



# Childhood Interpersonal Trauma and Relationality Among Profiles of Mindfulness Facets

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## Abstract

**Objectives** Mindfulness has been conceptualized through five facets, the combination of which can yield different mindfulness profiles. Impeded mindfulness has been linked to childhood interpersonal trauma (CIT) and relational difficulties in adulthood. Exploring profile distinctions on these outcomes is crucial to better understand each profile's specificities. This study aimed to examine mindfulness profiles based on its five facets and to compare them on CIT and relationality in a probabilistic sample of 731 partnered adults.

**Method** Participants were recruited through a randomized selection of telephone numbers and completed an online questionnaire.

**Results** Hierarchical cluster analyses identified four mindfulness profiles: (1) high mindfulness, (2) low mindfulness, (3) judgmentally observing, and (4) non-judgmentally aware. Participants in the high mindfulness profile experienced the least psychological violence by an intimate partner, and had relatively high levels of relationality (i.e., higher relationship and sexual satisfaction, fewer sexual concerns, and lower rates of intimate partner violence). Similarly, participants in the non-judgmentally aware profile reported relatively fewer CIT experiences and high relationality. Participants in the low mindfulness profile reported experiencing higher rates of childhood physical trauma and lower levels of relationality (i.e., low relationship satisfaction and higher rates of sexual violence by an intimate partner), whereas participants in the judgmentally observing profile reported higher rates of childhood psychological trauma and exposure to interparental physical violence.

**Conclusions** Findings shed light on the empirical and clinical importance of examining mindfulness specific facets combinations (e.g., high observing, low non-judgment) when treating individuals presenting poorer relationality.

**Keywords** Mindfulness · Childhood interpersonal trauma · Relationality · Hierarchical cluster analysis · Person-centered analysis

Mindfulness is defined as the awareness that unfolds when one is paying attention to the present moment in a non-judging and accepting manner (Kabat-Zinn, 2003). Mindfulness is complex and multidimensional (Baer et al., 2006; Kabat-Zinn, 2003) and is typically operationalized through five facets, namely observing, describing, non-judging, non-reacting, and acting with awareness (Baer et al., 2006). Observing refers to the capacity to notice internal and external experiences as they unfold. Describing refers to the capacity to put one's inner states into words, while non-judging involves

approaching them without judgment. Non-reacting involves avoiding being fixated on thoughts that come and go. Lastly, acting with awareness refers to being grounded in the present moment as one engages in actions and behaviors.

Many studies have explored the multidimensionality of mindfulness, though most are based on variable-centered analyses (e.g., ANOVA, mediation, and moderation analyses), which either focus on overall levels of mindfulness or on specific facets (Ford et al., 2020). Yet, such research neglects heterogeneous patterns of mindfulness among individuals (Bravo et al., 2018; Ford et al., 2020). To rectify these limitations, recent studies exploring varying patterns in mindfulness facets (e.g., Ford et al., 2020; Gu et al., 2020) have relied on person-centered approaches (i.e., latent profile analyses, cluster analyses, and latent class analyses), which allow for the identification of distinct subgroups of

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individuals (e.g., Kimmes et al., 2017; Zhang et al., 2019). Thus, instead of individually examining each mindfulness facet's association with selected outcomes or assessing global mindfulness scores, this approach allows for the identification of homogenous, yet distinct profiles of individuals based on a combination of varying levels of self-reported mindfulness facets.

Studies have examined mindfulness profiles based on the scores obtained on the five facets in different populations, including a nationally representative sample of US middle-aged adults (Sahdra et al., 2017), college students (e.g., Bravo et al., 2016; Pearson et al., 2015), young adults (Zhang et al., 2019), soldiers and veterans (Bravo et al., 2018), as well as clinical populations such as individuals recently diagnosed with cancer (Lam et al., 2018) and adults with major depressive disorder (Gu et al., 2020). While many of these studies have examined mindfulness profile differences on well-being indicators, data are lacking regarding possible differences on relationality indicators. Relationality refers to couple relationships' well-being, and encompasses relational (e.g., relationship satisfaction, violence-free relationship) and sexual (e.g., sexual satisfaction) well-being (e.g., Glasier et al., 2006; Graf & Patrick, 2014). Sex is part of most couple relationships and is related to well-being when it is rated as satisfying, good, positive, valuable, and pleasant, as opposed to when partners are experiencing sexual difficulties or violence (Lawrance & Byers, 1995; Rosen & Bachmann, 2008). Moreover, relational well-being and sexual well-being are closely intertwined core aspects of many individuals' lives (Brotto & Goldmeier, 2015; Godbout et al., 2020b).

Most studies examining mindfulness profiles (e.g., Bravo et al., 2018; Gu et al., 2020) have identified a four-profile solution: (1) high mindfulness, characterized by high scores on all facets; (2) low mindfulness, reflecting low scores on all facets; (3) judgmentally observing, characterized by high scores on observing and low scores non-judging and acting with awareness; and (4) non-judgmentally aware, defined by low scores on observing and high scores on non-judging and acting with awareness. Yet, other studies have yielded divergent results, showing the need to confirm the four-profile solution in samples of partnered individuals. For instance, in a representative sample of US adults, Sahdra et al. (2017) have found that individuals could be categorized on all specific aspects of mindfulness into judgmentally observing, non-judgmentally aware, average mindfulness, or moderately non-judgmental profiles, the last two being different from the other typical profiles found: high mindfulness and low mindfulness. In a sample of Chinese adolescents, Zhang et al. (2019) have identified a different four-profile solution, which included the non-judgmentally aware profile and three other new profiles. More specifically, two profiles resembled the high mindfulness and low mindfulness profiles found in

other research, but differed on the non-judging facet (i.e., low scores in the high mindfulness profile and high scores in the low mindfulness profile). Similarly, the non-reacting observing profile found in this study was similar to other studies' judgmentally observing profile, but had higher scores on non-reacting. In a sample of meditating and non-meditating Swedish individuals, Lilja et al. (2013) have identified 13 profiles, which included the high mindfulness profile and 12 varying profiles.

Inconsistencies in these studies may be explained by methodological factors (e.g., number of profiles imposed, number of mindfulness facets examined) and the use of specific populations (e.g., adolescent or adult samples). As for the two studies that yielded unconventional results, Sahdra et al. (2017) included an additional mindfulness facet to create their profiles (i.e., "nonattachment"), making their findings difficult to compare with those of other studies having used the five typical facets of mindfulness. In addition, Zhang et al. (2019), who conducted their study using a sample of adolescents, had indicated that their profiles may diverge from those found in most research due to their participants' non-judging scores. More specifically, they found differences for two of the four profiles typically reported in previous studies: the high mindfulness profile presented lower levels of non-judging, and the low mindfulness profile, higher levels of non-judging. These distinctions are consistent with studies having found that the non-judging facet develops in adulthood (e.g., Crowe & McKay, 2016), potentially explaining the two different profiles found in a population of adolescents. Finally, because the study by Lilja et al. (2013) was one of the first to assess mindfulness profiles based on the five facets of mindfulness, no theoretical standpoints or other data were available to interpret their results and compare them with the four profiles that are typically documented in the literature. Additionally, Lilja et al. (2013) created their profiles based on Bergman's (1998) criteria, one of which states that the number of profiles should range between 5 and 15. This approach is relatively uncommon and might partially explain why they found a 13-profile solution (i.e., a four-profile solution was deemed insufficient according to their statistical guidelines). In sum, such disparities across studies highlight the need to further examine mindfulness profiles.

Studies investigating differences between mindfulness profiles have found that individuals in the high mindfulness and non-judgmentally aware profiles report better emotional health (Bravo et al., 2016), greater life satisfaction (Ford et al., 2020), greater self-compassion (Gu et al., 2020), as well as lower depression, neuroticism, anxiety, emotional instability, and distress intolerance (e.g., Kimmes et al., 2017; Pearson et al., 2015). In comparison, individuals in the low mindfulness and judgmentally observing profiles report higher levels of emotional dysregulation (Zhang

et al., 2019), depression, and anxiety (Gu et al., 2020; Lam et al., 2018). However, these studies do not provide data on relationality. Indeed, examining differences in relationality across profiles of mindfulness is crucial given that mindfulness is related to better relational and sexual satisfaction (e.g., Dussault et al., 2020; Godbout et al., 2020b), as well as lower levels of intimate partner violence (Karremans et al., 2017). It is possible that mindfulness fosters better relationality through non-judgment, non-reactivity, and awareness (Parent et al., 2016; Pratscher et al., 2018). Individuals reporting higher levels of mindfulness have been found to be more tolerant and accepting of their partners' imperfections, in turn fostering higher relational satisfaction (Kappen et al., 2018). Although the scientific literature addressing the relationship between mindfulness and intimate partner violence is scarce, one study has shown that higher dispositional mindfulness is linked to lower rates of intimate partner violence through greater self-awareness and cognitive flexibility (Gallagher et al., 2010). It is therefore possible that individuals with greater levels of dispositional mindfulness or acting with awareness might report lower rates of intimate partner violence, though this possibility still needs to be empirically examined.

Researchers have also found that sexual satisfaction and having fewer insecurities regarding one's sexual skills and one's appearance during sex were positively associated with dispositional mindfulness through a heightened focus and increased pleasurable thoughts and sensations during sex (e.g., Brotto & Goldmeier, 2015; Dunkley et al., 2015). In that aspect, individuals reporting better relationality are potentially more likely to be categorized in the high mindfulness and non-judgmentally aware profiles. Yet, person-centered analyses on mindfulness facets specifically examining relationality as an outcome are lacking. Moreover, more research is needed to determine the combinations of mindfulness facets that allow for the comparison of individuals on relationality.

Because intimate relationships are important for a person's development from an early age, individuals who have experienced CIT (physical, psychological, and sexual violence, neglect, exposure to interparental violence, and peer bullying; Bigras et al., 2017) may try to reduce distress and avoid painful internal states. Consequently, they typically present low mindfulness scores (e.g., Briere, 2015; Godbout et al., 2020a), potentially leading them to be overrepresented in profiles characterized by lower mindfulness levels (i.e., low mindfulness and judgmentally observing profiles). Studies examining mindfulness profile differences would therefore benefit from assessing CIT as an outcome variable.

Studies examining mindfulness profile differences on relationality indicators are needed not only to better

understand the complexity of mindfulness, but also to further explore how relationality unfolds among partnered individuals from different mindfulness profiles. Indeed, to examine potential profile distinctions on relationality, samples of partnered individuals should be used. Such studies may confirm the existence of the four typically documented mindfulness profiles in a new population, in addition to providing new insight on the CIT and relational variables that characterize each profile. Given that relationality has been found to be an important predictor of happiness and longevity (Waldinger & Schulz, 2010), the findings yielded by such research could benefit partnered individuals, depending on their mindfulness profile. For instance, the results could provide new avenues to understand relationship difficulties, as well as offer guidelines on specific combinations of mindfulness facets to target during couple therapy. Furthermore, examining CIT would allow to document the history of interpersonal trauma that is specific to each mindfulness profile.

The aims of the current study were twofold: (1) to explore mindfulness profiles in partnered individuals, and (2) to investigate whether these profiles could be distinguished based on CIT experiences and relationality in adulthood. We hypothesized that the four profiles typically observed in previous studies — high mindfulness, low mindfulness, judgmentally observing, and non-judgmentally aware — would be documented in our sample. We also expected that participants in the high mindfulness and non-judgmentally aware profiles would report experiencing less CIT, and would report better relationality compared to participants in the low mindfulness and judgmentally observing profiles.

## Method

### Participants

The sample consisted of 731 adults (55.8% women, 44.2% men) aged 18 to 88 years ( $M = 49.76$ ;  $SD = 12.75$ ) residing in Quebec, Canada. Participants were mainly born in Canada (91.2%), and reported primarily speaking French (93.6%). Two-fifths had a college diploma or completed a vocational program (41.7%), and a quarter had a bachelor's degree (26.7%). Over half were working full-time (54.3%) and approximately one-quarter was retired (23.8%). Regarding annual personal income, most reported earning less than Can \$60,000 (60.4%). Nearly all participants identified as heterosexual (96.6%), and over half were married (54.9%) and were parents of one or two children (52.1%).

## Procedures

Participants were recruited by phone through a random selection of landline and cell phone numbers in Quebec. Participants were invited to complete a 45-min online questionnaire. Eligible participants were at least 18 years old and in a relationship of at least six months. Among the 1485 recruited participants, 731 completed version A of the questionnaire, which included a section on mindfulness. As compensation, participants had the choice between a 10-dollar (CAD) gift card or a chance of winning Can \$100 in a draw.

## Measures

### Mindfulness

Mindfulness was assessed using the French translation (Heeren et al., 2011) of the shortened 24-item version (Bohlmeijer et al., 2011) of the Five Facet Mindfulness Questionnaire (FFMQ; Baer et al., 2006). The English shortened version has demonstrated good internal consistency in previous studies (e.g., Black et al., 2015), as well as better model fit compared to the original measure (Bohlmeijer et al., 2011). The English shortened version contains 15 fewer items than the original measure, the former of which were redundant and presented low total correlations and standardized factor loadings (Bohlmeijer et al., 2011). Items are rated on a 5-point Likert scale ranging from 1 (*never or very rarely true*) to 5 (*very often or always true*), with higher scores indicating greater dispositional mindfulness. The questionnaire measures five mindfulness facets: non-judging (e.g., “I correct myself when I think the way I shouldn’t”), observing (e.g., “While walking, I am aware of the sensations in my body”), describing (e.g., “I can describe my feelings well”), acting with awareness (e.g., “I don’t pay attention to my work as I am busy daydreaming most of the time”), and non-reacting (e.g., “I think before reacting under stressful situations”). This version of FFMQ presents good psychometric properties (Heeren et al., 2011), and confirmatory factor analyses supported the five-factor structure of the construct in different populations (e.g., Bohlmeijer et al., 2011; Gu et al., 2016). The global and subscales scores showed satisfactory internal consistencies in previous studies ( $\alpha=0.77$ , Godbout et al., 2020a;  $\alpha=0.75$  to 0.91, Baer et al., 2006), as well as within the present sample ( $\alpha=0.73$  to 0.84).

### Childhood Interpersonal Trauma (CIT)

CIT was assessed using the Cumulative Childhood Trauma Questionnaire (CCTQ; Godbout et al., 2017), which consists of 17 items assessing eight types of CIT experienced before the age of 18 years (i.e., physical, psychological, and sexual abuse, physical and psychological neglect, exposure to physical and psychological interparental violence,

and peer bullying). Childhood sexual abuse was evaluated based on the Criminal Code of Canada using two checklist questions assessing whether participants experienced any unwanted sexual contact before the age of 18 years, or any sexual contact with a person five years older or in a position of authority. The seven other types of CIT were measured using a 7-point Likert scale ranging from 0 (*never*) to 7 (*almost every day*). To obtain CIT scores, each type of trauma was dichotomized (1 = *occurred*; 0 = *did not occur*) and then summed. Total scores ranged from 0 to 8. This measure’s internal consistency was satisfactory in previous studies ( $\alpha=0.71$ ; Godbout et al., 2020a) as well as in the present study ( $\alpha=0.82$ ).

### Relationship Satisfaction

Relationship satisfaction was assessed using the Dyadic Adjustment Scale (DAS-4; Sabourin et al., 2005). Four items (e.g., “How often have you considered divorce, separation, or terminating your relationship?”) were rated on a 6- or 7-point scale (depending on the item), with total scores ranging from 0 to 21. Higher scores indicated higher levels of relationship satisfaction. Cronbach’s alpha demonstrated satisfactory internal consistency in previous studies ( $\alpha=0.73$  to 0.88; Bigras et al., 2015; Sabourin et al., 2005), as well as in the present sample ( $\alpha=0.79$ ).

### Sexual Concerns

Sexual concerns were assessed using the 5-item Sexual Concern subscale of the Trauma Symptom Inventory 2 (TSI-2; Briere, 2011). Items were rated on a 4-point scale ranging from 1 (*never*) to 4 (*often*) and measure unpleasant thoughts and emotions related to sexuality (e.g., shame, guilt). Scores were summed to obtain overall subscale scores, with higher scores indicating greater sexual concerns. Internal consistency was satisfactory in previous studies ( $\alpha=0.70$  to 0.80, Bigras et al., 2020; Briere, 2011), but questionable in the current study ( $\alpha=0.67$ ).

### Intimate Partner Violence

Sustained intimate partner violence (i.e., psychological, physical, and sexual) was assessed using 16 items from the French version (Lussier, 1997) of the Revised Conflict Tactics Scale (R-CTS2; Straus et al., 1996). Items were rated on an 8-point scale ranging from 0 (*this has never happened*) to 7 (*not in the past year, but it did happen before*), with the highest frequency of partner’s abuse being 6 (*more than 20 times in the past year*). Higher scores reflect higher frequencies of intimate partner violence in the past year. Internal consistency was satisfactory in previous research ( $\alpha=0.80$ ; Lussier, 1997) as well as in the current sample ( $\alpha=0.76$ ).

## Sexual Satisfaction

Sexual satisfaction was assessed using a validated and shortened French version (Bois et al., 2013) of the five-item Global Measure of Sexual Satisfaction (GMSEX; Lawrance & Byers, 1995). Three of the five items, falling on different continuums, measure individuals' overall sexual satisfaction using a 7-point scale: *Very good – Very bad*, *Very pleasant – Very unpleasant*, *Very unsatisfactory – Very satisfactory*. Correlation analyses conducted within a clinical sample demonstrated a correlation with a high effect size between the three- and five-item version ( $r=0.95$ ;  $p \leq 0.001$ ), as well as similar internal consistency values (three-item version:  $\alpha=0.84$ , and five-item version:  $\alpha=0.87$ ) (Bolduc et al., 2022). Average scores were calculated and higher scores indicated greater sexual satisfaction. Internal consistency was high in previous studies (e.g.,  $\alpha=0.92$ ; Bois et al., 2013), as well as in the current study ( $\alpha=0.87$ ).

## Data Analyses

To identify distinct mindfulness profiles, hierarchical cluster analyses were performed on participants' FFMQ scores, using SPSS (version 27). This type of analysis was selected for several reasons. First, it is considered to be the most appropriate when studying heterogeneous populations (Hébert et al., 2006). The present sample varied widely on CIT, dispositional mindfulness, and relationality. Second, other studies have shown that cluster analysis may be preferable to latent profile analysis (LPA) when comparing mindfulness profiles on well-being indicators. In one study comparing cluster analysis and LPA, Ford et al. (2020) had only found the four typical mindfulness profiles with cluster analysis. In addition, when they had compared profiles on well-being indicators, only cluster analysis yielded reliable results. Lastly, the profiles found only comprised a small percentage of the total sample (Ford et al., 2020), which is consistent with previous studies having used LPA (e.g., Bravo et al., 2016; Kimmes et al., 2017; Pearson et al., 2015). This may partially explain the lack of consistency

in mindfulness profiles across studies. Therefore, based on previous studies and statistical recommendations, cluster analysis was chosen to respond to the study's objectives.

To determine the number of clusters, analyses were performed using the Ward aggregation method, and the metric space was computed using the Euclidean square to maximize within-profile homogeneity while minimizing intergroup variance (Murtagh & Legendre, 2014). This method was useful to produce a dendrogram, which groups participants into homogeneous categories. The change in percentage observed in agglomeration coefficients for the profiles was analyzed. Profile comparisons on dispositional mindfulness, CIT and relationality were then conducted using ANOVAs, and post hoc analyses, with least significant difference (LSD) for continuous outcomes, and chi-square tests with Bonferroni's correction for dichotomous outcomes. Significance was determined at a  $p$ -value of 0.05.

## Results

### Profiles

A four-profile solution was found to best fit the data (see Table 1) based on the interpretability of factors, which are crucial when choosing the number of clusters (Hair et al., 1998; Pyburn, 2015). The small percentage of change in coefficients from the five- to the six-cluster solution suggested that clusters were too different to form a homogeneous group (Yim & Ramdeen, 2015). However, on theoretical and empirical grounds, the four- rather than the five-profile solution was chosen due to its replication of the four profiles found in previous studies. Table 2 presents the profiles' descriptive statistics.

### Profile 1: High Mindfulness (25.3% of the Sample)

ANOVAs revealed that participants in the high mindfulness profile reported the highest scores on all mindfulness facets, with two exceptions. Their scores on observing were not

**Table 1** Agglomeration coefficient analysis

Stages	Cluster combined		Coefficient	Stage cluster first appears		Next stage
	Cluster 1	Cluster 2		Cluster 1	Cluster 2	
1	984	1376	0.000	0	0	23
2	275	864	0.000	0	0	159
3	100	676	0.000	0	0	75
4	179	663	0.000	0	0	323
5	160	198	0.000	0	0	76
6	351	1416	0.500	0	0	341
7	202	1405	1.000	0	0	206



**Table 2** ANOVAs comparing mindfulness facets among profiles

	High mindfulness ( <i>n</i> = 185)	Low mindfulness ( <i>n</i> = 249)	Judgmentally observing ( <i>n</i> = 92)	Non-judgmentally aware ( <i>n</i> = 205)	<i>F</i>	$\eta^2$
	Mean ( <i>SD</i> )					
Observing (4–20)	17.47 (1.98) <sup>a</sup>	12.79 (3.44) <sup>b</sup>	17.38 (2.16) <sup>a</sup>	13.49 (2.53) <sup>c</sup>	148.32***	0.37
Describing (7–25)	21.14 (2.49) <sup>a</sup>	14.54 (2.54) <sup>b</sup>	19.91 (2.80) <sup>c</sup>	19.56 (2.08) <sup>c</sup>	312.24***	0.49
Acting with awareness (5–25)	21.78 (2.64) <sup>a</sup>	17.85 (3.58) <sup>b</sup>	17.14 (3.44) <sup>b</sup>	20.54 (2.65) <sup>c</sup>	82.52***	0.14
Non-judging (5–25)	18.98 (3.22) <sup>a</sup>	16.05 (3.94) <sup>b</sup>	12.92 (2.57) <sup>c</sup>	18.78 (2.66) <sup>a</sup>	96.54***	0.06
Non-reacting (5–25)	19.18 (2.38) <sup>a</sup>	13.76 (3.28) <sup>b</sup>	16.05 (3.17) <sup>c</sup>	16.09 (2.98) <sup>c</sup>	117.20***	0.35

Scores between parentheses are possible ranges for each scale

Means in the same row with different superscript letters differ significantly at  $p < 0.05$  from one another

Same letters indicate homogenous subsets according to the post hoc analysis (LSD)

Eta squared ( $\eta^2$ ) was used to report effect sizes on continuous variables

\*  $p < 0.05$

\*\*  $p < 0.01$

\*\*\*  $p < 0.001$

statistically different to those of participants in the judgmentally observing profile, and their scores on non-judging were not statistically different to those of participants in the non-judgmentally aware profile.

### Profile 2: Low Mindfulness (34.1% of the Sample)

Participants in the low mindfulness profile reported the lowest scores on all mindfulness facets, with two exceptions. Their scores on acting with awareness were not significantly different from those of participants in the judgmentally observing profile, and they presented higher scores on non-judging than participants in the judgmentally observing profile.

### Profile 3: Judgmentally Observing (12.6% of the Sample)

Participants in the judgmentally observing profile presented high scores on observing, and low scores on non-judging and acting with awareness. Relative to other profiles, their scores on non-judging were the lowest. Yet, their scores were not statistically different to those of participants in the high mindfulness profile on observing, not statistically different to those of participants in the low mindfulness profile on acting with awareness, and not statistically different to those of participants in the non-judgmentally aware profile on describing and non-reacting.

### Profile 4: Non-judgmentally Aware (28.0% of the Sample)

Participants in the non-judgmentally aware profile reported low scores on observing, along with high scores on non-judging and acting with awareness. No significant differences

were found between their scores and those of participants in the high mindfulness profile on non-judging, and between their scores and those of participants in the judgmentally observing profile on describing and non-reacting.

### Profile Comparisons

Chi-square tests with Bonferroni's correction were performed in order to identify potential profile differences on socioeconomic variables, namely on age, gender, education level, and relationship status. Analyses revealed significant profile differences on education level,  $\chi^2(6) = 26.01$ ,  $p = < 0.001$ , with individuals in the low mindfulness profile more likely to report having completed primary or secondary school and less likely to report holding a university degree compared to individuals in the other three profiles.

### Childhood Interpersonal Trauma (CIT)

Table 3 presents group comparisons on CIT. Analyses showed that participants in the high mindfulness and non-judgmentally aware profiles reported experiencing less CIT than participants in the other two profiles. On the contrary, participants from the low mindfulness and judgmentally observing profiles reported experiencing more cumulative traumas than participants from the high mindfulness and non-judgmentally aware profiles. Compared to participants from the high mindfulness profile, those in the low mindfulness profile reported experiencing more physical trauma (i.e., neglect, violence), and participants in the judgmentally observing profile indicated experiencing more psychological trauma (i.e., neglect, violence) and higher exposure to interparental physical violence. Lastly, participants from the

**Table 3** ANOVAs and chi-square analysis comparing childhood interpersonal traumas (CIT) among mindfulness profiles

	High mindfulness ( <i>n</i> = 185)	Low mindfulness ( <i>n</i> = 249)	Judgmentally observ- ing ( <i>n</i> = 92)	Non-judgmentally aware ( <i>n</i> = 205)	$\chi^2/F$	$\phi/\eta^2$
	Mean ( <i>SD</i> ) or %					
Psychological violence (%)	18.75% <sup>ac</sup>	28.97% <sup>ab</sup>	42.17% <sup>b</sup>	16.77% <sup>c</sup>	24.32***	0.20
Psychological neglect (%)	59.01% <sup>a</sup>	71.75% <sup>ab</sup>	80.23% <sup>b</sup>	65.52% <sup>ab</sup>	13.84**	0.15
Physical violence (%)	6.08% <sup>b</sup>	15.46% <sup>a</sup>	15.94% <sup>ab</sup>	9.41% <sup>ab</sup>	9.42*	0.13
Physical neglect (%)	6.86% <sup>b</sup>	16.46% <sup>a</sup>	12.64% <sup>ab</sup>	6.67% <sup>b</sup>	14.45**	0.14
Exposure to interparental physi- cal violence (%)	5.95% <sup>a</sup>	10.84% <sup>ab</sup>	17.39% <sup>b</sup>	7.80% <sup>ab</sup>	10.51*	0.12
Cumulative trauma (0–8)	1.50 (0.46) <sup>b</sup>	1.71 (0.54) <sup>a</sup>	1.79 (0.59) <sup>a</sup>	1.59 (0.46) <sup>b</sup>	9.81***	0.04

Scores between parentheses are possible ranges for each scale

Means in the same row with different superscript letters differ significantly at  $p < 0.05$  from one another

Same letters indicate homogenous subsets according to the post hoc analysis (Bonferroni or LSD)

Kramer's phi ( $\phi$ ) was used to report effect sizes on dichotomous variables

Eta squared ( $\eta^2$ ) was used to report effect sizes on continuous variables

\*  $p < 0.05$

\*\*  $p < 0.01$

\*\*\*  $p < 0.001$

non-judgmentally aware profile were the least likely to have experienced psychological violence.

## Relationality

Table 4 presents profile comparisons on relational variables. Analyses showed that participants in the high mindfulness and non-judgmentally aware profiles reported higher relationality compared to other profiles. More specifically, participants in

these profiles reported less coercive control by an intimate partner, fewer sexual concerns, and greater sexual satisfaction compared to those in the other two profiles. Participants from the low mindfulness profile also reported the lowest levels of relationship satisfaction and the highest rates of sexual victimization by an intimate partner compared to the other profiles. Additionally, participants in the high mindfulness profile experienced the least psychological violence by an intimate partner.

**Table 4** ANOVAs comparing relationality among mindfulness profiles

	High mindful- ness ( <i>n</i> = 185)	Low mindful- ness ( <i>n</i> = 249)	Judgmentally observing ( <i>n</i> = 92)	Non-judgmentally aware ( <i>n</i> = 205)	$F$	$\eta^2$
	Mean ( <i>SD</i> )					
Relationship satisfaction (5–22)	18.55 (2.87) <sup>a</sup>	17.02 (3.10) <sup>b</sup>	17.96 (2.80) <sup>a</sup>	18.32 (2.74) <sup>a</sup>	12.11***	0.05
Psychological violence by intimate partner (0–6)	1.52 (2.15) <sup>a</sup>	2.83 (2.42) <sup>b</sup>	2.82 (2.23) <sup>b</sup>	2.11 (2.68) <sup>b</sup>	8.42***	0.04
Sexual violence by intimate partner (0–6)	0.14 (0.58) <sup>a</sup>	0.45 (1.17) <sup>b</sup>	0.17 (0.72) <sup>a</sup>	0.23 (0.93) <sup>a</sup>	4.71**	0.02
Control by intimate partner (0–6)	2.28 (3.91) <sup>a</sup>	5.10 (7.10) <sup>b</sup>	4.58 (6.08) <sup>b</sup>	3.11 (4.13) <sup>a</sup>	11.00***	0.07
Sexual concerns (5–20)	5.86 (1.42) <sup>a</sup>	7.39 (2.68) <sup>b</sup>	6.99 (2.28) <sup>b</sup>	6.09 (1.48) <sup>a</sup>	25.61***	0.08
Sexual satisfaction (1–7)	5.66 (1.37) <sup>a</sup>	4.78 (1.61) <sup>b</sup>	5.09 (1.45) <sup>b</sup>	5.60 (1.20) <sup>a</sup>	18.74***	0.05

Scores between parentheses are possible ranges for each scale

Means in the same row with different superscript letters differ significantly at  $p < 0.05$  from one another

Same letters indicate homogenous subsets according to the post hoc analysis (LSD)

Eta squared ( $\eta^2$ ) was used to report effect sizes on continuous variables

\*  $p < 0.05$

\*\*  $p < 0.01$

\*\*\*  $p < 0.001$

## Discussion

The present study aimed to investigate mindfulness profiles in a sample of partnered adults, and to compare them on CIT experiences and relationality. Our hypothesis that the four previously observed profiles (high mindfulness, low mindfulness, judgmentally observing, and non-judgmentally aware) would also be found in our sample was confirmed, thereby supporting previous mindfulness research. Our results thus add to the empirical literature on mindfulness profiles by highlighting the four-class solution typically found (e.g., Bravo et al., 2018; Gu et al., 2020) in a general population of partnered middle-aged French-Canadians. Our second hypothesis was also confirmed, that is, participants in the high mindfulness and non-judgmentally aware profiles reported less CIT and higher relationality than participants in the low mindfulness and judgmentally observing profiles. While previous studies have found that individuals in the high mindfulness and non-judgmentally aware profiles present better well-being (e.g., less depression, greater self-compassion) than those in the low mindfulness and judgmentally observing profiles (Bravo et al., 2016; Gu et al., 2020), the present findings expand mindfulness research by having explored new indicators associated with relational well-being, that is, CIT and relationality.

Regarding socioeconomic variables, participants in the low mindfulness profile received less formal education than participants from the other three profiles. This finding echoes those of previous studies (e.g., Dussault et al., 2022), which found that individuals with more education reported higher levels of mindfulness. Previous studies have shown that individuals of lower socioeconomic status (i.e., lower income; less formal education) report heightened psychological stress (e.g., Cambron et al., 2020; Spears et al., 2017), which can be somewhat detrimental to mindfulness.

Despite many similarities between the low mindfulness and judgmentally observing profiles, some specificities were found. More precisely, participants in the low mindfulness profile were more likely to report childhood physical trauma (i.e., violence, neglect), whereas those in the judgmentally observing profile were more likely to report childhood psychological trauma (i.e., violence, neglect) and exposure to interparental physical violence. These distinctions can be interpreted based on the high levels of observing combined to high level of judgment found in participants from the judgmentally observing profile. Alone, the observing facet might be insufficient to reflect a person's dispositional mindfulness, and when other mindfulness facets are low, especially combined with low non-judging, high observing may disadvantage individuals. For instance, high levels of observing could manifest as heightened sensitivity to one's surroundings,

or hypervigilance to perceived threats (Raphiphatthana et al., 2016). Additionally, individuals who demonstrate low scores on non-judging tend to be more self-critical and more prone to invalidate their own feelings and reactions (Baer et al., 2006). This finding is coherent with the main diagnoses associated with trauma (e.g., posttraumatic stress disorder) often found in CIT survivors, which include hypervigilance as a prevalent trauma-related outcome. Specifically, the combination of high observing and low non-judging might reflect hypervigilance in CIT survivors (Jaffee, 2017; Palmwood et al., 2022). Indeed, our findings show that individuals in the judgmentally observing profile were more likely to have experienced childhood psychological trauma and to have been exposed to interparental physical violence. The observing facet's validity has also been questioned in previous studies because it did not correlate to psychological symptoms nor mindfulness measures in the same way as the other facets did (Baer et al., 2006). In light of our findings, individuals in the judgmentally observing profile, who reported experiencing psychological violence and exposure to interparental violence, might be particularly self-critical and apprehensive due to internalized negative feedback and expectations of interparental conflict and violence. Previous studies have found that psychological trauma may be more predictive of interpersonal difficulties than physical trauma (e.g., Bell & Higgins, 2015; Hibbard et al., 2012). Together, these findings suggest that psychological forms of CIT, which are often overlooked or unacknowledged in research, may be as damaging as other more commonly examined CIT forms (e.g., physical violence, sexual abuse).

Furthermore, individuals in the high mindfulness and non-judgmentally aware profiles demonstrated higher relationality (i.e., less coercive control by an intimate partner, fewer sexual concerns, and greater sexual satisfaction). Participants from the high mindfulness profile reported the least psychological violence by an intimate partner. Inversely, participants in the low mindfulness and judgmentally observing profiles presented similar levels of relationality, and participants in the low mindfulness profile also presented lower relationship satisfaction and higher rates of partner-perpetrated sexual violence. Moreover, individuals in the low mindfulness profile experienced more physical CIT and showed the lowest levels of relationality. These findings support the idea that individuals reporting higher mindfulness levels and fewer CIT experiences tend to report more positive outcomes in adulthood (e.g., Ford et al., 2020), including higher relationality (Godbout et al., 2020a, b).

The present findings suggest that paying attention to specific facets of mindfulness may benefit individuals reporting relational difficulties. For instance, on the one hand, practitioners aiming to foster clients' sexual and relational



well-being could focus on increasing their levels of non-judging, given their documented association with overall lower relational well-being. Interventions targeting the development of non-judging might be particularly relevant to enhance individuals' relational and sexual difficulties. On the other hand, clients presenting low levels of observing and moderate levels of non-reacting might not need interventions targeting the development of specific mindfulness facets, as results yielded that individuals in the non-judgmentally aware profile report relatively positive sexual and relational outcomes. Altogether, results reveal that it is not only individuals with higher levels of dispositional mindfulness on every facet who report relational health, but also individuals who display low scores on observing and high scores on non-judging and acting with awareness. Based on these results, education and awareness initiatives aiming to describe the different profiles and their associated factors should also be encouraged to foster individual self-knowledge, self-determination, and understanding one's own relational functioning.

Overall, this study sheds light on the importance of considering mindfulness profiles when examining CIT and relationality. It replicates previously identified mindfulness profiles while examining different outcomes in a sample of partnered individuals. Further, our findings show that having a combination of high observing scores and low non-judging and acting with awareness scores (i.e., judgmentally observing profile) is associated with deleterious effects on individuals' relationality in adulthood. Moreover, our findings contribute to the body of knowledge on mindfulness by demonstrating that distinct mindfulness profiles differ on physical and psychological CIT.

### Limitations and Future Research

The current findings need to be considered in light of the study's limitations. First, while the present probabilistic sample might be considered a strength, the analyses should be replicated in clinical samples, as such samples typically present higher rates of CIT (e.g., patients consulting in sex therapy; Lafrenaye-Dugas et al., 2020) and sexual and relational difficulties than non-clinical samples. Second, the use of self-reported questionnaires might have impacted our findings, due to social desirability and recall bias. Qualitative studies should also be conducted to obtain a more nuanced understanding of how and why individuals vary with regard to dispositional mindfulness, CIT, and relationality, as such studies could better account for participants' life trajectories and the specificities of individuals in each mindfulness profile.

Third, further studies should examine romantic attachment as a relational outcome, since it has been found to

be related to CIT and to play an important role in the way relationships are experienced in adulthood, and because it might impact specific facets of mindfulness such as observing (Lafortune et al., 2022; Stevenson et al., 2017). Other pertinent variables not included in our study that should be explored in future research include trauma experienced in adulthood, relational or attachment difficulties, internal and external stressors (e.g., death of a loved one, illness, poverty), as well as mindfulness practices. Fourth, even though the recruitment was inclusive of gender identity and modality, sexual orientation, ethnicity, and religious affiliation, our sample was nonetheless mainly composed of white, middle-aged, married adults. Therefore, results should be replicated in more diverse samples. This limitation might be explained by our sampling method, which involved randomly recruiting participants through a list of Quebec phone numbers. However, the online survey method was selected for data collection, as it offers anonymity and more privacy to participants than telephone or in-person surveys. Moreover, online surveys may facilitate the participation of more vulnerable, difficult to reach, and diverse communities (e.g., living with mental disorders or presenting non-cisgender identities; Kayrouz et al., 2016; Miner et al., 2012).

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**Data Availability** Due to complications arising from compliance with multiple ethics boards' requirements, the data involved in this study cannot be made publicly available. However, the authors may be contacted for requests to access the data.

### Declarations

**Ethics Approval** All procedures and analyses performed in this study, which involved human participants, were approved by the institutional review board of research involving human subjects of the Université du Québec à Montréal (UQAM).

**Informed Consent** All participants included in this study had given their informed consent.

**Conflict of Interest** The authors declare no competing interests.

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