Severe interpersonal violence against children in sport : associated mental health problems and quality of life in adulthood

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Severe interpersonal violence against children in sport: associated mental health problems and quality of life in adulthood

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Abstract

In a recent large-scale prevalence study of interpersonal violence (IV) against child athletes in the Netherlands and Belgium we found that 9% of adult respondents who participated in organized sports before the age of 18 had experienced severe psychological violence, 8% severe physical violence, and 6% severe sexual violence in various sport settings. While the general literature has repeatedly shown that exposure to IV during childhood is associated with mental health problems in adulthood and to a lesser extent with reduced quality of life (QOL), these relationships have not been demonstrated in (former) athletes. Thus, the current study aims to assess the association of severe childhood IV in sport and adult wellbeing. Depression, anxiety, and somatization were assessed in the same general population sample (N=4043) using the Brief Symptom Inventory (BSI-18) and QOL with the World Health Organization Quality of Life questionnaire (WHOQOL-Brèf). The association between severe IV in sport and adult wellbeing was investigated using multiple linear regression while controlling for demographics, recent life events, and relatives' psychological problems. We found severe sexual, physical, and psychological childhood IV in sport to be associated with more adult psychological distress and reduced QOL. Polyvictimization shows the strongest correlation with poorer wellbeing and QOL. Recent life events, relatives' psychological problems, marital status, and level of education were significant covariates in the psychological symptoms and QOL assessed. We hope that these new insights prompt sport administrators to implement broad spectrum child protection measures and raise the awareness of mental health professionals about the necessity to also screen for adverse childhood experiences in the sport context.

Keywords: child maltreatment; abuse; sequelae; long-term consequences; psychological symptoms; youth sport

Traditionally, research into childhood trauma has primarily focused on the family setting, revealing that children are most at risk of experiencing violence in their own homes. The last few decades saw new studies describing other settings in which childhood violence takes place (e.g., the Church, school, youth services). Recently, the disclosure of several high-profile cases of child sexual abuse in elite sport around the globe have drawn renewed public attention to the sport setting as a conducive context for violence against children. Indeed, the hierarchical structure of sports, the bodily contact, the male-dominated gender ratio, the authoritarian leadership, and existing reward structures can create an receptive climate in which violence against and among athletes can arise and persist (Kirby, Greaves, & Hankivsky, 2000).

Early prevalence studies surveying female athletes' experiences with sexual harassment found prevalence rates ranging from 2 to 50% (Kari Fasting, Chroni, Hervik, & Knorre, 2011). Sexual violence was reported by 5 to 17% of athletes surveyed (Mergaert, Arnaut, Vertommen, & Lang, 2016), while prevalence estimates up to 75% for emotional harm and 24% for physical harm were found in student-athlete samples (Alexander, Stafford, & Lewis, 2011). Using a low threshold measure (i.e., having had at least one experience of some form of interpersonal violence (IV) while playing sport as a child) in a general population sample of 1999 Dutch and 2044 Belgian adults, our group found an estimated prevalence of 38% for psychological violence, 11% for physical violence, and 14% for sexual violence (Vertommen et al., 2016). Still, similar to general childhood trauma research, unconformity in definitions and methodology, and non-representativeness of study samples hinder solid comparisons of IV in sport studies.

The association between child maltreatment and adult mental health issues has been extensively documented in numerous epidemiological studies (Edwards, Holden, Felitti, & Anda, 2003; Felitti et al., 1998; Kessler et al., 2010; Li, D'Arcy, & Meng, 2016). Among other recent publications, studies on the long-term impact of child sexual abuse showed higher rates of depression (R Maniglio, 2010) and anxiety (Roberto Maniglio, 2013), while for non-sexual child maltreatment associations with a range of adult mental disorders, drug use, and suicide attempts have been demonstrated (Norman et al., 2012), suggesting that child maltreatment is an unspecific risk factor for mental health disturbance in adulthood and impacts underlying liability levels to internalizing and externalizing psychopathology (Keyes et al., 2012). Moreover, children experiencing different types of violence have been found to present higher levels of symptomatology than peers having experienced a single type (Alvarez-Lister, Pereda, Abad, & Guilera, 2014; Felitti et al., 1998; Finkelhor, Ormrod, & Turner, 2007). Notably, while the terms 'maltreatment' and 'abuse' most often refer to adult behaviors towards children, peer victimization should not be overlooked. Lereya and colleagues (Lereya, Copeland, Costello, & Wolke, 2015), for instance, showed that depression, anxiety, and self-harm are among the long-term effects of peer victimization (e.g., bullying), with effects being more serious than observed following maltreatment by adults.

While the physical and psychological sequelae of childhood violence are well-documented, there is less evidence regarding their impact on QOL, which can be defined as 'an individual's perception of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards and concerns' (Skevington, Lotfy, & O'Connell, 2004). The importance of QOL as a measure of subjective wellbeing has been receiving increasing recognition (Hawthorne, Herrman, & Murphy, 2006); it is now being more widely adopted alongside more traditional clinical indicators such as a psychopathology checklist. Although the evidence is limited, studies linking adverse childhood experiences (e.g., violence) with QOL in adulthood point to reduced QOL (Corso, Edwards, Fang, & Mercy, 2008; Draper et al., 2008; Embrechts, Janssens, Vertommen, De Venter, & Van Den Eede, 2016; Prosser & Corso, 2007). Most studies investigated health-related QOL, overlooking social and environmental dimensions.

As to the sport context, qualitative interviews with female athletes having experienced sexual harassment revealed that most respondents reported negative consequences such as poorer sport performance or dropout, lower self-esteem, and increased anxiety (K Fasting, Brackenridge, & Walseth, 2002). Investigating traumatic correlates of child sexual abuse in 90 male and female athletes, Leahy and colleagues (Leahy, Pretty, & Tenenbaum, 2008) found that childhood abuse (in- or outside sport) was associated with posttraumatic symptomatology. A large-scale general population study investigating the association between violence against children in sport and later wellbeing was, however, lacking.

Aims of the study

The current study examines a large number of retrospective accounts of IV against children in sport, analyzing the association with adult mental health problems and QOL. Based on the existing knowledge on IV outside sport, we expect that experiencing IV as a young athlete will lead to psychological problems and reduced QOL in adulthood. Additionally, we expect to find a cumulative effect of different types of IV. Finally, we will also look whether the various IV types show differential effects.

Material and method

Participants and procedure

Dutch and Belgian adults, aged between 18 and 50 years, were prescreened on having participated in organized sport before the age of 18. Sampling and data collection were performed by the market research company GfK (www.gfk.com) in the Netherlands and in Flanders (the northern, Dutch-speaking part of Belgium). For more detailed information about the sampling and response processes, we refer to our IV prevalence study (Vertommen et al., 2016). The briefing letter contained information on the survey, a link to the study's background information website, a directory of counseling services, and a hyperlink to the actual questionnaires. The retrospective accounts of IV against children in sport and the data on current psychological problems and QOL were all collected using the web-based survey. To avoid interference, the wellbeing

questionnaires were presented prior to the questions on negative experiences in sport. Respondents could only proceed with the survey after agreeing with the informed consent request and could pause or terminate the survey at any stage. Full demographic details of the 4043 respondents included can be found in Table 1. Approval of the research protocol was obtained from the University of Antwerp/Antwerp University Hospital ethics committee (file code 13/44/430).

Materials

The IV against Children in Sport questionnaire (IViS). Adopting the definition of the United Nation Convention on the Rights of the Child, we defined violence as (United Nations, 1989): *"[..] all forms of physical or mental violence, injury and abuse, neglect or negligent treatment, maltreatment or exploitation, including sexual abuse while in the care of parent(s), legal guardian(s) or any other person who has the care of the child".* Violence occurring within the bounds of the constitutive rules of sport is not considered in this study. Perpetrators could be coaches, peer athletes, or any other known or unknown persons in the sports environment. Children in sport are defined as participants in organized sport before the age of 18, where organized sport can be any voluntary recreational or competitive sporting activity that takes place within the context of a club or organization outside the school curriculum and involves an element of training or instruction by an adult, including sport camps and organized extracurricular sporting activities at school, but excluding physical education (PE lessons) and informal physical activities (e.g., street soccer games, running with friends).

To assess the prevalence of IV against children in sport in Belgium and the Netherlands, we developed the 'IV against Children in Sport' questionnaire (Vertommen et al., 2016) based on the index on negative experiences of children in sport by Alexander and colleagues (Alexander et al., 2011) and compared it to general questionnaires such as Felitti et al.'s Adverse Childhood Experiences (ACE) study questionnaire (Felitti et al., 1998) and Bernstein et al.'s Childhood Trauma Questionnaire (Bernstein, Fink, Handelsman, & Foote, 1994). The concept of IV against child athletes is operationalized in 41 items on psychological, physical, and sexual violence. Based on the reported frequency and objective severity assessment of each item, the respondents' experiences are classified as mild, moderate, or severe. Four items (teasing, shouting, negative critique on performance, and personal space invasions) were classified as 'mild'. When at least one of these items was experienced regularly/often, this was categorized as 'moderate'. Twenty-two items (e.g., bullying, humiliation, name-calling, threatening, being forced to continue practice while injured or exhausted, sexist jokes or remarks, uncomfortable physical contact, messages with sexual connotation) were ranked as moderate, but if any of these items were experienced regularly/often, this was categorized as severe. The remaining 15 items (e.g., slapping, knocking down, beating, choking, sexual assault, rape) were considered 'severe', regardless of the reported frequency.

Information on the respondents' demographics (gender, age, level of education, country, marital status), ethnic background (place of birth, and parents' place of birth), participation in disabled sport, and sexual orientation were gathered. Level of education was categorized in 'low' referring to no or lower secondary education, 'moderate' referring to higher secondary/vocational education and 'high' referring to university degree (BA, MA/MSc, PhD). Respondents were also asked to indicate the occurrence of recent stressful life events (e.g., experiencing of witnessing negative, distressing or traumatic events such as a serious accident, illness, death, unemployment) and whether any of their close relatives (parents, children, or siblings) were coping with psychological problems.

The Brief Symptom Inventory 18 (BSI-18). The BSI-18 is the short form of the BSI-53, which is the abbreviated version of the Symptom Checklist-90 Revised (SCL-90R) (Derogatis & Fitzpatrick, 2004), a widely used self-report instrument assessing the subjective symptom burden in a broad range of mental disorders. The BSI-18 is a screening tool gauging psychological distress over the past seven days. Its 18 items are scored on a 5-point scale from 0 (not at all) to 4 (very often) and subdivided into three 6-item subscales: somatization, depression and anxiety (Derogatis & Fitzpatrick, 2004). The global severity index (GSI) is the raw total score of all items and ranges from 0 to 72, with a higher score indicating more psychopathology; it shows high correlations with the SCL-90R total score. Subscale scores are calculated by dividing the scores by the number of items and range from 0 to 4.The BSI-18 was translated into Dutch in 2011, with the manual providing population norms for Dutch adults (de Beurs, 2011).

World Health Organization Quality of Life-Brèf (WHOQOL-Brèf). The 100-item WHOQOL was developed to obtain a broader index of health. Its brief version (WHOQOL-Brèf) consists of 26 items of which two are 'benchmark' items gauging the general facet of QOL, with the remaining 24 items capturing four domains: physical health (7 items), psychological health (6 items), social relationships (3 items), and environment (8 items). Respondents are asked to keep the last two weeks in mind when rating the items on a 5-point scale (1 = not at all/very poor; 5 = very good/completely). To calculate the domain scores, the mean score of the domain items is multiplied by 4, so that all domain scores range between 4 and 20. The instrument shows good psychometric properties (Skevington et al., 2004). The WHOQOL-Brèf was translated into Dutch in 1996 (de Vries & van Heck, 1996). To date, no norms are available for the Belgian or Dutch population. The international field trial conducted by the WHOQOL Group provides a comparison group of 11,830 persons, representing 23 countries worldwide (Skevington et al., 2004).

Statistical procedures

The respondents reporting to have experienced severe violence as a child athlete are compared to the group of respondents reporting no, mild, or moderate experiences with IV. The association between severe IV in sport

and psychological symptoms and QOL was investigated by comparing the means of all subgroups of IV (none, one single type, combinations of two and three types) using ANOVA. Secondly, multiple linear regressions were conducted to check whether the differences between the subgroups remained statistically significant after controlling for demographics, disability, sexual orientation, recent life events, and relatives' psychological problems, given their well-established role in mental health problems and QOL. In order to measure the unique association of childhood IV in sport, IV was entered last in the model (forward). Because error was not normally distributed in the three BSI subscales (bimodal distribution), the log transformation was used (Stevens, 1992). The relative predicted power was quantified by the R^2 change and tested by significant F change. We opted for a fairly conservative significance level for our stepwise regression models (P In = .01 and P Out = .05).

Chi square tests were used to identify significant group differences in the prevalence estimates, while differences in mean scores on the BSI-18 and WHOQOL-Brèf between the Belgian and Dutch participants were tested with independent sample t tests. A significance level of .01 was maintained. To show the correlation between the BSI-18 and the WHOQOL-Brèf, in addition to Pearson correlations, the partial correlations controlling for all predictors in the regression model were calculated. Following Hinkle, Wiersma, and Jurs (Hinkle, Wiersma, & Jurs, 2003), correlations higher than .50 are referred to as 'moderate', higher than .70 as 'high' and .90 as 'very high'. All statistical analyses were performed using IBM SPSS software version 24. Venn diagrams were generated using eulerAPE (Micallef & Rodgers, 2014).

Results

Sample characteristics

Table 1 gives an overview of the participants' characteristics. The majority (69%) of the 4043 respondents had participated in more than one sport. The highest level attained varied widely; almost a third of all respondents had participated in recreational sports only, with 25% playing at the local, 31% at the regional, 10% at the national, and 3% at the international level.

Looking at the self-reported frequency and severity of the incidents, we found that 9% had experienced *severe* psychological violence (no gender differences), 8% s*evere* physical violence (female respondents: 5%; male respondents: 12%), and 6% s*evere* sexual violence (7% and 4%, respectively). There was an overlap among the three IV categories, with 1.3% of all respondents reporting to have been subjected to severe psychological, physical as well as sexual violence (Figure 1). About half of the respondents having experienced one type of severe IV also reported an experience with one other or even all three types of severe IV.

Scores on the BSI-18 and the WHOQOL-Brèf

All BSI-18 scales were internally consistent. Cronbach's Alpha ranged from .82 (somatization) to .94 (BSI GSI) for the BSI, and from .65 (social domain) to .85 (physical health domain) for the WHOQOL-Brèf. Contrasted against the available norms for Dutch adults (BSI) and a worldwide population norm (WHOQOL-Brèf), Table 2 shows the mean scores for our study group per gender and country. The mean scores of the Belgian participants indicate more psychological distress and poorer QOL compared to the means for the Dutch participants, with the male respondents showing lower scores on the GSI and higher scores on physical, psychological, and environmental QOL than their female counterparts but lower scores on social QOL. Compared to the Dutch norms, the Dutch respondents scored similarly (de Beurs, 2011), while the Belgian respondents reported more psychological distress. Both the Belgian and Dutch respondents scored remarkably higher on environmental QOL, with their scores on the other QOL domains coinciding with those of the international comparison group (Skevington et al., 2004).

The BSI subscale and the WHOQOL domain scores were all significantly negatively correlated at low to moderate levels (Table 3). BSI GSI, depression, and anxiety show the strongest correlations with psychological QOL; somatization most strongly correlates with physical QOL. QOL domains are most strongly, but still moderately, correlated with BSI GSI, except for social QOL, which is more strongly, but also still moderately, correlated with depression. After controlling for the predictors included in the linear model, partial correlations between the BSI GSI and the WHOQOL remained significant but are weak (social and environmental QOL) to moderate (physical and psychological QOL).

Association with psychological symptoms (BSI-18)

The ANOVA comparing the mean BSI scores of respondents with and without IV against children in sport yielded a significant association between IV and all BSI subscales. It also revealed a graded relationship between the number of IV subtypes and severity of psychological problems. Respondents reporting all three types of IV also reported the most symptoms, followed by the respondents having suffered combinations of physical and sexual or psychological violence, with respondents having experienced a single type of IV still reporting more psychological symptoms than respondents not reporting any experiences with IV as a child athlete. The pattern is consistent across BSI subscales.

The multiple linear regression showed that together the predictors in the model explained 20% of the variance in the BSI GSI (Table 4) after correction for demographic variables. For all categorical predictors, second-order interactions were insignificant. Having been subjected to at least one type of IV explained 2.5% of the variance of the BSI GSI. Consistent with the ANOVA, victims of all three IV types reported the most psychological problems on all scales, with those reporting events involving two IV types reporting more distress than respondents reporting a single type.

Current psychological symptoms were most notably influenced by recent life events. Relatives' psychological problems, country (Belgium), and marital status (single) negatively affected psychological symptoms in the same order of magnitude as experiences of IV as a young athlete did.

Gender-related differences were significant for all BSI scores, with male respondents reporting fewer symptoms than female respondents. Except for somatization, age negatively correlated with psychological symptoms. Dutch participants reported significantly fewer and less severe mental problems than their Belgian counterparts, whereas ethnic minority, LGB, disabled, and less-well educated respondents reported more mental problems. Being married or cohabiting has a positive association with mental health, except for anxiety.

Assocation with QOL (WHOQOL-Brèf)

The respondents reporting at least one experience with severe IV against children in sport show significantly lower scores on all QOL domains compared to those having no such experiences according to the ANOVA, with QOL scores decreasing in the respondents reporting two or three types of IV.

After other predictors were controlled for, the linear model explained between 11 (social relationships) and 19% (psychical health) of the total variance in the four QOL domains as measured with the WHOQOL-Brèf (Table 5). For all categorical predictors, second-order interactions were insignificant. The association remained significant in all QOL domains and was the strongest for physical health. Having suffered at least one type of IV explained between 1.4% (psychological health) and 2.2% (physical health) of the variance. Polyvictimization led to poorer outcomes across the QOL spectrum. As was found for the BSI scales, polyvictimization including physical violence generated a stronger negative association than the combination of psychological and sexual violence, or single victimization.

Recent life events was the strongest predictor of poorer physical, psychological, and environmental QOL; being single was the strongest predictor for poorer social QOL while it also substantially influenced psychological QOL. A higher level of education contributed significantly to a better physical and environmental QOL. Relatives' psychological problems negatively influenced all domains but, except for psychological health, the assocation is weaker than that of IV when young.

The overall QOL ratings for the Dutch respondents were higher than those of their Belgian counterparts. Male respondents gave higher QOL ratings than the female respondents, except for social relationships. For all but the psychological domain, age had a negative association with QOL. The ratings of the respondents with a migration background only differed from the other groups with respect to social QOL (lower), while LGB respondents rated their physical health as poorer. Respondents having participated in disabled sport all had poorer QOL scores.

Discussion

To our knowledge, the current study is the first to investigate the associations between experiences of interpersonal violence against children in sport and mental health and quality of life in adulthood. The accounts of severe IV against young athletes we received indicate a prevalent problem, both in the Netherlands and Belgium. As expected, the events had a significant association with poorer mental health, e.g., more somatization, depression, anxiety, and reduced QOL. Also as predicted (Felitti et al., 1998; Kessler et al., 2010), polyvictimization, i.e., exposure to more than one type of IV in the sport context, led to cumulative effects. As to the three types of IV, we found no distinct differences in association with the outcome variables. The negative consequences of IV against children in sport we observed are in line with those reported in general studies on adverse childhood experiences.

After controlling for relevant variables, the negative association remained significant. Comparing other covariates in psychopathology and QOL, we found that recent life stress always had the stronger association, while level of education, marital status, and relatives' psychological problems were equally predictive of IV against children in sport. The explained variance ranged between 10 and 20% of the total variance in the model, meaning that many other factors influence current mental health and QOL in adulthood that were not included in this study. These include: adverse childhood experiences, personality characteristics, attachment and coping styles, resilience, systemic effects as well as genetic predisposition (Gillespie, Whitfield, Williams, Heath, & Martin, 2005) are known to play a crucial etiopathogenese of mental health (Kaplan, A, & Ruiz, 2015).

As to the specific association between IV in sport and adult wellbeing, 'normalization' of abusive behaviors in sport needs to be considered, as a potentially confounding factor. Several studies showed that child athletes often think that emotionally and physically abusive coaching practices are key to athlete development and future success and therefore a 'normal' part of coaching. Accordingly, most forms of exploitation, abuse, and violence are accepted as an integral part of the 'sport ethic' (Pinheiro, Pimenta, Resende, & Malcolm, 2012; Stirling & Kerr, 2014). Worryingly, many athletes who suffered behavior that meets the definition of sexual abuse do not see themselves as victims and consider such behavior to be typical to the sport setting. Thus, violent behaviors that would be deemed inappropriate or unacceptable outside sport, are normalized (Parent & Bannon, 2012). This might affect the reported prevalence, the athletes' interpretation of such behaviors and the related circumstances, as well as their perception, assessment, acknowledgement and possibly the impact of such experiences. Furthermore, researchers have formulated the 'protection hypothesis,' suggesting that sport protects athletes from experiencing violence outside sport and/or guards them for more serious consequences if they do experience IV (Fasting, Brackenridge, Miller, & Sabo, 2008). Sport participation may then be a protective factor, preventing athletes from experiencing (sexual) violence in general. However, to date, no hard evidence is available. In theory, an alternative explanation for the limited effects in the current

study could be the growing evidence on the positive effects of physical activity on mental health (Biddle, 2016). However, since the total sample showed normal (Dutch) to elevated (Belgian) levels of mental health complaints compared to the norm populations, we can only conclude that children's participation in sport does not necessarily have a protective effect on adult mental health.

A strength of the current study is the fact that we controlled for several factors. Interestingly, male respondents showed lower total scores on the BSI and lower somatization levels than their female counterparts, but depression and anxiety showed no such gender-related effects. Furthermore, in line with other studies, age had a positive impact on psychological problems but a negative impact on physical, social and, environmental QOL (de Beurs, 2011; Skevington et al., 2004). Also confirming other research, low-level education, disability, and a non-heterosexual orientation were related to poorer mental health and QOL (Araya, Lewis, Rojas, & Fritsch, 2003; Honey, Emerson, & Llewellyn, 2011; Schneeberger, Dietl, Muenzenmaier, Huber, & Lang, 2014). Previous research also demonstrated that social relationships significantly protect individuals from several causes of morbidity and mortality, while living together with a partner is associated with better psychological health (Holt-Lunstad, Birmingham, & Jones, 2008). In our study, the association with this latter factor proved to be significant, in particular for depression and social relationships.

The Dutch respondents had BSI scores that were comparable to those reported for the available Dutch norm population, whereas the Belgian respondents reported significantly more psychopathology. There is no evident explanation for this difference, except for potential sociocultural differences that might influence the way Belgians respond to mental health surveys. A study comparing Dutch and Belgian adolescents also found that the Belgian group reported more anxiety problems and had fewer problem-oriented coping mechanisms (Portzky, De Wilde, & van Heeringen, 2008), while another study noted that, although finding no significant differences in mental health between the two nationalities, more Dutch people showed more help-seeking behaviors. (Reynders, Kerkhof, Molenberghs, & Van Audenhove, 2016). This latter propensity may imply that Dutch respondents receive interventions at an earlier stage in their lives, preventing (more) serious psychological distress in adulthood. Overall, self-reported QOL was good, with elevated scores for the environmental domain. Given that the comparison group includes more than 40 nationalities worldwide, it is not surprising that items on access to health care, transportation, recreation, and feelings of security and financial safety generate higher results in Belgium and the Netherlands.

Our study has some limitations that should be considered when interpreting the results. We relied on retrospective self-reports of childhood IV and these tend to involve a substantial rate of false positives and negatives. However, although several studies using retrospective reports of major adverse childhood events indeed showed some such bias, the bias was never sufficiently great to invalidate the reports (Hardt & Rutter,

2004) and good test-retest reliability support the use of this type of survey instrument (Dube, Williamson, Thompson, Felitti, & Anda, 2004). Also, due to the cross-sectional nature of our study, we were unable to determine causality between the reported childhood experiences with IV in sport and the current mental health issues and reduced QOL. There are several possibly relevant factors that we did not incorporate, such as the respondents' perceived severity and impact of the IV, the duration of the incidents, the relationship to the perpetrator, the use of threat, or the time since the last incident. Moreover, having no data on child maltreatment or other adverse childhood experiences that the respondents might have suffered outside sport, means that we lacked crucial information to assess the burden of childhood trauma in general, preventing us from evaluating their relative impact and potential correlations with the victimization in the sport context. Finally, since we opted for the BSI-18 to survey psychological distress, mental health problems other than somatization, depression, and anxiety were not investigated.

It is therefore recommended that future research into the long-term consequences of IV in sport does consider additional internalizing as well as externalizing problems (e.g., behavioral and substance disorders) (Kessler et al., 2010; Keyes et al., 2012) and physical health (Banyard, Edwards, & Kendall-Tackett, 2009; Felitti et al., 1998) and also looks into the circumstances of the IV (e.g., duration, use of force or threat, perception of the victim, age at onset) and the characteristics of the victim-perpetrator relationship. While a hierarchical relationship with an adult is commonly seen as a risk factor for the severity of the consequences of the abuse on adult mental health, a recent study showed that the long-term effects of childhood peer victimization are worse than the effects of maltreatment perpetrated by adults (Lereya et al., 2015).

In conclusion, severe interpersonal violence against children in sport negatively affects adult mental health and QOL, with a graded relationship between the number of incidents and impact: the greater the accumulation of multiple types of IV, the more severe the consequences. The type of IV (psychological, physical, or sexual) in itself appears not to differentially affect later life mental health or QOL. The current findings underline the importance of child protection and safeguarding policies at all levels of sport. When screening for adverse childhood experiences, mental health practitioners should consider organized sport as one of the contexts in which these behaviors can take place. At the same time, IV prevention and intervention programs coordinated by sport organizations should not focus on a single type of IV (e.g., sexual harassment and abuse) but rather target the full range of abusive and violent behaviors towards child athletes.

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Figure 1 Schematic representation of proportions of and overlap among the three types of severe interpersonal violence (IV) in youth sport reported

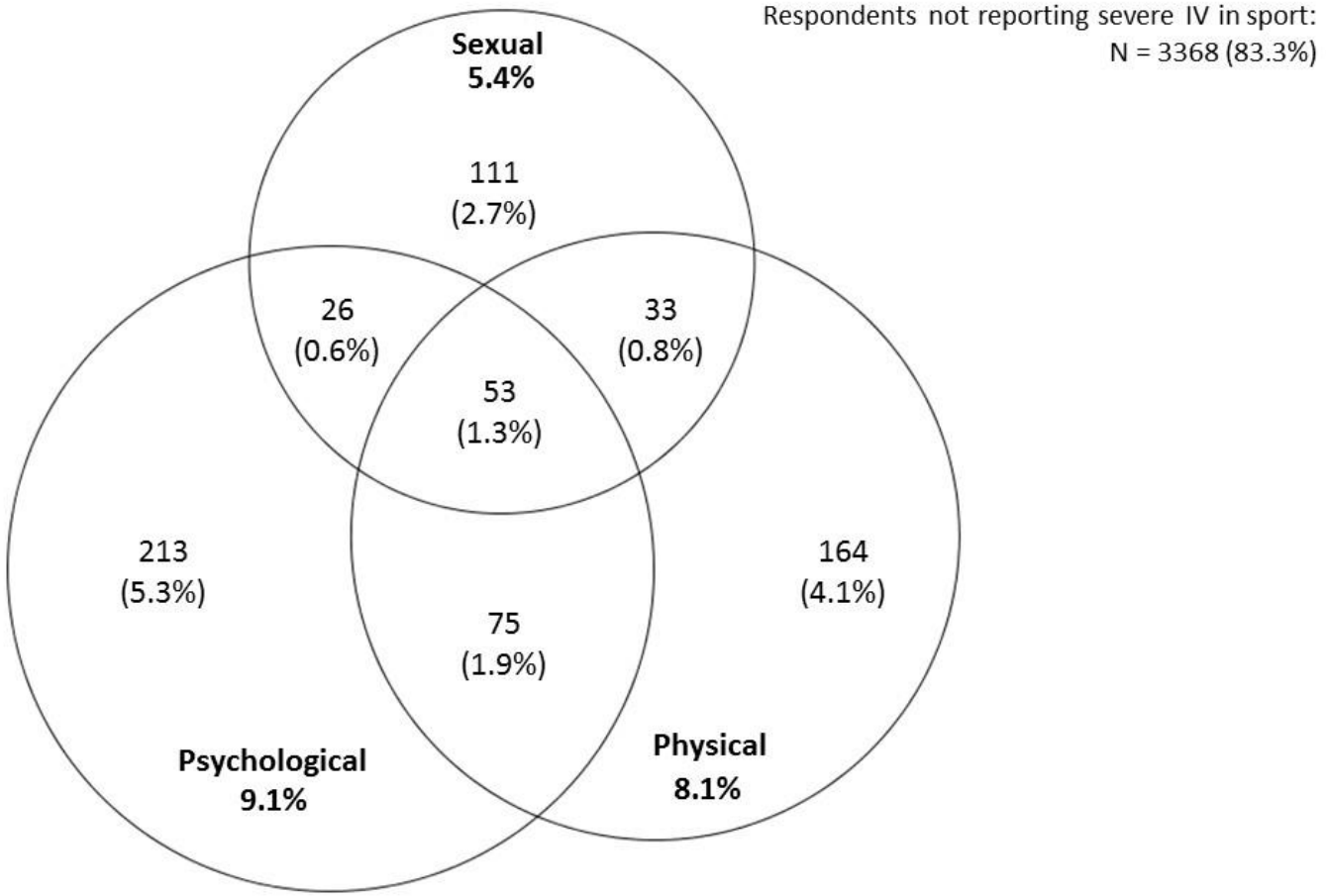

Table 1 Demographics of the study sample (N=4043) and self-reported experiences with severe interpersonal violence (IV) in youth sport

		n	%
Gender	Female	2211	54.7
	Male	1830	45.3
Age	18-24 years	718	17.8
	25-34 years	1214	30.0
	35-44 years	1264	31.3
	45-50 years	847	20.9
Country	Belgium	2043	50.6
	Netherlands	1998	49.4
Ethnicity	Dutch/Belgian origin	3693	91.3
	Ethnic minority	335	8.3
Sexual orientation	Heterosexual	3672	90.8
	Lesbian, gay, bisexual	309	7.6
Disabled sport	Yes	3849	95.2
	No	185	4.6
Level of education	Low	651	16.1
	Moderate	1706	42.3
	High	1674	41.5
Marital status	Single	1556	38.5
	Married/cohabitant	2457	60.8
Recent life event	No	2661	65.8
	Yes	1330	32.9
Relatives' psychological problems	No	3101	76.7
	Yes	829	20.5
Severe IV in sport	At least one type	675	16.7
	Psychological violence only	213	5.3
	Physical violence only	164	4.1
	Sexual violence only	111	2.7

	Psychological and physical	75	1.9
	Psychological and sexual	26	.6
	Physical and sexual	33	.8
	All 3 types	53	1.3
Total		**4043**	**100.0**

Table 2 Outcomes on the Brief Symptom Inventory-18 Global Severity Index (BSI GSI), the BSI subscales, and WHOQOL-Brèf domains per gender and country

	Females (n=2129)							Males (n=1778)						
	Belgium (n=1179)			Netherlands (n=950)				Belgium (n=786)			Netherlands (n=992)			
	Mean	SD	SEM	Mean	SD	SEM	Mean of comparison group[1]	Mean	SD	SEM	Mean	SD	SEM	Mean of comparison group[1]
BSI GSI	11.45	11.82	.34	**7.87**	8.85	.29	8.17	10.98	12.39	.44	**6.18**	7.96	.25	6.94
BSI Somatization	.57	.65	.02	**.40**	.51	.02	.40	0.55	.70	.02	**.28**	.41	.01	.33
BSI Depression	.68	.77	.02	**.51**	.66	.02	.51	0.70	.81	.03	**.42**	.58	.02	.42
BSI Anxiety	.65	.73	.02	**.40**	.54	.02	.43	0.60	.71	.03	**.34**	.50	.02	.39
QOL1 Physical health	14.49	2.81	.08	14.93	2.73	.09	14.2	14.98	2.64	.09	**15.89**	2.41	.08	14.3
QOL2 Psychological health	14.44	2.24	.06	**14.91**	2.12	.07	14.0	14.66	2.27	.08	**15.37**	2.07	.06	14.2
QOL3 Social relationships	14.72	2.67	.08	15.01	2.65	.08	14.4	14.31	2.96	.10	**14.80**	2.65	.08	14.1
QOL4 Environment	15.59	2.15	.06	15.81	2.03	.06	13.9	15.52	2.28	.08	**16.29**	1.96	.06	13.8

BSI = Brief Symptom Inventory; GSI = Global Severity Index (= the total sum of all BSI items); QOL = Quality of Life as assessed with the WHOQOL-Brèf; SD = standard deviation; SEM = standard error of means.

Significant differences in mean scores between Belgian and Dutch males/females (P-value < .01) are in bold.

[1] For the BSI, the comparison group consists of a population sample of 128 native Dutch males and 138 native Dutch females. aged 18-29 (de Beurs, 2011). For the WHOQOL-Brèf, the comparison group consists of 11, 830 respondents worldwide aged 12-97 years (mean age: 45 years) (Skevington et al., 2004).

Table 3 Pearson and partial correlations between the BSI GSI and subscales and the WHOQOL Domains

	BSI Somatization	BSI Depression	BSI Anxiety	BSI GSI	QOL1 Physical health	QOL2 Psychological health	QOL3 Social relationships	QOL4 Environment
BSI Somatization	-	.675	.738	.877	-.603	-.467	-.306	-.440
BSI Depression	.602	-	.770	.912	-.575	-.691	-.486	-.475
BSI Anxiety	.677	.720	-	.924	-.509	-.541	-.327	-.416
BSI GSI	.847	.891	.905	-	-.621	-.634	-.418	-.490
QOL1 Physical health	-.537	-.493	-.423	-.548	-	.687	.524	.650
QOL2 Psychological health	-.386	-.637	-.468	-.572	.634	-	.659	.618
QOL3 Social relationships	-.242	-.428	-.257	-.357	.484	.630	-	.557
QOL4 Environment	-.344	-.382	-.315	-.395	.587	.556	.520	-

All correlations are significant at 0.01 level.

Above the diagonal: Pearson Correlations

Under the diagonal: Partial correlations, controlling for all predictors included in the linear model: gender, age, country, ethnicity, sexual orientation, disability, education, marital status, recent life event, relatives' psychological problems, severe sexual, physical and psychological violence.

Table 4 Unstandardized beta coefficients and R square change in BSI total score and subscale scores

	BSI Global severity index (GSI)*		BSI Somatization*		BSI Depression*		BSI Anxiety*	
	R^2 Change	Beta	R^2 Change	Beta	R^2 Change	Beta	R^2 Change	Beta
Gender (male)	.013	-.134	.012	-.121	.004	-.031	.007	-.052
Age group today	.005	-.071	-	-	.006	-.046	.005	-.067
Country (the Netherlands)	.027	-.348	.026	-.272	.017	-.222	.036	-.313
Ethnicity (other)	.003	.166	.003	.156	-	-	.002	.123
Sexual orientation (LGBT)	.007	.189	.006	.140	.007	.157	.006	.125
Disability	.010	.388	.015	.410	.009	.292	.013	.382
Education	.008	-.081	.012	-.097	.007	-.060	.004	-.046
Marital status (married/cohabitant)	.011	-.182	.004	-.079	.027	-.272	-	-
Recent life events	.072	.517	.044	.307	.070	.439	.050	.318
Relatives' psychological problems	.023	.349	.017	.235	.017	.245	.027	.303
Severe IV in sport (at least one type)	.025		.022		.027		.023	
All 3 types		.927		.717		.838		.826
Psychological and physical		.682		.516		.603		.476
Psychological and sexual		*.335°*		.437		*.290°*		.392
Physical and sexual		.647		.507		.679		.430
Psychological violence only		.302		.201		.189		.223
Physical violence only		.310		*.106°*		.307		*.135°*
Sexual violence only		.385		.238		.306		*.145°*
Total R^2	**.204**		**.161**		**.190**		**.173**	
Adjusted R^2	**.200**		**.158**		**.187**		**.170**	

*Logarithm

° The effect (parameter estimate) of this category is not significantly different from the reference category.

Notes.

R^2 Change is mentioned in this table if the F change was significant (p <.01).

- = *non-significant*

The order in this table is the order in which the predictors were entered into the model.

BSI = Brief Symptom Inventory; GSI = the total sum of all BSI items

Table 5 Unstandardized beta coefficients and R square change in the WHOQOL-Brèf domains

	QOL1 Physical health		QOL2 Psychological health		QOL3 Social relationships		QOL4 Environment	
	R^2 Change	Beta	R^2 Change	Beta	R^2 Change	Beta	R^2 Change	Beta
Gender (male)	.022	.673	.009	.261	.002	-.304	.004	.233
Age group today	.009	-.241	-	-	.006	-.323	.002	-.097
Country (the Netherlands)	.012	.639	.015	.546	.005	.374	.010	.485
Ethnicity (other)	.003	-.306	.002	-.325	-	-	.004	-.421
Sexual orientation (LGBT)	-	-	.003	-.249	.001	-.097	.003	-.210
Disability	.006	-.750	.004	-.500	.002	-.357	.009	-.715
Education	.024	.474	.012	.265	.007	.221	.054	.620
Marital status (married)	.006	.315	.027	.686	.033	.961	.006	.286
Recent life events	.068	-1.324	.036	-.729	.024	-.758	.025	-.593
Relatives' psychological problems	.011	-.604	.016	-.625	.009	-.543	.005	-.275
Severe IV in sport (at least one type)	.022		.014		.017		.019	
All 3 types		-2.156		-1.320		-1.047		-1.815
Psychological and physical		-1.707		-1.294		-2.028		-1.312
Psychological and sexual		-.859°		-.416°		-.743*		-.443°
Physical and sexual		-1.138°		-.698°		-1.354		-.899°
Psychological violence only		-.807		-.619		-.734		-.423
Physical violence only		-.601		-.344°		-.565		-.362°
Sexual violence only		-.860		-.217°		-.567°		-.589
Total R^2	**.185**		**.140**		**.105**		**.141**	
Adjusted R^2	**.182**		**.137**		**.102**		**.137**	

° The effect (parameter estimate) of this category is not significantly different from the reference category.

Notes.
R^2 Change is mentioned in this table if the F-change was significant (p <.01).
- = non-significant
The order in this table is the order in which the predictors were entered in the model.