



Article

# Child Maltreatment and Links with Experiences of Interpersonal Violence in Sport in a Sample of Canadian Adolescents

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**Abstract: Purpose:** This study aimed to explore links between child maltreatment (CM) and experiences of interpersonal violence (IV) in sport among adolescent sport participants. To our knowledge, no studies have yet considered this association. This is surprising given that the literature outside of sport clearly shows that CM is related to revictimization in adolescence and adulthood. **Methods:** The sample consists of 983 adolescents aged 14 to 18 years old participating in an organized sport. They completed a self-report survey in class at six Canadian schools assessing CM and IV in sport. Logistic regressions were performed to examine the associations between CM and IV in sport. **Results:** Child physical abuse, emotional abuse, and exposure to domestic violence were significantly associated with psychological violence and neglect in sport. Exposure to domestic violence was the only form of CM significantly associated with physical violence in sport. Child sexual abuse and neglect were significantly associated with sexual violence in sport, while child emotional abuse and exposure to domestic violence were significantly associated with peer violence in sport. Physical abuse was the only form of CM significantly associated with coach violence. Child physical abuse, emotional abuse, neglect, and exposure to domestic violence were positively associated with violence from parents in sport. **Conclusions:** Considering the associations between CM and IV in sport, further investigations are necessary on how to prevent revictimization. It also highlights the importance of athlete-centered and trauma-informed practices in sport. **Implications and Contribution:** This study was the first, to our knowledge, to show the relationship between CM and the experience of IV in organized sport, as reported by 983 Canadian adolescents. Our findings reveal different associations depending on the type of IV (physical, sexual, psychological, or neglect) and the perpetrators (peers, coaches, or parents).



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## 1. Introduction

Child maltreatment (CM), defined as “the physical and emotional mistreatment, sexual abuse, neglect and negligent treatment of children, as well as their commercial or other exploitation” (WHO 2006, p. 7) is associated with numerous deleterious outcomes that can persist into adulthood (Hailes et al. 2019). Experiencing CM could also contribute to revictimization in adolescence and adulthood (Auslander et al. 2018; Frugaard Stroem et al. 2019). For example, studies have shown that experiencing child sexual abuse is a risk factor for later revictimization, such as sexual assault in adulthood (Andersson et al. 2020) and dating violence (Godbout et al. 2019; Hébert et al. 2021). Similar conclusions were found for bullying (Brown and Shillington 2017; Lucas et al. 2016). Some interesting findings also highlighted that experiencing violence in one context increased the risk of

experiencing violence in another context (Andrews et al. 2019). Taken together, these findings suggest that sport could be a context in which revictimization of adolescents previously exposed to CM might occur. Approximately 60% of Canadian children and adolescents participate in sport (Canadian Women & Sport 2020), and it is now well demonstrated that a significant proportion of sport participants experience interpersonal violence (IV) in the context of organized sport (Hartill et al. 2021; Pankowiak et al. 2022; Parent and Vaillancourt-Morel 2021).

IV refers to violence between individuals, which can be physical, sexual, emotional, or psychological, or involve deprivation and neglect (WHO 2006, p. 9). IV is an umbrella term that includes many types of violence depending on “the group towards whom the violence is directed (child abuse, elder abuse), the relationship between the perpetrator and the victim of violence (spousal abuse, family violence) or the environment in which the violence is committed (violence at school, at work)” (Laforest et al. 2018, p. 7). Therefore, bullying, peer violence, abuse, CM, sexual assault, and harassment are all examples of IV. In sport, we also found those manifestations, but some are more specific to sport, such as forced physical exertion, body shaming or hazing. Recent international research has shown that between 75% and 86% of sport participants experienced IV in sport before the age of 18 (Hartill et al. 2021; Pankowiak et al. 2022; Parent and Vaillancourt-Morel 2021; Vertommen et al. 2022). More specifically, these studies found that between 27% and 38% of sport participants reported having experienced sexual violence, between 40% and 66% reported physical violence, and between 65% and 75% reported psychological violence or neglect in sport. In terms of gender, studies don’t allow for clear conclusions regarding risk in each types of IV in sport. It is important here to mention that enhanced risk of victimization does not suppose that people possess inherent risk factors. Rather, it shed light on structural and systemics processes that increase risk for certain groups of the population (e.g., social norms, prejudice against minority groups).

An increasing number of studies have also shown that IV experiences in youth sport are associated with adverse mental health outcomes in adolescence and adulthood (Ohlert et al. 2019; Parent et al. 2022; Vertommen et al. 2018). Although the knowledge concerning IV in sport is rapidly increasing, risk factors associated with IV remain understudied. For example, while we know that sexual and gender minorities are more at risk of experiencing IV in sport (Pankowiak et al. 2022), to our knowledge, no studies have yet considered the association between IV experiences in sport and experiences of CM. This is surprising given that the literature outside of sport clearly shows that CM is related to revictimization in adolescence and adulthood (Auslander et al. 2018).

Despite no studies having investigated this link between CM and IV in sport, it is well documented that some sport participants have experienced some forms of IV in their lives that could also include CM depending on the studies. For example, a study by Timpka and colleagues (Timpka et al. 2019) showed that 11% of Swedish sport participants in their sample had experienced sexual abuse and 18% experienced physical abuse in their lifetime (in and outside of sport). Another study conducted in 2016 showed that 8.8% of a representative sample of adolescent sport participants reported having experienced sexual abuse during their lives (Parent et al. 2016). Leahy et al. (2002) demonstrated that 31% of elite female athletes and 21% of elite male athletes reported having experienced sexual abuse during their lives. Moreover, in a sample of over 10,000 sport participants in six European countries, Hartill et al. (2021) found that 82% reported at least one experience of IV outside of sport during their childhood.

In sum, the current state of knowledge indicates that: (1) some adolescents who participate in organized sport reported experiencing IV during their lives, including CM in some studies; (2) many young sport participants reported IV in sport; and (3) CM is recognized as a risk factor for IV later in life. Our study aims to explore the links between CM and experiences of IV in sport in a sample of adolescent sport participants. More specifically, this study aims to explore associations between CM and IV in sport in terms of types of IV (physical, sexual, psychological/neglect) and of types of perpetrators (coaches,

parents, or peers), while taking into consideration other known risk factors such as cultural or ethnic minority, type of sport, level of competition, sex, and gender. Therefore, to better understand associations between IV and CM, these variables should be taken into consideration.

## 2. Materials and Methods

### 2.1. Procedures and Participants

*Procedures.* The sample was drawn from an ongoing Canadian longitudinal study on sport participation and resilience that began in 2019. To ensure sample diversity, the study recruited adolescents from Canadian schools in urban, semi-urban, and rural areas and from different socioeconomic backgrounds. Seven schools were invited to participate in the study; six agreed and one refused since there was another ongoing research project. Adolescents in ninth or tenth grade, with a minimum age of 14 years old, were eligible to participate. A convenience sample of 1900 adolescents were invited to participate and 1857 accepted (participation rate of 97.4%). After giving their informed consent, participants completed an anonymous self-reported survey using Qualtrics software in their classrooms on tablets provided by the research assistants. The average completion time for the questionnaire was 40 minutes. The Institutional Review Board (blinded for review) approved the research procedure that was conducted in accordance with the Declaration of Helsinki. Out of the 1857 adolescents who participated, 11 responses were excluded because they were ineligible (participants younger than 14 years old); 40 were excluded because they failed the attention-testing questions embedded in the questionnaire; and 4 were excluded because of inconsistent responses, resulting in a sample of 1802 adolescents.

*Participants.* Of the 1802 participants in the initial sample, only those who reported participating in organized sport at the time of the data collection were included in this study, resulting in a final sample of 983 participants. They were aged between 14 and 18 years ( $M_{\text{age}} = 14.64$  years,  $SD = 0.774$ ), and the majority was in ninth grade (64.3%). Regarding the participants' assigned sex at birth, 405 (40.5%) were females, and 594 (59.5%) were males. The sociodemographic and sport characteristics of participants are presented in Table 1.

### 2.2. Measures

*Sociodemographics.* Participants identified the principal sport in which they were currently involved in an organized context. They provided information on their level of competition that was categorized as either low (none, local, regional, and inter-regional), medium (provincial), or high (national and international). They also indicated the weekly number of hours they practiced the sport and if they had moved away from their parents or left the family residence to practice the sport. We considered participants having engaged in early sport specialization if they started their sport before the age of 12 and stopped one or more sport(s) to concentrate on one. General sociodemographic characteristics (age, sex assigned at birth, cultural identity, gender, and sexual orientation) were also collected.

*Child maltreatment.* Four types of child maltreatment (CM) were assessed including sexual, emotional, and physical abuse and neglect. Sexual abuse was measured using an adapted version (Tourigny et al. 2008) of three dichotomous items (yes/no) from a subscale of the Early Trauma Inventory Self Report - Short Form (Bremner et al. 2007) ( $\alpha = 0.63$ ). Two items of the Early Trauma Inventory Self Report - Short Form (Bremner et al. 2007) were used to assess emotional abuse and neglect during childhood ( $\alpha = 0.84$ ). Physical abuse was measured by one item from the Longitudinal Study of Adolescent Health (Hahm et al. 2010). Two items in the Neglect subscale of the Intimate Partner Violence questionnaire (Hahm et al. 2010) were used to measure physical neglect ( $\alpha = 0.81$ ). Finally, exposure to domestic violence was assessed by three items adapted from the Revised Conflict Tactics Scale (Straus et al. 1996) ( $\alpha = 0.80$ ). Lastly, all indicators of CM were dichotomized (i.e., 0 = no experience of CM; 1 = one or more experiences of CM). None of these instruments have items on sport context CM.

**Table 1.** Sociodemographic Characteristics of Participants.

Characteristic	<i>n</i>	%
School level <sup>a</sup> ( <i>n</i> = 982)		
Secondary 3	633	64.5
Secondary 4	307	31.3
Secondary 5	42	4.3
Sex assigned at birth ( <i>n</i> = 983)		
Female	403	41.0
Male	580	59.0
Gender and sexual identity ( <i>n</i> = 967)		
Cisgender heterosexual man	503	52.0
Cisgender heterosexual woman	325	33.6
Man with gender and/or sexual diversity	68	7.0
Woman with gender and/or sexual diversity	70	7.2
Non-binary person with sexual diversity	1	0.1
Cultural identity ( <i>n</i> = 980)		
Quebecer	673	68.7
Canadian	89	9.1
Other cultural identities	218	22.2
Type of sport ( <i>n</i> = 963)		
Individual	346	35.9
Team	617	64.1
Early sport specialization ( <i>n</i> = 961)		
No early sport specialization	628	65.3
Early sport specialization <sup>b</sup>	333	34.7
Competition level ( <i>n</i> = 977)		
No competition (recreational)	88	9.0
Local, regional and inter-regional	409	41.9
Provincial	363	37.2
National and international	117	12.0
Family separation to practice sport ( <i>n</i> = 981)		
Having to be away from family	213	21.7
Not having to be away from family	768	78.3

Note. Participants were aged, on average, 14.6 years old (*SD* = 0.77). <sup>a</sup> These are equivalent to grades 9, 10, and 11.

<sup>b</sup> Participants were considered as having specialized early if they began their sport before the age of 11 years old and if they had stopped practicing one of more sport to concentrate on only one.

*Experiences of interpersonal violence in sport.* The Violence Toward Athletes Questionnaire (VTAQ) (Parent et al. 2019) was used to survey the experiences of IV against adolescents in sport. The VTAQ was designed to measure different types of IV (psychological/neglect, physical, and sexual) from different perpetrators, namely peer-athletes such as teammates and opponents (VTAQ-A subscale), coaches (VTAQ-C subscale), and parents (VTAQ-P subscale). An adaptation of the scale was used in the present study with five items of the VTAQ-A ( $\alpha = 0.578$ ), nine items from the VTAQ-C ( $\alpha = 0.747$ ), and six items from the VTAQ-P ( $\alpha = 0.761$ ). Examples of items are “In the sport environment, a coach has hit you with their hands (examples: slap, smack)”, “In the sport environment, another athlete has shouted insults, humiliated, or made fun of you” or “In the sport environment, a coach has made remarks that were rude, hurtful, or made you uncomfortable about your sexual life, your private life, or your appearance (examples: comments about your buttocks, your breasts, your genitals, your romantic partner)”. Items are rated on a four-point Likert scale measuring the frequency with which various events took place in the sport context, where 0 = never; 1 = rarely, 1 to 2 times; 2 = sometimes, 3 to 10 times; and 3 = often, more than 10 times. Seven scores were computed, one for each type of violence, one for each perpetrator, and one that included participants who had experienced at least one type of IV. For the low threshold “at least one type of IV” score, we did not use the violence perpetrated by parents to limit redundancy between CM and subsequent parental maltreatment in a sport context during adolescence. Scores

were examined as yes/no dichotomous variables using a low threshold to categorize sport participants as having experienced IV in sport (0 = no violence and 1 = at least one event).

### 2.3. Data Analysis

To describe the sample, descriptive statistics (means, standard deviations, and frequencies) were computed using SPSS 26. Logistic regressions were performed to examine the associations between CM and IV experiences in sport using Mplus 8 while controlling for sociodemographics. A confidence level of 95% was selected ( $p \leq 0.05$ ) to reject the null hypothesis. All variables in the multiple regression analysis were entered in the forced-entry method in the following sequence: general sociodemographic, sport sociodemographic, and measures of CM. To ensure that the assumptions of multivariate analyses were verified, descriptive analyses and Pearson's correlations were performed to identify the presence of extreme cases or multicollinearity. Moreover, the variables that did not contribute significantly to the model ( $p > 0.05$ ) were removed to present a parsimonious model.

### 3. Results

In our sample, exposure to domestic violence was the most reported form of CM outside of sport with 59.8% of participants, followed by emotional abuse (23.3%), physical abuse (22.3%), neglect (15.9%), and sexual abuse (5.9%), as seen in Table 2. In terms of IV in sport, the most frequently experienced was psychological violence and neglect (54.0%), followed by physical (23.8%), and sexual violence (10.6%). The most reported perpetrator of IV in sport were coaches (41.2%), followed by peers (38.4%) and parents (25.4%).

**Table 2.** Experiences of Child Maltreatment and of Interpersonal Violence in Sport Among Participants.

	<i>n</i>	%
Child maltreatment		
Exposure to domestic violence ( <i>n</i> = 943)	564	59.8
Emotional abuse ( <i>n</i> = 941)	219	23.3
Physical abuse ( <i>n</i> = 938)	209	22.3
Neglect ( <i>n</i> = 942)	150	15.9
Sexual abuse ( <i>n</i> = 980)	58	5.9
Interpersonal Violence (IV) in sport		
At least one type of IV <sup>a</sup> ( <i>n</i> = 967)	573	59.2
Psychological and neglect ( <i>n</i> = 967)	228	54.0
Physical ( <i>n</i> = 966)	230	23.8
Sexual ( <i>n</i> = 966)	102	10.6
IV in sport by type of perpetrator		
Coach ( <i>n</i> = 974)	401	41.2
Peer ( <i>n</i> = 973)	374	38.4
Parents ( <i>n</i> = 970)	246	25.4

<sup>a</sup> Includes participants that have had at least one experience of violence of any type and by coaches or peers. Parents were not included as perpetrators to limit redundancy with CM.

The seven logistic regression models, including all predictors against a constant-only model, were statistically significant. The models explained variances ranging from 10% for psychological violence and neglect to 23% for physical violence. Table 3 presents the results from the multiple logistic regression analyses used to examine the associations between CM and victimization in sport by type of violence. Our analysis showed that participants who reported physical abuse (OR = 1.78), emotional abuse (OR = 1.52), and exposure to domestic violence (OR = 1.41) were all more likely to have experienced psychological violence and neglect in sport than participants who did not experience this type of CM. Exposure to domestic violence (OR = 2.26) was the only form of CM associated with an increased odds of experiencing physical violence in sport. Childhood sexual abuse (OR = 3.83) and neglect (2.09) both increased the likelihood that participants had experienced sexual violence in sport.

**Table 3.** Logistic Regression Analyses of IV in Sport by Type.

	Psychological Violence and Neglect			Physical Violence			Sexual Violence		
	R <sup>2</sup> = 0.10			R <sup>2</sup> = 0.23			R <sup>2</sup> = 0.13		
	B (SE)	p	OR	B (SE)	p	OR	B (SE)	p	OR
Sex assigned at birth (male—indicator)	−0.37 (0.15)	0.011	<b>0.69</b> <sup>a</sup>	−1.63 (0.22)	<0.001	<b>0.20</b>	−0.72 (0.25)	0.004	<b>0.49</b>
Gender and sexual identity (cis heterosexual—indicator)	0.27 (0.20)	0.177	1.31	−0.60 (0.28)	0.032	<b>0.55</b>	0.12 (0.30)	0.682	1.13
Sport type (individual—indicator)	0.29 (0.15)	0.054	1.33	0.53 (0.20)	0.009	1.70	−0.27 (0.24)	0.257	0.76
Early sport specialization (no specialization—indicator)	0.32 (0.14)	0.029	<b>1.37</b>	0.34 (0.18)	0.052	1.41	0.78 (0.22)	<0.001	<b>2.19</b>
Competition level <sup>b</sup> (low—indicator)									
Medium	0.04 (0.15)	0.790	1.01	0.14 (0.19)	0.441	1.15	0.12 (0.24)	0.630	1.12
High	−0.37 (0.23)	0.108	0.69	−0.03 (0.29)	0.907	0.97	0.28 (0.35)	0.429	1.32
Family separation (no separation—indicator)	0.78 (0.18)	<0.001	<b>2.19</b>	0.03 (0.21)	0.907	1.03	−0.12 (0.28)	0.678	0.89
Child maltreatment (no experience of maltreatment—indicator)									
Physical abuse	0.58 (0.19)	0.003	<b>1.78</b>	0.18 (0.22)	0.407	1.20	0.24 (0.28)	0.398	1.27
Sexual abuse	0.05 (0.32)	0.881	1.05	0.41 (0.37)	0.272	1.51	1.34 (0.35)	<0.001	<b>3.83</b>
Emotional abuse	0.57 (0.19)	0.003	<b>1.77</b>	0.32 (0.23)	0.171	1.38	0.10 (0.29)	0.732	1.11
Neglect	0.17 (0.21)	0.414	1.18	0.13 (0.24)	0.579	1.14	0.74 (0.28)	0.007	<b>2.09</b>
Exposure to domestic violence	0.35 (0.16)	0.027	<b>1.41</b>	0.82 (0.19)	<0.001	<b>2.26</b>	0.18 (0.25)	0.465	1.20

<sup>a</sup> Numbers in bold are significant. <sup>b</sup> Low = none, local, regional and inter-regional; Medium = provincial; High = national and international.

Table 4 presents the results from the multiple logistic regression analyses used to examine the associations between CM and victimization in sport by type of perpetrator. Our analysis showed that participants who reported emotional abuse (OR = 1.82) and exposure to domestic violence in childhood (OR = 1.86) were more likely to also report peer violence from other athletes in sport. Physical abuse (OR = 2.01) was the only form of CM that increased the likelihood of experiencing violence from coaches. Physical abuse (OR = 2.17), emotional abuse (OR = 1.71), neglect (OR = 1.76), or exposure to domestic violence (OR = 1.98) all increased the odds that participants reported violence from parents in sport. As seen in Table 5, our analysis showed that participants who experienced physical abuse (OR = 1.78), emotional abuse (OR = 1.52), or exposure to domestic violence in childhood (OR = 1.69) were more likely to report at least one incidence of IV in sport.

We also added other sociodemographic and sport-related variables in our models (Tables 3–5). In terms of sex, adolescent girl participants had lower odds than adolescent boy participants of reporting violence in every model, with differences most visible for physical violence (OR = 0.20), sexual violence (OR = 0.49), and violence from parents (OR = 0.50). Participants who identified with sexual and gender diversity were less likely than those who identified as cis heterosexuals to report physical violence (OR = 0.55). Participants who experienced early sport specialization were more likely than those who did not specialize early to report violence in every model except for physical violence. These odds were highest for sexual violence (OR = 2.19). Finally, participants who experienced family separation for sport practice were more likely to report at least one incidence of violence in sport, psychological violence, and neglect in sport and all types of perpetrators in sport. The likelihood was highest for psychological violence and neglect (OR = 2.19) and at least one incidence of violence (OR = 2.12).

**Table 4.** Logistic Regression Analyses of IV in Sport by Perpetrator.

	Peer			Coach			Parents		
	R <sup>2</sup> = 0.11			R <sup>2</sup> = 0.09			R <sup>2</sup> = 0.15		
	B (SE)	p	OR	B (SE)	p	OR	B (SE)	p	OR
Sex assigned at birth (male—indicator)	−0.61 (0.16)	<0.001	<b>0.54</b> <sup>a</sup>	−0.31 (0.15)	0.035	<b>0.73</b>	−0.69 (0.18)	<0.001	<b>0.50</b>
Gender and sexual identity (cis heterosexual—indicator)	0.00 (0.21)	0.989	1.00	0.20 (0.20)	0.310	1.22	0.29 (0.23)	0.193	1.34
Sport type (individual—indicator)	0.33 (0.16)	0.034	<b>1.40</b>	0.38 (0.15)	0.014	<b>1.46</b>	0.18 (0.18)	0.331	1.19
Early sport specialization (no specialization—indicator)	0.47 (0.15)	0.002	<b>1.60</b>	0.47 (0.14)	0.001	<b>1.60</b>	0.50 (0.17)	0.003	<b>1.64</b>
Competition level <sup>b</sup> (low—indicator)									
Medium	0.04 (0.16)	0.782	1.04	0.05 (0.15)	0.753	1.05	−0.03 (0.18)	0.866	0.97
High	−0.22 (0.24)	0.357	0.80	0.05 (0.23)	0.840	1.05	−0.18 (0.28)	0.504	0.83
Family separation (no separation—indicator)	0.59 (0.18)	0.001	<b>1.81</b>	0.64 (0.17)	<0.001	<b>1.90</b>	0.73 (0.19)	<0.001	<b>2.01</b>
Child maltreatment (no experience of maltreatment—indicator)									
Physical abuse	0.35 (0.19)	0.065	1.42	0.70 (0.19)	<0.001	<b>2.01</b>	0.77 (0.20)	<0.001	<b>2.17</b>
Sexual abuse	0.28 (0.31)	0.362	1.33	0.54 (0.31)	0.082	1.71	0.04 (0.33)	0.910	1.04
Emotional abuse	0.60 (0.19)	0.002	<b>1.82</b>	0.15 (0.19)	0.419	1.17	0.54 (0.21)	0.009	<b>1.71</b>
Neglect	0.24 (0.20)	0.239	1.27	0.22 (0.20)	0.276	1.24	0.56 (0.21)	0.008	<b>1.76</b>
Exposure to domestic violence	0.62 (0.16)	<0.001	<b>1.86</b>	0.28 (0.16)	0.075	1.32	0.68 (0.18)	<0.001	<b>1.98</b>

<sup>a</sup> Numbers in bold are significant. <sup>b</sup> Low = none, local, regional and inter-regional; Medium = provincial; High = national and international.

**Table 5.** Logistic Regression Analyses of at Least One Type of IV in Sport.

	B (SE)	p	OR
R <sup>2</sup> = 0.12			
Sex assigned at birth (male—indicator)	−0.52 (0.15)	<0.001	<b>0.60</b> <sup>a</sup>
Gender and sexual identity (cis heterosexual—indicator)	0.14 (0.20)	0.501	1.15
Sport type (individual—indicator)	0.40 (0.15)	0.007	<b>1.50</b>
Early sport specialization (no specialization—indicator)	0.50 (0.15)	0.001	<b>1.65</b>
Competition level <sup>b</sup> (low—indicator)			
Medium	0.00 (0.15)	0.978	1.00
High	−0.23 (0.23)	0.320	0.80
Family separation (no separation—indicator)	0.75 (0.18)	<0.001	<b>2.12</b>
Child maltreatment (no experience of maltreatment—indicator)			
Physical abuse	0.58 (0.20)	0.004	<b>1.79</b>
Sexual abuse	0.24 (0.33)	0.471	1.27
Emotional abuse	0.60 (0.19)	0.002	<b>1.52</b>
Neglect	0.21 (0.21)	0.315	1.24
Exposure to domestic violence	0.53 (0.16)	0.001	<b>1.69</b>

<sup>a</sup> Numbers in bold are significant. <sup>b</sup> Low = none, local, regional and inter-regional; Medium = provincial; High = national and international.

#### 4. Discussion

The present study found an association between CM and IV in sport in our sample of adolescents who participated in organized sport. This is not surprising given previous research outside of sport showing that CM is a risk factor for experiencing violence later in life, and this underlines that the sport context may constitute a site for revictimization. Therefore, CM should be considered a risk factor for IV in sport. More specifically, we were able to assess associations between CM and each type of IV. Also, our analysis showed that CM was associated with IV from all perpetrator types, whether peers, parents, or coaches.

#### 4.1. Experiences of CM in Adolescents Participating in Organized Sport

High levels of exposure to domestic violence (59.8%) were found in our sample of sport participants. Studies outside of sport show that, in an adolescent population, the prevalence of exposure to domestic violence is lower than in our sample at 27% (Hamby et al. 2011). However, our data showed reported frequencies of physical abuse (22.3%), emotional abuse (23.3%), and neglect (15.9%) that are similar to other data on CM in general population samples in North America and around the world (Moody et al. 2018). Only for sexual abuse, our results showed a reported frequency of 5.9%, which is lower than estimates found in a previous systematic review (Moody et al. 2018). Overall, our study found levels of CM experiences in sport participants comparable to other studies, except for exposure to domestic violence and sexual abuse. For sexual abuse, our results echoed Parent et al.'s (2016) study showing that adolescent sport participants experienced significantly less sexual abuse than adolescents not participating in organized sport. Some authors postulated that sport could constitute protection from sexual abuse (the *Sport Protection Hypothesis*) or that adolescents who have experienced sexual abuse are less likely to participate in organized sport (Fasting et al. 2008; Parent et al. 2016). More research is needed to understand why adolescent sport participants tend to report less sexual abuse compared to the general adolescent population.

#### 4.2. CM as a Risk Factor for IV in Sport

Globally, our results showed that CM was associated with IV in sport. This suggests that CM, especially child physical abuse, emotional abuse, and exposure to domestic violence, represents a risk factor for IV in sport. Those results align with other studies showing associations between CM and experiencing violence in other settings (Auslander et al. 2018; Andrews et al. 2019). Moreover, our results showed that child sexual abuse specifically was associated with sexual violence in sport, which is similar to previous work demonstrating clear associations between child sexual abuse and sexual revictimization later in life (Andersson et al. 2020; Godbout et al. 2019). Even though our study could not establish the direction of this specific association, we can hypothesize that experiencing child sexual abuse could make adolescents more vulnerable to sexual violence in sport considering the *Traumatic Dynamic Model* of Finkelhor and Browne (1985). According to this model, the experience of sexual abuse during childhood and adolescence influences the individual's developmental process, leading to trajectories of sexual revictimization. The main explanations are based on the consequences of child sexual abuse, namely post-traumatic stress disorder, dissociative symptoms, and emotional and cognitive processes.

In terms of perpetrators, experiencing emotional abuse and exposure to domestic violence were associated with IV in sport perpetrated by peers in our sample. This is congruent with the literature on bullying showing that CM is a risk factor for bullying victimization and perpetration (Lucas et al. 2016). When looking at IV perpetrated by coaches, our results show that physical abuse was the only form of CM significantly associated with coach-perpetrated violence. Lastly, the association between all forms of CM and IV in sport perpetrated by parents was not surprising. If parents are violent at home, it is highly possible that they will also be violent in the context of sport.

#### 4.3. CM and Other Risk Factors for IV in Sport

Our results provided an interesting picture of what predicted more IV in sport in relation to types of IV. Before this study, most available data on predictors focused on the individual (e.g., sex at birth, gender, sexual orientation) and sport characteristics (e.g., type of sport, early sport specialization, level of competition). However, precedent models predicted a relatively low variance, such as 6–11% (Parent and Vaillancourt-Morel 2021), 1–12% (Vertommen et al. 2022) or 8–11% (Pankowiak et al. 2022). This means that we absolutely need to consider other risk factors. The current study contributes by adding another critical risk factor, CM, to the model, leading to an explained variance of up to 23%. While this is an important addition, many other variables/factors should be included. For

example, several studies have shown that organizational and social factors are associated with IV in sport (Parent and Fortier 2018; Roberts et al. 2020), such as norms, values, and structural/organizational issues. However, studies have yet to test those factors in integrative prediction models.

#### 4.4. Implications for Practice

On a practical side, our study puts forward the importance of considering precedent or actual trauma in young sport participants. Considering that a relatively important proportion of our participants reported CM, adolescent sport participants must be seen as a population likely to experience CM despite the idea that sport could protect them from violence (e.g., the *Sport Protection Hypothesis*) or that adolescents who experienced CM are less likely to take part in organized sport. In sum, they are not an exception when experiencing CM. This highlights the importance for all sport stakeholders (coaches, sport psychologists, members of the medical staff, etc.) to apply a trauma-informed approach in their daily practice when dealing with sport participants. This approach is common outside of sport, such as in medical care or child protection services (Milot 2018) but is also receiving growing attention in sport (McMahon et al. 2022). McMahon et al. (2022) defines this approach as “a holistic way of working which involves understanding and attending to the specific needs of individuals (i.e. having a safe space without judgement; power in decision making; a space where they can be heard rather than silenced; a space where fears and emotions can be shared) who have been affected by trauma.” (p. 4). Finally, screening for IV in sport and for CM in general could be a promising avenue in preventing revictimization and support for adolescent sport participants. However, this needs to be integrated into a more global approach by integrating the bystander approach and implementing organizational and social changes to better prevent IV in sport.

#### 4.5. Strengths, Limitations, and Future Research

In terms of limitations, although we may hypothesize that CM preceded IV in sport, using a cross-sectional design precludes from establishing a causal relationship. Future research needs to address this limitation by using longitudinal designs to test this hypothesis. Additionally, our results are limited by including a restricted number of factors in our models, namely CM, individual, and sport factors. Future research needs to integrate and test more risk factors, as explained earlier in our discussion, such as organizational and social factors. Additionally, the culture of different sports needs to be taken into consideration for a more in depth analysis. Nonetheless, our study has several strengths. First, we contributed to the literature on risk factors of IV in sport by adding CM as an important risk factor to consider. Second, we demonstrated that adolescents who participated in organized sport experienced CM at similar rates as the general population. Therefore, considering the high level of CM and IV in sport, there is an urgent need to promote a safe and secure family and sport environment as well as to study the mechanisms linking CM to IV in sport.

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