (2017). Borderline personality disorder and childhood trauma: Exploring the affected biological systems and mechanisms. *BMC Psychiatry*, *17*(1), 221. <https://doi.org/10.1186/s12888-017-1383-2>
- Cloitre, M., Courtois, C. A., Charuvastra, A., Carapezza, R., Stolbach, B. C., & Green, B. L. (2011). Treatment of complex PTSD: Results of the ISTSS Expert Clinician Survey on Best Practices. *Journal of Traumatic Stress*, *24*(6), 615–627. <https://doi.org/10.1002/jts.20697>
- Cloitre, M., Garvert, D. W., Weiss, B., Carlson, E. B., & Bryant, R. A. (2014). Distinguishing PTSD, complex PTSD, and borderline personality disorder: A latent class analysis. *European Journal of Psychotraumatology*, *5*(1), 1–10. <https://doi.org/10.3402/ejpt.v5.25097>
- Cloitre, M., Shevlin, M., Brewin, C. R., Bisson, J. I., Roberts, N. P., Maercker, A., Karatzias, T., & Hyland, P. (2018). The International Trauma Questionnaire: Development of a self-report measure of *ICD-11* PTSD and complex PTSD. *Acta Psychiatrica Scandinavica*, *138*(6), 536–546. <https://doi.org/10.1111/acps.12956>
- Conway, C., Hammen, C., & Brennan, P. (2012). A comparison of latent class, latent trait, and factor mixture models of *DSM-IV* borderline personality disorder criteria in a community setting: Implications for *DSM-5*. *Journal of Personality Disorders*, *26*(5), 793–803. <https://doi.org/10.1521/pedi.2012.26.5.793>
- Courtois, C. A., & Ford, J. D. (2009). *Treating complex traumatic stress disorders: An evidence-based guide*. Guilford Press.
- Cyr, G., Cloitre, M., Bélanger, C., & Godbout, N. (2020). French translation and validation of the International Trauma Questionnaire in a Canadian community sample [Manuscript submitted for publication]. Department of Psychology, University of Quebec in Montreal.
- Dunn, E. C., Nishimi, K., Powers, A., & Bradley, B. (2017). Is developmental timing of trauma exposure associated with depressive and post-traumatic stress disorder symptoms in adulthood? *Journal of Psychiatric Research*, *84*, 119–127. <https://doi.org/10.1016/j.jpsychires.2016.09.004>
- Dziak, J. J., Coffman, D. L., Lanza, S. T., Li, R., & Jermini, L. S. (2019). Sensitivity and specificity of information criteria. *Briefings in Bioinformatics*, *21*(2), 553–564. <https://doi.org/10.1093/bib/bbz016>
- Ford, J. D., & Courtois, C. A. (2014). Complex PTSD, affect dysregulation, and borderline personality disorder. *Borderline Personality Disorder and Emotion Dysregulation*, *1*(1), 1–17. <https://doi.org/10.1186/2051-6673-1-9>
- Frost, R., Hyland, P., Shevlin, M., & Murphy, J. (2018). Distinguishing complex PTSD from borderline personality disorder among individuals with a history of sexual trauma: A latent class analysis. *European Journal of Trauma & Dissociation*, *1*(4), 100080. <https://doi.org/10.1016/j.ejtd.2018.08.004>
- Godbout, N., Bigras, N., & Sabourin, S. (2017). Childhood Cumulative Trauma Questionnaire (CCTQ) [Unpublished manuscript]. Department of Psychology, University of Quebec in Montreal.
- Grant, B. F., Chou, S. P., Goldstein, R. B., Huang, B., Stinson, F. S., Saha, T. D., Smith, S. M., Dawson, D. A., Pulay, A. J., Pickering, R. P., & Ruan, W. J. (2008). Prevalence, correlates, disability, and comorbidity of *DSM-IV* borderline personality disorder: results from the Wave 2 National Epidemiologic Survey on Alcohol and Related Conditions. *The Journal of Clinical Psychiatry*, *69*(4), 533–545. <https://doi.org/10.4088/jcp.v69n0404>
- Hyland, P., Shevlin, M., Brewin, C. R., Cloitre, M., Downes, A. J., Jumbe, S., Karatzias, T., Bisson, J. I., & Roberts, N. P. (2017). Validation of post-traumatic stress disorder (PTSD) and complex PTSD using the International Trauma Questionnaire. *Acta Psychiatrica Scandinavica*, *136*(3), 313–322. <https://doi.org/10.1111/acps.12771>
- Hyland, P., Shevlin, M., Fyvie, C., Cloitre, M., & Karatzias, T. (2019). The relationship between *ICD-11* PTSD, complex PTSD, and dissociative experiences. *Journal of Trauma & Dissociation*, *21*(1), 62–72. <https://doi.org/10.1080/15299732.2019.1675113>
- IBM Corp. (2017). IBM SPSS Statistics for Windows (Version 25.0) [Software program]. Author.
- IsHak, W. W., Elbau, I., Ismail, A., Delaloye, S., Ha, K., Bolotaulo, N. I., Nashawati, R., Cassamassi, B., Wang, C. (2013). Quality of life in borderline personality disorder. *Harvard Review of Psychiatry*, *21*(3), 138–150. <https://doi.org/10.1097/HRP.0b013e3182937116>

- Jowett, S., Karatzias, T., Shevlin, M., & Albert, I. (2019). Differentiating symptom profiles of *ICD-11* PTSD, complex PTSD, and borderline personality disorder: A latent class analysis in a multiply traumatized sample. *Personality Disorders: Theory, Research, and Treatment*, *11*(1), 36–45. <https://doi.org/10.1037/per0000346>
- Kilpatrick, D. G., Resnick, H. S., Milanak, M. E., Miller, M. W., Keyes, K. M., & Friedman, M. J. (2013). National estimates of exposure to traumatic events and PTSD prevalence using *DSM-IV* and *DSM-5* criteria. *Journal of Traumatic Stress*, *26*(5), 537–547. <https://doi.org/10.1002/jts.21848>
- Knefel, M., Tran, U. S., & Lueger-Schuster, B. (2016). The association of post-traumatic stress disorder, complex posttraumatic stress disorder, and borderline personality disorder from a network analytical perspective. *Journal of Anxiety Disorders*, *43*, 70–78. <https://doi.org/10.1016/j.janxdis.2016.09.002>
- Landy, M. S., Wagner, A. C., Brown-Bowers, A., & Monson, C. M. (2015). Examining the evidence for complex posttraumatic stress disorder as a clinical diagnosis. *Journal of Aggression, Maltreatment & Trauma*, *24*(3), 215–236. <https://doi.org/10.1080/10926771.2015.1002649>
- Leiter, M. P., & Maslach, C. (2016). Latent burnout profiles: A new approach to understanding the burnout experience. *Burnout Research*, *3*(4), 89–100. <https://doi.org/10.1016/j.burn.2016.09.001>
- Lewis, K. L., & Grenyer, B. F. (2009). Borderline personality or complex post-traumatic stress disorder? An update on the controversy. *Harvard review of psychiatry*, *17*(5), 322–328. <https://doi.org/10.3109/10673220903271848>
- Linehan, M. M. (2014). *DBT skills training manual*. Guilford Press.
- Lo, Y., Mendell, N. R., & Rubin, D. B. (2001). Testing the number of components in a normal mixture. *Biometrika*, *88*(3), 767–778. <https://doi.org/10.1093/biomet/88.3.767>
- Macintosh, H., Godbout, N., & Dubash, N. (2015). Borderline personality disorder: Disorder of trauma or personality, a review of the empirical literature. *Canadian Psychology*, *56*(2), 227–241. <https://doi.org/10.1037/cap0000028>
- Masyn, K. (2013). Latent class analysis and finite mixture modeling. In T. D. Little (Ed.), *The Oxford handbook of quantitative methods in psychology* (Vol. 2, pp. 551–611). Oxford University Press.
- McLachlan, G. J. (1987). On bootstrapping the likelihood ratio test statistic for the number of components in a normal mixture. *Applied Statistics*, *36*(3), 318–324. <https://doi.org/10.2307/2347790>
- Merz, E. L., & Roesch, S. C. (2011). A latent profile analysis of the five-factor model of personality: Modeling trait interactions. *Personality and Individual Differences*, *51*(8), 915–919. <https://doi.org/10.1016/j.paid.2011.07.022>
- Morgan, G. B., Hodge, K. J., & Baggett, A. R. (2016). Latent profile analysis with nonnormal mixtures: A Monte Carlo examination of model selection using fit indices. *Computational Statistics & Data Analysis*, *93*, 146–161. <https://doi.org/10.1016/j.csda.2015.02.019>
- Muthén, B. (2003). Statistical and substantive checking in growth mixture modeling: Comment on Bauer and Curran (2003). *Psychological Methods*, *8*(3), 369–377. <https://doi.org/10.1037/1082-989X.8.3.369>
- Muthén, L. K., & Muthén, B. O. (2015). *Mplus user's guide*. Muthén & Muthén.
- Nylund, K. L., Asparouhov, T., & Muthén, B. O. (2007). Deciding on the number of classes in latent class analysis and growth mixture modeling: A Monte Carlo simulation study. *Structural Equation Modeling*, *14*(4), 535–569. <https://doi.org/10.1080/10705510701575396>
- Oberski, D. (2016). Mixture models: Latent profile and latent class analysis. In J. Robertson & M. Kaptein (eds), *Modern statistical methods for HCI* (pp. 275–287). Springer.
- Olatunji, B. O., Cisler, J. M., & Tolin, D. F. (2007). Quality of life in the anxiety disorders: A meta-analytic review. *Clinical Psychology Review*, *27*(5), 572–581. <https://doi.org/10.1016/j.cpr.2007.01.015>
- Pavot, W., & Diener, E. (2013). *The Satisfaction With Life Scale*. <http://www.midss.ie>
- Raftery, A. E. (1995). Bayesian model selection in social research. *Sociological Methodology*, *25*, 111–163. <https://doi.org/10.2307/271063>
- Resick, P. A., Bovin, M. J., Calloway, A. L., Dick, A. M., King, M. W., Mitchell, K. S., Suvak, M. K., Wells Shannon, S. Y., Stirman W., & Wolf, E. J. (2012). A critical evaluation of the complex PTSD literature: Implications for *DSM-5*. *Journal of Traumatic Stress*, *25*(3), 241–251. <https://doi.org/10.1002/jts.21699>
- Scalabrini, A., Cavicchioli, M., Fossati, A., & Maffei, C. (2017). The extent of dissociation in borderline personality disorder: A meta-analytic review. *Journal of Trauma and Dissociation*, *18*(4), 522–543. <https://doi.org/10.1080/15299732.2016.1240738>
- Sclove, S. L. (1987). Application of model-selection criteria to some problems in multivariate analysis. *Psychometrika*, *52*(3), 333–343. 0033-3123/87/0900-SS02500.75/0
- Shevlin, M., Hyland, P., Karatzias, T., Fyvie, C., Roberts, N., Bisson, J. I., Brewin, C. R., & Cloitre, M. (2017). Alternative models of disorders of traumatic stress based on the new *ICD-11* proposals. *Acta Psychiatrica Scandinavica*, *135*(5), 419–428. <https://doi.org/10.1111/acps.12695>
- Temes, C. M., Magni, L. R., Fitzmaurice, G. M., Aguirre, B. A., Goodman, M., & Zanarini, M. C. (2017). Prevalence and severity of childhood adversity in adolescents with BPD, psychiatrically healthy adolescents, and adults with BPD. *Personality and Mental Health*, *11*(3), 171–178. <https://doi.org/10.1002/pmh.1387>
- Vallerand, R. J. (1989). Vers une méthodologie de validation trans-culturelle de questionnaires psychologiques: Implications pour la recherche en langue française [Toward a methodology for the transcultural validation of psychological questionnaires: Implications for research in the French language]. *Canadian Psychology/Psychologie Canadienne*, *30*(4), 662–680. <https://doi.org/10.1037/h0079856>
- van der Kolk, B., Pynoos, R., Cicchetti, D., Cloitre, M., D'Andrea, W., Ford, J., Teicher, M. (2009). *Proposal to include a developmental trauma diagnosis for children and adolescents in DSM-V*. http://www.ctntraumatrain.org/uploads/4/6/2/3/46231093/dsm-v_proposal-dtd_taskforce.pdf
- Vaske, J. J., Beaman, J., & Sponarski, C. C. (2017). Rethinking internal consistency in Cronbach's alpha. *Leisure Sciences*, *39*(2), 163–173. doi: <https://doi.org/10.1080/01490400.2015.1127189>
- Wickrama, K. A. S., Lee, T. K., O'Neal, C. W., & Lorenz, F. O. (2016). *Multivariate applications series. Higher-order growth curves and mixture modeling with Mplus: A practical guide*. Routledge/Taylor & Francis Group.
- World Health Organization. (2018). *International statistical classification of diseases and related health problems* (11th Revision). <https://icd.who.int/browse11/l-m/en>
- Zanarini, M. C., Vujanovic, A. A., Parachini, E. A., Boulanger, J. L., Frankenburg, F. R., & Hennen, J. (2003). A screening measure for BPD: The McLean screening instrument for borderline personality disorder (MSI-BPD). *Journal of Personality Disorders*, *17*(6), 568–573. <https://doi.org/10.1521/pedi.17.6.568.25355>
- Zoellner, L. A., Bedard-Gilligan, M. A., Jun, J. J., Marks, L. H., & Garcia, N. M. (2013). The evolving construct of posttraumatic stress disorder (PTSD): *DSM-5* criteria changes and legal implications. *Psychological Injury and Law*, *6*(4), 277–289. <https://doi.org/10.1521/psyc.65.4.289.20240>