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Research article

College students' recollections of childhood sexual abuse prevention programs and their potential impact on reduction of sexual victimization

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ABSTRACT

Background: Child sexual abuse prevention programs are offered in many schools globally, but research is scant on whether or not these programs actually decrease the rates of CSA among youth who participate in them.
Objective: This study sought to determine if participation in a CSA prevention program (based on participant recall), in the US or another country, led to lower rates of self-reported past victimization among youth, affected disclosure and effects on sexual satisfaction.
Participants and setting: One thousand five hundred and two students from an ethnically and racially diverse university in the southeast served as participants.
Methods: Participants completed measures on line (Qualtrics). This included demographic information and participation in CSA prevention programs in schools, concepts that were covered, and recollections of sexual victimization. The second measure was a revised version of the sexual satisfaction scale (Derogatis Sexual Functioning Inventory).
Results: Students who had not participated in a CSA prevention program were significantly more likely to be abused than those who did participate, regardless of the program or location ($\chi 2$ (1,1498) = 19.01, $p < .001$). Those participating in programs in the US were more likely to disclose abuse than those participating in the programs in other countries ($\chi 2$ (1,212) = 5.49, $p = .019$). No significant difference was found between those who participated in prevention programming and those who did not on sexual satisfaction ($\chi 2$ (1,1469) = 1.76, $p = .184$).
Conclusion: These results highlight the importance of universal CSA prevention programs in schools worldwide as one part of comprehensive prevention.

1. Introduction

While childhood sexual abuse (CSA) continues to affect thousands of children each year in the United States, prevention efforts are limited. Allen (2010) describes the three levels of prevention generally used in a medical model: primary, secondary and tertiary. Primary prevention attempts to avoid the development of a condition. Secondary prevention targets early detection and lessening the impact of a condition, while tertiary prevention seeks to reduce the negative impacts of a condition that already exists. Applying these prevention concepts to CSA, primary prevention efforts have focused on reducing the risks faced by children, by equipping them and their parents with awareness, skills and knowledge to empower them and alert them to inappropriate behaviors (Allen, 2010).

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Secondary prevention works to treat victims of abuse once they have been identified to reduce their subsequent sypmtomatology. Tertiary policies, such as sex offender registries and community notifications, exist in an effort to improve safety for children (Finkelhor, 2009).

The public health approach also advocates a focus on primary prevention strategies directed toward the public at large (Wurtele & Kenny, 2010). With respect to CSA, the goal of primary prevention is to prevent abuse before it ever occurs, and services are offered to everyone, regardless of risk status. One way to prevent the occurrence of sexual victimization is by educating parents, children, schools and the community at large about CSA (Anderson, Mangels, & Langsam, 2004). Unfortunately, few primary prevention interventions have been aimed at the community, rather the majority of strategies to prevent CSA have focused on educating children, and more recently, their parents (Wurtele & Kenny, 2010). No federal legislation currently exists that addresses primary prevention of CSA through mandatory education programs for youth (Anderson, 2014). Only 20 US states have passed legislation requiring school-based CSA prevention programs, including Alaska, Illinois, Maine, New Mexico, New York, Oregon, Texas, Utah, and others. Internationally, school-based programs have been identified as a key mechanism for universal prevention (Council of Europe, 2010; World Health Organization, 2016). For example, in Australia, school-based prevention efforts were identified as a core component in a new national strategy to prevent, identify, and respond to CSA following Australia's Royal Commission Into Institutional Responses to Child Sexual Abuse (Walsh, Berthelsen, Hand, Brandon, & Nicholson, 2019).

The main purpose in providing child-focused prevention programs is to provide children and youth with knowledge, skills and strategies to recognize and avoid potentially sexually abusive situations and resist approaches by offenders (Walsh, Zwi, Woolfenden, & Shlonsky, 2015). Armed with this knowledge, it is assumed that children might recognize, escape and seek help in the situation (Tutty, Aubry, & Velasquez, 2019). These school-based programs are of notable importance as compulsory schooling allows for the opportunity to educate more children about CSA. Further, the school setting is a pre-existing community, in which support and awareness raising can continue to occur (Topping & Barron, 2009). In addition, at home parents may be reluctant to discuss sexual abuse with their children. Given their discomfort, parents often prefer that sexuality education, including sexual abuse prevention, be taught in elementary schools (Fisher, Telljohann, Price, Dake, & Glassman, 2015). School- based CSA prevention programs cover a range of topics, including knowledge-based information such as the ability to recognize harmful situations, body ownership, types of touch, as well as skill-based topics (e.g., saying no, and telling an adult about the abuse) (Davis & Gidycz, 2000). Effective programs have been shown to incorporate active participation (as opposed to watching videos) such as role-play, and skills rehearsal, and are over three sessions in length (Davis & Gidycz, 2000; Topping & Barron, 2009).

In a 2015 meta-analysis of 24 child-focused CSA prevention programs (Walsh et al., 2015), children's self-protective skills and knowledge significantly improved after program participation and the gains were maintained over six months. Despite a body of evidence supporting these programs, there remains some concern about their benefits. The concerns are best summarized by childhood victimization expert Finkelhor (2007). He summarizes the belief that the concepts are too complex for young children to learn and secondly, that even with such knowledge, children cannot prevent CSA. Despite this scepticism, Finkelhor (2007) concluded that "the weight of currently available evidence shows that it is worth providing children with high-quality prevention-education programs" (p. 644).

Child-directed, school- based CSA prevention programs have been developed in other countries, including Australia (see Walsh et al., 2019), Canada (Tutty, 1997), Ecuador (Bustamante et al., 2019), Korea (Moon, Park, & Sung, 2017), China and Taiwan (Chen, Fortson, & Tseng, 2012; Jin, Chen, & Yu, 2016), South Africa (Dunn, 2011), Turkey (Tunc et al., 2018), and Malaysia (Weatherley et al., 2012). The proliferation of abuse prevention programs is likely due to high international rates of CSA (Pereda, Guilera, Santacana, & Gómez-Benito, 2009).

Despite global implementation of CSA prevention programs, only a few studies have attempted to examine whether or not these programs actually decrease victimization among those who participate in them. Two retrospective studies have attempted to determine whether participation in personal safety programs might prevent sexual victimization. Gibson and Leitenberg (2000) asked 825 undergraduate women in the US to report their past histories of CSA as well as their participation in school-based prevention programs. Women who had not participated in a prevention program in childhood were about twice as likely to have experienced CSA as those who had participated in a program. Although this study used a relatively weak, non-experimental design, it provides tentative support for the assertion that, at least for women, school-based CSA prevention programs are associated with a decreased occurrence of sexual abuse. Finkelhor, Asdigian, and Dziuba-Leatherman (1995) examined whether victimization prevention instruction in school had any impact on children's behavior in situations of real victimization. Using telephone interviews with a nationally representative sample of youth, they found that exposure to a comprehensive violence prevention program was not associated with reduced incidence of victimization, injury, or upset. However, exposure to school-based prevention programs were associated with increased likelihood of victim disclosure, participant perceptions of successful self-protection, and decreased self-blame. Children exposed to prevention programs acquired some knowledge about sexual abuse, and when actually confronted by a threat, demonstrated some ability to carry out actions/knowledge they had been taught.

There is also some evidence to suggest that those who participate in programs may be more likely to disclose abuse (Finkelhor et al., 1995). Disclosure is an important skill to learn as it may commence an investigation, which may further identify abuse and ultimately halt future occurrences. In a recent study, Elfreich, Stevenson, Sisson, Winstead, and Parmenter (2019) found that exposure to the Think First and Stay Safe™ (TFSS) CSA prevention program predicts significantly increased abuse disclosure likelihood, which in turn predicts elevated abuse substantiation rates. The authors found that children exposed to this program were more likely to disclose abuse incidents during a forensic interview compared to those children who had no exposure to the program.

While the benefits of CSA prevention programs have been evaluated, less research has examined potential negative effects of programs on participants. Walsh et al. (2015), in a Cochrane review, found no increases or decreases in anxiety or fear in intervention

participants. Narrative responses from these same studies revealed that a small proportion of program participants experienced mild, short term, anxiety or fear. While there may not be negative effects from participation, there is consensus in the literature about the deleterious outcomes for victims of CSA. Amado, Arce, and Herraiz (2015) in a review of the literature, confirms that victims of CSA are at a significant risk for medical, psychological, behavioral and sexual disorders. These conditions can include depression, anxiety, trauma reactions, sexual dysfunction, social impairment and medical problems with psychological origins.

The current study seeks to replicate and update the Gibson and Leitenberg (2000) study by including a diverse population of college students. Specifically, the study sought to determine whether rates of CSA differed among college students who either had or had not participated in a sexual abuse prevention program in school during childhood. Given the large international student population at colleges, and the growing presence of CSA programs in other countries, we further examined whether participating in programs in the US or elsewhere would affect self -reported CSA. Secondarily, the study sought to examine relationships between participation in CSA prevention programs and sexual satisfaction or avoidance. Given the awareness that CSA has received in the media with high- profile cases as well as recent legislation requiring some US school districts to offer prevention programs, it is possible that youth have participated in school-based prevention programming to a greater extent than those in the Gibson study (62 % participated in a "good touch bad touch program").

2. Method

2.1. Procedure

After Institutional Review Board approval, the study was available through an online system for study participation through which undergraduate students can gain extra credit. This study was one of many extra credit options for students. Thus, students self-selected to be in the study and there was no random assignment. Eligibility criteria included being at least 18 years of age and an ability to read English. The questionnaire was completed online using Qualtrics, a web-based data platform. The first question in the online survey was a consent form. Only those who responded "yes" to this consent were included in the study. Participants were also given the option to sign a physical consent form by contacting the first author. The survey took on average 18 min to complete.

2.2. Participants

During a 12- month period of 2018–2019, 1502 students at a Hispanic Serving Institution in the southeast of the US participated in this study. They ranged in age from 18 to 63 years, with a mean age of 22.85 ($SD = 5.39$) (The median age was 21 years, 32.7 % of the participants were over 22 years of age). Eighty-three percent were female, 16 % were male and less than 1 % were transgender or preferred not to answer. Students self-reported their race as White 71 %, Black 17 %, Asian 2 % and other 10 %. Self-reported ethnicity was 72 % Hispanic, 9 % African American, 9 % White Caucasian, 2 % Asian/Pacific Islander, 4 % African Caribbean, and 4% other. Sixty-six percent were born in the US, 12 % in Cuba and the remainder were from 58 different countries across the world. Sixty-eight percent of the sample reported living in the US their whole life, while 31 % had been living here a range of years (1–49). Less than 1 % were living in the US less than one year.

3. Measures

3.1. Demographics

Participants were asked a series of questions to obtain information about their age, ethnicity, race, gender, country of origin and number of years living in the US.

3.2. Childhood sexual abuse

To assess victimization status, participants were provided with a definition of CSA consistent with Finkelhor (1979) ("sexual activity is anything that occurs between a child and an older person, including simulated, attempted, or actual intercourse, kissing, hugging, or fondling in a sexual manner, sexual overtures, and exhibitionism (unwanted exposure of private parts)"). Two questions followed including, "Prior to age 16, did you engage in sexual activity with someone who was at least 5 years older than you?" and "Prior to age 16, were you forced to engage in sexual activity with someone regardless of the other person's age?". Endorsement of either question was coded as a case of sexual abuse. Participants who responded yes to sexual activity before age 16 were asked if they had disclosed these experiences to anyone. Participants were also asked if they had consenting sex after the age of 16.

3.3. CSA prevention program participation survey

The survey created for this study asked participants if they recalled ever participating in a CSA prevention program in school (in the US or elsewhere) and in what grade the program was conducted. Participants were able to select one or more concepts that the program may have covered from a 6 item list provided (e.g., stranger danger, names for private parts, safe and unsafe touches, telling a trusted adult, saying "no" and getting away, telling someone about the touching).

Table 1
Grades in which participants recall participating in a childhood sexual abuse prevention program in the US or elsewhere.

Grade Level	%
K	4.4
1	5.0
2	4.8
3	8.7
4	9.0
5	18.6.
6	14.9
7	12.7
8	15.3
9	14.9
10	12.6
11	10.6
12	13.9

3.4. Sexual satisfaction survey

A slightly revised version of the 10-item sexual satisfaction scale from the Derogatis Sexual Functioning Inventory (DSFI; Derogatis & Melisaratos, 1979) was used to assess sexual satisfaction. The version used in this study was adapted from the Gibson and Leitenberg (2000) study. The 10 items were responded to on a 7- point Likert scale ranging from (1) not at all to (7) very much. Sample items include, "How satisfied are you with the amount of sexual activity you engage in," "How interested are you in sexual activity?", "I am not very interested in sex" and "I have satisfying orgasms". The internal consistency in the present sample was .79.

4. Results

4.1. Prevention program

Sixty-two percent of the sample reported having participated in any type of CSA prevention program in school. Fifty-six percent of all participants reported having participated in these programs in the US. See Table 1 for a grade level breakdown of what grades they recall participation. Participants indicated that the program covered the following content: 50 % stranger danger, 47 % saying "no" and getting away, 41.1 % telling someone about the touching, 39 % safe and unsafe touches, 32.2 % names for private parts, and 31.6 % good and bad touches (These percentages exceed 100 % due to participants being exposed to multiple concepts).

Sixty-four participants provided the name of the program in which they had participated. The following is a list of the programs and the number of the participants: DARE (n = 17), HIP (n = 15), sexuality/health education (n = 13), VIRTUS (n = 4). The following programs had only one or two participants report: ASPIRA, Be Hip, Chapel and Mosiac, Child Abuse and Neglect Workbook for Child Care, Child Lure Program, DFYIT, FLE, Plan B, Prevention Al Menor, Safe Child Prevention, Sexual Misconduct, Stranger Danger, and Women's Studies.

Demographic differences were not found between the prevention and no-prevention group in gender, race, ethnicity, or the grade[1] when prevention program was offered (see Table 2). However, a significant difference was found between the two groups based on three recoded age groups of the participants (χ^2 (2, 1420) = 8.90, p = .012). More specifically, 65 % of the youngest group (18–22 years old), 60 % of the mid-age group (23–30 years old), and 51 % of the oldest group (31–63 years old) reported recalling participation in a prevention program, compared to 35 %, 40 %, and 49 % of each age group recalling not participating in a program, respectively. In addition, a significant difference was also found between the two groups based on country of origin (US vs. non-US), χ^2 (1, 1499) = 4.14, p = .036, with 65 % of US participants and 59 % of participants in foreign country of origin recalling participation in a prevention program. The results of a multiple logistic regression further showed that participants' demographic background mentioned above and some interactions (gender & race, gender & ethnicity) did not significantly predict participation in prevention programs (all $p > .05$).

4.2. Childhood sexual abuse and prevention program participation

For purposes of analysis, participants' CSA was measured by a response of "yes" to one of the two questions: "Prior to age 16, did you engage in sexual activity with someone who was at least 5 years older than you?" and "Prior to age 16, were you forced to engage in sexual activity with someone regardless of the other person's age?" The answers to the two questions were combined together to form a variable of CSA in the analysis. The two questions were used to capture experiences where the individual was coerced into sexual activity, and not including consensual activity. A total of 261 participants reported either type of CSA, which accounted for 17

[1] The grade was recoded into four groups: K-2, 3-5, 6-8, 9-12.

Table 2
Descriptive statistics for demographic variables separately by prevention group status.

Demographics	Program Participation	
	Yes	No
Gender[a]		
Male	165 (17.6 %)	80 (14.4 %)
Female	775 (82.4 %)	475 (85.6 %)
Age[b]*		
18–22	604 (67.8 %)	325 (61.4 %)
23–30	236 (26.5 %)	155 (29.3 %)
31–63	51 (5.7 %)	49 (9.3 %)
Ethnicity[c]		
African American	98 (10.4 %)	45 (8.1 %)
African Caribbean	36 (3.8 %)	23 (4.1 %)
Asian/Pacific Islander	22 (2.3 %)	7 (1.3 %)
Hispanic	684 (72.5 %)	403 (72.2 %)
White Caucasian	74 (7.8 %)	56 (10 %)
Other	29 (3.1 %)	24 (4.3 %)
Race[d]		
Asian	25 (2.7 %)	9 (1.6 %)
Black	161 (17.1 %)	87 (15.6 %)
White	667 (70.9 %)	405 (72.7 %)
Other	88 (9.4 %)	56 (10.1 %)
Grade[e]		
K–2	62 (6.7 %)	
3–5	202 (21.7 %)	
6–8	242 (26 %)	
9–12	425 (45.6 %)	

a. χ^2 (1,1495) = 2.51, p = .11.
b. χ^2 (2,1420) = 8.90, p = .01**.
c. χ^2 (5,1501) = 7.62, p = .18.
d. χ^2 (3,1498) = 2.48, p = .48.
e. χ^2 (3,934) = 1.20, p = .75.
Note: Numbers in parentheses indicate column percentages.
* Significant at the p < .05 level.

% of the total population. Whether participants' CSA was associated with their recalled participation in prevention programming was first examined. The chi-square analysis showed a significant difference in participants' sexual abuse between the two groups (χ^2 (1,1498) = 19.01, p < .001), with 5 % of those who recalled participation of the program reporting sexual abuse, compared to 10 % of those who did not recall participation in a program reporting sexual abuse. In other words, the former group were less likely to be sexually abused in childhood than the latter group. Another chi-square analysis was conducted to test whether participants' self-reported rates of CSA differed for participants who attended the prevention program in and outside the US. No significant difference was found (χ^2 (1,1430) = 2.62, p =.106).

In addition, whether there was a significant relationship between participants' CSA and demographic background, including gender, race, ethnicity, and country of origin was also examined. The results revealed that participants' CSA was significantly different in terms of gender and race but not in terms of ethnicity (χ^2 (1,1499) = 6.53, p =.258) and country of origin (χ^2 (1,1497) = 0.64, p =.424). More specifically, 5 % of males were sexually abused in childhood versus 7 % of females, suggesting that females were more likely to be abused than males (χ^2 (1,1499) = 8.48, p =.037). Six percent of White participants were sexually abused, compared with 9% of Black, 24 % of Asian, suggesting that White participants were less likely to be abused than Black or Asian participants (χ^2(1,1496) = 18.83, p < .001).

In order to have a further understanding of the effects of prevention programs and demographic background on either of the two CSA questions, chi-square analyses were conducted separately for each question. Similar to the earlier findings about the combined variable of CSA, significant differences were also found in the two CSA experience questions between the prevention-program-participants and non-participant groups, with the prevention program participants being less likely to have experienced CSA than non- participants for sexual activity with someone 5 years older (χ^2 (1,1498) = 9.71, p =.001) and for sexual activity with anyone (χ^2(1,1498) = 17.92, p < .001). For sexual activity with someone 5 years older, only race was found to be significant (χ^2 (1,1496) = 11.78, p =.008), with 11 % of White participants being sexually abused versus 13 % of Black, 29 % of Asian, and 10 % of Other. For sexual activity with someone at any age, there was a gender difference (χ^2 (1,1499) = 30.86, p < .001), with 91 % of victims being women, compared to 7 % men and 2% other. Racial differences were also found (χ^2 (1,1496) = 22.33, p < .001), with 12 % of White participants experiencing sexual abuse, 15 % of Black participants, 38 % of Asian participants, and 12 % of Other.

A multiple logistic regression was further conducted to evaluate the effect of participation in prevention programs on participants' CSA experience after controlling participants' demographic background (i.e., race, ethnicity, gender, age, country of origin). The results showed that gender significantly predicted CSA (p = .001) and that participation in prevention programs still significantly

Table 3
Summary of Logistic Regression Analysis for Variables Predicting CSA.

Predictor	*B*	*SE B*	e^B
Race	−.08	.08	.92
Ethnicity	−.04	.05	.96
Country of Origin	.04	.15	1.04
Age	−.19	.11	.83
Gender[a]	.73*	.24	.48
Participation in prevention program[b]	−.43*	.15	1.54
Constant	3.15		

Note. a. Gender was coded 0 as male and 1 as female.
b. Participation in prevention programs was coded 0 as non-participation and 1 as participation.
* $p < .05$; $\chi^2(6) = 27.59$.

predicted CSA ($p = .003$) after controlling demographic background (see Table 3). More specifically, females were about a half times more likely to experience CSA ($e^B = .48$) and those who did not participate in the prevention programs were 1.5 times more likely to experience CSA ($e^B = 1.54$).

4.3. Disclosure of sexual abuse

One question in the survey asked if the participant disclosed the CSA to anyone. Of 261 participants who reported either being sexually abused by anyone 5 years older or anyone regardless of the age, 228 (87 %) responded to the question "if yes, did you disclose these activities to anyone?" Among all the respondents, 115 (50 %) indicated that they disclosed the abuse. The chi-square and ANOVA analyses were performed to examine if participation in the prevention programs and participants' demographic information had an impact on disclosure. The results indicated that no significant differences were found in the disclosure of sexual abuse in terms of participation in the prevention program ($\chi^2(1,227) = 0.35$, $p = .552$), gender ($\chi^2(1,224) = 1.22$, $p = .027$), race ($F(3,224) = 1.08$, $p = .357$), or ethnicity ($F(5,222) = 0.51$, $p = .768$). However, a significant difference was found between those participating in programs in the US and those in other countries ($\chi^2(1,212) = 5.49$, $p = .019$), suggesting that those participating in the US programs were more likely to disclose abuse to other people than those participating in the programs in other countries. Specifically, 57 % of participants attending US programs disclosed CSA to others, compared to 41 % of participants attending non-US programs who did the same.

A multiple logistic regression was conducted to evaluate the relationship between participation in prevention programs and participants' child abuse disclosure after controlling participants' demographic background (i.e., race, ethnicity, gender, age, country of origin). The results showed that gender significantly predicted disclosure ($p = .043$) and that participation in prevention programs predicted disclosure at a marginally significant level ($p = .047$[2]) after controlling demographic background (see Table 4). More specifically, female participants were 1.89 times more likely to disclose their experience of CSA ($e^B = 1.89$) than males.

4.4. Prevention program contents in and outside the US

Due to the finding that those who participated in prevention programs in the US were more likely to disclose CSA to other people than those participating in programs outside the US ($\chi^2(1,212) = 5.49$, $p = .019$), we further examined whether participants' report of program contents differed between programs in the US and outside the US. Chi-square analyses found that programs in the US covered significantly more contents in the six areas included in the survey than programs outside the US. More specifically, 61 % of US programs covered the topic of safe and unsafe touches, which was compared to 14 % of non-US programs that covered the same topic ($\chi^2(1,1432) = 316.47$, $p < .001$). Fifty percent of US programs, compared to 10 % of non-US programs, covered the topic of good and bad touches, ($\chi^2(1,1432) = 251.31$, $p < .001$). Seventy-seven percent of US programs, compared to 18 % of non-US programs, covered the topic of stranger danger ($\chi^2(1,1432) = 484.54$, $p < .001$). Fifty percent of US programs, compared to 11 % of non-US programs, covered the topic of names for private parts ($\chi^2(1,1432) = 232.61$, $p < .001$). Seventy-two percent of US programs, compared to 18 % of non-US programs, covered the topic of saying "no" and getting away ($\chi^2(1,1432) = 394.55$, $p < .001$). Sixty-four percent of US programs, compared to 13 % of non-US programs, covered the topic of telling someone about the touching ($\chi^2(1,1432) = 373.92$, $p < .001$).

We further examined whether the contents covered in the programs made a difference for participants' CSA exposure. For the entire sample, the contents covering "stranger danger" ($\chi^2(1,1499) = 14.22$, $p < .001$), "names for private parts" ($\chi^2(1,1499) = 4.03$, $p = .045$), and "saying no and getting away"" ($\chi^2(1,1499) = 13.53$, $p < .001$) made significant differences for CSA exposure. Participants in the programs covering these contents were less likely to experience CSA. For instance, 21 % of participants who were not exposed to the content of "stranger danger" and "saying no and getting away" experienced CSA, compared with 14 % of participants who were exposed to these contents and experienced CSA. Nineteen percent of participants exposed to the content of "names for private parts" content experienced CSA versus 15 % note exposed to this content in a prevention program. For those who

[2] This marginally significant effect was not reported with an odd ratio due to the concern of over-interpretation of the results.

Table 4
Summary of Logistic Regression Analysis for Variables Predicting Abuse Disclosure.

Predictor	*B*	*SE B*	e^B
Race	.22	.11	1.24
Ethnicity	−.13	.08	.88
Country of Origin	.11	.22	1.11
Age	.24	.18	1.27
Gender[a]	.64*	.34	1.89
Participation in prevention program[b]	−.43	.21	.65
Constant	−3.36		

Note. a. Gender was coded 0 as male and 1 as female.
* $p < .05$; $\chi^2(6) = 14.44$.

participated in the US prevention programs, only the content covering "saying no and getting away" made a difference for their CSA exposure (χ^2 (1,840) = 8.16, p = .004). For those who participated in the prevention programs in other countries, only the content covering "stranger danger" made a difference (χ^2 (1,590) = 5.73, p = .017).

The same analyses were conducted for participants' abuse disclosure. For the entire sample, programs covering "stranger danger" (χ^2 (1,903) = 4.58, p = .032) and "saying no and getting away" (χ^2 (1,903) = 5.86, p = .015) made a difference in abuse disclosure. No contents covered in the US programs made a significant difference in abuse disclosure. Thus, those who had programs with these content areas were more likely to disclose abuse than those who did not have those content areas. However, for participants in international prevention programs, the contents covering "stranger danger" (χ^2 (1,348) = 4.13, p = .042) and "names for private parts" (χ^2 (1,348) = 7.44, p = .006) made significant differences in abuse disclosure. In addition, we found that only the content covering "names for private parts" was significantly correlated with participants' sexual satisfaction, although the coefficient was small (r = .05, p = .042).

4.5. Sexual satisfaction

A total score of sexual satisfaction was computed by adding all the items together after items 5 and 8 were reverse coded because they were negatively worded. Because each item in the sexual satisfaction measure was based on a 1–5 Likert scale, the final score was considered a continuous variable, therefore, statistical analysis for mean differences were used, including *t*-test and ANOVA. An independent sample *t*-test was employed to test if there was a difference in sexual satisfaction between those who participated in a prevention program and the non-participation group. No significant difference was found between the two groups (t (1406) = −.83, p = .408), indicating that participation in a sexual abuse prevention program does not affect sexual satisfaction. Further, no significant differences were found in sexual satisfaction between those who were sexually abused and those who were not (t (1406) = −.69, p = .493), between males and females (t (1400) = .80, p = .421), and between individuals of different countries of origin (t (1404) = −1.06, p = .291). However, significant differences were found in sexual satisfaction among participants of different races (F (3, 122.2) = 6.90, p < .001, η^2 = .02) and ethnicity (F (5, 132.2) = 6.23, p < .001, η^2 = .03). More specifically, White participants in general had a significantly higher sexual satisfaction than Black and other race participants, and Hispanic participants in general had a significantly higher sexual satisfaction than African American, White Caucasian, African Caribbean, and other race participants.

A linear multiple regression was further performed to see which variables (gender, race, ethnicity, grade, age, country of origin, CSA, and participation in prevention program) were significant predictors of sexual satisfaction, including an interaction between participation in prevention program and CSA. Consistent with the results from the t-tests, only ethnicity was found to be significant (β = −.117, p = .002).

4.6. Sexual behavior

About 77 % of the sample (n = 1,165) reported having consensual sexual intercourse after age 16. These included 81 % of White, 74 % of Black, Asian, and other racial groups. About 80 % of Hispanic, 73 % of African American, 88 % of White Caucasian, 76 % of Asian/Pacific Islander, 67 % of African Caribbean, and 77 % of other ethnic groups as well as the same percentages of male (78 %) and female (80 %) reported consensual sexual intercourse.

Whether or not participants' engagement in consensual sexual intercourse after age 16 was affected by the participation of the prevention program and demographic background was also examined in the study. The chi-square analyses showed that there were no significant differences in consensual sexual intercourse between the group participating in the prevention program and the non-participating group (χ^2 (1,1469) = 1.76, p = .184), between male and female (χ^2(1,1407) = 2.06, p = .560), between participants from different countries of origin (χ^2(1,1469) = 0.76, p = .385), and between participants attending programs in and out of the US (χ^2 (1,1403) = 0.73, p = .394). But significant differences were found in terms of race (χ^2 (1,1467) = 9.43, p = .024) and ethnicity (χ^2 (1,1470) = 15.96, p = .007), with White and Hispanic students more likely to engage in consensual sexual intercourse than other racial and ethnic groups. A multiple logistic regression was further performed to see which variables were significant predictors of sexual behavior after 16 years old, including an interaction between participation in prevention program and CSA exposure. The results showed that none of the variables were significant.

5. Discussion

This study sought to determine whether rates of CSA differed among college students who either had or had not recalled participating in a sexual abuse prevention program in school during childhood. To this end, it was found that self-reported rates of sexual abuse in those who participated in a prevention program were significantly less (by half) than those who did not participate in a program. This finding applied whether the program was in the US or another country. These results are similar to Gibson and Leitenberg (2000), who also found rates of CSA in those who had not participated in a program to be double compared to those who had been participants in a program. Interestingly, Gibson and Leitenberg (2000) examined "good touch bad touch" programs, while our current study asked about participation in *any* CSA prevention program and included programs outside of the US. Our results may confirm the Walsh et al. (2015) meta-analysis, which found evidence of improvements in protective behaviors and knowledge among children, regardless of the type of CSA prevention program that was implemented.

The current rates of recalled participation in CSA prevention programs (62 %) are almost identical to those reported in other studies (67 % in Finkelhor et al., 1995 and 62 % in Gibson & Leitenberg, 2000), although those studies were limited to programs in the US. While the current rates are comparable, these studies were conducted approximately over 20 years ago, indicating participation in school-based programs does not appear to have changed. Since the average age of participants in this study was 22 years, they likely participated in the last 15 years. It is possible that given recent legislation in some states (Anderson, 2014) and the international attention given to offering school-based prevention programs, participation rates may increase.

Secondarily, the study sought to examine relationships between participation in CSA prevention programs and sexual satisfaction or avoidance. We examined sexual functioning as it is often disrupted in individuals who have been sexually abused. There are also claims that participation in programs causes negative side- effects (see Walsh et al., 2015). We found that participation in CSA prevention programs (based on their recall) did not affect sexual satisfaction. Also, sexual satisfaction was the same for participants regardless of abuse status. This is a promising finding as it indicates that these victims may not have sexual concerns, or at least not concerns that were measured on this instrument.

With regard to victim's race, our results are similar to Gewirtz-Meydan and Finkelhor (2019). Their national study indicated that sexually abused children were more likely female, and Black (non-Hispanic), and we found that White participants were less likely to be abused than Black or Asian participants. The high rate of abuse we found in Asian participants is interesting as recent research has found relatively low rates of CSA in Asian populations (Li, Zabin, & Ahmed, 2015). Given that this finding has not been supported in other literature, these authors believe further research with a larger sample of Asians (or Asian Americans) is necessary to confirm the results. As is consistent with most research, we found significantly higher rates of CSA in women than men (7 % vs. 5 %). With regard to disclosure of abuse, Gewirtz-Meydan and Finkelhor (2019) found that among 10–17 years old youth in the study, 66.3 % did not disclose the abuse to a parent or any other adult, while 59 % of participants in our study who had been abused reported disclosing at some time. It is not clear from this study what caused some victims to disclose and not others, although those who attended a program in the US were more likely to disclose. We also found that certain concepts covered in programs affected disclosure rates in the participants in US and non-US programs. It is also possible that US programs addressed reporting in their curriculum.

Fifty percent of the programs that participants remembered being exposed to (where a name was reported) were stranger danger. It is concerning that this type of programming is still being used despite extensive research demonstrating most offenders are known to their victims (Gewirtz-Meydan & Finkelhor, 2019). However, our results demonstrate that those exposed to this content were less likely to be abused than those who were not. About one third of those who participated in programs reported that the names for private parts were covered. The absence of this topic in most programs is alarming given the importance of learning the correct names for genitals, not only for healthy sexual attitude, but also the importance in disclosure (American Academy of Pediatrics, 2011; Honig, 2000; Wurtele, 2010). In fact, we found a small positive correlation with those who were exposed to "names for private parts" in their prevention program and sexual satisfaction. Interestingly, programs in the US were found to cover the content areas significantly more often than programs outside of the US, indicating perhaps the need for more robust programming outside the US that covers important topic areas found to be essential to CSA prevention.

5.1. Limitations

The biggest limitation of our study is that it is a non-experimental design and relies on retrospective recall of participating in prevention programming. Obviously, others have reported on the difficulty with this method of reporting including recall bias (Jacobs-Kayam & Lev-Wiesel, 2019). It is possible that some of our participants were victims of CSA but it may have occurred before they could remember or they may have forgotten their victimization. Our participants self-selected to participate in the study and we had a majority of females, thus males were underrepresented in our sample. We did not ask about the age at which the participant engaged in the prevention program. Thus, for those who were abused, we are not certain if they participated in the program prior to their victimization. In addition, we asked about any program participation, so dose, frequency, and length of programming were not accounted for. We do know that participants reported a range of programs occurring at various points in their childhood. In addition, all of our data was collected at a singular university in an urban area, although the sample did represent an ethnically and racially diverse population. There are other reasons (not measured here) that might account for why those who did not participate in programs reported higher rates of abuse. They may possess other risk factors for victimization.

5.2. Future research

While these results, along with others, are promising, more research is required to ascertain the extent to which prevention programs effectively prevent abuse (Elfreich et al., 2019). Future research could examine why some participants who had been abused disclosed and some did not as it may be related to program content. A true experimental, longitudinal study would be needed to examine participation during school years and potential subsequent abuse over time. Future research could utilize the survey instrument developed by Walsh et al. (2019) to examine content and teaching strategies of school-based prevention programming to ensure that they contain the components that have been determined to be effective in skill and knowledge development. As Bolen (2003) states, program evaluations are not yet sophisticated enough to determine whether children who participate are less likely to be abused and thus evaluation methods need improvement.

5.3. Conclusion

This study provides some evidence that participation in school-based prevention programs may decrease the risk of CSA for participants. These findings demonstrate CSA prevention programs are being offered to school aged children, both in the US and other countries, with various content. Those youth who participated in programs in the US and were abused were more likely to report than those outside of the US, suggesting that US programs may highlight disclosure. Findings also revealed that programs in the US covered more of the typical CSA contents in curriculum than those outside of the US. Overall, we found that 11 % of the sample had experienced sexual abuse, with significantly more female than male victims.

As Elfreich et al. (2019) report, the data in this study reflect the recollections of real people. Namely, in their study, the forensic interviewer involved in the research recounted several first-hand interactions with children who stated clearly that it was not until the TFSS program came to their school that they realized they were being abused and felt compelled to disclose. This alone is persuasive evidence that education about abuse is a critical first step in prevention. As Bolen (2003) contends, prevention programming needs to be infused into curriculum at schools. The model she proposes is one where prosocial behaviour is rewarded to reduce offending rather than equipping children with knowledge and skills. This would need to be incorporated consistently and regularly at all grade levels. Finally, as she contends, the only effective method of reducing the prevalence of CSA is to target potential offenders.

Declaration of Competing Interest

None.

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