

Sexual Harassment and Abuse among Young Elite Athletes, Recreational Athletes, and Reference Students: A Prospective Study

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ABSTRACT

SØLVBERG, N., M. K. TORSTVEIT, J. H. ROSENVINGE, G. PETERSEN, and J. SUNDGOT-BORGEN. Sexual Harassment and Abuse among Young Elite Athletes, Recreational Athletes, and Reference Students: A Prospective Study. *Med. Sci. Sports Exerc.*, Vol. 54, No. 11, pp. 1869–1878, 2022. **Purpose:** This study aimed to examine the 12-month prevalence and 12-month prospective change in reported sexual harassment and abuse (SHA) victimization among young elite athletes, recreational athletes, and reference students in three different social settings and to identify the perpetrators. **Methods:** In total, 919 adolescents responded to an online questionnaire in 12th grade (T1) and 13th grade (T2). The sample consisted of elite athletes ($n = 482$) and recreational athletes ($n = 233$) attending Norwegian elite sport high schools ($n = 26$), and reference students ($n = 200$) attending ordinary high schools with no sport specialization ($n = 6$). Data were analyzed using independent-sample t -test, Pearson χ^2 for independence/Fisher's exact test, McNemar test, and logistic regression analysis. **Results:** The total 12-month prevalence of SHA was 38.6% at T1 and 35.1% at T2. Most of the participants (74.6%–85.0%) reported no change in SHA from T1 to T2. The prevalence of SHA was higher for girls compared with boys, and elite athletes reported less SHA than recreational athletes and reference students, respectively. SHA occurred most often in a free time setting. Verbal sexual harassment, nonverbal sexual harassment, and physical SHA were reported by 24.6%, 27.0%, and 14.0%, respectively. Peers were reported as perpetrators by 83.1%, trainer/teacher/health personnel by 20.1%, and "other" perpetrators by 56.4%. **Conclusions:** Because one in three elite athletes and nearly one in two recreational athletes and reference students, respectively, reported SHA victimization within a 12-month period, well-targeted preventive measures are needed for both young athletes and nonathletes. **Key Words:** ADOLESCENTS, CONTROLS, PERPETRATORS, PREVALENCE, SEXUAL VIOLENCE, SPORT

Sexual harassment (SH) and sexual abuse (SA), also referred to as sexual violence, sexual harm, or sexual harassment and abuse (SHA), violate personal rights and may have severe and long-term physical, psychological, social,

and performance-related consequences (1). Despite no universal definition (1,2), there is a general agreement that SHA is based on a subjective experience of a situation as uncomfortable and asymmetric in terms of power, and as unwanted in terms of actions (1,3). SHA may take form as verbal SH (e.g., sexual comments, jokes, and invitations), nonverbal SH (e.g., sexual glances, sexual gestures, and display of sexual pictures), or physical behaviors (e.g., hugging, physical touching, forced sexual activity, and rape) (2,4,5). Verbal and nonverbal behaviors have been most frequently reported (6,7).

SHA may occur among athletes of all ages, genders, and within all sports and performance levels. Female athletes have generally reported more SHA victimization than male athletes (8–10), but victimization among males has long been understudied and possibly underreported (10,11). In addition, young athletes, ethnical and sexual minority athletes, disabled athletes, and elite-level athletes are considered to be at increased risk (1,9,10,12). Suggested explanations for the increased risk among athletes are sport-specific factors like the power imbalance in a close and authoritarian coach–athlete

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relationship; compliance to dominant sport values like playing through illness and injuries; lack of rules and regulations for SHA; trips away from home; one-to-one sessions with authorities like trainers, physiotherapists, and doctors; high focus on the body; and constantly pushing boundaries in training and competition (1,3,10,13–15). Only two previous studies in young athletes have included a nonathlete reference group (8,16), and no studies have compared athletes at different levels and a reference group in the same study. This indicates the need for more studies to explore the notion that SHA occurs more often among elite athletes. Besides, more SHA victimization among athletes is reported outside sports compared with inside sport (3,17,18), but studies comparing the sport setting with different social contexts outside sports are lacking.

Previous research on SHA has also focused on the coach–athlete relationship and the stereotypical male perpetrator–female victim relationship (11,14,16,19). However, peers are also highlighted as possible perpetrators and seem to be the source of perpetration more often than coaches (7,17,20). There is still limited knowledge regarding who the perpetrators of SHA in sports are and the distribution of same-gender versus cross-gender harassment, especially for young elite athletes.

The overall lifetime prevalence of SH and SA in sports is reported to be between 19% and 92% and between 2% and 49%, respectively (1). Among male and female elite athletes or adolescents involved in organized sports (recreational athletes) under 20 yr, lifetime prevalence of SH/sexual violence varies between 14% and 46% (7,10,12,16,21,22) and between 2% and 10% for SA/sexual harm (7,8,12,23,24). Among young nonathletes, the prevalence of peer SH is reported to be between 40% and 85% (4). The large ranges in prevalence rates may be accounted for by methodological differences like, for instance, instrumentations, definitions, sample size, and characteristics, as well as research designs (10,12,13,25). To our knowledge, only one study among athletes is published where researchers examined 12-month prevalence of SH and reported a prevalence rate of 0.4% (8). Twelve-month prevalence is important to examine to increase knowledge about SHA victimization at arenas where athletes are currently active. Moreover, there is conflicting evidence in prospective studies among young nonathletes, with a time frame of up to 1 yr, whether they experience an increase in SH victimization (26), a slight decrease (27), or stable prevalence rates (28). To our knowledge, there are no prospective prevalence studies among athletes.

Prevention of SHA among athletes has been requested (1). However, to develop effective programs, we need more research related to the prevalence of SHA among young athletes at different levels, both in sports and in other social settings; who the perpetrators are; and whether there is a change in reported SHA over time. Therefore, the purpose of this study was to examine the 12-month prevalence and 12-month prospective change in reported SHA victimization, and identify the perpetrators of SHA among young elite athletes, recreational athletes, and reference students in three different social settings (i.e., in school, sports outside school, and free time).

Based on existing literature, we hypothesized that the prevalence of SHA is higher 1) among girls compared with boys, 2) among elite athletes compared with recreational athletes and reference students, and 3) in the school setting and during free time than in the sport setting. Furthermore, we hypothesized 4) that verbal and nonverbal SH are more common than physical SHA, 5) that peers are the most frequently reported group of perpetrators, and 6) that there is no change in SHA from 12th to 13th grades.

METHODS

Research design. The research design was a prospective cohort study with two measurement points 1 yr apart, T1 and T2.

Procedure. All private and public elite sport high schools in Norway verified by the Norwegian Olympic and Paralympic Committee and Confederation of Sports as per September 2018 ($n = 32$) were invited to participate in the study. Norwegian elite sport high schools have specially designed educational programs where only well-qualified athletes get accepted based on standardized assessment of former academic and sport performance results, motivation for dual careers (combining education and sports), long-term sports-related goals, ability to conduct good quality training, and knowledge about what it requires to be a high-level performing athlete. The athletes who got accepted to these schools were defined as elite athletes in our study. Eleven of these schools also offered sport-specific educational programs for lower-level athletes, defined as recreational athletes in this study. As a reference group, all private and public ordinary high schools with no sport specialization in the county Buskerud were invited to participate ($n = 14$). In addition, a randomly selected sample of ordinary high schools with no sport specialization, based on geographical availability, from the counties Oslo, Akershus, and Østfold ($n = 13$) were invited. Students attending ordinary high schools were defined as reference students in this study. At T1, school visits were organized with each consenting school between October 2019 and May 2020. All classes received a short presentation about the project before the students answered an online questionnaire. The questionnaire was created in the Web-based system SurveyXact offered by Ramböll, Aarhus, Denmark. One or two project group members were present in the classroom to answer questions and safeguard the students. All students, whether they chose to participate or not, were encouraged to remain in the classroom and do other schoolwork on their computer/iPad after completing the survey. The procedure was repeated with the same sample at T2 between October 2020 and March 2021. All eligible students were invited to T2 regardless of participation at T1.

Digital procedure during COVID-19. All Norwegian schools closed March 12, 2020, because of the COVID-19 pandemic, and for this reason, five schools attended T1 project meetings through Skype for Business (Microsoft, Redmond, WA) or Teams (Microsoft), yet with no change in the procedure for answering the questionnaire. This digital procedure

continued throughout T2, except one school, which received a physical visit at T2.

Participants. In total, 1587 elite athletes, recreational athletes, and reference students in 12th grade, over 16 yr of age, were invited to T1, and 1666 were invited to T2. The participants who responded to both T1 and T2 were included in the analyses ($n = 919$; Fig. 1). The results for the nonbinary gender participants were described separately because there were few participants ($n = 4$). Unequal number of invited students at T1 and T2 was due to individuals who changed or quit school between T1 and T2, and one elite sport high school withdrew from T2. In addition, 150 reference students were invited to T2 only because of difficulties organizing the T1 data collection because of restrictions related to the onset of the COVID-19 pandemic. The response rates in percent at T1 were 83.8, 88.6, and 62.4 for the elite athletes, recreational athletes, and reference students, respectively. At T2, the response rates were 78.0%, 88.0%, and 80.5%, respectively.

Instruments. Apart from self-generated questions about demographics, training, and sport performance, the questions regarding SHA were adapted from earlier research (16). Validated instruments measuring psychological health parameters were also included in the questionnaire battery, but not presented in this

article. The questionnaire battery took 30–40 min to complete. The questions were formulated to fit the age of the participants and piloted in a sample of adolescents attending elite sport and ordinary high schools, not relevant for inclusion in the final study. Minor wording adjustments and exemplifications were done after the piloting, and response options were added to the items covering living situation and immigration status.

Sexual harassment and abuse. The definition of SH from the Norwegian Equality and Anti-Discrimination Act (§13) was presented in an introductory text in the questionnaire: “Sexual harassment means any form of unwanted sexual attention that has the purpose or effect of being offensive, frightening, hostile, degrading, humiliating or troublesome,” followed by 13 questions covering the spectrum of SHA from unwanted sexual experiences to SA. The questions were answered dichotomously (no/yes). Positive answers were followed by questions about where it happened. “In school” included school hours like theoretical classes and training, or arrangements related to school such as training camps, travels, and graduations.” Sports outside school” covered club training, free training, fitness center, and others, and “free time” included work and time with family and friends. Additional follow-up questions covered when it happened (last 12 months or lifetime), frequency (one time, a few times, or often/regularly), and relation to and gender of the perpetrator. For analytic purpose, perpetrators were categorized as peers (friends/classmates/teammates), trainer/teacher/health personnel, and “others” (family members, employer, others). The term “perpetrator” was used to explain the source of victimization, independent of severity or type of SHA. A single item also addressed whether the participant believed that he/she had sexually harassed others. At T2, the same questions were presented with a time frame of the last 12 months. A threshold measure was used to examine the 12-month prevalence of SHA, that is, reporting at least one experience of verbal, non-verbal, or physical SHA during the last 12 months (16). SHA was further categorized into three categories by summing the items representing verbal SH, nonverbal SH, and physical SHA, respectively. Verbal SH included unwanted sexual comments/remarks, sexual approaches/favors, and having sexual rumors spread about oneself. Nonverbal SH included unwanted sexual staring/glances, being showed sexual pictures, having sexual pictures/videos spread of oneself, indecent exposure, persecution, and humiliating/degrading treatment. Physical SHA included unwanted physical contact, coerced sexual act, rape, and attempt at rape (4,5). All results reflect subjectively reported SHA victimization.

Statistical analyses. Power calculation for sample size estimation was not performed because of the aim to capture the total population of Norwegian elite athlete students. Data were analyzed using SPSS version 24 (IBM, Armonk, NY). Complete-case analyses were used because of a small percentage of missing data, <5% on relevant variables (29), and a large sample size. For continuous data, differences between boys and girls were analyzed using independent-sample t -test. Pearson χ^2 for independence and Fisher’s exact test were

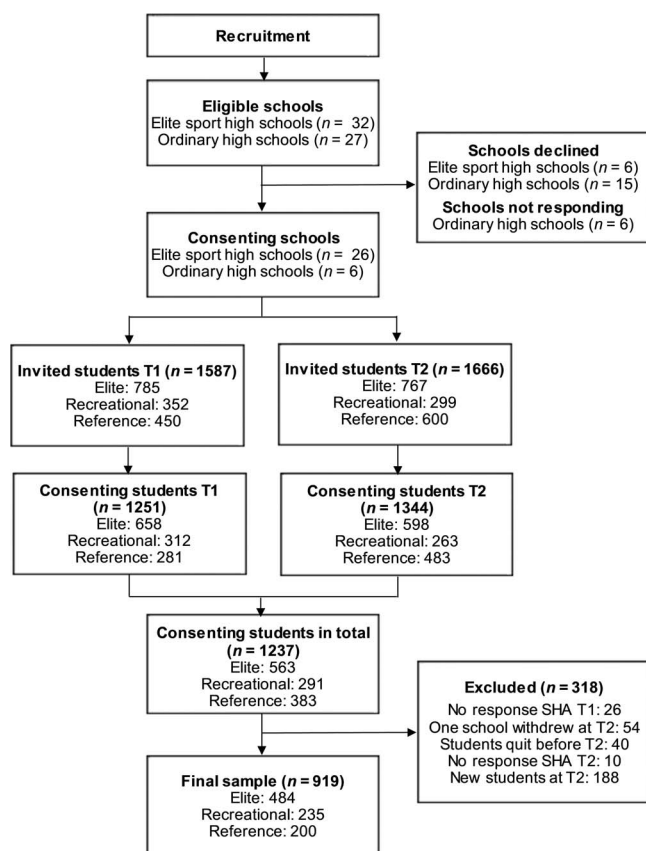


FIGURE 1—Flowchart of the recruitment of schools and participants in the study. Note: A higher number of reference students were invited at T2 ($n = 600$) compared with T1 ($n = 450$) because of restrictions related to physical meetings and the sudden change to distance school at the end of T1, as a result of the onset of the COVID-19 pandemic.

used to analyze differences in categorical data. McNemar test for paired nominal data was used to analyze changes from T1 to T2. Results were presented as mean and SD or number and percentages and considered statistically significant if $P \leq 0.05$. Logistic regression analyses adjusted for clustering were used to compare the social settings, type of SHA, and group of perpetrators, respectively, as participants were able to report several answers within the different social settings, types of SHA, and perpetrators. Results were presented as odds ratio (OR) with 95% confidence interval (CI).

Ethics. The study was approved by the Regional Committees for Medical and Health Research Ethics (No. 8673) and The Norwegian Center for Research Data (No. 960987), and registered in Clinical Trials (NCT04003675). In accordance with the Helsinki Declaration, participation was voluntary, and informed consent was obtained from all participants. The students were informed about their right to withdraw from the study at any time without the need to provide any reason or explanation and ensured that this would not cause any negative consequences. One hundred gift cards were randomly distributed among the participants after each testing period. All data were deidentified. Because of the sensitive nature of the study, the participants were encouraged to contact the project leader or the school nurse if they felt affected by the content in the questionnaire or needed to talk to someone. They could also respond to a specific questionnaire item requesting a follow-up conversation, thereby giving the project leader consent to contact them.

RESULTS

The total gender distribution was 48.6% boys, 50.9% girls, and 0.4% ($n = 2$ elite athletes and $n = 2$ recreational athletes) reported nonbinary gender. Eight percent of the participants were first- or second-generation immigrants, 77.3% lived with one or two parents, and 96.6% reported a heterosexual orientation. The participants involved in competitive sports represented 52 different type of sports. Additional sample characteristics are presented in Table 1.

The total 12-month prevalence of SHA in any setting was 38.6% at T1 and 35.1% at T2. Girls had a higher prevalence of

SHA compared with boys at T1 (47.6% vs 29.1%, $P \leq 0.001$) and T2 (47.4% vs 22.1%, $P \leq 0.001$). The prevalence of SHA was lower for the elite athletes (32.2%) compared with the recreational athletes (46.6%) and the reference students (47.0%) at T1 ($P \leq 0.001$) and T2 (28.0%, 39.5%, and 47.0%, respectively; $P \leq 0.001$; Table 2).

The prevalence of SHA was lower among the elite athletes than among the recreational athletes in the school setting (T1: $P = 0.002$ and T2: $P \leq 0.001$) and lower among the elite athletes compared with the recreational athletes and the reference students, respectively, in the free time setting (T1 and T2: $P \leq 0.001$). In the sport setting, the prevalence of SHA was lower among the reference students compared with the elite and recreational athletes, respectively (T1 and T2: $P \leq 0.001$; Table 2). The OR values for reporting SHA were 1.88 times higher in school compared with the sport setting (95% CI, 1.6–2.2), 2.56 times higher during free time compared with the sport setting (CI, 2.1–3.1), and 1.36 times higher in free time compared with the school setting (95% CI, 1.2–1.6). At T2, the OR values were 1.5 (95% CI, 1.2–1.9), 3.8 (95% CI, 3.1–4.7), and 2.5 (95% CI, 2.1–2.9), respectively.

Among the nonbinary athletes, three out of four reported SHA at T1 in the school setting and two out of four in the free time setting. At T2, one nonbinary athlete reported SHA in all three settings.

In total, 6.1% of the participants (T1: 10.1% boys and 2.4% girls, $P < 0.001$) admitted having sexually harassed others in their lifetime. Of these, 60.7% reported experiences of SHA themselves.

Verbal SH was reported by 24.6% of the total sample, non-verbal SH by 27.0%, and physical SHA by 14.0%. The OR values for reporting verbal SH and nonverbal SH, respectively, at T1 were 2.0 (95% CI, 1.6–2.4) and 2.3 (95% CI, 1.9–2.7) times greater than reporting physical SHA. For more details, see Figure 2.

Among those who reported experience of SHA the last 12 months, peers were reported as perpetrators by 83.1%, trainer/teacher/health personnel by 20.1%, and “other” perpetrators by 56.4%. Compared with trainers, the OR for reporting peer perpetrators was 17.3 (95% CI, 12.0–24.8), and the OR for “other” perpetrators was 5.1 (95% CI, 3.7–7.2). The OR

TABLE 1. Baseline sample characteristics presented as numbers (percentages) or mean (SD) for male and female elite athletes, recreational athletes, and reference students.

	Elite Athletes (n = 482)		Recreational Athletes (n = 233)		Reference Students (n = 200)		Total (n = 915)	
	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls
Gender distribution, n (%)	246 (51.0)	236 (49.0)	135 (57.9)	98 (42.1)	66 (33.0)	134 (67.0)	447 (48.9)	468 (51.1)
Age, yr	17.1 (0.5)	17.0 (0.4)	16.9 (0.4)	16.9 (0.3)	17.3 (0.5)	17.2 (0.5)	17.1 (0.5)	17.1 (0.4)
Training per week, sessions	10.5 (3.0)***	9.5 (2.5)***	9.4 (3.2)	8.8 (3.7)	3.9 (2.7)*	5.1 (3.3)*	9.2 (3.7)***	8.1 (3.6)***
Training per week, h	16.7 (5.3)*	15.4 (5.7)*	15.9 (6.4)**	13.7 (5.2)**	6.8 (6.0)	6.9 (5.3)	15.0 (6.7)***	12.6 (6.6)***
Competitive sport, n (%)	241 (98.0)	228 (96.6)	107 (79.3)	71 (72.4)	13 (19.7)	32 (23.9)	361 (80.8)***	331 (70.7)***
Level of competition ^a								
Club, n (%)	24 (10.0)	34 (14.9)	43 (40.2)	33 (47.1)	3 (23.1)	14 (43.8)	70 (19.4)	81 (24.5)
Regional, n (%)	61 (25.3)	55 (24.1)	31 (29.0)	24 (34.3)	4 (30.8)	6 (18.8)	96 (26.6)	85 (25.8)
National, n (%)	130 (53.9)	104 (45.6)	27 (25.2)	10 (14.3)	5 (38.5)	7 (21.9)	162 (44.9)	121 (36.7)
International, n (%)	26 (10.8)	35 (15.4)	6 (5.6)	3 (4.3)	1 (7.7)	5 (15.6)	33 (9.1)	43 (13.0)

^aPercentage among those involved in a competitive sport, $n = 1$ missing ($n = 691$).

*Significant gender differences: $P \leq 0.05$.

**Significant gender differences: $P \leq 0.01$.

***Significant gender differences: $P \leq 0.001$.

TABLE 2. Twelve-month prevalence (%) of SHA victimization among elite athletes, recreational athletes, and reference students in different social settings (school, sports outside school, and free time).

	Elite Athletes			Recreational Athletes			Reference Students			Total		
	Total (n = 482)	Boys (n = 246)	Girls (n = 236)	Total (n = 233)	Boys (n = 135)	Girls (n = 98)	Total (n = 200)	Boys (n = 66)	Girls (n = 134)	Total (n = 915)	Boys (n = 447)	Girls (n = 468)
School ^a												
T1	18.9	15.9	22.0	30.9	28.9	33.7	24.0	30.3	20.9	23.1	21.9	24.1
T2	11.0	6.5***	15.7***	21.5	14.8**	30.6**	17.5	16.7	17.9	15.1	10.5***	19.4***
Sports outside school ^b												
T1	13.9	13.0	14.8	21.1	19.4	23.5	5.0	1.5	6.7	13.8	13.2	14.3
T2	10.2	7.3*	13.1*	15.9	11.1*	22.4*	4.5	3.0	5.2	10.4	7.8*	12.8*
Free time ^c												
T1	22.3	13.8***	31.2***	33.6	26.9*	42.9*	40.0	22.7***	48.5***	29.1	19.1***	38.6***
T2	24.5	12.6***	36.9***	33.0	23.0***	46.9***	42.5	18.2***	54.5***	30.6	16.6***	44.0***
Any setting												
T1	32.2	23.2***	41.5***	46.6	37.8*	54.1*	47.0	33.3**	53.7**	38.6	29.1***	47.6***
T2	28.0	17.1***	39.4***	39.5	28.9***	54.1***	47.0	27.3***	56.7***	35.1	22.1***	47.4***

The participants were able to report SHA in multiple settings. Bold print indicates significant difference between the elite, recreational, and reference groups ($P \leq 0.001$; school setting T1: $P = 0.002$).

^aSchool = time spent at school/in class and/or events arranged by the school (e.g., graduations, training camps, excursions etc.).

^bSports outside school = training with a club, training center, self-arranged trainings etc. (missing at T1: $n = 1$ recreational athlete).

^cFree time: at work, with friends, family etc. (missing at T1: $n = 2$ elite, $n = 1$ recreational athlete).

*Significant gender difference within groups: $P \leq 0.05$.

**Significant gender difference within groups: $P \leq 0.01$.

***Significant gender difference within groups: $P \leq 0.001$.

for reporting peers compared with “others” was 3.4 (95% CI, 2.2–5.0).

Boys reported more peer perpetrators compared with girls (92.3% vs 74.9%, $P \leq 0.001$), and girls reported more “other” perpetrators compared with boys (65.5% vs 40.8%, $P \leq 0.001$). No gender difference was found for trainer/teacher/health personnel as perpetrators (23.8% vs 17.9%, $P = 0.182$). For more details, see Figure 3.

Boys and girls reported mainly male peer perpetrators exclusively or peers of both genders (Figs. 4A–C). In the group of trainers/teachers/health personnel, male perpetrators were most frequently reported. In the “others” category, boys reported more SHA from female “others” compared with girls ($P = 0.004$ in school, $P \leq 0.001$ in sports and free time), and girls reported more SHA from male “others” compared with boys ($P \leq 0.001$ in sports and free time). Because of low number of participants in some groups, the assumptions for Pearson χ^2 test were not met for the trainer/teacher/health personnel

and “others” category, and the results concerning gender of the perpetrator are therefore uncertain for these categories.

The majority of the participants reported no change in SHA from T1 to T2 (74.6%–85.0%). McNemar test revealed a significant decrease in SHA from T1 to T2 in the school setting ($P \leq 0.001$) and the sport setting ($P = 0.008$), but no change in the free time setting ($P = 0.428$; Fig. 5). No change was found in verbal SH ($P = 0.075$) or nonverbal SH ($P = 0.456$), but the prevalence of physical SHA decreased from T1 to T2 ($P = 0.015$).

DISCUSSION

The aims of this study were to examine the 12-month prevalence and 12-month prospective change of reported SHA among young Norwegian elite and recreational athletes and reference students in three different social settings, and identify the perpetrators of SHA. In total, girls reported more SHA than boys, and elite athletes reported less SHA than

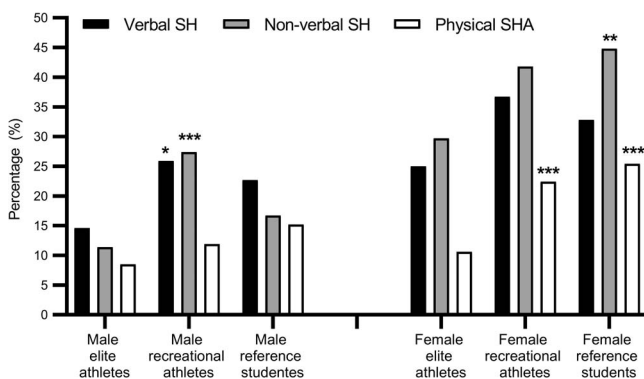


FIGURE 2—Twelve-month prevalence (%) of verbal, nonverbal, and physical SHA for male and female elite athletes, recreational athletes, and reference students at T1. $n = 915$. Missing nonverbal SH: $n = 1$ boy and 6 girls. Missing physical SHA: $n = 2$ boys and 9 girls. Significantly different from the elite group within gender and type of SHA: * $P \leq 0.05$, ** $P \leq 0.01$, *** $P \leq 0.001$.

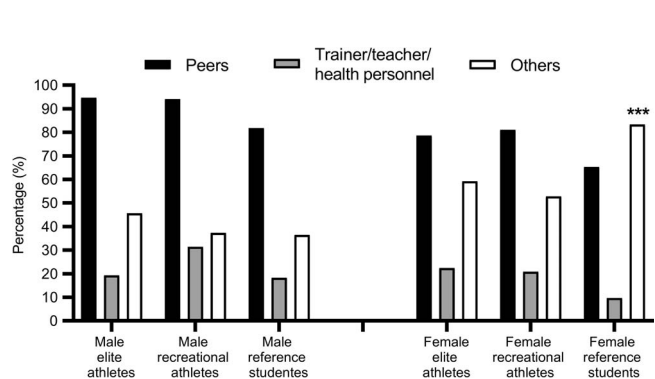


FIGURE 3—Perpetrators of SHA reported by male and female elite athletes, recreational athletes, and reference students having experienced SHA the last 12 months at T1. The data are presented as percentages (%). $n = 353$. Significantly different from the elite and recreational athletes within gender and group of perpetrators: *** $P \leq 0.001$. Note: The respondents were able to report multiple perpetrators.

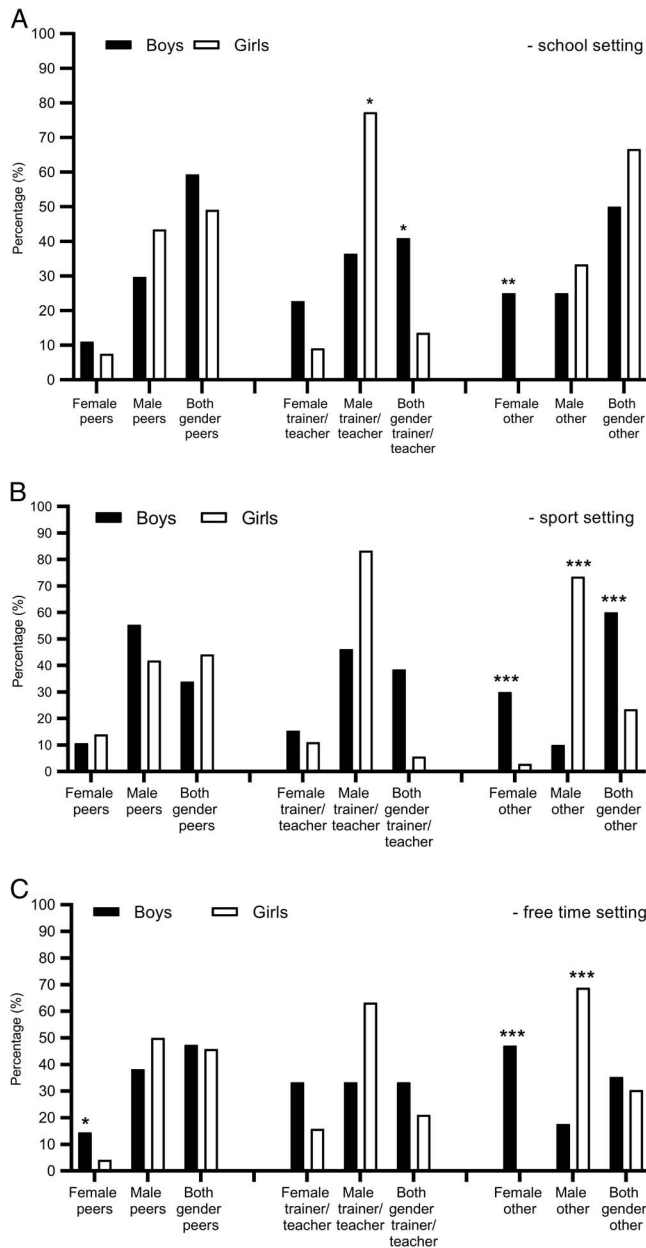


FIGURE 4—A–C, Gender of perpetrators of SHA in the school setting (A), sport setting (B), and free time setting (C) at T1. The data are presented as percentages (%) for male and female victims. $n = 28$ – 197 depending on group of perpetrators. Significant difference between boys and girls within each group of perpetrators: $*P \leq 0.001$, $**P \leq 0.01$, $*P \leq 0.05$. Note: The respondents were able to report multiple perpetrators in each setting.**

recreational athletes and reference students, respectively. SHA occurred most often in the free time setting, verbal and nonverbal types of SH were most common, and peers were the most frequently reported perpetrators. Most of the participants reported no change in SHA from T1 to T2.

Twelve-month prevalence. Our findings that about one out of three elite athletes and nearly one out of two recreational athletes reported experience of SHA within the last 12 months before T1 is alarming, and much higher than the only comparable study measuring 12-month prevalence of SH in youth-organized

sports (8). In that study, only SH from coaches as perpetrators was examined and only three questions assessed SH victimization. In contrast, we included all perpetrators and 13 questions covering the entire spectrum of SHA, which likely results in higher prevalence rates in our study.

The fact that one out of two reference students in our study reported experience of SHA the last 12 months is comparable to international studies including nonathlete high school students (30,31), but lower than reported in a Norwegian study (32). However, our results showed a higher prevalence rate among the reference students compared with other studies measuring 12-month prevalence in nonathlete high school students (33,34). Bakken (33) and Clear et al. (34) included just three questions assessing SH, and Clear et al. (34) used a strict measurement only counting experiences that occurred three or more times, possibly contributing to lower prevalence rates compared with our study.

As hypothesized, verbal SH and nonverbal SH were the most common types of harassment reported in our study, similar to findings from other studies among athletes (6,7) and nonathletes (31). The fact that three out of four nonbinary athletes reported SHA at T1 corresponds to findings in previous studies showing higher SHA victimization among minority groups (6,10). Nonbinary athletes might be extra vulnerable to SHA because of minority stressors like feelings of being inferior and not fitting into a heteronormative society, which might be especially prominent in sports (9).

Gender differences. Without considering which setting the harassment took place, our finding that a higher percentage of girls reported SHA compared with boys supports hypothesis 1 and is comparable to other studies in young athletes (7,25) and young nonathletes (31,33,34). Despite the historical point of view that girls report more SHA than boys, researchers have recently questioned if this gender difference mirrors the true situation, or whether it may be due to underreport and taboo of disclosure among boys (10), or different

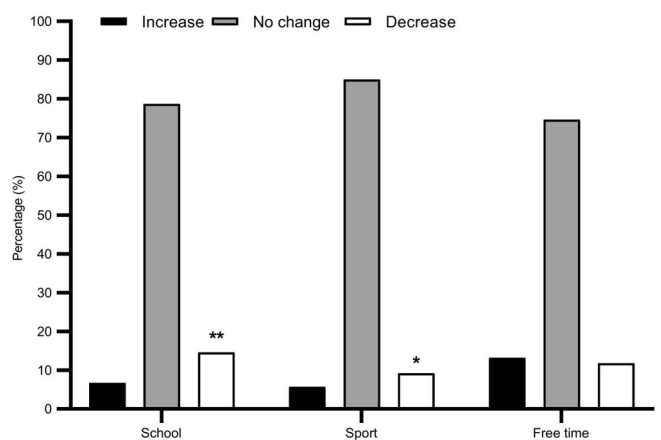


FIGURE 5—Change in SHA victimization in the school, sport, and free time settings from T1 to T2. Increase signifies no experience of SHA at T1 but experience of SHA at T2. Decrease signifies experience of SHA at T1, but no experience of SHA at T2. The data are presented as percentages (%). $n = 915$. Missing: $n = 1$ in sport setting, $n = 3$ in free time setting. Significant change within each social setting: $*P \leq 0.01$, $P \leq 0.001$.**

perceptions regarding what constitutes SHA and its consequences (5,9). Boys may perceive the situation as less harmful than girls and thereby not report it (35). Others have argued that girls may worry that sexual teasing and SH from boys can lead to more harmful behaviors like SA, and feel more threatened or affected by such behaviors, thereby reporting more SHA than boys (36). At the other side, the fact that no gender differences in SHA were found in the school and sport settings at T1, but girls had a higher prevalence of SHA in the free time setting at T1, supports Bendixen and Kennair's (37) considerations that girls seem to have a positive effect of adults' presence and protectiveness. Adult appearance operates more in school and sports than during the adolescents' free time. Other studies in young athletes (12,24) and young nonathletes (32) did not find any difference in the prevalence of SHA between boys and girls.

School groups. Contrary to our second hypothesis, we found a lower prevalence of reported SHA among elite athletes compared with recreational athletes and reference students, respectively. In a former Norwegian study among adult female elite athletes, lifetime prevalence of SHA was significantly lower in elite athletes compared with controls, but no difference in the age group of 15–18-yr-olds (18). Because there was no difference in reported SHA victimization between the recreational athletes and the reference students in our study, we speculate whether aspects related to elite sports might serve as protective factors and strengthen the elite athletes' resilience toward SHA victimization (18,38) rather than operating as a risk factor for SHA as suggested in the literature (1). The elite athletes may benefit from increased self-esteem and self-confidence after high-level sport performances, increased physical and mental strength, and having the possibility to practice their sport at a daily basis implemented in their educational program (18,39). On the other hand, in the pursuit of top-level performance, it has been argued that elite athletes socialize into a culture of tolerance and normalization of unacceptable behaviors like SHA (6,14,16) possibly leading to underreport of SHA among active elite athletes (16). Exemplified with the systematic abuse by Dr. Larry Nassar in the United States, the elite sport culture failed to protect gymnasts from SA as a consequence of various cultural and structural factors like inadequate policies, misuse of power in authoritarian relationships, and ignorance of athletes' voices and needs (40,41).

Settings. The fact that the OR for reporting SHA was higher in the school and free time settings compared with the sport setting supports our third hypothesis and the statement from Fasting et al. that "(...) the sport arena is not as risky as originally thought for sexual harassment to occur (...)" (39, p. 126). Higher victimization rates outside the sport setting compared with inside sports have also been highlighted in other studies among athletes (3,17,18). During free time, peers spend time together without adult supervision. This may be one factor, among others, possibly explaining the higher prevalence of SHA victimization in the free time setting in our study as perpetrators commonly seek environments with minimal supervision (1,35). In the sport setting outside school, especially in organized sports, athletes practice and travel together and

have adults present as trainers, leaders, or parents most of the time. Given that the perpetrator is not a peer athlete or a person in the entourage, this social support may reduce the risk of SHA. The participants were provided with descriptions and examples of the school, sport, and free time settings, respectively. However, it should be noted that the school setting includes many hours of training and sport arrangements for the elite athletes, emphasizing that SHA reported in the school and sport settings may intermingle for the elite athletes.

The fact that the reference students in our study spent less time playing sports than the athletes, and thereby have less time for possible SHA exposure in the sport setting, may contribute to explain our finding that the reference students had a lower prevalence of SHA in the sport setting compared with the elite and recreational athletes. Similarly, we expected a lower prevalence of SHA in the free time setting among the elite athletes compared with the recreational athletes and reference students, bearing in mind that athletes spend most of their free time in a sport setting (18). These results give further support to earlier findings suggesting that values learned in elite sport might also be beneficial as protection against SHA in other context in life (18).

Perpetrators. As hypothesized, peers were reported as perpetrators to a much higher degree than trainers/trainers/health personnel and "others." This is in line with the shift from a general belief of coaches and authority figures as perpetrators of SHA toward increased attention to peers as perpetrators in sports (6,7,10,24) and in the general society (31,35). However, there is no reason to reduce the awareness of SHA from authorities because one-fifth of the participants also reported SHA from a trainer/teacher/health personnel, and the perceived severity is found to increase when the perpetrator is an authority figure (20). The fact that boys were more likely to report peers as perpetrators compared with girls, mainly peers of male gender or both genders, might be due to a "boys will be boys" culture where especially verbal harassment including homophobic remarks and sexual comments are common (42). Girls may be more vulnerable to attention from "others," often of male gender as reflected in our results, with a purpose of showing sexual interest, treating girls as sexist objects, or as a result of boys' perception of power over girls (30,43). This power dynamics is central in describing a victim–perpetrator relationship related to SHA. Peers with high social status and successful coaches or other authorities might misuse their hierarchical position of power to show dominance over less powerful and vulnerable people. For male perpetrators, maintaining the normative heterosexual and masculine values is often strived for (15,44). In line with our results concerning the gender of the perpetrator, Hartill et al. (17) reported predominantly male perpetrators of sexual violence, but more than one in four participants reported perpetrators of both genders. This emphasizes the need to move forward from the traditional view of male perpetrators exclusively.

Combined perpetration and victimization. The finding that about 6% of the total sample in our study admitted having sexually harassed others in their lifetime was interesting

considering the concurrent high percentage of reported peer perpetrators. However, admitting a destructive or possibly illegal behavior is often related to feelings of shame and guilt; hence, a low number of confessing adolescents were expected and the results must be interpreted thereafter. On the other hand, some adolescents do not realize that they have been the source of victimization (43). The behavior might have felt uncomfortable for the counterpart, referring to SHA as a subjective experience, even though the perpetrator had no intention to harm. Our finding that more boys than girls admitted having sexually harassed others is consistent with former studies among nonathlete adolescents (31,32,34,45). Also in line with these studies, we found that the majority of the adolescents who admitted having harassed others also reported experiences of SHA themselves, possibly emphasizing a need to defend themselves or seeking revenge (46).

Change in SHA from T1 to T2. In line with hypothesis 6, most of the participants in our study reported no change in SHA from T1 to T2, meaning that they either experienced SHA at T1 and T2, or did not experience SHA at T1 or T2. Nevertheless, our finding of a significant decrease in SHA from T1 to T2 in the school and sport settings must be interpreted with caution because of an apparent influence of the COVID-19 pandemic where schools and sport activities were locked down between T1 and T2. Not unexpectedly, reduced time spent in a specific context may affect the prevalence of harm experienced in that context, supported by recent findings that adolescents who attended distant school during the pandemic were more likely to report decreased physical and psychological victimization compared with adolescents who had regular school days (47). In addition, a higher percentage of recreational athletes and reference students who reported SHA in the school or sport setting at T1 chose not to participate at T2 compared with those who did not report SHA at T1, possibly contributing to a lower prevalence rate at T2. In the free time setting, there was no change in SHA from T1 to T2 despite strict restrictions related to social interaction during the pandemic. This finding may indicate, also reflected by a reduction in reported physical SHA in our study from T1 to T2, that SHA during free time was not limited by reduced physical interaction but shifted to online platforms. We did not specifically measure online victimization in our study. However, Augusti et al. (48) have emphasized that most Norwegian adolescents who reported SA during the pandemic also had experience with SA before the pandemic. This pattern was different for online SA in their study where half of the cases during the pandemic were first-time experiences. This underlines the possibility of a platform change toward increased SHA online during the pandemic, correspondingly between T1 and T2 in our study (48).

Strengths and limitations. The strengths of this study encompass a large study sample with equal male/female distribution and nonbinary gender participants included, an age-matched reference group, different sports included, geographical spreading of the schools across Norway, and examination of three different social settings. To our knowledge, this study was the first prospective examination of reported SHA among

athletes. The response rate was high (62.4%–88.6%) considering the sensitive theme and compared with other SHA studies reporting a mean response rate of 33.5% (8). We also piloted and adjusted the questionnaire before use.

However, we did not use a validated questionnaire (49) because this was not available at the time of planning our study. Our results do not hold information about frequency or severity, but for the purpose of this article, we considered a threshold measure of SHA satisfactory. Self-reported data may not be precise, especially when retrospectively reported, because of emotional impact, hesitation to report, worries about confidentiality, and inaccurate recall (50). For the adolescents who reported several types of SHA, follow-up questions made the questionnaire long and detailed, and some participants may have answered “no” to avoid additional questions. As such, an underestimation of the prevalence of SHA could be possible. In addition, we are aware of the possibility that adolescents with a history of SHA may have chosen not to participate in the study. We do not have additional information about nonresponders, but we do not consider this as having influenced our results substantially.

Implications and future research. The results from this study can provide an important base of knowledge in the process of developing (a) preventive measures for SHA and (b) educational programs for trainers, teachers, leaders, and others working with young athletes and nonathletes. More research is needed to examine if factors related to elite sports may serve as protective factors for SHA victimization, or whether elite athletes are prone to underreport experiences of SHA. As we examined all types of sports combined, future researchers should investigate different sports or sport categories separately to increase sport-specific knowledge regarding prevalence rates, perpetrators, and risk factors for SHA victimization. For better comparison of prevalence rates reported in different studies, an internationally available and validated questionnaire would be beneficial. Finally, more detailed characteristics of those admitting SHA perpetration and information regarding the scope of cyber harassment among adolescents are encouraged to optimize preventive programs.

CONCLUSIONS

SHA victimization was reported by one in three elite athletes and nearly one in two recreational athletes and reference students, respectively, highlighting a need for preventive measures in both athletes and nonathletes. Most adolescents reported no change in SHA over a 12-month period, and peers were most frequently reported as perpetrators.

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J. S.-B. generated the original research idea. All authors contributed to the conception of the research project. N. S. and J. S.-B. recruited

the schools and conducted the data collection. N. S. performed the statistical analyses and wrote the draft of the manuscript. All authors

contributed to the revising of the manuscript and approved the final version.

REFERENCES

1. Mountjoy M, Brackenridge C, Arrington M, et al. International Olympic Committee consensus statement: harassment and abuse (non-accidental violence) in sport. *Br J Sports Med*. 2016;50(17):1019–29.
2. Brackenridge C. Harassment, sexual abuse, and safety of the female athlete. *Clin Sports Med*. 2000;19(2):187–98.
3. Ohlert J, Rau T, Rulofs B, Allroggen M. Comparison of elite athletes' sexual violence experiences in and outside sport. *Ger J Exerc Sport Res*. 2020;50(4):435–43.
4. Bendixen M, Daveronis J, Kennair LEO. The effects of non-physical peer sexual harassment on high school students' psychological well-being in Norway: consistent and stable findings across studies. *Int J Public Health*. 2018;63(1):3–11.
5. Sivertsen B, Nielsen MB, Madsen IEH, Knapstad M, Lønning KJ, Hysing M. Sexual harassment and assault among university students in Norway: a cross-sectional prevalence study. *BMJ Open*. 2019; 9(6):e026993.
6. Willson E, Kerr G, Stirling A, Buono S. Prevalence of maltreatment among Canadian National Team athletes. *J Interpers Violence*. 2021; 22:8862605211045096.
7. Alexander K, Stafford A, Lewis R. *The Experiences of Children Participating in Organised Sport in the UK [report]*. London (United Kingdom): NSPCC; 2011. Available from: https://www.pure.ed.ac.uk/ws/portalfiles/portal/7971883/experiences_children_sport_main_report_wdf85014.pdf. English.
8. Parent S, Lavoie F, Thibodeau M, Hébert M, Blais M. Sexual Violence experienced in the sport context by a representative sample of Quebec adolescents. *J Interpers Violence*. 2016;31(16):2666–86.
9. Bjørnseth I, Szabo A. Sexual violence against children in sports and exercise: a systematic literature review. *J Child Sex Abus*. 2018;27(4):365–85.
10. Vertommen T, Schipper-van Veldhoven N, Wouters K, et al. Interpersonal violence against children in sport in the Netherlands and Belgium. *Child Abuse Negl*. 2016;51:223–36.
11. Hartill M. Sport and the sexually abused male child. *Sport Educ Soc*. 2005;10(3):287–304.
12. Parent S, Vaillancourt-Morel M-P. Magnitude and risk factors for interpersonal violence experienced by Canadian teenagers in the sport context. *J Sport Soc Issues*. 2021;45(6):528–44.
13. Lamb M, Kuhn AW, LaBotz M, Diamond AB. Safeguarding the child and adolescent athlete. *Curr Sports Med Rep*. 2018;17(12):419–24.
14. Parent S, Fortier K. Comprehensive overview of the problem of violence against athletes in sport. *J Sport Soc Issues*. 2018;42(4): 227–46.
15. Roberts V, Sojo V, Grant F. Organisational factors and non-accidental violence in sport: a systematic review. *Sport Manage Rev*. 2020;23(1):8–27.
16. Fasting K, Brackenridge C, Sundgot-Borgen J. Experiences of sexual harassment and abuse among Norwegian elite female athletes and nonathletes. *Res Q Exerc Sport*. 2003;74(1):84–97.
17. Hartill M, Rulofs B, Lang M, et al. *CASES: General Report. The Prevalence and Characteristics of Interpersonal Violence Against Children (IVAC) Inside and Outside Sport in Six European Countries [Report]*. Ormskirk (United Kingdom): Edge Hill University; 2021. Available from: <https://doi.org/10.25416/edgehill.17086616.v1>. English.
18. Sundgot-Borgen J, Fasting K, Brackenridge C, Torstveit MK, Berglund B. Sexual harassment and eating disorders in female elite athletes—a controlled study. *Scand J Med Sci Sports*. 2003;13(5):330–5.
19. Toftegaard J. The forbidden zone. Intimacy, sexual relations and misconduct in the relationship between coaches and athletes. *Int Rev Sociol Sport*. 2001;36(2):165–82.
20. Vertommen T, Kampen J, Schipper-van Veldhoven N, Wouters K, Uzieblo K, van den Eede F. Profiling perpetrators of interpersonal violence against children in sport based on a victim survey. *Child Abuse Negl*. 2017;63:172–82.
21. Ohlert J, Seidler C, Rau T, Rulofs B, Allroggen M. Sexual violence in organized sport in Germany. *Ger J Exerc Sport Res*. 2018;48(1):59–68.
22. Ahmed MD, van Niekerk RL, Ho WKY, et al. Female student athletes' perceptions of acceptability and the occurrence of sexual-related behaviour by their coaches in India. *Int J Comp Appl Crim Just*. 2018; 42(1):33–53.
23. Timpka T, Janson S, Jacobsson J, et al. Lifetime history of sexual and physical abuse among competitive athletics (track and field) athletes: cross sectional study of associations with sports and non-sports injury. *Br J Sports Med*. 2019;53(22):1412–7.
24. Bermon S, Adami PE, Dahlström Ö, et al. Lifetime prevalence of verbal, physical, and sexual abuses in young elite athletics athletes. *Front Sports Act Living*. 2021;3(152):657624.
25. Ohlert J, Vertommen T, Rulofs B, Rau T, Allroggen M. Elite athletes' experiences of interpersonal violence in organised sport in Germany, the Netherlands, and Belgium. *Eur J Sport Sci*. 2021;21(4):604–13.
26. Petersen JL, Hyde JS. A longitudinal investigation of peer sexual harassment victimization in adolescence. *J Adolesc*. 2009;32(5):1173–88.
27. Marshall SK, Faaborg-Andersen P, Tilton-Weaver LC, Stattin H. Peer sexual harassment and deliberate self-injury: longitudinal cross-lag investigations in Canada and Sweden. *J Adolesc Health*. 2013; 53(6):717–22.
28. Skoog T, Kapetanovic S. The role of relational support in the longitudinal links between adolescent sexual harassment victimization and psychological health. *Dev Psychopathol*. 2021;33(4):1368–80.
29. Schafer JL. Multiple imputation: a primer. *Stat Methods Med Res*. 1999;8(1):3–15.
30. Landstedt E, Gillander KG. Experiences of violence among adolescents: gender patterns in types, perpetrators and associated psychological distress. *Int J Public Health*. 2011;56(4):419–27.
31. Hill C, Kearn H. *Crossing the Line: Sexual Harassment at School [report]*. Washington (DC): American Association of University Women Foundation; 2011. Available from: <https://www.aauw.org/app/uploads/2020/03/Crossing-the-Line-Sexual-Harassment-at-School.pdf>. English.
32. Bendixen M, Kennair LE. *Resultater fra prosjekt Seksuell helse og trakassering i videregående opplæring 2013–2014 [Findings from the Sexual Health and Harassment Project in High School Education 2013–2014]*. Trondheim (Norway): Norges teknisk-naturvitenskapelige universitet [Norwegian University of Science and Technology]; 2014. Available from: <http://firodefredriksen.no/wp-content/uploads/2015/03/Rapport-Seksuell-Trakassering-VGO-2014.pdf>. Norwegian.
33. Bakken A. *Ungdata 2020. Nasjonale resultater [Ungdata 2020. National Results] [report]*. Oslo (Norway): Velferdsforskningsinstituttet NOVA [Norwegian Social Research NOVA], OsloMet [Internet]; 2020. Available from: <https://www.forebygging.no/globalassets/ungdata-2020-nasjonale-resultater-nova-rapport-16-20-1.pdf>. Norwegian.
34. Clear ER, Coker AL, Cook-Craig PG, et al. Sexual harassment victimization and perpetration among high school students. *Violence Against Women*. 2014;20(10):1203–19.
35. Young AM, Grey M, Boyd CJ. Adolescents' experiences of sexual assault by peers: prevalence and nature of victimization occurring within and outside of school. *J Youth Adolesc*. 2009;38(8):1072–83.
36. Petersen JL, Hyde JS. Peer sexual harassment and disordered eating in early adolescence. *Dev Psychol*. 2013;49(1):184–95.
37. Bendixen M, Kennair LE. *Seksuell trakassering blant elever og ansatte i videregående skole: En resultatrapport [Sexual harassment among students and staff in high school: a result report] [report]*. Trondheim (Norway): Norges teknisk-naturvitenskapelige universitet [Norwegian University of Science and Technology]; 2008. Available from: https://www.researchgate.net/publication/313360947_Seksuell_trakassering_blant_elever_og_ansatte_i_videregående_skole_En

resultatrapport_Sexual_harassment_among_students_and_staff_in_high_school_a_result_report. Norwegian.

38. Brackenridge C. 'He owned me basically...': women's experience of sexual abuse in sport. *Int Rev Sociol Sport*. 1997;32(2):115–30.
39. Fasting K, Chroni S, Knorre N. The experiences of sexual harassment in sport and education among European female sports science students. *Sport Educ Soc*. 2014;19(2):115–30.
40. Mountjoy M. 'Only by speaking out can we create lasting change': what can we learn from the Dr Larry Nassar tragedy? *Br J Sports Med*. 2019;53(1):57–60.
41. CHILD USA. "I believe competitive gymnastics and other elite sports break children." *A Case-Study of Systemic Abuse in Sports Perpetrated by Larry Nassar. [Report]*. Philadelphia (PA): CHILD USA; 2022. Available from: <https://childusa.org/wp-content/uploads/2022/01/Game-Over-Commission-Report-FINAL-1.28.22.pdf>. English.
42. Parent S, Fortier K. Prevalence of interpersonal violence against athletes in the sport context. *Curr Opin Psychol*. 2017;16:165–9.
43. Bendixen M, Kennair LEO. Advances in the understanding of same-sex and opposite-sex sexual harassment. *Evol Hum Behav*. 2017;38(5):583–91.
44. Dahlqvist HZ, Landstedt E, Young R, Gadin KG. Dimensions of peer sexual harassment victimization and depressive symptoms in adolescence: a longitudinal cross-lagged study in a Swedish sample. *J Youth Adolesc*. 2016;45(5):858–73.
45. Stroem I, Kimberly L, Ybarra M, Mitchell K. Understanding sexual harassment through an individual and relational lens: are risk factors the same for female and male perpetrators? *J Interpers Violence*. 2021;8862605211028316.
46. Fineran S. Sexual harassment between same-sex peers: intersection of mental health, homophobia, and sexual violence in schools. *Soc Work*. 2002;47(1):65–74.
47. Kapetanovic S, Gurdal S, Ander B, Sorbring E. Reported changes in adolescent psychosocial functioning during the COVID-19 outbreak. *Adolescents*. 2021;1(1):10–20.
48. Augusti E-M, Sætren SS, Hafstad GS. Violence and abuse experiences and associated risk factors during the COVID-19 outbreak in a population-based sample of Norwegian adolescents. *Child Abuse Negl*. 2021;118:105156.
49. Parent S, Fortier K, Vaillancourt-Morel M-P, et al. Development and initial factor validation of the violence toward athletes questionnaire (VTAQ) in a sample of young athletes. *Loisir Soc*. 2019;42(3):471–86.
50. Hulme PA. Retrospective measurement of childhood sexual abuse: a review of instruments. *Child Maltreat*. 2004;9(2):201–17.