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French-Canadian validation of the Traumatic Grief Inventory-Self Report (TGI-SR)

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ABSTRACT

The Traumatic Grief Inventory Self-Report (TGI-SR), which aims to assess both Persistent Complex Bereavement Disorder and Prolonged Grief Disorder, has been validated in several languages. This study sought to validate the French-Canadian version. We conducted an online survey exploring the impact of the COVID-19 pandemic on grief. With data from 728 participants, the scale demonstrated high internal consistency, correlated significantly with three other scales known to measure similar concepts, and distinguished between groups known to be different. This study supports the use of the TGI-SR French-Canadian version by clinicians and researchers to assess complications of grief.

COVID-19 has led to unprecedented social and public health measures in several countries, with collateral effects on quality of life and health (Gloster et al., 2020; Joffe, 2021). In particular, the drastic restrictions of visitation to people in palliative and end-of-life care, and the limitations of farewell rituals for deceased persons have altered the grieving process for many people (Gesi et al., 2020; Kokou-Kpolou et al., 2020). Worldwide, more than 6.22 million people have died from COVID-19 (25 April 2022) (John Hopkins University, 2022). In Canada, more than 38,800 people have died from this disease (25 April 2022) (Government of Canada, 2022). Approximately nine people could be considered to be grieving each death due to COVID-19 (Verdery et al., 2020). Moreover, it was not only those who were ill with COVID-19 and their families who were subject to health restrictions (including visitation and funerals): everyone who happened to be ill or died during this period was affected. There have never been as many deaths in Canada as in 2020: from January to December, an estimated 296,373 Canadians died (Health Canada, 2021). This represents a 5% "excess" over what was previously expected. For most of these deaths, mainly between March 2020 and June 2021, the restrictions have caused mourners to cancel or postpone many rituals. Moreover, funeral practices, when possible, were held based on public health considerations, that may have led bereaved people to perform less significant rituals than expected.

Early at the beginning of the pandemic, some researchers emphasize that the impossibility of holding rites reinforces the suffering related to death (Gonçalves Júnior et al., 2020) and that there is likely to be an increase in the prevalence of grief complications (Eisma & Tamminga, 2020; Eisma et al., 2021; John Hopkins University, 2022). Specific populations, such as the elderly, are likely at a particularly high risk of developing disordered grief (Josse, 2020). For some, the pandemic masks another, subtler, and unmentioned epidemic (Petry et al., 2021): a true "silent epidemic of grief" (Pearce et al., 2021, p. 9). Researchers now identified specific bereavement characteristics and risk factors and noted that a significant proportion of people who have experienced the death of a person due to COVID appear to have substantial grief disruptions (Lee & Neimeyer, 2022; Lee et al., 2021; Neimeyer & Lee, 2022). But all bereaved people during the pandemic, regardless of the cause of death, appear to have more grief disruption than in the non-

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The TGI-SR Canadian French, along with eight other languages, is freely available at https://osf.io/rqn5k/.

pandemic context (Breen et al., 2022). Various factors that impeded meaning-making, such as the inability to accompany the dying relative in-person, appear to be associated with these disturbance (Breen et al., 2022; Chen, 2022).

Prolonged grief

A "normal" grief trajectory results in a decrease in grief manifestations over time. If symptoms persist beyond a year, grief is qualified as complicated or prolonged. According to the International Classification of Diseases 11th Revision (ICD-11), if bereaved persons remain unable to return to healthy functioning (as expected in his or her culture) for more than 6 months, their grief may become a Prolonged Grief Disorder (PGD). If more than 12 months, it may be considered a Persistent Complex Bereavement Disorder (PCBD), following the Diagnostic and Statistical Manual of Mental Disorders (DSM-5) (Maltais & Cherblanc, 2020). Over the past decade, the concept of complicated grief has been abandoned in favor of these two concepts (Maltais & Cherblanc, 2020).

PGD, developed for the ICD-11, describes severe and persistent grief that substantially interferes with functioning and quality of life (Perng & Renz, 2018). Characteristics associated with PGD include significant distress, impaired social and occupational functioning, disturbed sleep, and increased suicidal tendencies that last longer than 6 months (Maltais & Cherblanc, 2020). PCBD, on the other hand, was defined for inclusion in the DSM–5. It occurs in a bereaved individual who exhibits clinically significant symptoms (intrusive nostalgia and ruminations; intense distress response; pronounced disruptions in social relationships and one's own existence), which appear out of proportion to one's culture and are responsible for significant functional impairment, virtually every day and for more than 12 months (Boelen & Smid, 2017a). In 2021, PGD was added to the DSM-5-TR, but with diagnostic criteria that remain different from those of the ICD-11 in terms of time since the loss (12 *vs.* 6 months) and the number of additional symptoms (three symptoms *vs.* one symptom) required (APA, 2022; WHO, 2018). Despite the same name, these criteria can cause discordance in diagnosis rates (Haneveld et al., 2022). and that PGD as per ICD-11 and PCBD as per DSM-5 represent two of the most commonly used conceptualizations of disordered grief, we considered it relevant to have a bereavement measurement tool that assesses both PGD and PCBD.

Main moderators of prolonged grief

Several factors have been previously associated with the risk of experiencing prolonged grief. Reported factors vary, probably because PGD is influenced by the cause of death (Işıklı et al., 2022) and the varied definition of disordered grief used in different studies. Sociodemographic characteristics are the most commonly assessed risk factors, and include age of bereaved and deceased people, gender (being women), (lower) education, (lower) income, or having no remaining children (Allen et al., 2013; Dyregrov et al., 2015; Ghaffari-Nejad et al., 2007; Heeke et al., 2019; Kohn & Levav, 1990; Kramer et al., 2010; Kristensen et al., 2009, 2010; Li et al., 2015; Nakajima et al., 2012; Neria & Litz, 2004; Schulz et al., 2006; Shear et al., 2013; Singer et al., 2021; Wijngaards-de Meij et al., 2005). Other risk factors are related to the deceased person, a closer relationship (partner, parent, child, or sibling) is associated with more severe PGD (Dyregrov et al., 2015; Heeke et al., 2019; Kristensen et al., 2010; Li et al., 2015). Still, other risk factors are health-related characteristics including physical/somatic symptoms, posttraumatic stress disorder, anxiety, depression, and rumination (Heeke et al., 2019; Işıklı et al., 2022; Kristensen et al., 2012; Latham & Prigerson, 2004; Mizuno et al., 2012; Nakajima et al., 2012; Neria & Litz, 2004; Shear, 2015).

Posttraumatic growth (PTG) is an additional moderator and possible outcome after grief and other stressful events. When growth occurs, it is a result of the process of understanding the events, not the events themselves, and there can be ongoing distress (Tedeschi & Calhoun, 2004). PTG has been studied in many contexts and life circumstances. However, the relationship between prolonged grief and growth still varies among studies (Djelantik et al., 2021; Kokou-Kpolou et al., 2022; Zhou et al., 2018).

The Traumatic Grief Inventory-Self Report

Under the auspices of an ongoing longitudinal research project on people who experienced the death of a significant person during the COVID-19 pandemic, we sought to use a simple and validated tool in French to assess both PGD and PCBD. The Traumatic Grief Inventory-Self Report (TGI-SR) (Boelen et al., 2019; Boelen & Smid, 2017b) was identified as an instrument suitable for this purpose. The TGI-SR is an 18-item self-report measure, designed to assess known markers of grief disorders as defined in ICD-11 and DSM-5, and includes the frequently used earlier criteria for PGD (Prigerson et al., 2009).

Among bereaved patients from a mental health care facility treating traumatized people, the TGI-SR demonstrated adequate internal consistency, concurrent validity (i.e., strong associations with measures tapping concurrent distress), and construct validity (i.e., with confirmatory factor analyses showing TGI-SR items to be distinguishable from depression items) (Boelen & Smid, 2017b). In a second study, data were available from another clinical sample exposed to loss and trauma and a sample of victims who lost loved ones in a plane crash (Boelen et al., 2019). In that study, further evidence was found of the measure's internal consistency, concurrent, and construct validity. In addition, the instrument displayed adequate test-retest stability. These studies were conducted using the Dutch version of the TGI-SR.

The TGI-SR has subsequently been translated and validated in different languages including Turkish (Baş et al., 2022) and German (Comtesse & Rosner, 2017). Very recently, with the imminent appearance of the text revision of DSM-5, the DSM-5-TR, the TGI-SR + was developed (Lenferink et al., 2022). The TGI-SR + includes four more items, in addition to the 18 items of the TGI-SR, and assesses criteria for prolonged grief disorder as defined in DSM-5-TR, in addition to the criteria for PCBD (as per DSM-5) and PGD as per ICD-11 and Prigerson et al. (2009). As this TGI-SR + was developed after the current study was launched, the current study focused on the 18-item TGI-SR.

After performing a formal translation into French-Canadian of the scale, the next step was to proceed to the psychometric validation of this version as performed for the English version. Accordingly, the objectives of the present study were to document internal consistency, structural validity, and construct validity of the French version of the TGI-SR among French-Canadian people bereaved during the COVID-19 Pandemic. Additionally, we investigated the ability of the translated scale to measure both PCBD and PGD. We expected the TGI-SR French-Canadian version to be as reliable and valid as the original version, and to be able to distinctly measure PCBD and PGD.

Method

Participants

A total of 955 people answered the online survey, mainly originating from the province of Quebec (98.5%). Of these, 728 completed the TGI-SR and were thus included in the present study. The mean age of participants was 50.3 ($SD = 13.3$) years old and most of them were women (88%). Nearly a third of the cohort (34.5%) had a household income of more than $100,000 Canadian; only a few identified as Indigenous (2.6%) or as a visible minority (2.6%). Most participants (68.7%) had a partner (living with or not), 12.4% were single, 8.0% were divorced or separated, 10.6% widowed and 0.4% of participants indicated other as marital status. The deaths had occurred an average of 205.8 ($SD = 126.3$) days before completion of the survey. The deceased person was a parent or sibling for 56.8% of the cohort, child or spouse for 14.1%, other family members for 18.5%, and other non-family acquaintances for 10.5%. Finally, the main causes of death were cancer (32.7%), COVID-19 (18.4%), and heart diseases (13.0%).

Procedure

The current study encompasses a secondary analysis of data from a cross-sectional study that aimed to document the effects of the COVID-19 pandemic restrictions on grief complications, relating to the accompaniment of the death and funeral rites. Data were collected via an online survey on the LimeSurvey platform, from a convenience sample of French-Canadian residents. We recruited participants from 12 March until 26 April 2021. We used multiple strategies to recruit participants: a webpage explaining the study and including the online survey link, circulation of the survey link through social media (Facebook and Instagram), television, and radio interviews done by the primary investigator (JC), who also directly emailed the Quebec Funeral Cooperative Federation *(Fédération des coopératives funéraires du Québec)* to ask them to share the study details and survey link with their members.

The inclusion criteria were: (a) being 18 years old and over and (b) having experienced the death of someone since the beginning of the pandemic in March 2020. Participants were not selected based on the cause of death despite the COVID-19 pandemic, since having lost someone specifically from the COVID-19 does not seem to influence the level of grief (Breen et al., 2022). Participation was voluntary; we obtained consent from each participant for the collection and analysis of their demographic information and patient-reported outcome measures. All survey participants were entered in a draw to win one of ten $20 gift cards. Ethics approval for the project (project #2021-697) was awarded by the Research Ethics Committee of the *Université du Québec à Chicoutimi*.

Measures

The survey included several questionnaires for a total of 188 self-administered questions, which were divided into seven sections: sociodemographic, circumstances of the death, funeral experiences, relationship with the person who died, grief, coping with grief, posttraumatic growth, and global health. For this validation study, we used a limited selection of data from the sociodemographic and death circumstances sections (see Participants section). The relationship with the deceased was recoded as 1—Immediate Family (Child, Spouse, or Parent) and 2—Other, and the cause of death as 1—Unpredictable (including accident, COVID-19, suicide, etc.) and 2—Other (including cancer, Alzheimer, chronic diseases, etc.). We asked participants about their desire to accompany the deceased or not in the last stage of his/her life and if they were able to do it. They were also asked to indicate if public health restrictions caused a gap between desire and what happened. The present study included the following selection of questionnaires.

General Health Questionnaire (Goldberg, 1978) 28-item version (GHQ-28; Sterling, 2011) is a questionnaire designed to assess mental health-related disorders. The GHQ-28 has four subscales: somatic symptoms, anxiety and insomnia, social dysfunction, and severe depression. In our sample, internal consistency is good ($\alpha = 0.82$).

Posttraumatic Growth Inventory (PTGI) is a 21-item questionnaire that measures PTG (Tedeschi & Calhoun, 1996). It is structured into five subscales: relationships with others, new possibilities, personal strength, spiritual change, and appreciation of life. The French-Canadian validated version (Cadell et al., 2015) ($\alpha = 0.87$) used in this study displayed excellent internal consistency ($\alpha = 0.93$).

Texas Revised Inventory of Grief (TRIG) is composed of 21 items divided into two subscales: "present grief" (TRIG-present) and "past disruption due to loss" (TRIG-past) (Faschingbauer, 1981). This validated scale has been extensively used around the world to measure grief (Tomita & Kitamura, 2002). The French validated version of Paulhan and Bourgeois (1995) was used in this study. In our sample, internal consistency is very good ($\alpha = 0.93$).

The 18-item version of the *Traumatic Grief Inventory-Self Report* (TGI-SR) (Boelen & Smid, 2017b), as described in the introduction, was used. The original version of the TGI-SR is Dutch. Use and examination of the tool in other languages followed a ten-step process that we replicated for French, according to the principles of good practice described by Wild et al. (2005). First, permission and involvement in the research were sought from the lead author of the original developer of the scale. Then, (2) a translation by three different and independent researchers who are French native speakers was obtained, (3) translations were reconciled to produce a consensus version of the translation, (4) three native English speakers who were fluent in French then performed a back translation, (5) consensus for the back translation was achieved, (6) forward and back translators met to harmonize results, (7) a pretest was undertaken with 10 French-speaking persons from different populations (varying in age, gender, education and experience of grief) concerning questions about clarity, and (8) corrections of wordings and phrases that needed to be modified to clarify the meaning and prevent misunderstanding (one item was rephrased) were incorporated. The last two stages involved proofreading and finalizing the translated instrument.

Statistical analysis

Data are expressed as mean ± standard deviation (*SD*) for continuous variables and as frequency and percentage for categorical variables. Parametric tests were used when $n > 30$ and the normality of distribution was confirmed with the Kolmogorov-Smirnov statistic. Otherwise, nonparametric alternatives were used. Structural validity was assessed using confirmatory principal component analyses (unweighted least squares estimation method). A Goodness-of-fit index (GFI) and Adjusted GFI $\geq$0.95 was considered an acceptable fit of the data to the model (Schreiber et al., 2006). Associations with TRIG-present, TRIG-past, GHQ-28, and PTGI (convergent validity) were assessed using the Spearman ρ correlation coefficient, where $\rho > 0.8$ indicates a very strong association, 0.6–0.8 a moderately strong association, 0.3–0.5 a fair association, and <0.3 a poor association (Portney & Watkins, 2000). The mean score of the TGI-SR was compared between groups using ANOVA or Student's *t*-test. A *p*-value of <0.05 was considered statistically significant. Data were analyzed with IBM SPSS Statistics, MacBook version 20 (IBM Corp, Armonk, NY, USA), and SAS (version 9.4, SAS Institute Inc., Cary, NC, USA). We used the COSMIN (COnsensus-based Standards for the selection of health Measurement INstruments) guidelines for methodological quality in studying the measurement properties of outcome measures for the assessment of internal consistency and validity (de Vet et al., 2011; Mokkink et al., 2019). When applicable and only for the total

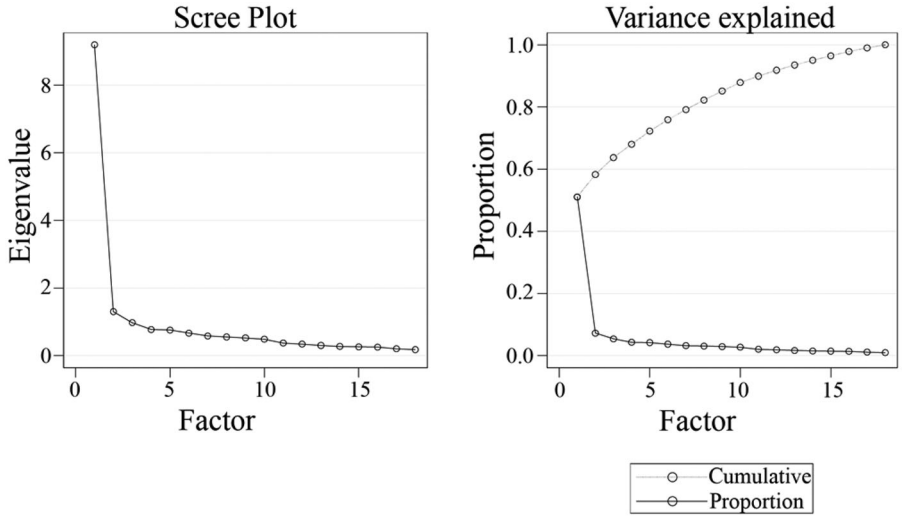

Figure 1. Scree plots from the factor analysis for the (A) total score of the 18 items of the TGI-SR and the (B) PCBD score.

score of the scale, 5 *a priori* hypotheses were made by the researchers based on their expertise, the validation study of the Dutch version of the TGI-SR (Boelen et al., 2019), and the literature on risk factors of disordered grief, according to the COSMIN guidelines.

First (H1), good internal consistency was expected, with a Cronbach alpha between 0.80 and 0.90, based on that of the original scale ($\alpha = 0.95$). Second (H2), we hypothesized that the scale structure would contain one factor explaining more than 50% of the variance. Third (H3), we postulated a positive correlation varying between 0.50 and 0.90 would be observed with the TRIG-present and TRIG-past. Fourth (H4), we assumed that a positive correlation varying between 0.50 and 0.90 would be observed with GHQ-28. Fifth (H5), we hypothesized that a positive correlation varying between 0.30 and 0.50 would be observed with PTGI.

Results

As expected, the internal consistency calculated for the 18 items of the scale was very high ($\alpha = 0.94$). The internal consistency of the PCBD items and PGD items was also very high ($\alpha = 0.95$ and 0.93, respectively).

Factor analysis showed that, as for the validation of the original scale, results of the 18 items of the TGI-SR generated only one factor (see Figure 1), accounting for 51.1% of the variance. Indeed, the one-factor solution of the confirmatory factor analysis shows fit indices $\geq$0.95 for the TGI-SR total score (GFI = 0.990; Adjusted GFI = 0.987). For both PCBD and PGD scores, factor analysis also confirms the one-factor solution accounting for 55.9% and 58.4% of the variance, respectively, with high fit indices (PCBD: GFI = 0.985, Adjusted GFI = 0.980; PGD: GFI = 0.989, Adjusted GFI = 0.983). With these results very similar to those obtained in the validation study of the original scale, our second hypothesis (H2) is thus confirmed.

As expected, low but positive correlation coefficients were found between the TGI-SR, PCBD, and PGD scores and the PTGI score (see Table 1). The associations with the GHQ-28, TRIG-present, and TRIG-past are in the range expected ($\rho = 0.64$–0.79). Hypotheses H3, H4, and H5 are thus supported.

Results presented in Table 2 compare groups of participants based on characteristics found in the literature known to potentially influence grief reactions. In this French-Canadian cohort, only groups based on income, relationship with the deceased person, and the cause of death obtained significantly different results on the TGI-SR, lower income, closer relationship with the deceased, and an unpredictable death being associated with more grief complications.

Discussion

This study provides evidence of internal consistency and validity for the French version of the TGI-SR scale among French Canadian people bereaved during the COVID-19 pandemic. As for the original Dutch version of the scale (Boelen et al., 2019), exploratory and confirmatory factor analyses performed in our cohort of 728 individuals corroborated the single dimension of the French version. Along with its high internal consistency, this further supports the use of the TGI-SR to support the clinician in the screening or diagnosis of disordered grief.

Table 1. Correlations between the Traumatic Grief Inventory-Self Report (TGI-SR) and clinical outcomes.

Tests	GHQ-28	PTGI	TRIG-present	TRIG-past
TGI-SR Total score	0.66 (<0.0001)	0.35 (<0.0001)	0.77 (<0.0001)	0.78 (<0.0001)
TGI-SR PCBD score	0.66 (<0.0001)	0.24 (0.048)	0.79 (<0.0001)	0.76 (<0.0001)
TGI-SR PGD score	0.64 (<0.0001)	0.34 (<0.0001)	0.73 (<0.0001)	0.74 (<0.0001)

Notes. Results are presented as Spearman ρ (p-value). GHQ-18: General Health Questionnaire 28; PCBD: persistent complex bereavement disorder; PGB: prolonged grief disorder; PTGI: Posttraumatic Growth Inventory; TRIG-present: Texas Revised Inventory of Grief—Present grief; TRIG-past: Texas Revised Inventory of Grief—Past disruption due to loss.

Table 2. Comparisons of the Traumatic Grief Inventory-Self Report (TGI-SR) total score between groups of participant characteristics and death context.

Variable	Mean (*SD*)	*F* and *p*-values
Gender		
Men ($n = 88$)	45.56 (16.54)	*F*: 3.20, $p = 0.074$
Women ($n = 639$)	48.64 (14.96)	
Age		
≤49 ($n = 356$)	48.60 (14.82)	*F*: 0.41, $p = 0.520$
≥50 ($n = 369$)	47.88 (15.55)	
Income		
<100,000 CAN$ ($n = 470$)	49.95 (15.12)	*F*: 16.62, $p < 0.001$
≥100,000 CAN$ ($n = 251$)	45.17 (14.81)	
Number of days since loss		
≤191 days ($n = 361$)	47.70 (14.95)	*F*: 1.00, $p = 0.319$
≥192 days ($n = 364$)	48.82 (15.42)	
Deceased person was		
Child, spouse or parent ($n = 466$)	50.03 (15.08)	*F*: 17.61, $p < 0.001$
Other ($n = 259$)	45.15 (14.89)	
Accidental death		
Yes ($n = 194$)	52.21 (15.66)	*F*: 17.86, $p < 0.001$
No ($n = 499$)	46.82 (14.81)	
End of life accompaniment made according to wishes		
Yes ($n = 445$)	48.11 (15.09)	*F*: 0.22, $p = 0.642$
No ($n = 281$)	48.43 (15.39)	
Accompaniment prevented by sanitary measures		
Yes ($n = 455$)	48.62 (14.93)	*F*: 0.02, $p = 0.894$
No ($n = 65$)	48.89 (16.58)	

Convergent validity of the TGI-SR was also supported, as showed by the significant correlations found with the four other outcome measures used in this study (GHQ-28, PTGI, TRIG-present, and TRIG-past). Similarly, Boelen et al. (2019) found associations with the Depression and Anxiety domains of the Brief Symptom Inventory using the original version of the scale. Although smaller than the correlation with the other scales, the significant correlation found with the PTGI was expected. Indeed, a positive association was also found between the level of stress of bereaved from HIV/AIDS and posttraumatic growth (Cadell et al., 2003). This population has some similarities with those bereaved during COVID-19, such as the fear of contracting the disease, restrictions in end-of-life rites, and stigmatization, leading us to expect this association with the TGI-SR.

According to the comparisons of participants based on specific characteristics, results show no difference between men and women, nor between younger and older participants. The number of days since loss as well as the ability to accompany as desired do not seem to influence the score of the TGI-SR. In the literature, conflicting results exist about the influence of these factors on the level of disrupted grief. For example, a higher mean age seems to be associated with a higher prevalence of PGD (Lundorff et al., 2017), or not (Tang & Xiang, 2021). Based on our experience, we supposed before the conduction of analyses that a higher number of days since the loss will allow the beavered to recover, leading to a lower score on the TGI-SR. However, previous studies also concluded that time since the loss is not associated with PGD (Tang & Xiang, 2021), including a meta-analysis (Heeke et al., 2019; Işıklı et al., 2022). More specific to the pandemic era in which the present study was performed, Lee et al. (2021) also found that time since loss and age were not associated with the grief of people bereaved from COVID-19.

Limitations

While this study exhibits several strengths, including the large sample size, it is also important to recognize some limitations. First, participants in the present study were primarily women. Thus, future work is needed to confirm that findings are generalizable to men. However, our cohort is similar to the general population in terms of marital status and family income, and adults of all ages (ranging from 18 to 83 years) completed the questionnaire, making us confident about our results. Future work is also needed to examine the reliability and sensitivity to change to support their clinical utility for longitudinal study designs. Finally, racial/ethnic differences in the translation of the TGI-SR among other French-speaking populations should be investigated to ensure that it is culturally adapted to the target population. The wording used in this tool does not differ from the language used in other French-speaking countries, notably France. Yet, since each culture can have language specificities, a cultural validation of the French-Canadian version of the TGI-SR should be done before its use

in other French-speaking populations if the location or culture is far away from the Canadian one as is recommended (Wild et al., 2009).

A recent systematic review identified the TGI-SR as the only scale that can be used to diagnose the PCBD according to the DSM-5 diagnostic criteria, of course with cautiousness and accompanied by a formal clinician evaluation (Treml et al., 2020). The good psychometric properties of the TGI-SR in French make this scale a good option for clinicians and researchers for the screening of PCBD and PGD as defined in ICD-11.

Disclosure statement

No potential conflict of interest was reported by the author(s).

Data availability statement

The data that support the findings of this study are available from the corresponding author, J.C., upon reasonable request.

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