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Development and validation of a self-report measure assessing failures in the mentalization of trauma and adverse relationships

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ABSTRACT

Background: The way people process trauma and adverse relationships may be more predictive of subsequent adaptation than trauma exposure in itself. However, there is currently no self-report instrument assessing failures in the mentalization of trauma and adverse relationships.
Objective: We developed the Failure to Mentalize Trauma Questionnaire (FMTQ) and evaluated its psychometric properties. The FMTQ is a 29-item self-report instrument designed to assess different indications of failures in the mentalization of trauma and adverse relationships.
Participants and setting: A total of 975 participants (84 % women; 37 % exposed to child maltreatment) were recruited in the course of larger research protocols on parenting.
Methods: Participants completed the FMTQ and measures of childhood maltreatment, psychopathology (post-traumatic stress symptoms, dissociative symptoms, level of personality dysfunction), general mentalization and intimate partner violence.
Results: Exploratory factor analysis, supported by a confirmatory factor analysis, identified seven factors with good internal consistency that corresponded to different types of failures in the mentalization of trauma and adverse relationships and that loaded on a general factor. A dose-effect association was observed between the severity of childhood maltreatment, and the severity of failures in the mentalization of trauma and adverse relationships ($r_s = .49$, $p < .01$). The FMTQ total score explained a significant proportion of variance in psychopathology and intimate partner violence, both in participants with histories of childhood maltreatment and participants without childhood maltreatment.
Conclusion: The FMTQ is a promising, concise and efficient measure of failures in the mentalization of trauma and adverse relationships that may facilitate clinical screening and research with adults who experienced trauma.

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1. Introduction

Trauma (defined as abuse or neglect) and adverse relationships (defined as close relationships that are threatening, disrespectful, frightening or insensitive) have negative consequences in terms of mental health and have been particularly associated with post-traumatic stress disorders (Berthelot, Lemieux, Garon-Bissonnette, & Muzik, 2020; McLaughlin et al., 2017; Mol et al., 2005), dissociative symptoms (Boughner, Thornley, Kharlas, & Frewen, 2016; Briere, Hodges, & Godbout, 2010; Carlson, Dalenberg, & McDade-Montez, 2012) and personality disorders (Afifi et al., 2011; MacIntosh, Godbout, & Dubash, 2015) in adult populations. However, many individuals exposed to maltreatment and adverse relationships do not express clinically significant symptoms years after the events (Cicchetti, 2013; Haskett, Nears, Ward, & McPherson, 2006). These individual differences in resilience to trauma and adversity may be partly accounted for by sociocognitive factors. Indeed, a recent literature review reported that the relationship between adverse childhood experiences and adult psychopathology was consistently found mediated by cognitive factors, such as beliefs, schemas, attitudes or attributions across community and clinical samples (Doorn, Kamsteeg, & Silberschatz, 2019). A better understanding of the sociocognitive mechanisms through which childhood maltreatment leads to behavioral and psychological problems is essential since they are generally more easily and effectively addressed by clinical interventions than genetic, neurobiological, environmental, and interpersonal mechanisms of risk and resilience (Doom, Hazzard, Bauer, Clark, & Miller, 2017). The concept of mentalization, or the ability to understand others and oneself in terms of internal mental states (Luyten, Campbell, Allison, & Fonagy, 2020), offers a useful overarching framework to the study of the sociocognitive mechanisms underlying resilience, as it englobes different factors (e.g., beliefs, attitudes or attribution), includes an affective dimension, and is a common mechanism toward recovery in cognitive and psychodynamic psychotherapeutic interventions for adults with severe psychopathology and trauma history (Bateman, Campbell, Luyten, & Fonagy, 2018; Luyten et al., 2020; Montgomery-Graham, 2016).

1.1. Mentalizing trauma

The recent literature in developmental psychopathology and childhood maltreatment suggests that trauma would negatively affect the development of mentalization abilities, or reflective functioning (Huang et al., 2020; Luyten & Fonagy, 2019), and of related constructs such as theory of mind (Heleniak & McLaughlin, 2020; O'Reilly & Peterson, 2015), mind-mindedness (McMahon & Bernier, 2017), or emotion recognition (Koizumi & Takagishi, 2014). In turn, preserved mentalization in the context of trauma would represent an important resilience-promoting factor in survivors of childhood maltreatment (Borelli et al., 2020; Luyten & Fonagy, 2019). Indeed, mentalization enables individuals exposed to trauma or adverse relationships to make sense of their experience and to regulate emotions. Previous research reported that mentalization impairments mediate the association between childhood maltreatment and psychopathology, whether it be depressive and posttraumatic symptoms (Berthelot, Lemieux, Garon-Bissonnette, Lacharite, & Muzik, 2019), borderline personality disorder (Chiesa & Fonagy, 2014), or negative psychotic symptoms (Weijers et al., 2018). Deficits in reflective functioning in mothers were also found to mediate the association between maternal history of childhood maltreatment and offspring development (Garon-Bissonnette et al., submitted).

However, reflective functioning is a context-specific construct (Luyten et al., 2020) and this implies that reflective functions may be preserved in some contexts (e.g. in low-stress situations) while collapsing in others (e.g. in emotionally aroused situations). Recent studies have revealed the importance of assessing, in adults with a history of abuse or neglect, the ability to mentalize specifically in relation to these traumas, an ability that was operationalized through the measure of Trauma-specific reflective functioning (RF-T: Ensink, Berthelot, Bernazzani, Normandin, & Fonagy, 2014). RF-T refers to the ability to reflect on the psychological and relational impact of trauma and to think of traumatic experiences in a coherent fashion. More precisely, a person is considered reflective in relation to trauma when that person (a) is able to identify trauma-related mental states, (b) is conscious that the experience was abusive or neglectful, (c) is aware of the developmental impact of the traumatic experiences, (d) is aware of the current impact of trauma (on self, experience of parenthood, parent-child relationship, etc) or describes coping mechanisms, (e) has a coherent representation of the perpetrator's mental states and (f) avoids reenacting the experience of trauma. RF-T was originally coded using the questions about childhood maltreatment from the Adult Attachment Interview (AAI) using an addendum added to the existing reflective functioning coding manual specifically elaborated to capture indices of poor and good mentalization in relation to trauma (Berthelot, Garon-Bissonnette, Lemieux, & Ensink, 2021). Alike the traditional reflective functioning coding system, the RF-T scale ranges from −1 to 9 and its use requires training (Berthelot et al., 2015; Ensink et al., 2014). The scarce research on this new concept suggests that RF-T does not overlap with related coding systems evaluating the monitoring of thoughts and discourse when discussing trauma, such as the Unresolved/disorganized state of mind coding system (Ensink et al., 2014). In women exposed to childhood maltreatment, the ability to mentalize about trauma was found to be significantly lower than the ability to mentalize about general attachment relationships with caregivers, and high RF-T was a better predictor of a positive investment in pregnancy and couple functioning than general mentalization abilities (Ensink et al., 2014). In another study, using the same sample, RF-T, assessed during pregnancy, was found to predict infant attachment disorganization at 18-months postpartum, whereas general mentalization abilities were not predictive of infant attachment behaviors (Berthelot et al., 2015). A recent study with a distinct sample also revealed that offspring of mothers with a history of sexual abuse and who had high levels of RF-T were significantly less likely to have been sexually abused than offspring of sexually abused mothers with low levels of RF-T (Borelli et al., 2019), suggesting that RF-T may act as a buffer in the intergenerational continuity of childhood trauma. These preliminary evidences suggest that RF-T is a highly promising concept for advancing our understanding of the developmental and intergenerational trajectories of risk and resilience following trauma or adverse relationships. However, research on trauma-specific mentalization has been limited so far by the absence of a well-validated

Table 1
Item characteristics and exploratory factor analysis of the FMTQ.

# Item	*M*	*ET*	*ITSC*	*IDSC*	F1	F2	F3	F4	F5	F6	F7
5. Sometimes I have the strange impression of being possessed by the people who have put me in uncomfortable situations	.430	.88	.42	.43	**.793**	.105	−.036	−.001	−.190	−.101	.012
7. I sometimes have the impression that people who have hurt me try to control my mind or make me do reproachable things	.420	.825	.51	.56	**.838**	.081	.050	.102	−.010	−.202	−.124
10. Sometimes, I act in a potentially dangerous way when I think of the difficult experiences I have lived	.337	.747	.51	.45	**.597**	−.064	.038	.028	.100	.134	−.113
13. Sometimes I feel like someone else is in control of my thoughts or my behaviors	.268	.645	.48	.54	**.700**	−.018	−.087	.064	.071	−.063	.041
6. I am surprised to notice how sensitive I can be in general, but how cold I am when facing dramatic situations	1.724	1.390	.53	.44	−.132	**.317**	.263	.278	.194	.171	−.170
16. Many people would have been traumatized if they were in my place, but I was strong enough to overcome the difficult experiences I have lived	1.421	1.274	56	.60	.098	**.565**	.299	.058	−.068	.019	.059
19. Certain people like me are strong enough to overcome efficiently difficult life experiences alone and without any help	1.463	1.184	.44	.53	.152	**.654**	−.063	−.177	−.003	.199	.110
22. Facing difficult life experiences has made me stronger. I am now ready to deal with anything	1.656	1.220	.45	.60	−.029	**.786**	.214	−.028	−.010	−.064	.035
25. I have the strength to cut myself off from undesirable emotions associated with difficult experiences I have lived, as if they never happened	1.117	1.130	.45	.54	−.030	**.641**	−.205	.184	.105	.167	.045
3. When I talk about difficult experiences I have lived, I realize I give a lot of attention to details, such as the places, the smells, the sounds	1.400	1.273	.37	.36	−.094	.087	**.702**	.176	−.146	−.028	−.020
11. I am ashamed that I did not succeed in escaping difficult experiences	1.033	1.314	.61	.53	.467	.062	**.269**	−.073	−.123	.275	.054
14. I often interpret current situations based on the difficult experiences I have lived	1.339	1.230	.48	.49	.022	.103	**.777**	−.038	.148	−.192	.059
18. I feel like I always brood over the difficult experiences I have lived	.672	.943	.54	.60	.323	−.153	**.550**	−.154	.177	.101	.003
23. If I start thinking about the difficult experiences I have lived, I just can't stop	.632	.884	.56	.57	.180	−.172	**.330**	−.066	.061	.394	.112
1. People tell me I minimize difficult experiences	1.468	1.243	.46	.41	−.187	.129	.274	**.700**	−.064	.016	−.086
2. I was treated badly but I deserved it	.673	.941	.47	.51	.143	−.042	−.141	**.682**	.138	−.024	.100
4. Some people would think that I have been treated violently or disrespectfully, but I deserved to be treated this way	.364	.703	.48	.57	.372	−.128	−.108	**.632**	−.137	.113	.009
8. I feel I am to blame for the bad things that have happened to me	.599	.958	.52	.47	.207	−.164	.015	**.309**	.079	.287	.153
9. Behaviors I consider normal are considered by others as violent or disrespectful	.685	1.043	.59	.58	.394	.016	.097	**.487**	.050	−.092	.024
17. There is nothing else like violence (ex. fighting, arguing with someone, watching violent movies) to vent negative feelings	.129	.464	.32	.35	.253	.236	−.223	.011	**.512**	−.155	−.037
21. I tend to be aggressive toward others because it helps to blow off steam	.371	.750	.41	.46	.041	−.007	.085	−.021	**.759**	.031	−.119
24. I feel comfortable in relationships where there are open conflicts or some fights	.225	.596	.36	.39	−.011	.158	.052	.004	**.581**	−.167	.173
27. Seeing other people suffer makes me feel better	.152	.474	.31	.42	−.210	−.105	.062	.007	**.787**	.061	−.057
12. I am unable to talk about difficult experiences I have lived	.685	.964	.49	.59	−.135	.057	−.086	.083	−.141	**.926**	−.003
20. The best way to face the difficult experiences I have lived is to avoid thinking about it	1.067	1.075	.50	.50	.148	.303	−.238	−.206	.081	**.725**	−.090
26. I realize that, when I talk about difficult experiences I have lived, I change the subject or have difficulty finishing my sentences	.956	1.086	.60	.61	−.199	.046	.052	.123	.030	**.806**	−.005
15. People who were mean to me were well-intended	.649	.972	.36	.45	.008	.110	.126	−.049	−.100	−.060	**.769**
28. If I had been in the shoes of the people that hurt me, I would have acted in the same way	.199	.541	.31	.32	−.145	−.110	−.066	.019	.383	.034	**.577**
29. People who are abusive or violent are mainly unconscious: they don't really want to hurt people	.593	.844	.41	.50	−.056	.116	−.030	.053	−.089	.003	**.831**
Factor R^2					.289	.068	.040	.042	.049	.053	.382
Factor α					.71	.77	.74	.62	.75	.75	.60
Factor S-B α					.83	.87	.85	.77	.86	.86	.75

Note. Exploratory factor analysis using principal components analysis with promax rotation; Coefficient in bold indicated the association with theoretical factor. F1 = Disorganization of thoughts; F2 = Grandiosity; F3 = Absorption; F4 = Identification with the victim; F5 = Identification with the perpetrator; F6 = Avoidance of thoughts; F7 = Justification of trauma; ITSC = Item total scale correlation; IDSC = Item dimension scale correlation; α= Cronbach alpha; S-B α = Cronbach alpha corrected with Spearman-Brown prophecy formula if the number of items in each factor is doubled. The Spearman-Brown prophecy formula is $\alpha^*_{xx} = n\,\alpha_{xx} / 1 + (n-1)\,\alpha_{xx,}$ where n is the number of tests when we are expanding the exam length, in this case doubling, by adding items with the same properties, and α_{xx} is the current alpha coefficient.

self-report instrument, concise and easy to administer. The Failure to Mentalize Trauma Questionnaire (FMTQ) was developed with this intent.

The FMTQ aims to assess failures in the mentalization of past or recent trauma and adverse relationships, defined as indications that the respondent is not able to maintain coherent thinking when discussing these situations and/or indices of definite distortions in the perception of the impact of trauma on the self, on mental states, and on behaviors. To establish these indicators of failures to mentalize trauma, we analyzed the discourse of over 100 women about their experiences of abuse or neglect during childhood and identified instances during which the ability to think coherently about traumas and their impact fell apart (Berthelot, Garon-Bissonnette, Lemieux, & Ensink, 2021). To develop the current self-report instrument, we further categorized these instances of poor mentalization about trauma under seven types of failures: *Disorganization of Thoughts, Grandiosity, Absorption, Identification with the Victim, Identification with the Perpetrator, Avoidance of Thoughts, and Justification of Trauma.* According to Standards for Educational and Psychological Testing (American Educational Research Association, American Psychological Association, & National Council on Measurement in Education, 2014) and proposed guidelines for items development (Bowling, 1997; Priest, McColl, Thomas, & Bond, 1995), three clinical scientists with complementary expertise in trauma, reflective functioning, and assessment first generated 54 items based on these indicators of poor mentalization of trauma. Conceptually and lexically unclear items, as well as those that were too similar according to preliminary analyses were removed. The final version includes 29 items covering the seven types of failures in the mentalization of trauma or adverse life events A description of each type of failure is provided in the Results section, and items used to assess these dimensions are reported in Table 1.

The FMTQ was developed to identify specific types of failures in the mentalization of trauma and is not able to capture the complexity of mentalizing about trauma, as does the *Trauma-specific reflective functioning scale*. Indeed, the concept of mentalization (and of mentalization of trauma) is suggested to be organized around four dimensions : automatic versus controlled mentalizing; mentalizing with regard to the self versus mentalizing about others; mentalizing based on external versus internal features; and cognitive versus affective mentalizing (Luyten et al., 2020). The current instrument particularly taps into the latter dimension by capturing indications that 'affects' and 'cognitions' in relation to trauma are not balanced and integrated. Four scales reveal an over-involvement in cognitive reasoning that is disconnected from affective states (*Grandiosity, Identification with the Victim, Identification with the Perpetrator, Justification of Trauma)* whereas the three other subscales *(Disorganization of Thoughts, Absorption, Avoidance of Thoughts)* can be seen as indications of overwhelming affects impacting reasoning. It is also noteworthy that the FMTQ is intended to complement and not replace existing instruments assessing reflective functioning. Therefore, impairments in reflective functions (such as psychic equivalence and pseudomentalization), that are already assessed by other instruments are not properly captured by the FMTQ.

The objective of the current study was to validate the FMTQ by (a) assessing the factorial structure and internal consistency of the instrument in a large community sample of parents, and (b) evaluating the construct and concurrent validity of the FMTQ using four external criteria: the severity of exposure to child maltreatment, general impairments in reflective functions, psychopathology (post-traumatic stress symptoms, dissociative symptoms and level of personality dysfunction) and intimate partner violence. We hypothesized that (1) the items would regroup under the seven pre-identified factors, all representative of a higher-order factor of mentalization of trauma and adverse relationships; (2) less efficient mentalization of trauma and adverse relationships would be found in adults with histories of childhood maltreatment than in participants without such experiences, (3) FMTQ would be moderately associated with related measures assessing the severity of exposure to childhood maltreatment or reflective functioning, (4) FMTQ would be associated with outcomes (psychopathology, intimate partner violence) both in participants with and without histories of childhood maltreatment, and that (5) failures to mentalize trauma and adverse relationships would contribute to the prediction of psychopathology and intimate partner violence even when accounting for the effect of childhood maltreatment, sociodemographic characteristics and more general impairments in reflective functions.

2. Method

2.1. Participants and procedure

A total sample of 975 French-speaking Canadian parents or expecting parents (814 women) aged 17–55 years old ($M_{age} = 29.8$; $SD = 4.9$) were recruited in the course of three research projects on parenting. The first sample ($n = 217$, $M_{age} = 29.02$, $SD = 4.96$) consisted of 48 men and 169 women expecting a child who were recruited around the third trimester of pregnancy through their participation in prenatal classes. The second sample ($n = 580$, $M_{age} = 29.49$, $SD = 4.98$) consisted of 98 men and 482 women expecting a child who were recruited through their first medical appointment for an ongoing pregnancy. The last sample ($n = 178$, $M_{age} = 32.03$, $SD = 4.10$) included 15 men and 163 women, all parents of a child aged between 0 and 7 years old, who were recruited through social media. Data were collected anonymously via an online platform. The studies received ethical approval from the Université du Québec à Trois-Rivières and the Centre Intégré Universitaire de Santé et de Services Sociaux de la Maurice-et-du-Centre-

du-Québec.

Study participants were mainly employed ($n = 805$, 82.5 %) and in common-law relationships or married ($n = 896$, 92.5 %). Median familial income was between $75 000 and $84 999 and 13.9 % ($n = 59$) had a family income below the low-income cut-off for a family with one child in Canada ($33 863). In terms of education, 5.3 % had no high-school diploma, 7.3 % had a high-school diploma, 47.2 % had some collegial or professional training and 40.2 % had a university degree.

Overall, 37 % ($n = 361$) of participants reported having been exposed to at least one type of childhood maltreatment according to the cut-offs of the Childhood Trauma Questionnaire (see below) and were assigned to the group of participants with a history of childhood maltreatment. Women ($n = 309$, 38.1 %) and men ($n = 52$, 32.3 %) had been similarly exposed to maltreatment, $\chi^2(1) = 1.97$, $p = .16$. Of those participants with a history of childhood maltreatment, more than half ($n = 192$, 53.2 %) had experienced multiple traumas (defined as the exposure to more than one type of maltreatment). Overall, 97 participants (9.9 %) reported physical abuse, 123 (12.6 %) sexual abuse, 222 (22.8 %) emotional abuse, 189 (19.4 %) physical neglect and 113 (11.6 %) emotional neglect.

2.2. Measures

2.2.1. Trauma-specific reflective functioning questionnaire (RFT-Q)

The 29-item questionnaire assesses current problems in the way people think of or deal with past or recent trauma and adverse relationships. When completing the measure, participants are invited to think of adverse relationships during which they felt strong negative emotions, such as feeling betrayed, hurt, abandoned, used, disrespected, frightened or overwhelmed. Responses are rated on a 5-point Likert scale from 0 (*completely disagree*) to 4 (*completely agree*). There is no reverse item and higher scores reflect the presence of failures in the mentalization of trauma and adverse relationships. The global score is obtained by adding the mean score at each subscale. The MTQ was originally developed in French and was translated into English. The current validation study used the original French version. The questionnaire and instructions for scoring are available as online electronic supplemental material.

2.2.2. Reflective functioning questionnaire

The short-form version of the Reflective Functioning Questionnaire (RFQ-8; Fonagy et al., 2016) was used to evaluate participants' capacity to think about themselves and others in terms of mental states. The RFQ-8 has eight items rated on a 7-point Likert scale from 1 (*completely disagree*) to 7 (*completely agree*). A median-scoring method is used to obtain two subscales (Certainty and Uncertainty) reflecting distinct impairments in understanding the interplay between internal states and behaviors (Fonagy et al., 2016). The Certainty scale indicates hypermentalizing, meaning that the respondent assumes being excessively knowledgeable about his mental states and those of others, going far beyond the available evidence (Badoud et al., 2015). The six items used for the Certainty scale are rescored so that the original responses ranging from 1 to 7 are scored 3, 2, 1, 0, 0, 0, 0. In this way, low agreement on these items is indicative of hypermentalization, whereas moderate agreement reflects adequate levels of certainty about mental states. Conversely, the Uncertainty scale refers to hypomentalizing, meaning that the respondent shows a complete lack of knowledge about mental states and mainly relies on concrete thinking (Badoud et al., 2015). The six items measuring Uncertainty are also rescored with the median-scoring method: original responses (from 1 to 7) are scored 0, 0, 0, 0, 1, 2, 3, meaning that low to moderate agreement with the items reflect adequate understanding that mental states are opaque, whereas high levels of agreement reveal a complete lack of knowledge about one's own and others' mental states. Four out of the eight items of the RFQ-8 are used in one of the two subscales (items 1, 3, 7, and 8), whereas the remaining four are shared across both the Certainty and the Uncertainty scales. The original English version of the instrument and a French short version of the questionnaire showed good psychometric properties (Badoud et al., 2015; Fonagy et al., 2016). The RFQ demonstrated acceptable internal consistency coefficients in this study ($\alpha = .70$ for the Uncertainty scale and $\alpha = .78$ for the Certainty scale).

2.2.3. Childhood trauma questionnaire

Childhood maltreatment was assessed using the French version of the Childhood Trauma Questionnaire (CTQ-28; Bernstein et al., 2003; Lacharité, Deshaulniers, & St-Laurent, 2002). The 28-item self-reported measure examines five types of childhood maltreatment: physical, psychological, and sexual abuse as well as physical and psychological neglect. Responses to each item are rated on a 5-point Likert scale, ranging from 0 (*never true*) to 5 (*always true*). Higher scores reflect more severe trauma. The Cronbach's alpha for the CTQ in this study was of .84. Cut-offs were validated for each subscale (physical abuse ≥ 8, psychological abuse ≥ 10, sexual abuse ≥ 8, physical neglect ≥ 8 and psychological neglect ≥ 15; Walker et al., 1999) and participants were assigned to the group with a history of maltreatment if they reached the cut-off on at least one scale.

2.2.4. Dissociative experiences scale

The validated French version of the *Dissociative Experiences Scale* (DES; Bernstein & Putnam, 1986; Larøi, Billieux, Defeldre, Ceschi, & Van der Linden, 2013), a 28-item self-reported questionnaire, was used to assess dissociative symptoms. Items are evaluated on an 11-point rating scale (from 0 % to 100 %) where participants indicate the extent to which each statement reflects their experience. The global score is obtained by calculating the average; a higher score indicates more severe dissociation. The instrument has good construct validity and reliability (Bernstein & Putnam, 1986; Larøi et al., 2013). The Cronbach's alpha for the DES in this study was $\alpha = .92$.

2.2.5. PTSD checklist for DSM-5

Symptoms of PTSD were assessed using the validated French version of the *PTSD Checklist for DSM-5* (PCL-5; Ashbaugh,

Houle-Johnson, Herbert, El-Hage, & Brunet, 2016; Wilkins, Lang, & Norman, 2011). This 20-item self-reported questionnaire is based on the PTSD diagnostic criteria of the DSM-5. Responses are rated on a 5-point Likert scale ranging from 0 (*not at all*) to 4 (*always*). Both the French and the English versions have good reliability (internal consistency, temporal stability) and convergent validity (Ashbaugh et al., 2016; Wilkins et al., 2011). The Cronbach's alpha for the PCL-5 in this study was $\alpha = .94$.

2.2.6. Self and interpersonal functioning scale

The Self and Interpersonal Functioning Scale (SIFS; Gamache, Savard, Leclerc, & Cote, 2019) was developed to assess the DSM-5 Criterion A of the Alternative Model of Personality Disorder (AMPD) that addresses a global level of personality dysfunction comprising four elements: Identity, Self-direction, Empathy, and Intimacy. The 24-item instrument, rated with a five-point Likert scale ranging from 0 (*this does not describe me at all*) to 4 (*this describes me totally*), has been demonstrated to have good psychometric properties, including internal consistency, convergent validity and discriminant validity (Gamache et al., 2019), and has been identified as a reliable measure of AMPD Criterion A (Waugh et al., 2020). In the present sample, the alpha coefficient for the global score was $\alpha = .87$.

2.2.7. Conflict tactics scale

The 24-item French version of the Revised Conflict Tactics Scale (CTS-2; Lussier, 1997; Straus, Hamby, Boney-McCoy, & Sugarman, 1996) was used to assess psychological and physical violence victimization and perpetration. Items are rated on a 8-point Likert scale indicating frequency of interpersonal violence during the past year, ranging from 0 (*never occurred in the past year*) to 6 (*more than 20 times in the last year*). A score of 7 indicated that the behavior did not happen in the past year, but happened before and was rescored 0. Higher subscales and global scores reflect more frequent relationship violence in the past year. In this study, a total score of victimization and a total score of perpetration, including both psychological and physical violence, were used. The CTS-2 demonstrated good reliability and validity across various nonclinical samples of adults (Chapman & Gillespie, 2019; Straus et al., 1996), including pregnant women (Hellmuth, Gordon, Stuart, & Moore, 2013). The Cronbach's alpha for the two CTS-2 scales used in this study were $\alpha = .68$ (victimization) and $\alpha = .67$ (perpetration).

2.3. Statistical analyses

Item characteristics were analyzed according to Classical Item Theory (items descriptive characteristics, inter-item correlations, item-total correlations). Exploratory factor analysis using principal components analysis with promax rotation was first performed using Statistical Package for the Social Sciences (SPSS) 24.0 software on one half of the sample, as recommended by Hinkin (1995). Confirmatory factor analysis (CFA) was subsequently performed using Mplus version 8.0 (Muthén & Muthén, 2017) to test different models on the other half of the sample. In CFA models, items loaded strictly onto their a priori factor, and all cross-loadings were considered equal to zero. Data were treated as categorical and the robust weighted least square estimator (WLSMV; Beauducel & Herzberg, 2006) was used for all models. Five indices were used to establish adequate model fit: (1) the χ^2 goodness-of-fit index, alongside with sample-size independent fit indexes (e.g., Hu & Bentler, 1999), (2) the comparative fit index (CFI; $> .90$), (3) the Tucker-Lewis index (TLI; $> .90$), (4) the root mean square error of approximation (RMSEA; $< .08$), and (5) the Weighted Root Mean Square Residual (WRMR; < 1.00). Nested model comparisons of fit improvement were evaluated using the Mplus DIFFTEST function (MD$\Delta\chi^2$; Asparouhov & Muthén, 2009).

To evaluate criterion and discriminant validity of the instrument, gender differences were first examined using Mann-Whitney *U* test. A MANCOVA, followed by post-hoc ANCOVAs, controlling for age, gender and education were performed to compare scores at the FMTQ and its subscales among participants with and without histories of childhood maltreatment. The model was repeated 1,000 times using bootstrap resampling. Group differences were considered significant when the 95 % confidence interval did not include 0. We calculated effect sizes (ES) using the difference of adjusted means among the participants exposed to maltreatment and the participants without histories of childhood maltreatment divided by a pooled standard deviation. We finally assessed convergent validity using bivariate Spearman correlations to examine the association between FMTQ scores, scores at the two subscales (certainty and uncertainty) of the general measures of reflective functions (RFQ-8), and the severity of exposure to childhood maltreatment (CTQ-28).

Concurrent validity was assessed through bivariate Spearman correlations between FMTQ scores and external criteria (PTSD, dissociation, level of personality dysfunction, and intimate partner violence). The correlations were next performed separately for participants with and without histories of childhood abuse or neglect to confirm that the instrument could be used with both populations to detect problems in the way people think about adverse relationships. We also evaluated, using hierarchical multiple regression analyses, the improvement in variance due to the FMTQ for each external variable (i.e. PTSD, dissociation, level of personality dysfunction, intimate partner violence) after controlling for the severity of childhood maltreatment and sociodemographic characteristics. Severity of exposure to childhood maltreatment and sociodemographic characteristics were entered in the first block, and the FMTQ global score was entered in the second block; R^2 and F-change were weighed between the two models. The analyses were carried out using the Statistical Package for the Social Sciences (SPSS) 24.0 software.

3. Results

3.1. Item characteristics, exploratory factor analysis, and internal consistency

Means and standard deviation, as well as inter-item and item-total correlations are presented in Table 1. Exploratory factor analysis

identified the seven hypothesized dimensions, explaining 58.48 % of the total variance. Factor 1 (*Disorganization of thoughts)* comprises 4 items assessing severe problems in the monitoring of reasoning under the forms of depersonalization and destructive behaviors when experiencing trauma-related emotions. Factor 2 (*Grandiosity*) comprises 5 items assessing the perception of being invulnerable to trauma and adverse relationships. Factor 3 (*Absorption*) comprises 5 items assessing the interference of memories of trauma and adverse relationships with the monitoring of thoughts and behaviors. Factor 4 (*Identification with the victim*) comprises 5 items assessing the tendency to take responsibility for adverse life events or to consider that mean behaviors were deserved. Factor 5 (*Identification with the perpetrator*) comprises 4 items assessing the sanction of aggressive behaviors as an acceptable way to express difficult emotions. Factors 6 (*Avoidance of thoughts*) comprises 3 items assessing the tendency to keep threatening ideas, feelings, memories, wishes, or fears out of awareness. Factor 7 (*Justification of trauma*) comprised 3 items assessing the tendency to perceive mean behaviors from others as justified or to think of people acting cruelly as fundamentally well-intended. One item (#11) was more associated with another factor than the one to which it should have be linked and another (#23) saturated equally to two factors. However, for theoretical reasons, we decided to keep those items in their planned factor in subsequent analyses. Saturation and Cronbach alpha coefficients are reported in Table 1. The global FMTQ score had excellent internal consistency and the seven subscales had acceptable internal consistency coefficients but reached an excellent level when applying the Spearman-Brown prophecy formula that allows estimating the reliability of each subscale if the number of items was double.

3.2. Confirmatory factor analysis (CFA)

Three models were tested with CFA : a basic one-factor model (Model 1) to assess the general concept of mentalization of trauma and adverse relationships; a seven-correlated factor solution, where the items load on their respective dimension, based on the seven-factors model obtained in the exploratory factor analysis and therefore testing our hypothesis (Model 2); and a second-order orthogonal solution with the same seven factors loading on a general factor representing mentalization of trauma and adverse relationships, which integrated our hypothesis and is consistent with recent studies investigating the construct of trauma-specific mentalization (Model 3). Examination of fit indices (see Table 2) revealed that Model 2 ($MD\Delta\chi^2 = 272.166$; $df = 14$; $p < .001$; $\Delta CFI = .049$, $\Delta TLI = .051$, $\Delta RMSEA = .017$ and nonoverlapping RMSEA 90 % confidence interval) and Model 3 ($MD\Delta\chi^2 = 403.614$; $df = 6$; $p < .001$; $\Delta CFI = .055$, $\Delta TLI = .059$, $\Delta RMSEA = .021$ and nonoverlapping RMSEA 90 % confidence interval) had significantly better fit coefficients compared to the single-factor model (Model 1). The second-order CFA model that was not nested within the correlated seven-factor model did not significantly decrease model fit, and thus can be accepted as the more parsimonious alternative. All items loaded adequately onto their theoretical factor; item #11 and 23 were no longer problematic. Item loadings of the second-order CFA model solution are presented in Fig. 1.

3.3. Construct validity

Distribution of scores on the FMTQ was assessed for skew and kurtosis. In the whole sample, scores ranged between 0 and 14.98 ($M = 5.22$, $SD = 3.43$) and the distribution was positively skewed. The Mann-Whitney test showed that men ($Mdn = 545.70$) had significantly less efficient reflective functions in relation to trauma and adverse relationships than women ($Mdn = 476.59$), $U = 56\,237.5$, $p = .004$). A MANCOVA controlling for age, gender, and education was next conducted to compare FMTQ scores across participants with and without histories of maltreatment. The model was repeated 1,000 times using bootstrap resampling considering the nonparametric distributions. Results showed that childhood maltreatment was significantly associated with the severity of difficulties experienced in mentalizing trauma and adverse relationships, $F(7, 946) = 20.97$, $p < .001$, partial $n^2 = .13$. As shown in Table 3, small to moderate effect-size group differences were observed for the global score and the seven subscales. Continuous analyses yielded similar associations: the severity of exposure to childhood maltreatment was moderately associated with the severity of impairments in FMTQ (Table 4).

3.4. Concurrent validity

The correlation matrix in Table 4 shows a moderate association between FMTQ and the two reflective functioning deficits: hypermentalization (RF Certainty; negatively) and hypomentalization (RF Uncertainty). To evaluate whether the FMTQ and the RFQ shared a unique variance that could not be accounted for by other related variables, we next performed hierarchical regression analyses including the three indices of psychopathology (dissociation, PTSD and level of personality dysfunctions) in a first step,

Table 2
Goodness-of-fit statistics for the models estimated on the FMTQ.

Models	WLSMV χ^2 (*df*)	CFI	TLI	RMSEA [90 % CI]	*p*	WRMR
1. CFA one factor	1429.043 (377)	.886	. 877	.075 [.071–.0739]	<.001	1.737
2. CFA seven-correlated factor	959.947 (363)	.935	.928	.058 [.053–.062]	<.001	1.387
3. Second-order CFA	912.166 (371)	.941	.936	.054 [.050–.059]	<.001	1.336

Note. WLSMV = Robust weighted least square estimator; $\chi 2$ = WLSMV chi square; df = degrees of freedom; CFI = comparative fit index; TLI = Tucker-Lewis index; RMSEA = root mean square error of approximation; 90 % CI = confidence interval. WRMR = Weighted Root Mean Square Residual.

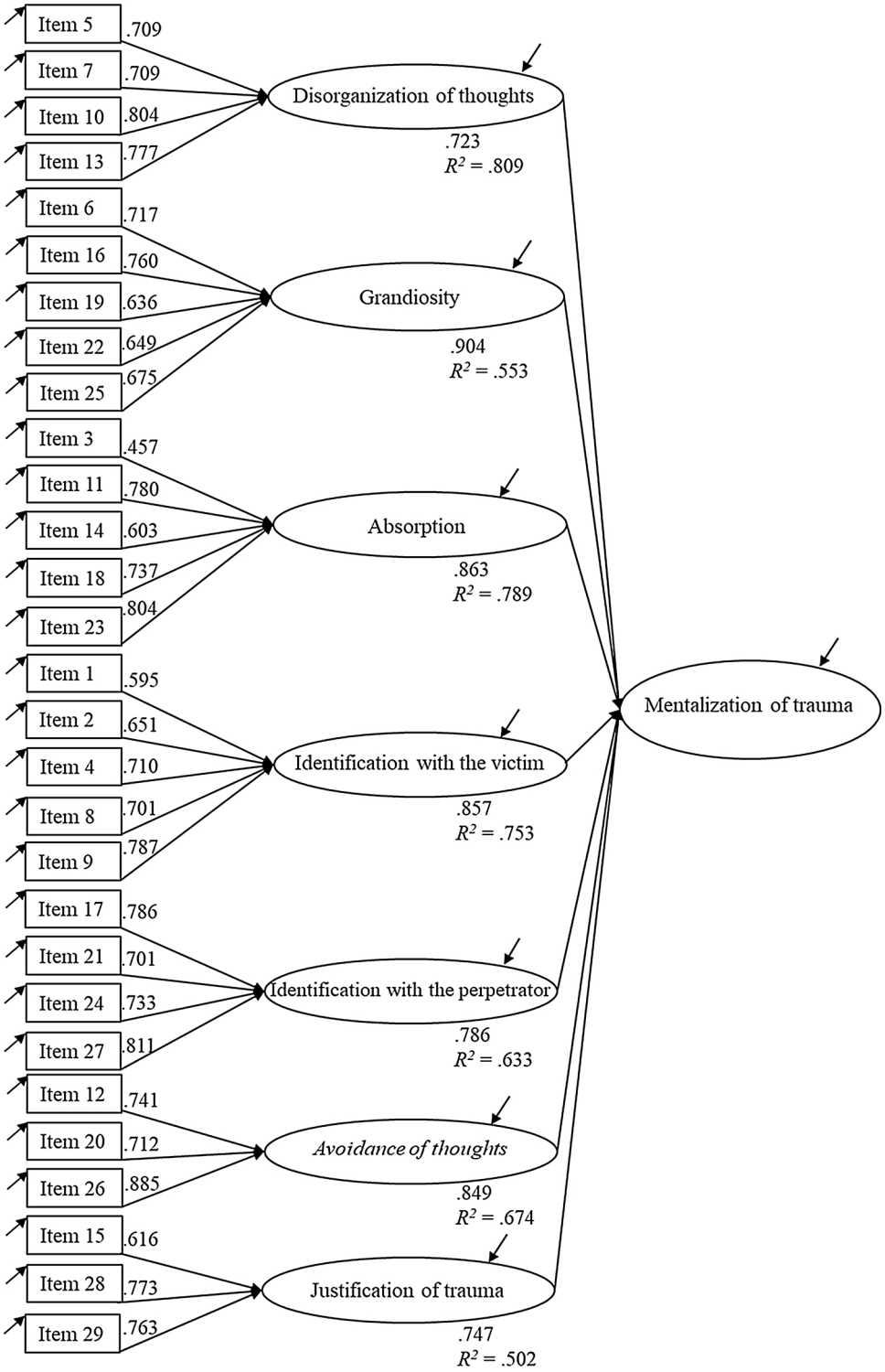

Fig. 1. Second-order seven-factor confirmatory factor analysis of the FMTQ.
Note. All coefficients are significant at $p < .001$.

sociodemographic characteristics (gender, age, education) in a second step, and the two scales of the RFQ in a third step as predictors of FMTQ total score. As shown in Table 5, we observed a significant association between the FMTQ and the certainty scale of the RFQ, but not with the uncertainty scale.

Table 3
Significant Univariate Effects for Childhood Maltreatment.

Dependent variable	Group	Adjusted Marginal Means	95 % Confidence Interval		$F(1,946)$	Effect size
			Lower Bound	Upper Bound		
Global score	No maltreatment	4.32	4.07	4.57	128.26	0.73
	Maltreatment	6.70	6.38	7.03		
Disorganization of thoughts	No maltreatment	0.25	0.20	0.29	70.58	0.48
	Maltreatment	0.55	0.50	0.61		
Grandiosity	No maltreatment	1.29	1.22	1.35	79.12	0.59
	Maltreatment	1.78	1.70	1.87		
Absorption	No maltreatment	0.86	0.80	0.92	68.70	0.54
	Maltreatment	1.28	1.20	1.36		
Identification with the victim	No maltreatment	0.59	0.54	0.65	98.46	0.62
	Maltreatment	1.03	0.96	1.10		
Avoidance of thoughts	No maltreatment	0.77	0.71	0.84	41.61	0.42
	Maltreatment	1.13	1.05	1.22		
Identification with the perpetrator	No maltreatment	0.15	0.12	0.18	46.45	0.39
	Maltreatment	0.33	0.29	0.37		
Justification of trauma	No maltreatment	0.41	0.36	0.46	21.13	0.29
	Maltreatment	0.60	0.53	0.66		

Note. All coefficients are significant at $p < .001$.

Table 4
Spearman bivariate correlations between FMTQ global score, age, education, severity of trauma, general mentalization, psychopathology and intimate partner violence.

Variables	1	2	3	4	5	6	7	8	9	10
1 FMTQ global score (n = 975)										
2 Age (n = 963)	−.10**									
3 Education (n = 974)	−.32**	.27**								
4 Severity of trauma (n = 971)	.49**	−.07*	−.26**							
5 RF Certainty (n = 842)	−.40**	.06	.17*	−.24**						
6 RF Uncertainty (n = 842)	.36**	−.09*	−.20**	.27**	−.62**					
7 PTSD symptoms (n = 949)	.57**	−.12**	−.25**	.41**	−.39**	.40**				
8 Dissociative symptoms (n = 974)	.38**	−.15**	−.19**	.25**	−.32**	.31**	.48**			
9 Personality dysfunction (n = 712)	.54**	−.13**	−.30**	.36**	−.55**	.51**	.59**	.52**		
10 IPV perpetration (n = 774)	.20**	−.07**	−.11**	.23**	−.36**	.33**	.34**	.27**	.26**	
11 IPV victimization (n = 771)	.24**	−.05	−.17**	.25**	−.30**	.28**	.36**	.28**	.24**	.83**

* $p < .05$.
** $p < .01$.

Table 5
Hierarchical multiple regression evaluating the contribution of psychopathology, sociodemographic characteristics and mentalization impairments to the total score at the FMTQ.

Predictors	Model 1			Model 2			Model 3		
	B	*SE*	*β*	*B*	*SE*	*β*	*B*	*SE*	*β*
(Constant)	9.68	1.03		13.32	3.46		19.75	3.79	
Dissociation	0.23**	0.07	0.14	0.22**	0.07	0.14	0.23***	0.06	0.15
PTSD	0.35***	0.05	0.34	0.33***	0.05	0.32	0.31***	0.05	0.30
Personality dysfunctions	8.34***	1.45	0.26	7.21***	1.44	0.23	5.16**	1.48	0.16
Age				0.13	0.10	0.05	0.15	0.10	0.05
Gender				0.85	1.30	0.02	1.49	1.28	0.04
Education				−1.86***	0.37	−0.18	−1.86***	0.37	−0.18
RFQ - Certainty							−3.65***	0.80	−0.17
RFQ - Uncertainty							−1.74	1.37	−0.04
R^2	0.41			0.44			0.46		
F	119.57***			9.14***			10.38***		
Δ R^2				0.03			0.02		

Note. **$p < .01$, **$p < .001$. Model 1 included the three indices of psychopathology (dissociation, PTSD and personality dysfunctions) as predictors. Sociodemographic characteristics (age, gender and education) were added as predictors in Model 2. The two subscales of the Reflective Functioning Questionnaire (certainty and uncertainty) were added as predictors in Model 3.

Table 6
Hierarchical multiple regressions on the predictive role of FMTQ on all external criteria over the effect of severity of trauma, age, gender and education.

Criteria and predictors	Model 1			Model 2		
	B	*SE*	*β*	*B*	*SE*	*β*
PTSD symptoms						
(Constant)	9.25	3.19		3.60	3.12	
Severity of trauma	0.43***	0.35	0.38	0.27***	0.04	0.24
Age	−0.15	0.08	−0.06	−0.12	0.08	−0.05
Gender	0.15	1.08	0.004	−1.46	1.01	−0.04
Education	−0.71*	0.30	−0.08	−0.24	0.28	−0.03
RFQ – Certainty	−5.68***	0.60	−0.29	−3.37***	0.59	−0.17
RFQ – Uncertainty	1.35	1.14	0.04	1.75	1.05	0.05
FMTQ global score				0.35***	0.03	0.38
R^2	0.31			0.41		
F	60.72***			129.86***		
Δ R^2				0.10		
Dissociative symptoms						
(Constant)	13.85	2.78		10.63	2.72	
Severity of trauma	0.18***	0.03	0.24	0.09**	0.03	0.12
Age	−0.21**	0.07	−0.11	−0.20**	0.07	−.11
Gender	2.09*	0.89	0.09	1.15	0.87	0.05
Education	−0.63*	0.27	−0.09	−0.34	0.26	−0.05
RFQ – Certainty	−3.16***	0.52	−0.23	−1.91***	0.54	−0.14
RFQ – Uncertainty	0.21	0.97	0.01	0.68	0.94	0.03
FMTQ global score				0.19***	0.03	0.30
R^2	0.18			0.24		
F	24.17***			49.78***		
Δ R^2				0.06		
Personality dysfunction						
(Constant)	0.91	0.12		0.68	0.12	
Severity of trauma	0.01***	0.001	0.27	0.005***	0.001	0.13
Age	−0.004	0.003	−0.04	−0.003	0.003	−0.03
Gender	0.15***	0.04	0.11	0.10*	0.04	0.07
Education	−0.04***	0.01	−0.12	−0.02	0.01	−0.06
RFQ – Certainty	−0.28***	0.02	−0.42	−0.20***	0.02	−0.29
RFQ – Uncertainty	−0.05	0.04	−0.04	−0.05	0.04	−0.04
FMTQ global score				0.01***	0.001	0.38
R^2	0.34			0.43		
F	58.40***			109.94***		
Δ R^2				0.09		
IPV perpetrator						
(Constant)	4.09	1.43		3.65	1.45	
Severity of trauma	0.04**	0.01	0.11	0.03	0.02	0.08
Age	−0.004	0.03	−0.005	−0.003	0.03	−0.003
Gender	−0.58	0.44	−0.06	−0.67	0.44	−0.07
Education	−0.30*	0.14	−0.10	−0.28*	0.14	−0.09
RFQ – Certainty	−1.76***	0.26	−0.29	−1.60***	0.28	−0.26
RFQ – Uncertainty	1.64**	0.51	0.14	1.73**	0.51	0.15
FMTQ global score				0.02	0.01	0.08
R^2	0.18			0.19		
F	18.51***			2.85		
Δ R^2				0.005		
IPV victim						
(Constant)	1.55	1.43		0.94	1.45	
Severity of trauma	0.05***	0.01	0.16	0.04*	0.02	0.11
Age	0.02	0.03	0.03	0.02	0.03	0.03
Gender	0.46	0.44	0.05	0.32	0.44	0.03
Education	−0.31*	0.14	−0.10	−0.28*	0.14	−0.09
RFQ – Certainty	−1.28***	0.26	−0.22	−1.05***	0.28	−0.18
RFQ – Uncertainty	0.66	0.51	0.06	0.79	0.51	0.07
FMTQ global score				0.03*	0.01	0.12
R^2	0.12			0.13		
F	11.69***			5.78*		
Δ R^2				.01		

Note. *$p < .05$, **$p < .01$, ***$p < .001$. Model 1 included the severity of trauma, sociodemographic characteristics (age, gender, education) and the two subscales of the Reflective Functioning Questionnaire (certainty, uncertainty) as predictors. The FMTQ global score was added as predictor in Model 2.

The global score of the FMTQ was moderately associated with psychopathology (PTSD, dissociation, and level of personality dysfunction) and weakly associated with intimate partner violence. Full data including the seven subscales are available in the online electronic supplement (Table S1). Significant correlations between FMTQ, hypermentalization, hypomentalization, psychopathology, and intimate partner violence were observed in participants with histories of maltreatment (Table S2, available online) and in participants not exposed to childhood maltreatment (Table S3, available online), suggesting that the questionnaire is useful in both populations. As shown in Table 6, hierarchical multiple regression analyses indicated that FMTQ improved the prediction of PTSD symptoms, dissociative symptoms, personality dysfunction and intimate partner violence (victimization), over the effect of the severity of childhood maltreatment, age, education, and the two subscales of the RFQ.

4. Discussion

The study aimed to report on the development and psychometric properties of a new self-report measure of failures to mentalize trauma and adverse relationships, the *Failures to Mentalize Trauma Questionnaire* (FMTQ). Our findings suggest promising reliability and validity.

The exploratory factor analysis revealed seven dimensions reflecting different indicators of failures to mentalize about trauma and adverse relationships manifesting through interference of affects with reasoning (*Disorganization of thoughts; Absorption; Avoidance of thoughts*) and through over-involvement in cognitive reasoning that is disconnected from affective states (*Grandiosity; Identification with the perpetrator; Identification with the victim; Justification of trauma*). Internal consistency was satisfactory for the total score and the seven dimensions, especially if we apply the Spearman-Brown prophecy formula considering the small number of items by factor. Factor analysis results revealed that the best fit was obtained with a CFA second-order seven-factor solution, suggesting that the global score of the FMTQ can be used, as well as the seven factors that compose it.

Our findings suggest that the concurrent validity and discriminant validity of the FMTQ were adequate. First, as expected, less efficient mentalization of trauma and adverse relationships was observed in participants exposed to maltreatment, in comparison to participants without histories of childhood maltreatment, even when controlling for sociodemographic characteristics. Results additionally showed that participants' difficulties encountered when processing trauma increased with the severity of exposure to trauma. This is in line with previous studies reporting positive correlations between the severity of childhood maltreatment and maladaptive emotion regulation strategies (Huh, Kim, Lee, & Chae, 2017) or negative self-schema (Lumley & Harkness, 2009) in adult populations. However, the dose-effect association observed in the current study between the severity of exposure to childhood maltreatment and scores at the FMTQ contrasts with results of a previous study reporting no association between the severity of childhood maltreatment and trauma-specific reflective functioning coded from the AAI (Ensink et al., 2014). This discrepancy may be explained by the fact that the FMTQ specifically captures the severity of impairments in the mentalization of trauma and adverse relationships, whereas the trauma-specific reflective functioning scale assesses different gradients of complexity in the mentalization of trauma. In other words, the FMTQ assesses difficulties or risk factors, whereas the coding system used by Ensink and colleagues also taps into strengths or protective factors. Hence, the determinants of severe dysfunctions in the mentalization of trauma may be different than the determinants of preserved or outstanding reflective functions in the context of trauma. For instance, whereas the former may be particularly associated with the severity of exposure to childhood maltreatment, the latter may be particularly influenced by resilience-promoting factors, such as a positive relationship with an attachment figure.

Interestingly, the correlations between scores on the FMTQ and scores on the RFQ were small. However, the FMTQ and the scale of the RFQ assessing hypermentalization shared a unique variance that could not be accounted for by related measures of psychopathology and sociodemographic characteristics. This is congruent with results of a previous study showing that the codification of trauma-specific mentalization using the AAI was moderately correlated ($r = .61$) with more general mentalization abilities coded from the same interview (Ensink et al., 2014). Instruments assessing mentalization of trauma can thus be seen as complementary to the existing measures of reflective functions.

The results showed that failures in the mentalization of trauma and adverse relationships were significantly associated with dissociation, post-traumatic symptoms, and level of personality dysfunction even after controlling for the severity of exposure to childhood maltreatment, sociodemographic characteristics and more general reflective functioning impairments. This suggests that difficulties in mentalizing trauma and adverse relationships are likely to trigger intense and pervasive affects such as fear, helplessness or anger, even more than the sole exposure to such adverse experiences (Berthelot et al., 2015; Ensink et al., 2014). Such intense affects may in turn increase the risks of acting outs in relationship contexts. Indeed, we observed that self-reported mentalization of trauma and adverse relationships was predictive of current intimate partner violence (both victimization and perpetration). This offers additional support to Fraiberg's proposal (Fraiberg, Adelson, & Shapiro, 1975) and recent scientific evidence (Borelli et al., 2019) that remembering past trauma and considering one's own vulnerability offer a central protective factor that prevents a repetition of the trauma. Those findings also support Luyten and Fonagy (2019) as well as Berthelot, Ensink and their colleagues' (Berthelot et al., 2015; Ensink et al., 2014) proposal that the essence of maladaptive development following childhood trauma lies in the *absence of resilience* rather than in the *presence of vulnerability*.

Findings of this study should be interpreted in the light of its limitations. First, the sample consisted in French-speaking Canadians recruited in the community. The existing English translation remains yet to be validated. Second, test-retest reliability was not evaluated. Third, proper evaluation of the construct validity of the FMTQ would ideally require its scores be contrasted to scores obtained using the *Trauma-Specific Reflective Functioning Coding System* applied to the Trauma Meaning Interview, the gold standard measure of RF-T. Four, invariance of the retained factor model between women and men could not been performed due to the relatively small number of male participants. Finally, our claim that failures to mentalize trauma increase the risk of psychopathology

remains hypothetical, and one could argue that the reported association between trauma and psychopathology could be explained by a certain degree of overlap between measures. This potential overlap between the concept of mentalization of trauma and dissociation has been discussed previously (Ensink, Fonagy, Berthelot, Normandin, & Bernazzani, 2015; Schimmenti, 2015). Only longitudinal studies in children and adolescents recently exposed to abuse and neglect will be able to address this question.

Overall, our study shows that (1) the FMTQ possesses sound psychometric properties, and should be seen as a valid and concise measure of failures to mentalize trauma and adverse relationships, (2) the instrument has proved useful in participants with and without histories of childhood maltreatment, and (3) failures to mentalize trauma and adverse relationships are associated with adult psychopathology and intimate partner violence over and beyond the effect of childhood maltreatment and sociodemographic characteristics.

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Appendix A. Supplementary data

Supplementary material related to this article can be found, in the online version, at doi:https://doi.org/10.1016/j.chiabu.2021.105017.

References

Afifi, T. O., Mather, A., Boman, J., Fleisher, W., Enns, M. W., MacMillan, H., & Sareen, J. (2011). Childhood adversity and personality disorders: Results from a nationally representative population-based study. *Journal of Psychiatric Research, 45*(6), 814–822. https://doi.org/10.1016/j.jpsychires.2010.11.008

American Educational Research Association, American Psychological Association, & National Council on Measurement in Education. (2014). *Standards for educational and psychological testing* (4th ed.). Washington, DC: American Educational Research Association.

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). https://doi.org/10.1371/journal.pone.0161645. e0161645-e0161645.

Asparouhov, T., & Muthén, B. (2009). Exploratory structural equation modeling. *Structural Equation Modeling A Multidisciplinary Journal, 16*(3), 397–438. https://doi.org/10.1080/10705510903008204

Badoud, D., Luyten, P., Fonseca-Pedrero, E., Eliez, S., Fonagy, P., & Debbane, M. (2015). The French version of the reflective functioning questionnaire: Validity data for adolescents and adults and its association with non-suicidal self-injury. *PloS One, 10*(12). https://doi.org/10.1371/journal.pone.0145892. e0145892.

Bateman, A., Campbell, C., Luyten, P., & Fonagy, P. (2018). A mentalization-based approach to common factors in the treatment of borderline personality disorder. *Current Opinion in Psychology, 21*, 44–49. https://doi.org/10.1016/j.copsyc.2017.09.005

Beauducel, A., & Herzberg, P. Y. (2006). On the performance of maximum likelihood versus means and variance adjusted weighted least squares estimation in CFA. *Structural Equation Modeling, 13*(2), 186–203.

Bernstein, E. M., & Putnam, F. W. (1986). Development, reliability, and validity of a dissociation scale. *The Journal of Nervous and Mental Disease, 174*(12), 727–735.

Bernstein, D. P., Stein, J. A., Newcomb, M. D., Walker, E., Pogge, D., Ahluvalia, T., & Zule, W. (2003). Development and validation of a brief screening version of the Childhood Trauma Questionnaire. *Child Abuse & Neglect, 27*(2), 169–190.

Berthelot, N., Ensink, E., Bernazzani, O., Normandin, L., Luyten, P., & Fonagy, P. (2015). Intergenerational transmission of attachment in abused and neglected mothers: The role of trauma-specific reflective functioning. *Infant Mental Health Journal, 36*(2), 200–212. https://doi.org/10.1002/imhj.21499

Berthelot, N., Lemieux, R., Garon-Bissonnette, J., & Muzik, M. (2020). Prenatal attachment, parental confidence, and mental health in expecting parents: The role of childhood trauma. *Journal of Midwifery & Women's Health, 65*(1), 85–95. https://doi.org/10.1111/jmwh.13034

Berthelot, N., Garon-Bissonnette, J., Lemieux, R., & Ensink, K. (2019). *Trauma-specific reflective functioning coding system.* Quebec: Université du Québec à Trois-Rivières.

Berthelot, N., Lemieux, R., Garon-Bissonnette, J., Lacharite, C., & Muzik, M. (2019). The protective role of mentalizing: Reflective functioning as a mediator between child maltreatment, psychopathology and parental attitude in expecting parents. *Child Abuse & Neglect, 95*, Article 104065. https://doi.org/10.1016/j.chiabu.2019.104065

Borelli, J. L., Cohen, C., Pettit, C., Normandin, L., Target, M., Fonagy, P., & Ensink, K. (2019). Maternal and child sexual abuse history: An intergenerational exploration of children's adjustment and maternal trauma-reflective functioning. *Frontiers in Psychology, 10*, 1062. https://doi.org/10.3389/fpsyg.2019.01062

Borelli, J. L., Ensink, K., Gillespie, M. L., Falasiri, E., Bernazzani, O., Fonagy, P., & Berthelot, N. (2020). Mothers self-focused reflective functioning interacts with childhood experiences of rejection to predict current romantic relationship quality and parenting behavior. *Family Process*. Published online Octobr 7 2020.

Boughner, E., Thornley, E., Kharlas, D., & Frewen, P. (2016). Mindfulness-related traits partially mediate the association between lifetime and childhood trauma exposure and PTSD and dissociative symptoms in a community sample assessed online. *Mindfulness, 7*(3), 672–679. https://doi.org/10.1007/s12671-016-0502-3

Bowling, A. (1997). *Research methods in health.* Buckingham: Open University Press.

Briere, J., Hodges, M., & Godbout, N. (2010). Traumatic stress, affect dysregulation, and dysfunctional avoidance: A structural equation model. *Journal of Traumatic Stress, 23*(6), 767–774. https://doi.org/10.1002/jts.20578

Carlson, E. B., Dalenberg, C., & McDade-Montez, E. (2012). Dissociation in posttraumatic stress disorder part I: Definitions and review of research. *Psychological Trauma Theory Research Practice and Policy, 4*(5), 479.

Chapman, H., & Gillespie, S. M. (2019). The revised Conflict Tactics Scales (CTS2): A review of the properties, reliability, and validity of the CTS2 as a measure of partner abuse in community and clinical samples. *Aggression and Violent Behavior, 44*, 27–35. https://doi.org/10.1016/j.avb.2018.10.006

Chiesa, M., & Fonagy, P. (2014). Reflective function as a mediator between childhood adversity, personality disorder and symptom distress. *Personality and Mental Health, 8*(1), 52–66.

Cicchetti, D. (2013). Annual research review: Resilient functioning in maltreated children–Past, present, and future perspectives. *Journal of Child Psychology and Psychiatry, 54*(4), 402–422.

Doom, J. R., Hazzard, V. M., Bauer, K. W., Clark, C. J., & Miller, A. L. (2017). Does striving to succeed come at a physiological or psychosocial cost for adults who experienced child maltreatment? *Developmental Psychopathology, 29*(5), 1905–1919. https://doi.org/10.1017/S0954579417001481

Doorn, K. A., Kamsteeg, C., & Silberschatz, G. (2019). Cognitive mediators of the relationship between adverse childhood experiences and adult psychopathology: A systematic review. *Developmental Psychopathology*, 1–13. https://doi.org/10.1017/S0954579419001317

Ensink, K., Berthelot, N., Bernazzani, O., Normandin, L., & Fonagy, P. (2014). Another step closer to measuring the ghosts in the nursery: Preliminary validation of the Trauma Reflective Functioning Scale. *Frontiers in Psychology, 5*(1471), 1–12.

Ensink, K., Fonagy, P., Berthelot, N., Normandin, L., & Bernazzani, O. (2015). Response: Behind the closed doors of mentalizing. A commentary on "another step closer to measuring the ghosts in the nursery: Preliminary validation of the Trauma Reflective Functioning Scale. *Frontiers in Psychology, 6*, 697. https://doi.org/10.3389/fpsyg.2015.00697

Fonagy, P., Luyten, P., Moulton-Perkins, A., Lee, Y. W., Warren, F., Howard, S., … Lowyck, B. (2016). Development and validation of a self-report measure of mentalizing: The reflective functioning questionnaire. *PloS One, 11*(7), e0158678. https://doi.org/10.1371/journal.pone.0158678

Fraiberg, S., Adelson, E., & Shapiro, V. (1975). Ghosts in the nursery. A psychoanalytic approach to the problems of impaired infant-mother relationships. *Journal of the American Academy of Child and Adolescent Psychiatry, 14*(3), 387–421.

Gamache, D., Savard, C., Leclerc, P., & Cote, A. (2019). Introducing a short self-report for the assessment of DSM-5 level of personality functioning for personality disorders: The Self and Interpersonal functioning Scale. *Personality Disorders, 10*(5), 438–447. https://doi.org/10.1037/per0000335

Garon-Bissonnette, J., Duguay, G., Lemieux, R., Dubois-Comtois, K., & Berthelot, N. (n.d.). Maternal childhood abuse and neglect predicts offspring development in early childhood: The roles of reflective functioning and child sex. *Child Abuse and Neglect*. Submitted for publication.

Haskett, M. E., Nears, K., Ward, C. S., & McPherson, A. V. (2006). Diversity in adjustment of maltreated children: Factors associated with resilient functioning. *Clinical Psychology Review, 26*(6), 796–812.

Heleniak, C., & McLaughlin, K. A. (2020). Social-cognitive mechanisms in the cycle of violence: Cognitive and affective theory of mind, and externalizing psychopathology in children and adolescents. *Developmental Psychopathology, 32*(2), 735–750. https://doi.org/10.1017/S0954579419000725

Hellmuth, J. C., Gordon, K. C., Stuart, G. L., & Moore, T. M. (2013). Risk factors for intimate partner violence during pregnancy and postpartum. *Archives of Women's Mental Health, 16*(1), 19–27. https://doi.org/10.1007/s00737-012-0309-8

Hinkin, T. R. (1995). A review of scale development practices in the study of organizations. *Journal of Management, 21*(5), 967–988. https://doi.org/10.1177/014920639502100509

Hu, L. T., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling A Multidisciplinary Journal, 6*(1), 1–55.

Huang, Y. L., Fonagy, P., Feigenbaum, J., Montague, P. R., Nolte, T., London, P., & Mood Disorder Research, C. (2020). Multidirectional pathways between attachment, mentalizing, and posttraumatic stress symptomatology in the context of childhood trauma. *Psychopathology, 53*(1), 48–58. https://doi.org/10.1159/000506406

Huh, H. J., Kim, K. H., Lee, H. K., & Chae, J. H. (2017). The relationship between childhood trauma and the severity of adulthood depression and anxiety symptoms in a clinical sample: The mediating role of cognitive emotion regulation strategies. *Journal of Affective Disorders, 213*, 44–50. https://doi.org/10.1016/j.jad.2017.02.009

Koizumi, M., & Takagishi, H. (2014). The relationship between child maltreatment and emotion recognition. *PloS One, 9*(1), Article e86093. https://doi.org/10.1371/journal.pone.0086093

Lacharité, C., Deshaulniers, R., & St-Laurent, D. (2002). *Le questionnaire des traumatismes vécus en enfance: Traduction française du Childhood Trauma Questionnaire.* Trois-Rivières, Qc, Canada: Université du Québec à Trois-Rivières.

Larøi, F., Billieux, J., Defeldre, A.-C., Ceschi, G., & Van der Linden, M. (2013). Factorial structure and psychometric properties of the French adaptation of the Dissociative Experiences Scale (DES) in non-clinical participants. *European Review of Applied Psychology, 63*(4), 203–208.

Lumley, M. N., & Harkness, K. L. (2009). Childhood maltreatment and depressotypic cognitive organization. *Cognitive Therapy and Research, 33*(5), 511–522. https://doi.org/10.1007/s10608-009-9257-7

Lussier, Y. (1997). *Traduction française du CTS2 [A french translation of the CTS2].* Trois-Rivières, Québec, Canda: Université du Québec à Trois-Rivières.

Luyten, P., & Fonagy, P. (2019). Mentalizing and trauma. In A. Bateman, & P. Fonagy (Eds.), *Handbook of mentalizing in mental health practice* (second edition, pp. 79–99). Washington DC: American Psychiatric Association Publishing.

Luyten, P., Campbell, C., Allison, E., & Fonagy, P. (2020). The mentalizing approach to psychopathology: State of the art and future directions. *Annual Review of Clinical Psychology, 16*, 297–325. https://doi.org/10.1146/annurev-clinpsy-071919-015355

MacIntosh, H. B., 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

McLaughlin, K. A., Koenen, K. C., Bromet, E. J., Karam, E. G., Liu, H., Petukhova, M., & Kessler, R. C. (2017). Childhood adversities and post-traumatic stress disorder: evidence for stress sensitisation in the World Mental Health Surveys. *The British Journal of Psychiatry, 211*(5), 280–288. https://doi.org/10.1192/bjp.bp.116.197640

McMahon, C. A., & Bernier, A. (2017). Twenty years of research on parental mind-mindedness: Empirical findings, theoretical and methodological challenges, and new directions. *Developmental Review, 46*, 54–80. https://doi.org/10.1016/j.dr.2017.07.001

Mol, S. S., Arntz, A., Metsemakers, J. F., Dinant, G.-J., Vilters-Van Montfort, P. A., & Knottnerus, J. A. (2005). Symptoms of post-traumatic stress disorder after non-traumatic events: Evidence from an open population study. *The British Journal of Psychiatry, 186*(6), 494–499.

Montgomery-Graham, S. (2016). DBT and Schema therapy for borderline personality disorder: Mentalization as a common factor. *Journal of Contemporary Psychotherapy, 46*(1), 53–60. https://doi.org/10.1007/s10879-015-9309-0

Muthén, L. K., & Muthén, B. O. (2017). *Mplus user's guide* (8th ed.) Los Angeles, CA.

O'Reilly, J., & Peterson, C. C. (2015). Maltreatment and advanced theory of mind development in school-aged children. *Journal of Family Violence, 30*(1), 93–102. https://doi.org/10.1007/s10896-014-9647-9

Priest, J., McColl, B. A., Thomas, L., & Bond, S. (1995). Developing and refining a new measurement tool. *Nurse Researcher, 2*(4), 69–81.

Schimmenti, A. (2015). Behind the closed doors of mentalizing. A commentary on "Another step closer to measuring the ghosts in the nursery: preliminary validation of the Trauma Reflective Functioning Scale". *Frontiers in Psychology, 6*, 380. https://doi.org/10.3389/fpsyg.2015.00380

Straus, M. A., Hamby, S. L., Boney-McCoy, S., & Sugarman, D. B. (1996). The revised conflict tactics scales (CTS2) development and preliminary psychometric data. *Journal of Family Issues, 17*(3), 283–316.

Walker, E. A., Unutzer, J., Rutter, C., Gelfand, A., Saunders, K., VonKorff, M., & Katon, W. (1999). Costs of health care use by women HMO members with a history of childhood abuse and neglect. *Archives of General Psychiatry, 56*(7), 609–613.

Waugh, M. H., McClain, C. M., Mariotti, E. C., Mulay, A. L., DeVore, E. N., Lenger, K. A., & Ridenour, J. M. (2020). Comparative content analysis of self-report scales for level of personality functioning. *Journal of Personality Assessment*, 1–13.

Weijers, J., Fonagy, P., Eurelings-Bontekoe, E., Termorshuizen, F., Viechtbauer, W., & Selten, J. P. (2018). Mentalizing impairment as a mediator between reported childhood abuse and outcome in nonaffective psychotic disorder. *Psychiatry Research, 259*, 463–469. https://doi.org/10.1016/j.psychres.2017.11.010

Wilkins, K. C., Lang, A. J., & Norman, S. B. (2011). Synthesis of the psychometric properties of the PTSD checklist (PCL) military, civilian, and specific versions. *Depression and Anxiety, 28*(7), 596–606. https://doi.org/10.1002/da.20837