

**Development and initial factor validation of the Violence Toward Athletes Questionnaire  
(VTAQ) in a sample of young athletes**

Sylvie Parent, Ph.D.<sup>1,2</sup>

Kristine Fortier, M.A.<sup>1,2</sup>

Marie-Pier Vaillancourt-Morel, Ph.D.<sup>2,3</sup>

Geneviève Lessard, Ph.D.<sup>4,5</sup>

Claude Goulet, Ph.D.<sup>1,6</sup>

Guyline Demers, Ph.D.<sup>1</sup>

Hélène Paradis, M.Sc.<sup>7</sup>

Mike Hartill, Ph.D.<sup>8</sup>

**Corresponding author:** Sylvie Parent, Ph.D., Pavillon de l'Éducation physique et des sports, 2300, rue de la Terrasse, local 2206, Université Laval, G1V 0A6, Québec, QC, Canada.

Email: Sylvie.parent@fse.ulaval.ca

**Funding:** This work was supported by the [Social Sciences and Humanities Research Council of Canada] under Grant [108560]; and [ministère de l'Éducation et de l'Enseignement supérieur du Québec] under Grant [104153].

**Conflict of interest:** The authors declare that they have no conflict.

---

<sup>1</sup> Department of Physical Education, Faculty of Education, Université Laval, Québec, QC, Canada

<sup>2</sup> Interdisciplinary Research Center on Intimate Relationship Problems and Sexual Abuse (CRIPCAS), Canada

<sup>3</sup> Department of Psychology, Université de Montréal, Montréal, QC, Canada

<sup>4</sup> School of Social Work, Université Laval, Québec, Canada

<sup>5</sup> Interdisciplinary Research Center on Family Violence and Violence Against Women (CRI-VIFF), Canada

<sup>6</sup> Interuniversity Research Centre on Teaching and Teaching Profession (CRIFPE)

<sup>7</sup> Research Unit on Children's Psychosocial Maladjustment (GRIP), Université Laval, Canada

<sup>8</sup> Faculty of Sport and Physical Activity, Edge Hill University, United Kingdom

**Acknowledgments:** Authors would like to acknowledge everyone who have worked on the team, especially Catherine Flynn, Caroline D'Amours, Michaël Bégin, Judith Kotiuga, Sophie-Émilie Poulin-Lapierre, Mélina Fortin, Carolane Fournier, Francis Lefèbvre and Marilou Gauthier. We also want to thank warmly every young athlete who took time to participate in our study.

**Cite as:**

Parent, S., Fortier, K., Vaillancourt-Morel, M-P., Lessard, G., Goulet, C., Demers, G., Paradis, H., & Hartill, M. (accepted). Development and initial factor validation of the Violence Toward Athletes Questionnaire (VTAQ) in a sample of young athletes. *Society and Leisure*.

Accepted manuscript

**Development and factor validation of the Violence Toward Athletes Questionnaire (VTAQ)  
in a sample of young athletes**

**Abstract**

This study sought to develop and validate a questionnaire about violence experienced by children in sport. A convenience sample of 1055 French-Canadian athletes between 14 and 17 years old was recruited to participate in an online study assessing their experiences of interpersonal violence in sport. The Violence Toward Athletes Questionnaire (VTAQ) includes three subscales: athlete version (VTAQ-A), coach version (VTAQ-C), and parent version (VTAQ-P). Exploratory structural equation modeling (ESEM) was used to identify latent factors underlying versions of the VTAQ. The VTAQ-Athlete includes nine items with three factors: psychological (4 items), physical (2 items) and sexual (3 items). The VTAQ-Coach includes 36 items with three factors: psychological/neglect (16 items), physical (9 items) and sexual (11 items). The VTAQ-Parent includes 25 items with two factors: psychological/neglect (17 items) and physical (8 items). The VTAQ provides initial validation of the first measure by questioning children directly about their experiences of interpersonal violence in sport.

**Keywords:** Violence; Athletes; Children; Sport; Questionnaire; Validation

## 1. Introduction

Violence against children in sport is recognized as an important issue (Lang & Hartill, 2015; Mountjoy et al., 2016; Parent & Fortier, 2018). Recently, studies have shown that there is a substantial amount of interpersonal violence against athletes in sport and this should be a cause for concern (Alexander, Stafford & Lewis, 2011; Evans, Adler, Macdonald & Côté, 2016; Parent et al., 2016; Vertommen et al., 2016). Vertommen et al. (2016) interviewed over 4000 Belgian and Dutch adults regarding their experiences of interpersonal violence before the age of 18 in the sport context. Results of this study showed that 44% of participants reported having experienced at least one form of violence in sport (sexual, psychological or physical). Specifically, the authors reported that 11% of respondents experienced physical violence, 38% experienced psychological violence, and 14% experienced sexual violence. Besides these numbers, we also know that violence experienced by children in sport is associated with mental health problems and a lower quality of life in adulthood (Vertommen et al., 2018). Despite the magnitude and consequences of this recently demonstrated problem in research, studies attempting to measure it are scarce and contain a number of limitations, which hinder accurate measurement.

A first limitation is of a conceptual nature. Specifically, the meagre attention granted to neglect in research designs and the way physical violence is understood or measured in sport are two important limits from a conceptual point of view. Yet, the concept of neglect in sport has been identified as an integral constituent of violence and maltreatment against children in this context (Brackenridge, Fasting, Kirby, & Leahy, 2010; Mountjoy, Rhind, Tiivas, & Leglise, 2015; Mountjoy et al., 2016; Stirling, 2009). Moreover, neglect is internationally recognized as a form of child maltreatment (Krug, Dahlberg, Mercy, Zwi, & Lozano, 2002; Stoltenborgh, Bakermans-

Kranenburg, & van Ijzendoorn, 2013). However, neglect was not specifically addressed in recent global studies on violence against children in sport (Alexander, Stafford, & Lewis, 2011; Vertommen et al., 2016). The operationalization of physical violence in studies on violence against children in sport is also problematic. Indeed, the majority of sport researchers favors a definition of physical violence that emphasizes actual or implied potential physical harm to the athlete (also referred to as physical abuse), rather than the purely physical nature of the aggression (Alexander et al., 2011; David 2005, Stirling 2009). Thus, in addition to documenting events that are generally considered physical violence (e.g. pushing, hitting, or punching), some authors have incorporated events that do not involve any physical contact in their definition of physical violence, such as the imposition of excessive and intensive training (Alexander et al., 2011; David, 2005; Mountjoy et al., 2015; Stirling, 2009; Vertommen et al., 2016), the forced pursuit of training and competition despite the presence of an injury or exhaustion (Alexander et al., 2011; Raakman, Dorsch, & Rhind, 2010), the imposition of doping products consumption (David, 2005), or the imposition of severe diets to lose weight (Brackenridge et al., 2010; David, 2005). However, literature outside sport considers that the definition of physical violence needs to be centered on the nature of the gestures (physical contact) toward the child rather than on the consequences (physical) of these gestures when defining manifestations (Butchart et al., 2006; Clément & Dufour, 2009; Trocmé et al., 2010). So, these important manifestations should be included in questionnaires about violence in sport but would probably be better categorized as psychological violence rather than physical violence (see Fortier, Parent & Lessard, 2018 for a more detailed explanation).

A second important limitation lies in the type of perpetrator studied. For example, studies looking at prevalence of violence against children in sport did not, to our knowledge, include parents as potential perpetrators of violence toward their child in this context. Vertommen et al.

(2017) have an “other known” category that *could* include parents as perpetrators, but precise data are not given so it is not possible to determine what kind of violence children may experience from their parents in relation to their sport practice. Also, the tools used by Vertommen et al. (2016) and Alexander et al. (2011) did not have specific and context dependent items regarding the type of perpetrator.

This can create an underestimation of certain forms of violence such as sexual abuse. Indeed, this reflects previous recommendations in relation to questioning young athletes about sexual violence from a coach (Parent, Lavoie, Thibodeau, Hébert, & Blais, 2016; Parent & Fortier, 2017) where terms like “forced” or “unwanted” are irrelevant because of the absence of valid consent in those cases (Mathews & Collin-Vézina, 2017). This calls for a tool having specific items in relation to the kind of perpetrator. This is, to us, the best way to ensure capturing cases of normalization, especially in cases of abuse happening within a relationship of authority.

The third limitation is that the vast majority of studies pertaining to the problem’s magnitude with children were conducted on specific forms of violence such as sexual violence (Johansson & Lundqvist, 2017; Ohlert, Seidler, Rau, Rulofs, & Allroggen, 2017; Parent et al., 2016). This is a limitation to understanding the whole phenomenon and the links between different forms of victimization. Many researchers on victimization recommend studying violence in a more comprehensive way as to better understand common risk factors and be more efficient in prevention efforts (Finkelhor, Ormrod, & Turner, 2007; Finkelhor, Shattuck, Turner, Ormrod, & Hamby, 2011; Hamby, Finkelhor, Turner, Grych, & Banyard, 2017).

The last set of limitations we observed concerns methodological issues when measuring the prevalence of violence toward young athletes. For example, the use of retrospective design with adults to assess childhood victimization in sport (e.g. Alexander, Stafford, & Lewis, 2011;

Vertommen et al., 2016) can affect the accuracy of recollecting childhood events and introduce a memory bias (Bernstein et al., 2003; Cyr, 2014). Recent studies have demonstrated the relevance of conducting research with teenagers (Finkelhor, Vanderminden, Turner, Hamby, & Shattuck, 2014; Priebe, Backstrom, & Ainsaar, 2010; Ybarra, Langhinrichsen-Rohling, Friend, & Diener-West, 2009). Also, despite progress in the field, questionnaires used to measure violence against children in sport, to our knowledge, are still not systematically validated. Yet, researchers in sport have emphasized the importance of having validated tools to ensure quality of measurement in this domain (Stirling, 2009; Vertommen et al., 2017). Research on the causes and consequences of child abuse and neglect has often been hampered by unvalidated instruments (Bernstein et al., 2003).

In light of these limitations, the present study seeks to develop and validate a questionnaire that assesses all forms of interpersonal violence toward children in sport (including neglect) perpetrated by coaches, parents and peer athletes with a sample of teenagers. It is worth noting that the term “children” includes young children as well as teenagers. For instance, the term “child” includes teenagers in the child sexual abuse (CSA) literature (see Mathews & Collin-Vézina, 2017). This tool aims to address the problems of measuring violence toward children in sport identified above.

## **2. Method**

### *2.1 Participants and Procedure*

A convenience sample of French-Canadian athletes between the age of 14 and 17, who were participating in organized sport (playing within a league, club or sport team with organized

training and competition) at the moment of the study, was recruited to participate in an online study assessing their experiences in sport. Participants were recruited on a voluntary basis through different recruitment strategies, such as the distribution of a hyperlink to the study via mailing lists of sport partners, the distribution of flyers in sport competitions and advertising of the study via social media. Interested participants accessed through the hyperlink an anonymous survey hosted by a secured online survey software, *Qualtrics*, where they electronically signed a consent form before starting the questionnaire. The completion time ranged from 30 to 45 minutes. A list of resources (e.g. help lines for youth; psychologist) was included in the consent form, at the end of the questionnaire and also on the study's website. Considering that a parent might have been a perpetrator of violence against young athletes, parental consent was not required. The field of research on violence against athletes is evolving even if this is a sensitive topic. Indeed, some fears were expressed by the scientific community saying that questioning children about their negative experiences may cause discomfort, distress and traumatize them again. However, several recent studies have shown that youth participation in violence-related research does not appear to provoke serious distress reactions (Finkelhor, Vanderminden, Turner, Hamby & Shattuck, 2014; Fisher, Arbeit, Dumont, Macapagal & Mustanski, 2016; Jaffe, DiLillo, Hoffman, Haikalis & Dykstra, 2015; Macapagal, Coventry, Arbeit, Fisher & Mustanski 2016). Indeed, the vast majority of young people who participated in such studies reported that they would participate again and that the benefits they perceived were greater than the discomfort they experienced when participating, suggesting that the value of such participation outweighed their discomfort.

A total of 1259 athletes met inclusion criteria and began the online survey. Among these, 1055 (83.8%) completed the VTAQ and were included in this study. The final sample consisted of 763 girls (72.3%) and 292 boys (27.7%). Participants' age ranges from 14 to 17 years old, with



a mean of 15.29 years ( $SD = 1.07$ ). Most participants reported that they were Canadian (95.3%,  $n = 1005$ ) and that they were attracted only to persons of the other sex (87.9%,  $n = 927$ ). Most reported that they practice only one sport (62.7%,  $n = 662$ ) with 37.3% ( $n = 393$ ) reporting practicing at least two sports. The sports practiced varied widely with soccer (21.0%,  $n = 222$ ), volleyball (13.0%,  $n = 137$ ), swimming (10.8%,  $n = 114$ ), ice hockey (9.5%,  $n = 100$ ), basketball (8.0%,  $n = 84$ ), track and field (7.1%,  $n = 75$ ), cheerleading (6.9%,  $n = 73$ ), and American football (4.6%,  $n = 49$ ) being the most common. A total of 26.4% ( $n = 279$ ) reported that they were competing in their sport at the local or regional/interregional level, 46.6% ( $n = 492$ ) at the provincial level, 20.6% ( $n = 217$ ) at the national level, and 5.4% ( $n = 57$ ) at the international level. A total of 14.3% ( $n = 151$ ) of athletes reported that they practiced their sport less than five hours a week, 37.3% ( $n = 393$ ) between 6 and 10 hours a week, 26.4% ( $n = 278$ ) between 11 and 15 hours a week, 14.0% ( $n = 148$ ) between 16 and 20 hours a week, and 8.1% ( $n = 85$ ) more than 20 hours a week.

## 2.2 Measures

**Development of the VTAQ.** The Violence Toward Athletes Questionnaire (VTAQ) was developed to assess self-reported experiences of interpersonal violence in sport based on the perpetrator of the violence. The VTAQ included three subscales: other athlete version (VTAQ-A), coach version (VTAQ-C), and parent version (VTAQ-P). Each version included different types of violence in sport. The athlete version (teammates and opponents) included nine items: four items for psychological violence, two items for physical violence, and three items for sexual violence. The coach version included 37 items: 14 items for psychological violence, six items for neglect, six items for physical violence, and 11 items for sexual violence. The parent version included 26

items: 14 items for psychological violence, six items for neglect, and six items for physical violence. To ensure capturing violence from parents in the context of sport, we asked questions to participants using specific terms: *“Because of your athletic performance or your behavior in training or competition, one of your parents...”*. We also had items explicitly related to sport, such as: *“One of your parents has already forced you or asked you to train injured while you had a contrary medical opinion”*. Participants rated the frequency with which various events took place in the sport context on a four-point Likert scale where 0 = *never*; 1 = *rarely, 1 to 2 times*; 2 = *sometimes, 3 to 10 times*; 3 = *often, more than 10 times*. *“This choice of scale was made based on the recommendations of experts during the development phase (see below).”*

The development of these items was based on the steps for scale development proposed by DeVellis (2012). The first step was to determine clearly what constitutes violence against athletes. In this project, the definition used to understand violence is the one from the World Health Organization (WHO): *“the intentional use of physical force or power, threatened or actual, against oneself, another person, or against a group or community, that either results in or has a high likelihood of resulting in injury, death, psychological harm, maldevelopment or deprivation”* (Krug et al., 2002, p. 5). Despite the fact that self-directed and collective violence could be very interesting to measure in sport, we chose to focus solely on interpersonal violence. Hence, the WHO typology of violence was used to determine the four forms of interpersonal violence, namely sexual, psychological and physical violence as well as neglect (Krug et al., 2002). A literature review allowed the team to list the different kinds of manifestations of violence toward athletes in each of these forms of violence. The conceptual framework of maltreatment in sport proposed by Stirling (2009) was also a great source of inspiration. Nine focus groups were also organized with 60 young athletes (35 girls and 25 boys) aged between 12 and 17 years old (average age of 14.8

years old) to explore their perception of the concept of violence in sport and its manifestations. At the time of the study, all participants were practicing an organized sport in a variety of clubs in Quebec City and had previously competed at a local, regional, provincial, national or international level. A wide diversity of sports was represented in the sample (team, individual, aesthetic or combat sport). These focus groups lasted between 35 and 65 minutes.

The second step was to generate a first pool of items. So, based on the previous step, a conceptual framework (Fortier, Parent & Lessard, 2018) was created integrating results of the literature review, information from the focus groups, previous frameworks and items used in the existing works of Butchart et al. (2006) and Trocmé et al. (2010) on child maltreatment. A second pool of items was then generated. In the third step, this pool of items was submitted to 16 experts from diverse backgrounds such as child maltreatment, sport studies and bullying to assess content validity. They suggested including, excluding or modifying some items. This process led us to undertake the fourth step, where we considered the inclusion of selected items. During the fifth step, we conducted 10 individual semi-structured interviews with young athletes aged between 14 and 17 years to collect narrative descriptions of reported victimization as well as information on their understanding (e.g., wording) of items. Possible overestimations and underestimations due to literal interpretations of items or discomfort related to disclosure were also assessed at this stage, as recommended by Finkelhor, Hamby, Ormrod, and Turner (2005). These phases of data collection were also approved by the ethics committee of the institution. The final step was to administer the questionnaire to a sample of young athletes, the results of which are presented below after an overview of the definitions used.

Definitions used for the development of the VTAQ are presented in the next lines for clarity. Sexual violence was defined as: “a sexual act that is committed or attempted by another

person without freely given consent of the victim or against someone who is unable to consent or refuse” (Basile, Smith, Breiding, Black, & Mahendra, 2014, p. 11). In Canada, where the study was being conducted, when sexual activity occurs in a relationship of authority, trust, or dependency (e.g., coach), the age of consent is 18 years old. Thus, items on sexual violence perpetrated by a coach did not need to be identified as “unwanted” by the athletes whereas those from another athlete did. Items of sexual violence included sexual harassment (e.g., offensive sexual remarks on sexual life, on the body), sexual assault (e.g., unwanted sexual contacts), contact and non-contact child sexual abuse (e.g., voyeurism, exposure to pornography, sexual intercourse). Physical violence was defined as any action of a physical nature that compromises or threatens the integrity, the physical or the psychological well-being of a person (Clément & Dufour, 2009). Items included hitting, pushing, or shaking an athlete. Psychological violence was defined as acts which include restriction of movement, patterns of belittling, denigrating, scapegoating, threatening, scaring, discriminating, ridiculing, or other non-physical forms of hostile treatment or rejection (WHO, 1999). Items included behaviors that promote the corruption, exploitation and adoption of destructive, anti-social or unhealthy behaviors of a young athlete in the context of sport when talking about a person in position authority (e.g., force an athlete to train injured despite some medical advice, force an athlete to commit acts of violence). This category was added on the basis of items recognized as psychological maltreatment by Trocmé et al. (2010). Finally, neglect was defined as:

“The failure to provide for the development of the child [...] in the context of resources reasonably available to the family or caretakers, and causes or has a high probability of causing harm to the child’s health or physical, mental, spiritual, moral or social

development. This includes the failure to properly supervise and protect children from harm as much as is feasible”(WHO, 1999, p. 15).

Items included, for example, “permits participation in training and/or competition whilst injured and despite medical advice not do so” or “letting an athlete endure a violent act from another athlete without intervening”. Items of neglect were used only for the coach and the parent scale.

### 2.3 Statistical Analyses

To identify latent factors underlying each version of the VTAQ, we conducted Exploratory Structural Equation Modeling (ESEM; Asparouhov & Muthén, 2009) using *Mplus* version 8.0 (Muthén & Muthén, 1998–2015). ESEM incorporates the benefits of both Exploratory Factor Analysis (EFA) and Confirmatory Factor Analysis (CFA) into a single analytic framework. In ESEM, a given number of factors are specified based on a priori assumptions and modifications are made based on loadings, tests of significance and fit indices. Compared to CFA, in which all cross-loadings are specified to be zero, in ESEM all factor loadings are estimated such that each item is free to cross-load on other factors and will have as many secondary loadings as there are factors. ESEM allows for the testing of cross-loadings, thus an exploration of complex factor structures with modeling flexibility (Asparouhov & Muthén, 2009; Marsh, Morin, Parker, & Kaur, 2014). The covariances between factors are included in the models. We used the oblique geomin rotation and the Weighted Least Squares Mean and Variance-adjusted (WLSMV) estimator (Asparouhov & Muthén, 2010). As we dealt with ordered categorical indicators, item-level missingness was treated using the weighted least squares estimation, which is analogous to full information maximum likelihood (Asparouhov & Muthén, 2010). Based on Kline’s guidelines

(2011), the overall model fit was evaluated by considering together several fit indices: the comparative fit index (CFI), the Tucker-Lewis fit index (TLI), the root mean square error of approximation (RMSEA), and the weighted root-mean-square residual (WRMR). CFI and TLI values greater than .90 and .95 typically reflect acceptable and excellent fit, RMSEA values of less than .08 and .05 reflect a reasonable and close fit to the data, and WRMR values below or close to 1.00 indicated good models with categorical outcomes (Hu & Bentler, 1999). After the identification of the best number of factors, descriptive and correlational analyses were computed with the Statistical Package for the Social Sciences (SPSS 24.0) with a significance level of  $p < .05$ .

### **3. Results**

#### *3.1 Exploratory Structural Equation Model of the VTAQ-Athlete*

As hypothesized during the development of the athlete version of the VTAQ, we first estimated ESEM with three factors. This three-factor model provided an acceptable fit to the data,  $\chi^2(12) = 23.01$ ,  $p = .028$ ; RMSEA = .029, 90% CI [.010 to .048]; CFI = 0.995; TLI = 0.986; WRMR = 0.396. Standardized factor loadings and correlations between factors of the three-factor solution of VTAQ-Athlete are reported in Table 1. The first factor represented physical violence and included two items, the second factor represented psychological violence and included four items, and the third factor represented sexual violence and included three items. One item (VTAQ-A7) loaded onto the psychological (factor 2) and the sexual factors (factor 3) which is not surprising as this item represents offensive sexual remarks which may also represent psychological violence. Given the sexual nature of this item, we kept it on the sexual subscale. The final version

of the VTAQ-Athlete is presented in the supplementary material A and includes the nine items with three subscales: psychological (4 items), physical (2 items), and sexual (3 items).

Table 1

*Factor loadings and factor correlations of three-factor ESEM for the VTAQ from other athletes*

Items	Factor 1 Physical	Factor 2 Psychological	Factor 3 Sexual
VTAQ-A5	<b>.664</b>	-.004	.088
VTAQ-A6	<b>.941</b>	.041	.026
VTAQ-A1	-.052	<b>.695</b>	.131
VTAQ-A2	.118	<b>.850</b>	.008
VTAQ-A3	.301	<b>.339</b>	.119
VTAQ-A4	.283	<b>.577</b>	.125
VTAQ-A7	.212	.384	<b>.388</b>
VTAQ-A8	.052	-.068	<b>.912</b>
VTAQ-A9	.000	.134	<b>.706</b>
F1	-	.376	.286
F2	-	-	.340

*Note.* ESEM = exploratory structural equation modeling. VTAQ = violence in sport questionnaire. Coefficients in bold represent the items included in this factor.

### 3.2 Exploratory Structural Equation Model of the VTAQ-Coach

Estimation of the 37 items yielded a problematic model as nine items had very low variance (variance <.03). We had to remove these items from the model to obtain an acceptable model. We inspected the frequency of these experiences of violence and even if some items were reported only by a minority of athletes, these items were kept in the questionnaire as even extreme forms of violence need to be assessed (VTAQ-C6, VTAQ-C14, VTAQ-C21, VTAQ-C24, VTAQ-C30, VTAQ-C31, VTAQ-C32, VTAQ-C34, VTAQ-C36). Re-estimating the ESEM without these low-variance items, the best fitting model included three factors instead of four as hypothesized during the development of the athlete version of the VTAQ. The items developed for psychological

violence and neglect loaded onto the same factor, thus we named this factor the psychological violence and neglect subscale. One item loaded lowly on all three factors (loading  $<.25$ ). We decided to remove this item as it may not represent a neglecting behaviour, contrary to what Stirling (2009) suggested: “has ever allowed you to use alcohol or drugs during activities related to your sport practice”.

The final ESEM with 27 items onto three factors provided an acceptable fit to the data,  $\chi^2(273) = 524.41$ ,  $p <.001$ ; RMSEA = .030, 90% CI[.026 to .033]; CFI = 0.958; TLI = 0.946; WRMR= 1.03. Standardized factor loadings and correlations between factors of the three-factor solution with 27 items of the VTAQ-Coach are reported in Table 2. The first factor represented psychological violence and neglect which included 13 items, the second factor represented sexual violence and included six items, and the third factor represented physical violence and included eight items. Three items were developed to be included in the psychological subscale (VTAQ-C7, VTAQ-C8, VTAQ-C9), but loaded highly on the physical violence factor and poorly on the psychological violence and neglect factor. As these items include a physical act from the perpetrator or from an athlete (such as physical behaviours not directed to the athlete, asking the athlete to be violent or letting the athlete be violent with an opposing athlete), we decided to move these items in the physical violence subscale. Again, the item representing offensive sexual remarks (VTAQ-C26) loaded onto the psychological and the sexual factors. Given the sexual nature of this item we kept it in the sexual subscale. The final version of the VTAQ-Coach is presented in the supplementary material B and includes the 36 items with three subscales: psychological and neglect (16 items), physical (9 items), and sexual (11 items).



Table 2

*Factor loadings and factor correlations of three-factor ESEM for the VTAQ from coach*

Items	Factor 1 Psychological and neglect	Factor 2 Sexual	Factor 3 Physical
VTAQ-C10	<b>.661</b>	.071	.118
VTAQ-C11	<b>.747</b>	-.100	.343
VTAQ-C12	<b>.824</b>	-.121	.268
VTAQ-C13	<b>.799</b>	-.186	.188
VTAQ-C15	<b>.577</b>	.170	.095
VTAQ-C16	<b>.776</b>	-.181	.245
VTAQ-C17	<b>.541</b>	.226	-.081
VTAQ-C18	<b>.751</b>	.261	-.142
VTAQ-C19	<b>.682</b>	.295	-.130
VTAQ-C20	<b>.638</b>	.291	-.599
VTAQ-C22	<b>.538</b>	.256	-.027
VTAQ-C23	<b>.583</b>	.318	-.494
VTAQ-C25	<b>.405</b>	.204	.133
VTAQ-C26	.485	<b>.376</b>	.092
VTAQ-C27	.038	<b>.728</b>	.148
VTAQ-C28	-.042	<b>.986</b>	.010
VTAQ-C29	-.045	<b>.878</b>	.070
VTAQ-C33	-.005	<b>.919</b>	.019
VTAQ-C35	.033	<b>.934</b>	.174
VTAQ-C1	.254	.259	<b>.422</b>
VTAQ-C2	.052	.344	<b>.504</b>
VTAQ-C3	.270	.412	<b>.447</b>
VTAQ-C4	.199	.342	<b>.444</b>
VTAQ-C5	.030	.466	<b>.592</b>
VTAQ-C7	.160	.261	<b>.395</b>
VTAQ-C8	.047	.102	<b>.842</b>
VTAQ-C9	.023	.049	<b>.917</b>
F1	-	.306	.167
F2	-	-	.236

*Note.* ESEM = exploratory structural equation modeling. VTAQ = violence in sport questionnaire. Coefficients in bold represent the items included in this factor.

### 3.3 Exploratory Structural Equation Model of the VTAQ-Parent

Estimation of the 26 items yielded a problematic model as seven items had very low variance. We had to remove these items from the model to obtain an acceptable model. However,

we inspected the frequency of these experiences of violence and, in line with the coach version, these items were kept in the questionnaire as even extreme forms of violence need to be assessed (VTAQ-P4, VTAQ-P5, VTAQ-P6, VTAQ-P12, VTAQ-P13, VTAQ-P20, VTAQ-P23). Re-estimating the ESEM without these items, the best fitting model included two factors instead of three as hypothesized during the development of the parent version of the VTAQ. The items developed for psychological violence and neglect loaded onto the same factor, thus we named this factor the psychological violence and neglect subscale. One item loaded lowly on both factors (loading <.30). In line with the coach version, we decided to remove this item: “has ever allowed you to use alcohol or drugs during activities related to your sport practice”.

The final ESEM with 18 items onto two factors provided an acceptable fit to the data,  $\chi^2(118) = 274.81$ ,  $p < .001$ ; RMSEA = .036, 90% CI [.031 to .042]; CFI = 0.960; TLI = 0.948; WRMR = 0.982. Standardized factor loadings and correlations between factors of the two-factor solution with 18 items of the VTAQ-Parent are reported in Table 3. The first factor represented physical violence and included five items and the second factor represented psychological violence and neglect which included 13 items. Two items were developed to be included in the psychological subscale (VTAQ-P7, VTAQ-P8), but the VTAQ-P7 loaded highly on the physical violence factor and poorly on the psychological violence and neglect factor whereas the VTAQ-P8 loaded on both factors. To be in line with the coach version, these items were moved in the physical violence subscale. Four items were developed for the psychological subscale but loaded on both factors (VTAQ-P9 VTAQ-P10 VTAQ-P11 VTAQ-P14). They were kept in the psychological violence and neglect subscale as they represented this type of violence. The final version of the VTAQ-Parent is presented in the supplementary material C and includes the 25 items with two subscales: psychological and neglect (17 items) and physical (8 items).

Table 3

*Factor loadings and factor correlations of the two-factor ESEM for the VTAQ from parents*

Items	Factor 1 Physical	Factor 2 Psychological and neglect
VTAQ-P1	<b>.783</b>	.157
VTAQ-P2	<b>.964</b>	-.009
VTAQ-P3	<b>.892</b>	-.003
VTAQ-P7	<b>.705</b>	.204
VTAQ-P8	<b>.399</b>	.409
VTAQ- P9	.536	<b>.327</b>
VTAQ- P10	.534	<b>.478</b>
VTAQ- P11	.433	<b>.523</b>
VTAQ- P14	.409	<b>.416</b>
VTAQ- P15	.030	<b>.850</b>
VTAQ- P16	.072	<b>.685</b>
VTAQ- P17	-.017	<b>.854</b>
VTAQ- P18	.004	<b>.879</b>
VTAQ- P19	-.351	<b>.998</b>
VTAQ- P21	.045	<b>.607</b>
VTAQ- P22	-.477	<b>.898</b>
VTAQ- P24	.167	<b>.624</b>
VTAQ- P25	.010	<b>.639</b>
F1	-	.465

*Note.* ESEM = exploratory structural equation modeling. VTAQ = violence in sport questionnaire. Coefficients in bold represent the items included in this factor.

### 3.4 Descriptive statistics and correlations of the VTAQ subscales

Internal consistency of all subscales of the three versions of the VTAQ was acceptable. Ordinal coefficient alphas estimated using the polychoric correlation matrix (Zumbo, Gadermann, & Zeisser, 2007) are reported in Table 4. Items were summed by subscale and means, standard deviations and correlations are reported in Table 4. All correlations between subscales and versions were significant. Correlations between subscales of the VTAQ-Athlete varied between .27 and .45, those between the subscales of the VTAQ-Coach varied between .26 to .32, and the one between the two subscales of the VTAQ-Parent was .46. We noted more important correlations

between the psychological subscales from all three types of perpetrators with correlations that varied between .37 and .52.

Accepted manuscript

Table 4

*Descriptive statistics and bivariate correlations for the Violence Toward Athletes Questionnaire (VTAQ).*

	# items	<i>a</i>	<i>M</i> (range) <i>n</i> = 997 to 1055	<i>SD</i>	1.	2.	3.	4.	5.	6.	7.
1. VTAQ-A psycho	4	.81	1.77 (0-12)	2.10	-						
2. VTAQ-A physical	2	.80	0.36 (0-6)	0.91	.32***	-					
3. VTAQ-A sexual	3	.79	0.39 (0-8)	0.89	.45***	.27***	-				
4. VTAQ-C psy/neg	16	.93	3.12 (0-30)	4.32	.46***	.17***	.31***	-			
5. VTAQ-C physical	9	.90	0.70 (0-20)	1.65	.25***	.36***	.29***	.32***	-		
6. VTAQ-C sexual	11	.98	0.28 (0-28)	1.47	.19***	.16***	.43***	.26***	.31***	-	
7. VTAQ-P psy/neg	17	.95	1.51 (0-24)	2.98	.37***	.17***	.35***	.52***	.25***	.33***	-
8. VTAQ-P physical	8	.96	0.25 (0-14)	1.05	.16***	.14***	.24***	.20***	.33***	.37***	.46***

*Note.* VTAQ-A = Violence Towards Athletes Questionnaire - Athlete. VTAQ-C = Violence Towards Athletes Questionnaire - Coach.

VTAQ-P = Violence Towards Athletes Questionnaire - Parent.

\*\*\*  $p < .001$ .

#### 4. Discussion

This study sought to develop and validate a questionnaire about interpersonal violence toward athletes (VTAQ). To our knowledge, the VTAQ is the first measurement tool to directly question child athletes about their experiences of interpersonal violence in the sport context. Three versions of the VTAQ were developed to assess self-reported experiences of interpersonal violence in sport based on the perpetrator of the violence: other athlete version (VTAQ-A), coach version (VTAQ-C), and parent version (VTAQ-P). As expected, our results showed that the VTAQ-A have a three-factor structure: sexual, physical and psychological violence. Contrary to what we anticipated, our results show that the VTAQ-C is not a four-factor structure (sexual, physical and psychological violence, neglect), but rather a three-factor structure, namely sexual violence, physical violence and psychological violence/neglect (combined). This could be explained by the fact that psychological violence and neglect are concepts that are often linked together. Indeed, research on child maltreatment indicates a strong correlation between psychological abuse and emotional neglect and sometimes even combines these into an emotional maltreatment category (Allen, 2008; Barnett, Manly, & Cicchetti, 1993; Bernstein et al., 2003). Although we used terms like “forced or asked to” for items of psychological violence and terms referring to an omission or failure for items related to neglect, those items were closely linked in light of our analysis. So while these concepts may appear to be “conceptually” different (psychological violence vs neglect), in the VTAQ-P and VTAQ-C, psychological violence and neglect are sufficiently linked to constitute a single factor. For parents, contrary to what was expected, the VTAQ-P does not have a three-factor structure (physical violence, psychological violence and neglect), but rather, a two-factor structure (physical violence, psychological violence/neglect). The same reasons as

mentioned above for the VTAQ-C seem to explain this result. The VTAQ-P does not include sexual violence items because we wanted to restrict items related to parents to a sport-related context. We considered that items of psychological violence, physical violence and neglect were more susceptible to be related to the sport context, such as the use of these forms of violence toward their children because of their performance, behavior in training or competition. We also added items about psychological violence and neglect clearly linked to the sport context, such as asking their child to limit or restrict their social relations to better invest in sport or to force them to compete injured despite medical advice not to do so.

During the development phase of the VTAQ, we decided to classify items not involving a direct physical contact with athletes in the category of psychological violence (except for sexual violence and only for VTAQ-C and VTAQ-P). Our results demonstrated that some items anticipated being classified as psychological violence were in fact associated with the physical violence factor, such as “hitting or throwing objects not directed to you” or “force an athlete to injure another athlete during a match”. This could be explained by the fact that those events imply a violent physical act from the athlete or the perpetrator. However, items considered as physical abuse in the literature like being forced to train injured (Alexander et al., 2011) were associated with psychological violence, as we have anticipated. Thus, the nature of the “visible impact” on an athlete seems not to be an important criterion to classify these items as physical violence or abuse.

## **5. Limitations and future research**

The VTAQ was designed for young athletes aged between 14 and 17 years old from any type of sport and level of competition. However, this questionnaire could be applied to adults who

have been athletes when they were children. In doing so, the VTAQ could be used in retrospective studies. A convenience sample was used to develop and validate the factorial structure of the VTAQ. This sample may not be representative of all athletes between 14 and 17. Another limitation is that even if ESEM incorporates an exploratory and confirmatory approach, this validation remains exploratory and future studies should confirm the factorial validity of this scale. The combination of items into subscales is preliminary and should be validated. Moreover, some items with low variance, which represents low frequency of this type of violence, could not be added to our statistical model, and thus we could not confirm the factorial validity of our subscales with these items. Future research on the VTAQ should use a larger representative sample which would allow testing items with a very low variance and occurrence (e.g., sexual abuse, some items on physical violence).

Each respondent was only subjected to a single measurement, so we cannot examine the test-retest reliability. Also, future research should extend the preliminary results presented here by adding measures of convergent validity to further assess the psychometric qualities of the instrument. Convergent validity could be measured by using mental health measures, as we know that violence is associated with mental health problems (Vertommen et al., 2018). The sensitivity and convergence of the VTAQ should also be compared with structured interviews, therapists' ratings or official child welfare records. These further analyses would help measure the severity of interpersonal violence experienced by young athletes reported in the VTAQ. Vertommen et al. (2016) used this kind of classification in their study, based on frequency of occurrence and expert classification of items.



## 6. Conclusion

This research project was part of a larger project aimed at monitoring interpersonal violence against young athletes to support prevention efforts and intervention strategies. To attain these goals, we need effective tools to measure the problem. As Vertommen et al. (2016) state, “to foster and support (inter-)national attempts to protect children in organized sports across the world, we need to recurrently perform prevalence surveys using standardized and internationally validated instruments in as many countries as possible” (p. 234). This reflects concerns in literature about the lack of data in this field (Lang & Hartill, 2015). The VTAQ is the first validated tool for measuring interpersonal violence against children in sport. This undoubtedly constitutes a major advance in this field, especially because it is based on questioning children directly about their experiences. The VTAQ could serve as a measurement standard for surveys in other countries. Eventually, transcultural validation would allow comparisons between countries about the magnitude of the problem. Finally, the VTAQ could serve as a surveillance tool used in regular time-based intervals to evaluate impacts of prevention and intervention strategies.

## References

- Alexander, K., Stafford, A., & Lewis, R. (2011). *The experiences of children participating in organised sport in the UK*. Londres, Royaume-Uni: NSPCC
- Allen, B. (2008). An analysis of the impact of diverse forms of childhood psychological maltreatment on emotional adjustment in early adulthood. *Child Maltreatment, 13*(3), 307–312.
- Asparouhov, T., & Muthén, B. (2009). Exploratory structural equation modeling. *Structural Equation Modeling, 16*, 397–438.
- Asparouhov, T., & Muthén, B. O. (2010). *Weighted least squares estimation with missing data*. Los Angeles, CA: Muthén & Muthén. Retrieved from: <http://www.statmodel.com/download/GstrucMissingRevision.pdf>
- Barnett, D., Manly, J.T., Cicchetti, D. (1993). Defining child maltreatment: The interface between policy and research. In D. Cicchetti, S.L. Toth, (eds.), *Child abuse, child development, and social policy* (pp. 7–74). Norwood, NY: Ablex.
- Basile, K., Smith, S., Breiding, M., Black, M., & Mahendra, R. (2014). *Sexual Violence Surveillance: Uniform Definitions and Recommended Data Elements*. Centers for Disease Control and Prevention. Retrieved from: [https://www.cdc.gov/violenceprevention/pdf/sv\\_surveillance\\_definitions-2009-a.pdf](https://www.cdc.gov/violenceprevention/pdf/sv_surveillance_definitions-2009-a.pdf)
- Bernstein, D. P., Stein, J. A., Newcomb, M. D., Walker, E., Pogge, D., Ahluvalia, T., . . . Zule, W. (2003). Development and validation of a brief screening version of the Childhood Trauma Questionnaire. *Child Abuse & Neglect, 27*(2), 169–190. doi:10.1016/s0145-2134(02)00541-0
- Brackenridge, C., Fasting, K., Kirby, S., & Leahy, T. (2010). *Protecting Children from Violence in Sport: A review with a focus on industrialized countries*. UNICEF (Ed.). UNICEF Innocenti Research Centre.
- Butchart, A., Phinney Harvey, A., Mian, M., Fürniss, T., Kahane, T., & Organization, W. H. (2006). *Guide sur la prévention de la maltraitance des enfants: intervenir et produire des données*. Genève, Suisse: Organisation mondiale de la santé.
- Clément, M., & Dufour, S. (2009). *La violence à l'égard des enfants en milieu familial*. Anjou: Les Éditions CEC.
- Cyr, M. (2014). *Recueillir la parole de l'enfant témoin ou victime: de la théorie à la pratique*. Paris : Dunod.
- David, P. (2005). *Human rights in youth sport: A critical review of children's rights in competitive sports*. Londres, Royaume-Uni : Routledge.
- DeVellis, R.F. (2012). *Scale Development: Theory and Applications*. USA: Sage.

- Evans, B., Adler, A., Macdonald, D. et Cote, J. (2016). Bullying Victimization and Perpetration Among Adolescent Sport Teammates. *Pediatric Exercise Science*, 28(2), 296–303.
- Finkelhor, D., Hamby, S.L., Ormrod, R.K., & Turner, H.A. (2005). The Juvenile Victimization Questionnaire: Reliability, validity, and national norms. *Child Abuse & Neglect*, 29, 383–412.
- Finkelhor, D., Ormrod, R.K., & Turner, H.A. (2007). Polyvictimization and trauma in a national longitudinal cohort. *Development and Psychopathology*, 19, 149–166.
- Finkelhor, D., Shattuck, A., Turner, H., Ormrod, R., & Hamby, S. (2011). Polyvictimization in Developmental Context. *Journal of Child & Adolescent Trauma*, 4, 291–300.
- Finkelhor, D., Vanderminden, J., Turner, H., Hamby, S., & Shattuck, A. (2014). Upset among youth in response to questions about exposure to violence, sexual assault and family maltreatment. *Child Abuse & Neglect*, 38(2), 217–223.
- Fisher, C.B., Arbeit, M.R., Dumont, M.S., Macapagal, K., & Mustanski, B. (2016). Self-consent for HIV prevention research involving sexual and gender minority youth: reducing barriers through evidence-based ethics. *Journal of Empirical Research on Human Research Ethics*, 11(1), 3–14.
- Fortier, K., Parent, S., & Lessard, G. (2018). A conceptual framework of child maltreatment in sport. Submitted to *British Journal of Sports Medicine*.
- Hamby, S., Finkelhor, D., Turner, H., Grych, J., & Banyard, V. (2017, March). *Poly-victimization & the paradigm shifts to take us to the next generation of violence research & practice*. Communication présentée au Centre de recherche interdisciplinaire sur les problèmes conjugaux et les agressions sexuelles (CRIPCAS). Université du Québec à Montréal. Document non publié.
- Hu, L.-T., 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.
- Jaffe, A.E., DiLillo, D., Hoffman, L., Haikalis, M., & Dykstra, R.E. (2015). Does it Hurt to Ask? A Meta-Analysis of Participant Reactions to Trauma Research. *Clinical Psychology Review*, 40, 40–56. doi: 10.1016/j.cpr.2015.05.004
- Johansson, S., & Lundqvist, C. (2017). Sexual harassment and abuse in coach—athlete relationships in Sweden. *European Journal for Sport and Society*, 14(2), 117–137. doi:10.1080/16138171.2017.1318106
- Kline, R. B. (2011). *Principles and practice of structural equation modeling (3rd ed.)*. New York, NY: Guilford Press.
- Krug, E. G., Dahlberg, L. L., Mercy, J. A., Zwi, A. B., & Lozano, R. (2002). *World report on violence and health*. Genève, Suisse: World Health Organization.

- Lang, M., & Hartill, M. (2015). *Safeguarding, child protection and abuse in sport: International perspectives in research, policy and practice*. Londres, Royaume-Uni: Routledge.
- Macapagal, K., Coventry, R., Arbeit, M.R., Fisher, C.B., & Mustanski, B. (2017). "I won't out myself just to do a survey": Sexual and gender minority adolescents' perspectives on the risks and benefits of sex research. *Archives of Sexual Behavior*, 46(5), 1393–1409.
- Mathews, B., & Collin-Vézina, D. (2017). Child sexual abuse: towards a conceptual model and definition. *Trauma, Violence & Abuse*. doi: 10.1177/1524838017738726
- Mountjoy, M., Brackenridge, C., Arrington, M., Blauwet, C., Carska-Sheppard, A., Fasting, K., ... Budgett, R. (2016). The IOC Consensus Statement: Harassment and abuse (non-accidental violence) in sport. *British Journal of Sports Medicine*, 50(17), 1019–1029. doi:10.1136/bjsports-2016-096121
- Mountjoy, M., Rhind, D. J. A., Tiivas, A., & Leglise, M. (2015). Safeguarding the child athlete in sport: A review, a framework and recommendations for the IOC youth athlete development model. *British Journal of Sports Medicine*, 49(13), 883–886.
- Muthén, L. K., & Muthén, B. O. (1998–2015). *Mplus user's guide. Seventh Edition*. Los Angeles, CA: Muthén & Muthén.
- Marsh, H. W., Morin, A. J. S., Parker, P. D., & Kaur, G. (2014). Exploratory structural equation modeling: An integration of the best features of exploratory and confirmatory factor analysis. *Annual Review of Clinical Psychology*, 10, 85–110. doi: 10.1146/annurev-clinpsy-032813-153700
- Ohlert, J., Seidler, C., Rau, T., Rulofs, B., & Allroggen, M. (2017). Sexual violence in organized sport in Germany. *German Journal of Exercise and Sport Research*. doi: 10.1007/s12662-017-0485-9.
- Parent, S., Lavoie, F., Thibodeau, M.È., Hébert, M., & Blais, M., (2016). Sexual violence experienced in the sport context by a representative sample of Quebec adolescents. *Journal of Interpersonal Violence*, 31(16), 2666–2686.
- Parent, S., & Fortier, K. (2018). Comprehensive overview of the problem of violence against athletes in sport. *Journal of Sport and Social Issues*. doi: 10.1177/0193723518759448
- Parent, S., & Fortier, K. (2017). Prevalence of interpersonal violence against athletes in the sport context. *Current Opinion in Psychology*, 16, 165–169. doi: 10.1016/j.copsyc.2017.05.012
- Priebe, G., Backstrom, M., & Ainsaar, M. (2010). Vulnerable adolescent participants' experience in surveys on sexuality and sexual abuse: Ethical aspects. *Child Abuse & Neglect*, 34(6), 438–447. doi: 10.1016/j.chiabu.2009.10.005
- Raakman, E., Dorsch, K., & Rhind, D. (2010). The development of a typology of abusive coaching behaviours within youth sport. *International Journal of Sports Science and Coaching*, 5(4), 503–515.

- Stirling, A. E. (2009). Definition and constituents of maltreatment in sport: Establishing a conceptual framework for research practitioners. *British Journal of Sports Medicine*, 43, 1091–1099.
- Stoltenborgh, M., Bakermans-Kranenburg, M.J., & van Ijzendoorn, M., H. (2013). The neglect of child neglect: a meta-analytic review of the prevalence of neglect. *Social Psychiatry and Psychiatric Epidemiology*, 48(3), 345–355.
- Troc  , N., Fallon, B., MacLaurin, B., Sinha, V., Black, T., Fast, E., & Holroyd, J. (2010).   tude canadienne sur l'incidence des signalements des cas de violence et de n  gligence envers les enfants de 2008 (  CI-2008). Donn  es principales. Base consult  e le, 19 novembre 2016.
- Vertommen, T., Schipper-van Veldhoven, N., Wouters, K., Kampen, J. K., Brackenridge, C., Rhind, D.J.A., Neels, K., & Eede Van Den, F. (2016). Interpersonal violence against children in sport in the Netherlands and Belgium. *Child Abuse & Neglect*, 51, 223–236.
- Vertommen, T., Kampen, J., Schipper-van Veldhoven, N., Wouters, K., Uzieblo, K., & Eede Van Den, F. (2017). Profiling perpetrators of interpersonal violence against children in sport based on a victim survey. *Child Abuse & Neglect*, 63, 172–182.
- Vertommen, T., Kampen, J., Chipper-van Veldhoven, N., Uzieblo, K., & Van Den Eede, F. (2018). Severe interpersonal violence against children in sport: Associated mental health problems and quality of life in adulthood. *Child Abuse & Neglect*, 76, 459–468.
- World Health Organization. (1999). Violence and Injury Prevention Team & Global Forum for Health Research. *Report of the Consultation on Child Abuse Prevention*, 29–31 March 1999, WHO, Geneva. Geneva: World Health Organization. Retrieved at: <http://www.who.int/iris/handle/10665/65900>
- Ybarra, M., Langhinrichsen-Rohling, J., Friend, J., & Diener-West, M. (2009). Impact of asking sensitive questions about violence to children and adolescents. *Journal of Adolescent Health*, 45(5), 499–507. doi: 10.1016/j.jadohealth.2009.03.009
- Zumbo, B. D., Gadermann, A. M., & Zeisser, C. (2007). Ordinal versions of coefficients alpha and theta for Likert rating scales. *Journal of Modern Applied Statistical Methods*, 6, 21–29.

## Supplementary Material A

### Questionnaire sur la Violence Envers les Athlètes – Athlète (VTAQ-A)

Les prochaines questions concernent certains événements qui ont pu survenir avec **un autre athlète ou un groupe d'athlètes** depuis **ton enfance jusqu'à aujourd'hui** au cours de ta carrière sportive, c'est-à-dire dans le cadre de tes **entraînements**, de tes **compétitions** ou de **tout autre événement** en lien avec la pratique de ton sport (exemples : réunions, séances vidéos, camps d'entraînement, sorties d'équipe).

*Note.* On entend par athlète des coéquipier(s), des adversaire(s) ou encore un tout autre athlète évoluant dans le contexte sportif

0 = Jamais

1 = Rarement, 1 à 2 fois

2 = Quelque fois, 3 à 10 fois

3 = Souvent, Plus de 10 fois

#### Dans le contexte sportif, un athlète ou un groupe d'athlètes ...

A1. ... a déjà tenté de t'exclure du groupe (exemples : en t'ignorant, en ne t'invitant pas aux fêtes et activités de l'équipe ou du club).

A2. ... a déjà tenté de nuire à ta réputation en répandant des rumeurs sur toi ou des commentaires blessants à ton sujet.

A3. ... t'a déjà volé ou brisé des objets personnels (exemples : équipement et vêtements sportifs, iPod, téléphone cellulaire, argent).

A4. ... t'a déjà insulté, menacé ou humilié (exemples : te donner des surnoms que tu n'aimes pas, dévaloriser tes performances sportives).

A5. ... t'a déjà frappé, poussé, secoué, frappé avec de l'équipement sportif, donné un coup de poing ou un coup de pied pendant une situation de compétition ou une partie.

A6. ... t'a déjà frappé, poussé, secoué, frappé avec de l'équipement sportif, donné un coup de poing ou un coup de pied durant un autre moment qu'une situation de compétition ou une partie (exemples : à l'entraînement, dans les vestiaires, avant ou après une compétition).

A7. ... t'a déjà fait des remarques sexuelles grossières ou blessantes (sur ta vie sexuelle, sur ton corps, etc.)

A8. ... a déjà eu des comportements de nature sexuelle qui t'ont rendu inconfortable (imiter une fellation, te déshabiller du regard, te siffler, etc.).

A9. ... t'a déjà forcé à avoir des contacts sexuels que tu ne souhaitais pas (exemples : embrasser, relation sexuelle avec pénétration).

## Supplementary Material B

### Questionnaire sur la Violence Envers les Athlètes – Coach (VTAQ-C)

Les prochaines questions portent sur des événements qui ont pu survenir avec **tes entraîneur(e)s depuis ton enfance jusqu'à aujourd'hui** dans le contexte sportif, c'est-à-dire dans le cadre de tes **entraînements**, de tes **compétitions** ou de **tout autre événement** en lien avec la pratique de ton sport (exemples : réunions, séances vidéos, camps d'entraînement, sorties d'équipe).

*Note.* L'entraîneur peut également être un de tes parents si ce dernier a déjà été ton entraîneur.

0 = Jamais

1 = Rarement, 1 à 2 fois

2 = Quelques fois, 3 à 10 fois

3 = Souvent, Plus de 10 fois

#### Dans le contexte sportif, un(e) entraîneur(e)...

C1. ...t'a déjà secoué, poussé, agrippé (attrapé) ou projeté.

C2. ...a déjà lancé un objet directement sur toi.

C3. ...t'a déjà frappé avec la main (exemple : gifles, claques).

C4. ...t'a déjà donné un coup de poing ou un coup de pied.

C5. ...t'a déjà frappé avec un objet dur (exemple : équipement sportif).

C6. ...t'a déjà étouffé ou étranglé.

C7. ... a déjà frappé ou lancé des objets qui ne se dirigeaient pas vers toi (exemples : lancer un bâton de hockey sur une poubelle, lancer un bloc-notes).

C8. ... t'a déjà forcé ou demandé de poser les gestes suivants en situation de compétition :

- blesser un adversaire (donner un coup de poing, frapper avec de l'équipement sportif, etc.)
- humilier ou ridiculiser un adversaire
- menacer de faire du mal à un adversaire

C9. ... t'a déjà laissé poser les gestes suivants en situation de compétition sans intervenir :

- blesser un adversaire (donner un coup de poing, frapper avec de l'équipement sportif, etc.)
- humilier ou ridiculiser un adversaire
- menacer de faire du mal à un adversaire

C10. ... a déjà menacé de t'abandonner, de te faire du mal ou de faire du mal à quelqu'un ou quelque chose que tu aimes.

C11. ... t'a déjà crié des injures, humilié, ridiculisé.

C12. ... t'a déjà critiqué de manière excessive (exemples : sur tes performances, ton attitude).

C13. ... t'a déjà rejeté ou exclu volontairement.

C14. ... t'a déjà enfermé dans un espace restreint ou a déjà tenté de limiter tes mouvements (exemples : t'enfermer dans un vestiaire, t'attacher).

C15. ...t'a déjà demandé de limiter ou de restreindre tes liens avec ton réseau social (amitiés, relations amoureuses, famille) pour te permettre de mieux t'investir dans ton sport.

C16. ... t'a déjà ignoré volontairement ou s'est déjà montré indifférent à ton égard (exemples : refuser de te parler, faire comme si tu n'étais pas là).

C17. ... t'a déjà forcé ou demandé d'effectuer des entraînements supplémentaires très intenses et de manière excessive jusqu'à ce que tu sois extrêmement épuisé ou jusqu'à ce que tu vomisses.

C18. ... t'a déjà forcé ou demandé de t'entraîner blessé alors que tu avais un avis médical contraire.

C19. ... t'a déjà forcé ou demandé d'exécuter des mouvements ou des gestes techniques trop difficiles pour tes capacités (physiques et psychologiques) qui auraient pu ou ont eu des impacts négatifs sur ta santé ou ta sécurité.

C20. ...t'a déjà forcé ou demandé d'utiliser l'un des moyens suivants pour atteindre le poids idéal dans ton sport :

- jeûne total (arrêter de manger)
- vomissement
- entraînements supplémentaires à l'entraînement normal
- pilule amaigrissante
- déshydratation (sauna ou exercice physique)
- diurétique
- laxatif

C21. ...t'a déjà forcé ou demandé de consommer un des produits suivants ou d'utiliser l'une des méthodes suivantes pour améliorer ta performance :

- stéroïdes anabolisants
- créatine
- érythropoïétine (EPO)
- hormones de croissance
- injection ou transfusion de sang

C22. ... t'a déjà permis ou laissé prendre part à un entraînement ou à une compétition blessé alors qu'il savait que tu avais un avis médical contraire.

C23. ...savait que tu utilisais l'un des moyens suivants pour atteindre le poids idéal dans ton sport et n'est pas intervenu :

- jeûne total (arrêter de manger)
- vomissement
- exercice physique excessif (tu t'obligeais à maintenir ton horaire d'entraînement, tu ressentais le besoin d'augmenter sans cesse le temps consacré à l'entraînement, tu ressentais de la culpabilité si tu manquais une séance d'entraînement)
- pilule amaigrissante
- déshydratation (sauna ou exercice physique)
- diurétique
- laxatif

C24. ... savait que tu consommais l'un des produits suivants ou que tu utilisais l'une des méthodes suivantes et n'est pas intervenu :

- stéroïdes anabolisants
- créatine
- érythropoïétine (EPO)
- hormones de croissance
- injection ou transfusion de sang

C25. ... t'a déjà demandé d'arrêter l'école ou de mettre tes études en pause pour te consacrer à la pratique de ton sport.



C26. ... t'a déjà fait des remarques grossières, blessantes ou qui t'ont rendu inconfortable sur ta vie sexuelle, ta vie privée ou ton apparence (exemples : commentaire sur tes fesses, sur tes seins, sur tes organes génitaux, sur ton amoureux ou amoureuse).

C27. ... a déjà eu des comportements de nature sexuelle qui t'ont rendu inconfortable (exemples : te frôler, te dévisager, te déshabiller du regard, te siffler, te donner un massage).

C28. ... t'a déjà observé en train de faire les gestes suivants ou t'a déjà demandé de les faire :

- te déshabiller
- te masturber
- te toucher sexuellement (parties intimes)
- toucher sexuellement quelqu'un d'autre (parties intimes)

C29. ... a déjà eu une conversation de nature sexuelle avec toi (propositions sexuelles en personne, par téléphone, par écrit et par Internet) ou t'a déjà exposé à des images de nature sexuelle.

C30. ... t'a déjà filmé ou photographié en train de poser l'un des gestes suivants :

- te déshabiller
- te masturber
- te toucher sexuellement (parties intimes)
- toucher sexuellement quelqu'un d'autre (parties intimes)

C31. ... t'a déjà montré ses parties génitales ou a fait des actes de nature sexuelle devant toi (s'est masturbé, a eu une relation sexuelle devant toi, etc.).

C32. ... t'a déjà caressé les parties génitales avec sa bouche (fellation, cunnilingus) ou ses mains (masturbation) ou s'est déjà frotté contre tes parties génitales.

C33. ... t'a déjà caressé les parties non-génitales (seins, fesses, anus).

C34. ... t'a déjà embrassé (baiser à caractère sexuel).

C35. ... a déjà tenté d'avoir une relation sexuelle avec pénétration orale, vaginale ou anale par le pénis, un doigt ou un objet avec toi.

C36. ... a déjà eu une relation sexuelle avec pénétration orale, vaginale ou anale par le pénis, un doigt ou un objet avec toi.

## Supplementary Material C

### Questionnaire sur la Violence Envers les Athlètes – Parent (VTAQ-P)

Les prochaines questions concernent certains événements qui ont pu survenir avec **un de tes parents ou un de tes beaux-parents** dans le contexte sportif **depuis ton enfance jusqu'à aujourd'hui**.

- 0 = Jamais
- 1 = Rarement, 1 à 2 fois
- 2 = Quelque fois, 3 à 10 fois
- 3 = Souvent, Plus de 10 fois

#### **En raison de tes performances sportives ou de tes comportements à l'entraînement ou en compétition, un de tes parents ou un de tes beaux-parents ...**

- P1. ...t'a déjà secoué, poussé, agrippé (attrapé) ou projeté.
- P2. ...a déjà lancé un objet directement sur toi.
- P3. ...t'a déjà frappé avec la main (exemple : gifles, claques).
- P4. ... t'a déjà donné un coup de poing ou un coup de pied.
- P5. ...t'a déjà frappé avec un objet dur (exemple : équipement sportif).
- P6. ... t'a déjà étouffé ou étranglé
- P7. ... a déjà frappé ou lancé des objets qui ne se dirigeaient pas vers toi (exemples : lancer un bâton de hockey sur une poubelle, lancer un bloc-notes).
- P9. ... a déjà menacé de t'abandonner, de te faire du mal ou de faire du mal à quelqu'un ou quelque chose que tu aimes.
- P10. ... t'a déjà crié des injures, humilié, ridiculisé.
- P11. ... t'a déjà critiqué de manière excessive (exemples : sur tes performances, ton attitude).
- P12. ... t'a déjà rejeté ou exclu volontairement.
- P13. ... t'a déjà enfermé dans un espace restreint ou a déjà tenté de limiter tes mouvements (exemples : t'enfermer dans un vestiaire, t'attacher).
- P14. ... t'a déjà ignoré volontairement ou s'est déjà montré indifférent à ton égard (exemples : refuser de te parler, faire comme si tu n'étais pas là).
- P15. ... t'a déjà forcé ou demandé d'effectuer des entraînements supplémentaires très intenses et de manière excessive jusqu'à ce que tu sois extrêmement épuisé ou jusqu'à ce que tu vomisses.

#### **Dans le contexte sportif, un de tes parents ou un de tes beaux-parents ...**

- P8. ... t'a déjà forcé ou demandé de poser les gestes suivants en situation de compétition :
  - blesser un adversaire (donner un coup de poing, frapper avec de l'équipement sportif, etc.)
  - humilier ou ridiculiser un adversaire
  - menacer de faire du mal à un adversaire
- P.16. ... t'a déjà demandé de limiter ou de restreindre tes liens avec ton réseau social (amitiés, relations amoureuses, famille) pour te permettre de mieux t'investir dans ton sport.
- P.17. ... t'a déjà forcé ou demandé de t'entraîner blessé alors que tu avais un avis médical contraire.

P.18. ... t'a déjà forcé ou demandé d'exécuter des mouvements ou des gestes techniques trop difficiles pour tes capacités (physiques et psychologiques) qui auraient pu ou ont eu des impacts négatifs sur ta santé ou ta sécurité.

P.19. ...t'a déjà forcé ou demandé d'utiliser l'un des moyens suivants pour atteindre le poids idéal dans ton sport :

- jeûne total (arrêter de manger)
- vomissement
- entraînements supplémentaires à l'entraînement normal
- pilule amaigrissante
- déshydratation (sauna ou exercice physique)
- diurétique
- laxatif

P.20. ...t'a déjà forcé ou demandé de consommer un des produits suivants ou d'utiliser l'une des méthodes suivantes pour améliorer ta performance :

- stéroïdes anabolisants
- créatine
- érythropoïétine (EPO)
- hormones de croissance
- injection ou transfusion de sang

P.21. ... t'a déjà permis ou laissé prendre part à un entraînement ou à une compétition blessé alors qu'il savais que tu avais un avis médical contraire.

P.22. ...savait que tu utilisais l'un des moyens suivants pour atteindre le poids idéal dans ton sport et n'est pas intervenu :

- jeûne total (arrêter de manger)
- vomissement
- exercice physique excessif (tu t'obligeais à maintenir ton horaire d'entraînement, tu ressentais le besoin d'augmenter sans cesse le temps consacré à l'entraînement, tu ressentais de la culpabilité si tu manquais une séance d'entraînement)
- pilule amaigrissante
- déshydratation (sauna ou exercice physique)
- diurétique
- laxatif

P.23. ... savait que tu consommais l'un des produits suivants ou que tu utilisais l'une des méthodes suivantes et n'est pas intervenu :

- stéroïdes anabolisants
- créatine
- érythropoïétine (EPO)
- hormones de croissance
- injection ou transfusion de sang

P.24. ... t'a déjà demandé d'arrêter l'école ou de mettre tes études en pause pour te consacrer à la pratique de ton sport.

P.25. ... a refusé de te donner les soins médicaux nécessaires (médicaments, traitements, etc.) pour un problème de santé diagnostiqué par un professionnel de la santé et issu de ta pratique sportive.