

# Canadian Journal of Behavioural Science / Revue canadienne des sciences du comportement

## Validation of the French-Canadian Version of the COVID-19 Peritraumatic Distress Index With Parents of an Infant

Luciana Lassance, Claude Bélanger, Mathilde Baumann, Alison Paradis, Jacinthe Dion, and Natacha Godbout  
Online First Publication, November 17, 2022. <https://dx.doi.org/10.1037/cbs0000357>

### CITATION

Lassance, L., Bélanger, C., Baumann, M., Paradis, A., Dion, J., & Godbout, N. (2022, November 17). Validation of the French-Canadian Version of the COVID-19 Peritraumatic Distress Index With Parents of an Infant. *Canadian Journal of Behavioural Science / Revue canadienne des sciences du comportement*. Advance online publication. <https://dx.doi.org/10.1037/cbs0000357>

## BRIEF REPORT

# Validation of the French–Canadian Version of the COVID-19 Peritraumatic Distress Index With Parents of an Infant

Luciana Lassance<sup>1</sup>, Claude Bélanger<sup>1</sup>, Mathilde Baumann<sup>1</sup>, Alison Paradis<sup>1</sup>,  
Jacinthe Dion<sup>2</sup>, and Natacha Godbout<sup>3</sup>

<sup>1</sup> Department of Psychology, Université du Québec à Montréal

<sup>2</sup> Department of Health Sciences, Université du Québec à Chicoutimi

<sup>3</sup> Department of Sexology, Université du Québec à Montréal

Parents of an infant may be particularly vulnerable to peritraumatic distress (e.g., psychological distress experienced during or immediately following a traumatic event) associated with events such as the COVID-19 pandemic. Since peritraumatic distress could affect both their psychological well-being and their couple relationship functioning, it is essential to measure and document these symptoms within parents. The COVID-19 Peritraumatic Distress Index (CPDI; Qiu et al., 2020) was the first validated instrument to measure COVID-19 peritraumatic distress, but it has not yet been validated in French. This study aimed to assess the psychometric properties of the French–Canadian version of the CPDI (F-CPDI) in a sample of 492 parents (58% of mothers) of an infant in Quebec Province (Canada). The factor structure, internal consistency, and convergent validity of the instrument were tested. Results indicate that the F-CPDI has good internal consistency and supports the four-factor structure proposed by the authors of the original instrument. Results of correlation analyses indicated that peritraumatic distress was related to increased psychological distress, postpartum depression, and lower life satisfaction. Results indicate satisfactory psychometric qualities for the F-CPDI, providing researchers and mental health professionals access to a COVID-19 peritraumatic distress measure. This questionnaire can be used to assess peritraumatic distress in parents of an infant during a pandemic period, which is a first step towards offering adapted intervention strategies.

### **Public Significance Statement**

The COVID-19 pandemic is associated with an increase in mental health problems, including peritraumatic distress (Qiu et al., 2020). This study tested the validity of the French–Canadian COVID-19 Peritraumatic Distress Index (F-CPDI; Qiu et al., 2020), the first validated instrument to measure COVID-19 peritraumatic distress. Results revealed satisfactory psychometric qualities for the F-CPDI and prevalence rate of peritraumatic distress reaching 20.5% in Quebec parents of an infant.

**Keywords:** COVID-19 pandemic, peritraumatic distress, parents, mental health, French–Canadian validation

**Supplemental materials:** <https://doi.org/10.1037/cbs0000357.sup>

Luciana Lassance  <https://orcid.org/0000-0003-2332-4932>

This research was supported by grants from the Social Sciences and Humanities Research Council of Canada (SSHRC; 435-2017-1015) awarded to Natacha Godbout and from the Canadian Institutes of Health Research (CIHR; 436528) awarded to Alison Paradis and Natacha Godbout. The authors wish to thank the parents who participated in this project and the partner organizations.

Correspondence concerning this article should be addressed to Natacha Godbout, Department of Sexology, Université du Québec à Montréal, C.P. 8888, Succursale Centre-Ville, Montréal, QC H3C 3P8, Canada. Email: [godbout.natacha@uqam.ca](mailto:godbout.natacha@uqam.ca)

Following the first outbreak in China in December 2019, the coronavirus disease (COVID-19) quickly spread to several countries at the beginning of 2020. In Quebec, the first infection cases were identified in February 2020 and increased over the following weeks (Ministère de la Santé et Services sociaux, 2020), prompting the Quebec government to impose public health measures to slow down the contagion (e.g., social distancing, closure of schools).

### **Peritraumatic Distress**

The COVID-19 pandemic is associated with the development of peritraumatic distress in many nations (e.g., Qiu et al., 2020).

Peritraumatic distress is defined as psychological distress experienced during or immediately following a traumatic event (Bunnell et al., 2018). A study carried out in China at the beginning of the pandemic using the COVID-19 Peritraumatic Distress Index (CPDI) indicates that 35% of participants reported moderate-to-severe levels of COVID-19 peritraumatic distress (Qiu et al., 2020). Studies conducted in Italy and Peru, using the CPDI, showed that 30.1%–44.8% of participants presented moderate-to-severe levels of COVID-19 peritraumatic distress (Costantini & Mazzotti, 2020; Krüger-Malpartida et al., 2020).

Parents of an infant may be more vulnerable to peritraumatic distress since their adaptive resources are already strained following the birth of their child, which could affect their psychological adaptation and relationship functioning (Keizer & Schenk, 2012). Drastic measures to control the spread of the virus, such as social distancing and confinement, may have added additional strains and weakened parents' quality of life and mental health (Brooks et al., 2020). Given the potential harmful effects of peritraumatic distress on parents and their infants, it is essential to measure these symptoms to study their mental health implications.

### COVID-19 Peritraumatic Distress Index

Developed and validated in a sample of 50,000 Chinese participants from 36 provinces of China, the 24-item CPDI is a self-reported questionnaire measuring the frequency of peritraumatic distress symptoms experienced during the pandemic (Qiu et al., 2020). It includes items assessing anxiety, depression, specific phobias, cognitive change, avoidance and compulsive behaviour, physical symptoms, and loss of social contact in the past week, and specific to the COVID-19 pandemic (e.g., universal mask use, surface, and environmental disinfection). The CPDI has been validated at the Shanghai Mental Health Center ( $\alpha = .95$ ; Qiu et al., 2020). The authors confirmed a four-factor structure (Qiu, 2021): negative mood (NM; feelings of anxiety, sadness, and helplessness), cognitive and behaviour change (CC; compulsive thinking and avoidance behaviours related to COVID-19), somatization (SO; physical symptoms), and hyperarousal and irritability (HI; increase in hypervigilance and social disruptions).

Besides the original version, an Italian version in Italy (Costantini & Mazzotti, 2020) and a Spanish version in Peru (Pedraz-Petrozzi et al., 2021) were developed. These translations presented satisfactory internal consistency (.92 and .93, respectively), and a committee of experts rated the content validity as satisfactory. However, no study has yet explored CPDI's factorial structure nor computed internal consistency specific to each factor.

Given its satisfactory psychometric qualities and its rapid administration time (less than 10 min), as well as the inclusion of specific aspects of the COVID-19 pandemic, the CPDI seems suitable for measuring peritraumatic distress related to the pandemic. It therefore seems promising to validate the French version of the instrument on a population of French–Canadian parents of infants, who might be more vulnerable to the stress caused by COVID-19.

### Variables Potentially Related to Peritraumatic Distress

Studies indicated that peritraumatic distress experienced during the COVID-19 pandemic was correlated with depression and

anxiety symptoms (Megalakaki et al., 2021). A study conducted in China showed that 35% of the 7,236 participants reported anxiety symptoms, 20% had depressive symptoms, and 18% suffered from sleep problems, suggesting psychological distress related to the pandemic (Huang & Zhao, 2020). In addition, stressful events could be associated with a decrease in the level of life satisfaction (Hamarat et al., 2001). Such data suggest that the links between mental health and peritraumatic distress could be used to measure the convergent validity of this questionnaire.

### Research Aims and Hypotheses

The purpose of this study was to assess the psychometric properties of the French CPDI version (F-CPDI) as well as peritraumatic distress prevalence in parents of an infant. Four hypotheses were postulated: (a) the factor structure of the F-CPDI would replicate the four-factor model of the original instrument; (b) the F-CPDI would present satisfactory internal consistency; (c) higher levels of peritraumatic distress would be correlated with higher psychological distress and postpartum depression, and lower life satisfaction; and (d) Quebec parents would present similar rates of peritraumatic distress than participants in previous studies.

## Method

### Participants and Procedure

This study is part of a larger project examining the psychorelational health of parents of an infant. Both parents of an infant were randomly selected from the records of new births on the Quebec Parental Insurance Plan list, based on the following criteria: (a) being a parent of an infant under 6 months old, (b) being in a couple relationship with the child's other parent, (c) being 18 years of age or older, and (d) reading French fluently. Parents were contacted by telephone and invited to complete an online questionnaire between April and November 2020 (response rate = 58%). To respect data independence (Kenny & Judd, 1986), only one member of each couple was randomly selected. The sample consisted of 492 French–Canadian participants ( $M_{\text{age}} = 30.49$ ,  $SD = 5.84$ ): 58.3% self-identified as women ( $n = 287$ ) and 41.7% as men ( $n = 205$ ). Parents reported having on average 1.71 children ( $M_{\text{age}} = 2.55$  months,  $SD = 1.44$ ), and 78% ( $n = 275$ ) reported an annual income above 40,000 Canadian dollars. The project was approved by the institution's ethics committee at the University of Quebec in Montreal.

### Measures

#### *Peritraumatic Distress*

Peritraumatic distress was measured using the 24-item F-CPDI (Qiu et al., 2020). Items are answered on a 5-point Likert scale ranging from 0 = *never* to 4 = *most of the time*. Mean scores are computed and multiplied by 25 to obtain total scores ranging from 0 to 100. A score below 28 indicates no distress, scores between 28 and 51 indicate mild to moderate distress, and scores above 51 indicate severe distress (Qiu et al., 2020). The original authors provided an English version of the CPDI, which was translated into French using the back-translation procedure (Vallerand, 1989), with a committee of three researchers ascertaining correspondence and

adaptation. The original version showed satisfactory internal consistency ( $\alpha = .95$ ).

**Psychological Distress**

Psychological distress was measured using the French version of the six-item (e.g., “During the past 30 days, how often did you feel restless or fidgety?”) Kessler Psychological Distress Scale (Kessler et al., 2003) on a 5-point Likert scale. Total score ranges from 0 to 24, with a higher score indicating higher psychological distress ( $\alpha = .81$ ).

**Postpartum Depression**

Postpartum depression was measured using the 10-item (e.g., “In the past 7 days I have been so unhappy that I have been crying”) French Edinburgh Postnatal Depression Scale (Cox et al., 1987; Guedeney & Fermanian, 1998) on a 4-point Likert scale. Total score ranges from 0 to 30, where a higher score reflects higher symptoms of postpartum depression ( $\alpha = .80$ ).

**Life Satisfaction**

Life satisfaction was measured using the five-item (e.g., “The conditions of my life are excellent”) Satisfaction With Life Scale (Blais et al., 1989; Diener et al., 1985), answered on a 7-point Likert scale. Total score ranges from 5 to 35, with higher scores indicating higher satisfaction ( $\alpha = .85$ ).

**Results**

**Descriptive Analyses**

The mean total score of F-CPDI was 18.88 ( $SD = 12.10$ ) in our sample. Using the thresholds proposed by Qiu et al. (2020), 20.5% of participants ( $n = 101$ ) presented peritraumatic distress (18.9% moderate and 1.6% severe). As expected for an instrument measuring distress in a nonclinic population, items were nonnormally distributed and showed low endorsement rates (see Table S1 in Supplemental Material).

**Confirmatory Factorial Analysis**

Confirmatory factorial analysis was conducted on Mplus v7.4 (Muthén & Muthén, 2017) on the 24 items of the F-CPDI. Items were treated as categorical. The weighted least square mean and variance-adjusted estimator were used, as they consider the non-normality of the data distribution. Models were assessed with the following goodness-of-fit indices: comparative fit index (CFI)  $\geq .90$ , Tucker–Lewis index (TLI)  $\geq .90$ ; root-mean-square error of approximation (RMSEA)  $\leq .08$ , with 90% confidence intervals; standardized root-mean-square residual (SRMR)  $\leq .08$ ; and  $\chi^2/df > .05$ ; Hu & Bentler, 1999). Since chi-square tends to be significant in large samples (Caron, 2018), the ratio of chi-square to the number of degrees of freedom ( $\chi^2/df$ ) is computed with values of 5 or less indicating satisfactory adjustment to the data ( $\chi^2/df \leq 5$ ; Ullman, 2001). Factor loading coefficients above .30 are deemed satisfactory (Field, 2018).

Results revealed acceptable model fit to the data,  $\chi^2(246) = 794.77$ ;  $p < .001$ ;  $\chi^2/df = 3.23$ ; CFI = .94; TLI = .93; RMSEA = .07, 90% CI [.06, .07]; SRMR = .06. One item (Qiu et al.’s, 2020, Item 21) presented low and not significant factor loading ( $\lambda < .30$ ; see Table S2 in Supplemental Material). A second model was tested without this item and results revealed satisfactory fit to the data,  $\chi^2(224) = 734.41$ ;  $p < .001$ ; ratio  $\chi^2/df = 3.28$ ; CFI = .94; TLI = .94; RMSEA = .07, 90% CI [.06, .07]; SRMR = .06, with all factor loadings equal or above .30 (see Table 1).

**Table 1**

*Final Factorial Solution Obtained by the Confirmatory Factorial Analysis (n = 492)*

Items	Factor loading			
	NM	CC	SO	HI
1. Compared to usual, I feel more nervous and anxious.	.88			
2. I feel insecure and bought a lot of masks, medications, sanitizers, gloves, and/or other home supplies.	.66			
3. I can't stop myself from imagining myself or my family being infected and feel terrified and anxious about it.	.71			
4. I feel empty and helpless no matter what I do.	.81			
5. I feel sad about the COVID-19 patients and their families.	.30			
6. I feel helpless and angry about people around me, the government, or the media.		.63		
7. I am losing faith in the people around me.		.66		
8. I collect information about COVID-19 all day. Even if it's not necessary, I can't stop myself.		.39		
9. I will believe the COVID-19 information from all sources without any evaluation.		.40		
10. I would rather believe in negative news about COVID-19 and be skeptical about the good news.		.64		
11. I am sharing news about COVID-19 (mostly negative news).		.45		
12. I avoid watching COVID-19 news, since I am too scared to do so.		.65		
18. I feel dizzy or have back pain or chest distress.			.77	
19. I feel stomach pain, bloating, or other stomach discomfort.			.82	
21. I cannot sleep well, or dream about myself or my family being infected by COVID-19.			.77	
22. I lost my appetite.			.83	
23. I noticed changes when I go to the bathroom (constipation, diarrhoea, frequent urination).			.76	
13. I am more irritable and have frequent conflicts with my family and loved ones.			.72	
14. I feel tired and sometimes even exhausted.			.83	
15. Due to feelings of anxiety, my reactions are becoming sluggish.			.91	
16. I find it hard to concentrate.			.87	
17. I find it hard to make any decisions.			.81	
20. I feel uncomfortable when communicating with others.			.61	

*Note.* NM = negative mood; CC = cognitive and behavioural change; SO = somatization; HI = hyperarousal and irritability.

### Internal Consistency and Convergent Validity

Internal consistency was evaluated using Cronbach's  $\alpha$  coefficient ( $\alpha \geq .70$  acceptable; Nunnally, 1978), and convergent validity was measured using Pearson correlations ( $r \geq .10$  weak;  $\geq .30$  moderate;  $\geq .50$  strong; Cohen, 1988) on SPSS v25. Cronbach's alphas were satisfactory for the overall F-CPDI score ( $\alpha = .89$ ) as well as three factors (NM $\alpha = .76$ , SO $\alpha = .76$ , HI $\alpha = .86$ ), and lower for the CC factor ( $\alpha = .62$ ). Most items showed moderate-to-strong interitem correlations (i.e.,  $r = .30$ – $.70$ ) without multicollinearity ( $r \leq .70$ ), except for CC factor's items that showed weak interitem correlations (i.e.,  $r = .03$ – $.29$ ; see Table S3 in Supplemental Material). As expected, the F-CPDI and its four subscales were associated with higher psychological distress and postpartum depression, and lower life satisfaction with small-to-medium effect sizes (i.e.,  $r = -.11$  to  $.45$ ; see details in Table S4, Supplemental Material).

### Discussion

This study aimed to validate the F-CPDI within a French-Canadian sample of parents of an infant. Results support the quadripartite factorial structure proposed by Qiu et al. (2020). One item ("I talk to my family and loved ones") showed low factor loading, which might be explained by the likelihood that parents maintain contact with their families and loved ones to share news of their infant or seek psychological support (e.g., telephone, videoconference).

Results indicated satisfactory internal consistency for the total score, paralleling results from the original study (Qiu et al., 2020) and the Italian and Spanish validation studies (Costantini & Mazzotti, 2020; Pedraz-Petrozzi et al., 2021). Our results also revealed satisfactory internal consistency for the F-CPDI scales, except for the CC scale. The low endorsement rate of the items and their small interitem correlations ( $r = .03$ – $.34$ ) may have contributed to the lower Cronbach's  $\alpha$  of this scale. For example, Items 6 ("I feel helpless and angry about people around me, the government, or the media") and 7 ("I am losing faith in the people around me") both present small interitem correlations, indicating that they are poorly related to the other items in the factor ( $r = .03$ – $.31$ ). Considering that those items are less COVID-specific than the others, it is possible that they represent more general cognitive changes rather than behavioural and cognitive changes specifically related to the pandemic. Results therefore suggest that the F-CPDI overall score, as well as the NM, SO, and HI scale scores should be used, but question the relevance of the CC scale score in itself, for which more investigation should be done.

Correlation analyses generally supported convergent validity. F-CPDI total score was correlated with higher psychological distress and postpartum depression, which concurs with previous studies showing an association between peritraumatic distress and psychiatric outcomes such as anxiety and depression (Vance et al., 2018). Except for the HI scale, all scales presented weak correlation, suggesting that factors other than COVID-19 distress are associated with parents' lower levels of well-being. The higher correlation between HI scale and psychological distress and postpartum depression could be explained by an overlap between their respective items given that the HI scale is formed by items depicting symptoms of anxiety and depression. The F-CPDI was

weakly related to lower life satisfaction. The Satisfaction With Life Scale (Diener et al., 1985) assesses long-term evaluation of one's satisfaction towards their life, which is less likely to be significantly affected by short-term states, potentially explaining this weak correlation.

Prevalence of peritraumatic distress among parents of an infant in Quebec was lower than prevalence found in other studies (20.5% vs. 35%, 30.1% and 44.8%, respectively, in China, Italy, and Peru samples; Costantini & Mazzotti, 2020; Krüger-Malpartida et al., 2020; Qiu et al., 2020). This lower prevalence in the Quebec sample could be explained by the particularity of our sample of parents of an infant, who are on parenting leave and may have been less affected by some of the measures adopted by the government (e.g., already spending time at home with their infant). Moreover, this result may reflect different values, perception, and expression of emotions across cultures. Westerners are more likely to increase their positive emotions and decrease negative emotions after a negative event, which could result in a tendency to report less distress than Asians (Miyamoto et al., 2014). Systemic factors may also explain this result, including the constraints imposed by the government that were less severe in Quebec than in other countries, the governmental support (e.g., federal financial support) and social support (e.g., #çavabienaller movement). Lastly, the questionnaire was administered in the beginning of the pandemic to participants from China and Italy, and later in Quebec, which could also explain the different rates.

This study contributes to the French validation of the CPDI and fills a gap being the first to examine the factorial structure of the instrument. Yet, some limitations need to be considered. First, the F-CPDI is a self-reported questionnaire and may reflect retrospective or social desirability bias. The use of parallel observational methods (e.g., observational data) could provide complementary information on the convergent validity of the F-CPDI. Moreover, test-retest studies should be conducted to study the temporal stability of the F-CPDI. Finally, the F-CPDI was translated from an English version provided by the original authors (which was translated from Chinese), but future studies should also validate the English CPDI.

Overall, results indicate that the F-CPDI presents satisfactory psychometric qualities in a population of parents of an infant. It provides researchers with a validated questionnaire that is adapted to the COVID-19 pandemic context, offering the possibility to study peritraumatic distress experienced during a worldwide stressful event. By identifying the most psychologically vulnerable parents early during a pandemic period, intervention strategies such as parental coaching can be offered to help them manage their stress and avoid negative consequences for their children. These measures would reduce the risk of these parents developing mental health problems that would be harmful to their own well-being as well as that of their infant.

---

### Résumé

Les parents d'un nouveau-né peuvent être particulièrement vulnérables à la détresse péritraumatique (c'est-à-dire la détresse psychologique vécue pendant ou immédiatement après un événement traumatique) associée à des événements tels que la pandémie de COVID-19. Puisque la détresse péritraumatique pourrait affecter

à la fois leur bien-être psychologique et le fonctionnement de leur relation de couple, il est essentiel de mesurer et de documenter ces symptômes chez les parents. L'indice de détresse péritraumatique reliée à la COVID-19 (IDPC; Qiu et al., 2020) a été le premier instrument validé pour mesurer la détresse péritraumatique reliée à la COVID-19, mais il n'a pas encore été validé en français. Cette étude visait à évaluer les propriétés psychométriques de la version franco-canadienne du CPDI (l'IDPC en français) auprès d'un échantillon de 492 parents (58 % de mères) d'un nouveau-né dans la province de Québec (Canada). La structure factorielle, la cohérence interne et la validité convergente de l'instrument ont été testées. Les résultats indiquent que l'IDPC a une bonne cohérence interne et soutient la structure à quatre facteurs proposée par les auteurs de l'instrument original. Les résultats des analyses de corrélation indiquent que la détresse péritraumatique est liée à une détresse psychologique accrue, à la dépression post-partum et à une satisfaction de vie moindre. Les résultats indiquent des qualités psychométriques satisfaisantes pour l'IDPC, permettant aux chercheurs et aux professionnels de la santé mentale d'avoir accès à un indice de détresse péritraumatique reliée à la COVID-19. Ce questionnaire peut être utilisé pour évaluer la détresse péritraumatique des parents d'un nouveau-né en période de pandémie, ce qui constitue une première étape pour proposer des stratégies d'intervention adaptées.

**Mots-clés :** pandémie COVID-19, détresse péritraumatique, parents, santé mentale, validation franco-canadienne

## References

- Blais, M. R., Vallerand, R. J., Pelletier, L. G., & Brière, N. M. (1989). L'échelle de satisfaction de vie: Validation canadienne-française du "Satisfaction With Life Scale." [The satisfaction scale: Canadian-French validation of the Satisfaction With Life Scale]. *Canadian Journal of Behavioural Science*, 21(2), 210–223. <https://doi.org/10.1037/h0079854>
- Brooks, S. K., Webster, R. K., Smith, L. E., Woodland, L., Wessely, S., Greenberg, N., & Rubin, G. J. (2020). The psychological impact of quarantine and how to reduce it: Rapid review of the evidence. *The Lancet*, 395(10227), 912–920. [https://doi.org/10.1016/S0140-6736\(20\)30460-8](https://doi.org/10.1016/S0140-6736(20)30460-8)
- Bunnell, B. E., Davidson, T. M., & Ruggiero, K. J. (2018). The Peritraumatic Distress Inventory: Factor structure and predictive validity in traumatically injured patients admitted through a Level I trauma center. *Journal of Anxiety Disorders*, 55, 8–13. <https://doi.org/10.1016/j.janxdis.2018.03.002>
- Caron, P.-O. (2018). *La modélisation par équations structurelles avec Mplus* (1re éd.). Presses de l'Université du Québec. <https://shorturl.at/jBP35>
- Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). Lawrence Erlbaum.
- Costantini, A., & Mazzotti, E. (2020). Italian validation of CoViD-19 Peritraumatic Distress Index and preliminary data in a sample of general population. *Rivista di Psichiatria*, 55(3), 145–151. <https://doi.org/10.1708/3382.33570>
- Cox, J. L., Holden, J. M., & Sagovsky, R. (1987). Detection of postnatal depression. Development of the 10-item Edinburgh Postnatal Depression Scale. *The British Journal of Psychiatry*, 150(6), 782–786. <https://doi.org/10.1192/bjp.150.6.782>
- Diener, E., Emmons, R. A., Larsen, R. J., & Griffin, S. (1985). The Satisfaction With Life Scale. *Journal of Personality Assessment*, 49(1), 71–75. [https://doi.org/10.1207/s15327752jpa4901\\_13](https://doi.org/10.1207/s15327752jpa4901_13)
- Field, A. (2018). *Discovering statistics using IBM SPSS statistics* (5th ed.). SAGE Publications.
- Guedeney, N., & Fermanian, J. (1998). Validation study of the French version of the Edinburgh Postnatal Depression Scale (EPDS): New results about use and psychometric properties. *European Psychiatry*, 13(2), 83–89. [https://doi.org/10.1016/S0924-9338\(98\)80023-0](https://doi.org/10.1016/S0924-9338(98)80023-0)
- Hamarat, E., Thompson, D., Zabrocky, K. M., Steele, D., Matheny, K. B., & Aysan, F. (2001). Perceived stress and coping resource availability as predictors of life satisfaction in young, middle-aged, and older adults. *Experimental Aging Research*, 27(2), 181–196. <https://doi.org/10.1080/036107301750074051>
- Hu, L., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling*, 6(1), 1–55. <https://doi.org/10.1080/10705519909540118>
- Huang, Y., & Zhao, N. (2020). Generalized anxiety disorder, depressive symptoms and sleep quality during COVID-19 outbreak in China: A web-based cross-sectional survey. *Psychiatry Research*, 288, Article 112954. <https://doi.org/10.1016/j.psychres.2020.112954>
- Keizer, R., & Schenk, N. (2012). Becoming a parent and relationship satisfaction: A longitudinal dyadic perspective. *Journal of Marriage and Family*, 74(4), 759–773. <https://doi.org/10.1111/j.1741-3737.2012.00991.x>
- Kenny, D. A., & Judd, C. M. (1986). Consequences of violating the independence assumption in analysis of variance. *Psychological Bulletin*, 99(3), 422–431. <https://doi.org/10.1037/0033-2909.99.3.422>
- Kessler, R. C., Barker, P. R., Colpe, L. J., Epstein, J. F., Gfroerer, J. C., Hiripi, E., Howes, M. J., Normand, S.-L. T., Manderscheid, R. W., Walters, E. E., & Zaslavsky, A. M. (2003). Screening for serious mental illness in the general population. *Archives of General Psychiatry*, 60(2), 184–189. <https://doi.org/10.1001/archpsyc.60.2.184>
- Krüger-Malpartida, H., Pedraz-Petrozzi, B., Arevalo-Flores, M., Samalvides-Cuba, F., Anculle-Arauco, V., & Dancuart-Mendoza, M. (2020). Effects on mental health after the COVID-19 lockdown period: Results from a population survey study in Lima, Peru. *Clinical Medicine Insights: Psychiatry*, 11, 1–9. <https://doi.org/10.1177/1179557320980423>
- Megalakaki, O., Kokou-Kpolou, C. K., Vaudé, J., Park, S., Iorfa, S. K., Cénat, J. M., & Derivois, D. (2021). Does peritraumatic distress predict PTSD, depression and anxiety symptoms during and after COVID-19 lockdown in France? A prospective longitudinal study. *Journal of Psychiatric Research*, 137, 81–88. <https://doi.org/10.1016/j.jpsychires.2021.02.035>
- Ministère de la Santé et Services sociaux. (2020). *Coronavirus (COVID-19)*. <https://msss.gouv.qc.ca/professionnels/maladies-infectieuses/coronavirus-2019-ncov/>
- Miyamoto, Y., Ma, X., & Petermann, A. G. (2014). Cultural differences in hedonic emotion regulation after a negative event. *Emotion*, 14(4), 804–815. <https://doi.org/10.1037/a0036257>
- Muthén, L. K., & Muthén, B. O. (2017). *Mplus user's guide* (8th ed.). Nunnally, J. C. (1978). *Psychometric theory*. McGraw-Hill.
- Pedraz-Petrozzi, B., Arévalo-Flores, M., Krüger-Malpartida, H., & Anculle-Arauco, V. (2021). Validación por expertos del Índice de Distrés Peritraumático relacionado con la Enfermedad por Coronavirus 2019 para su uso en el Perú. *Revista de Neuro-Psiquiatria*, 83(4), 228–235. <https://doi.org/10.20453/rnp.v83i4.3888>
- Qiu, J. (2021). *Validation of the COVID-19 Peritraumatic Distress Index (CPDI)* [Unpublished manuscript]. Shanghai Mental Health Center, Shanghai Jiaotong University School of Medicine.
- Qiu, J., Shen, B., Zhao, M., Wang, Z., Xie, B., & Xu, Y. (2020). A nationwide survey of psychological distress among Chinese people in the COVID-19 epidemic: Implications and policy recommendations. *General Psychiatry*, 33(2), Article e100213. <https://doi.org/10.1136/gpsych-2020-100213>

- Ullman, J. B. (2001). Structural equation modeling. In B. G. Tabachnick & L. S. Fidell (Eds.), *Using multivariate statistics* (4th ed., pp. 653–771). Allyn & Bacon.
- Vallerand, R. J. (1989). Vers une méthodologie de validation transculturelle de questionnaires psychologiques: Implications pour la recherche en langue française [Toward a methodology for the transcultural validation of psychological questionnaires: Implications for research in the French language]. *Canadian Psychology/Psychologie canadienne*, 30(4), 662–680. <https://doi.org/10.1037/h0079856>
- Vance, M. C., Kovachy, B., Dong, M., & Bui, E. (2018). Peritraumatic distress: A review and synthesis of 15 years of research. *Journal of Clinical Psychology*, 74(9), 1457–1484. <https://doi.org/10.1002/jc1p.22612>

Received April 2, 2022

Revision received September 21, 2022

Accepted September 21, 2022 ■