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## Trends in Youth Internet Victimization: Findings From Three Youth Internet Safety Surveys 2000–2010

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### A B S T R A C T

**Purpose:** The purpose of this research was to explore the trends in youth reports of unwanted online sexual solicitation, harassment, and exposure to pornography over time.

**Methods:** The study was based on three separate cross-sectional national telephone surveys of approximately 1,500 youth Internet users, aged 10 through 17 years. Data were collected in 2000, 2005, and 2010.

**Results and Conclusion:** Nine percent of youth reported an unwanted sexual solicitation in 2010. This continued the decline in unwanted sexual solicitations that occurred between 2000 (19%) and 2005 (13%), resulting in a total 50% decrease between 2000 and 2010. Twenty-three percent of youth reported an unwanted exposure to pornography, a decline from 34% in 2005, following an increase between 2000 and 2005 (25% to 34%). However, marking the only trend to show an increase over the past 5 years, 11% of youth reported an online harassment experience, which was an increase from 9% in 2005, and 6% in 2000. Some differences in these trends were noted for subgroups of youth across age, gender, and race. The trends in unwanted experiences online over the past decade identified by three Youth Internet Safety Surveys may contradict impressions that the general population, professionals, and the media have about what is happening. Trends provide evidence for some optimism that protective adaptations to the online environment have been successful; however, online harassment appears to be increasing for youth, particularly girls, and may require additional mobilization.

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Concerns about the safety of children online have preoccupied parents, educators, public health officials, and the media over the past decade. As electronic technologies and online activities have become an increasing part of youth culture, many have the perception that the risks and dangers have expanded as well. For example, there has been a great deal of attention to the concern that social networking sites put young people into contact with sexual predators and increase the brazenness of bullies.

However, the electronic environment is characterized by rapid technological changes and equally rapid protective adaptations. Thus, for example, as young people shift from chat rooms

to Facebook, Internet platforms provide new controls and security options, and parents and educators respond with educational programs. Some of these responses may be helping. It is not clear whether youth vulnerability has increased. In fact, national surveys comparing 2000 with 2005 showed that although online harassment did increase, unwanted sexual solicitations declined [1,2].

Given the rapidity of the technological and social changes, it is crucial to have ongoing studies that track trends in children's online activity and safety. This article extends the finding from the Youth Internet Safety Surveys (YISS) conducted in 2000 and 2005 with new data from a survey conducted in 2010. The three YISS studies thus provide information across a critical 10-year period (2000–2010) on changes in the rates of three widely cited concerns: online sexual solicitation, unwanted exposure to pornography, and online harassment experiences.

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## Methods

The YISS-1, YISS-2, and YISS-3 studies were conducted to quantify and detail youth experiences with unwanted or problematic Internet experiences, including sexual solicitations, harassment, and unwanted exposure to pornography on the Internet. Respondents in the YISS studies were youth between 10 and 17 years who had used the Internet at least once a month for the past 6 months, and a caregiver. Abt Schulman, Ronca, and Bucuvalas, Inc, a national survey research firm, conducted the sampling, screening, and telephone interviews for the YISS studies. Data collection for YISS-1, YISS-2, and YISS-3 occurred between August 1999 and February 2000; March and June 2005; and August 2010 and January 2011, respectively.

A national sample of households that had been prescreened for another survey was used in YISS-1, whereas YISS-2 and YISS-3 samples were largely recruited through random digit dialing. Response rates across the three YISS studies also reflect increasing rates of cell phone-only households and greater reliance on voice mail and caller identification. Thus, more calls were needed to identify eligible households in YISS-2 and again in YISS-3, and an increasing percentage of households reached were not eligible for the study across the YISS studies (28%, 72%, and 88% for YISS-1, YISS-2, and YISS-3, respectively). After eligible households were reached, the refusal rate was 46% for both YISS-2 and YISS-3. The refusal rate was lower for YISS-1 at 18%.

Owing to the increasing reliance of the U.S. population on cell phones [3,4], a cell phone random digit dialing sample was included in the YISS-3 study. At the end of data collection, 45 interviews had been completed by cell phone in addition to 1,515 landline interviews, resulting in a total sample size of 1,560. Analysis of youth demographic and Internet use characteristics between the cell phone and landline samples indicated the cell phone sample included more respondents of Hispanic ethnicity and from families with a single, never-married parent (see [5] for detailed information on YISS methodology).

## Procedures

For all three YISS studies, a sample size of 1,500 was predetermined based on a maximum expected sampling error of  $\pm 2.5\%$  at the 5% significance level. Human subject participation in each YISS study was reviewed and approved by the University of New Hampshire Institutional Review Board.

Interviewers first spoke with an adult and determined whether there was an eligible child in the household. In households with eligible children, interviewers asked to speak with the adult who was most familiar with that child's Internet use and after receiving informed consent, asked a series of questions about Internet use. The interviewer then asked for permission to interview the child. Parents were informed by interviewers that the youth interview would be confidential, that it would include questions about "sexual material your child may have seen on the Internet," and that youth would receive \$10 for participating. In households with more than one eligible youth, the one who used the Internet most often was chosen as the respondent.

After receiving parental permission, interviewers spoke with the youth and asked for permission to conduct an interview. Interviewers assured youth that they could skip any question they did not want to answer and end the interview at any time. Interviews were scheduled at the convenience of youth and at times when they were able to talk freely and confidentially. The

average youth interview lasted 30 minutes, and the average adult interview lasted 10 minutes.

## Sample

Table 1 compares youth and household characteristics across the three samples. There were significant increases from 2000 to 2010 in the amount of youth Internet use. White youth made up a slightly smaller proportion of the YISS-3 sample of youth Internet users compared with YISS-1 and YISS-2. This was likely to do the increase in minority youth access to the Internet in recent years [6]. The YISS-3 sample also included a greater percentage of youth from high-income and well-educated households. This reflects some of the demographic differences found in landline telephone surveys: low-income families are increasingly more likely to live in cell phone-only households [4]. All study analyses controlled for sample differences across the three YISS studies.

Across all the YISS samples, well-educated and high-income families, and white youth are overrepresented compared with the national average (see <http://www.census.gov>), but the skewed distribution reflects the population of youth Internet users at the time of data collection [7].

## Measures

The incidence rates for sexual solicitation, unwanted exposure to sexual material, and harassment were estimated based on questions about unwanted experiences while using the Internet in the past year ("past year" refers to the year before the interview). The questions used in the current article were identical across all YISS studies.

Unwanted sexual solicitations were defined as requests to engage in sexual activities or sexual talk or to give personal sexual information that was unwanted or made by an individual  $\geq 5$  years, whether wanted or not. The incidence rate for sexual solicitation was estimated based on endorsement of at least one of the following three screener questions:

- "In the past year, did anyone on the Internet ever try to get you to talk online about sex when you *did not want to*?"
- "In the past year, did anyone on the Internet ask you for sexual information about yourself when you did not want to answer such questions? I mean very personal questions, like what your body looks like or sexual things you have done?"
- "In the past year, did anyone on the Internet ever ask you to do something sexual that you did not want to do?"

Additionally, youth who said they had an online sexual relationship with an adult were included to capture possible statutory sex crimes ( $n = 0$  from YISS-1;  $n = 8$  from YISS = 2;  $n = 1$  from YISS-3). We also defined a subgroup of *aggressive sexual solicitations*, in which solicitors attempted or made offline contact with youth through regular mail, by telephone, or in person.

Harassment was defined as threats or other offensive behavior (not sexual solicitations) that were sent online to the youth or posted online about the youth for others to see. Harassment was measured through endorsement of at least one of the following two screener questions:

- "In the past year, did you ever feel worried or threatened because someone was bothering or harassing you online?"

**Table 1**  
Demographic and Internet use characteristics for the 2000, 2005, and 2010 YISS samples

Characteristics	Year 2000 (n = 1,501) % (n)	Year 2005 (n = 1,500) % (n)	Year 2010 (n = 1,560) % (n)	p
<b>Demographic</b>				
Gender (male)	53 (790)	49 (738)	50 (775)	.12
<b>Age</b>				
10–12 years	23 (337)	23 (345)	21 (333)	.02
13–15 years	48 (725)	43 (651)	45 (694)	
16–17 years	29 (439)	34 (504)	34 (533)	
<b>Race</b>				
White, non-Hispanic	73 (1,091)	71 (1,070)	67 (1,048)	.001
Black, non-Hispanic	10 (153)	11 (161)	13 (208)	
Hispanic or Latino, any Race	7 (108)	9 (130)	10 (152)	
American Indian/Alaskan native	2 (30)	1 (21)	3 (41)	
Asian	3 (38)	2 (33)	3 (48)	
Other (includes biracial)	2 (26)	3 (40)	2 (28)	
Do not know/not ascertainable	4 (55)	3 (45)	2 (35)	
<b>Parental marital status</b>				
Married	79 (1,182)	76 (1,139)	78 (1,214)	.01
Living with a partner	1 (19)	3 (37)	2 (36)	
Separated	3 (37)	1 (22)	2 (29)	
Divorced	10 (154)	10 (147)	10 (148)	
Widowed	2 (35)	2 (29)	2 (31)	
Single, never married	5 (73)	8 (117)	6 (98)	
Youth lives with both biological parents	63 (949)	62 (926)	66 (1,029)	.04
<b>Highest level of education in household</b>				
Not a high school graduate	3 (37)	2 (30)	3 (41)	<.001
High school graduate	21 (320)	20 (305)	14 (210)	
Some college education	22 (336)	23 (344)	19 (299)	
College graduate	32 (474)	32 (481)	37 (577)	
Post-college degree	22 (330)	22 (333)	28 (431)	
<b>Annual household income</b>				
<\$20,000	8 (119)	8 (123)	12 (192)	<.001
\$20,000–\$50,000	38 (575)	27 (405)	18 (287)	
>\$50,000–\$75,000	23 (350)	24 (355)	16 (245)	
>\$75,000	23 (347)	33 (494)	45 (700)	
Don't know/missing	7 (110)	8 (123)	9 (136)	
<b>Internet use</b>				
Amount of Internet use (mean, SD) <sup>a</sup>	.24 (.26)	.41 (.31)	.49 (.30)	<.001
<b>Location of Internet use</b>				
Home	74 (1,109)	91 (1,363)	97 (1,506)	<.001
Friend's home	69 (1,028)	69 (1,029)	70 (1,088)	.72
School	73 (1,100)	90 (1,356)	89 (1,392)	<.001
Cell phone	—	—	47 (740)	—

<sup>a</sup> Amount of Internet use was derived from a factor analysis of the following items: youth experience with the Internet (scale of 1–5), importance of Internet in youth's life (scale of 1–5), and hours and days online in a typical week. Values ranged from .00 to 1.0. This comparison was examined using a t test rather than a  $\chi^2$  test.

- “In the past year, did anyone ever use the Internet to threaten or embarrass you by posting or sending messages about you for other people to see?”

Unwanted exposure to pornography was defined as being exposed to pictures of naked people or people having sex without seeking or expecting such pictures, when doing online searches, surfing the web, opening e-mail, or instant messages or links in messages. Unwanted exposure to pornography was estimated based on endorsement of one of the following two questions.

- “In the past year when you were doing an online search or surfing the web, did you ever find yourself in a Web site that showed pictures of naked people or of people having sex when you did not want to be in that kind of site?”
- “In the past year, did you ever open a message or a link in a message that showed you actual pictures of naked people or of people having sex that you did not want?”

Finally, we identified subgroups of youth who reported *distressing* solicitations, harassment, or exposure to pornography. These identified youth rated themselves as very or extremely upset or

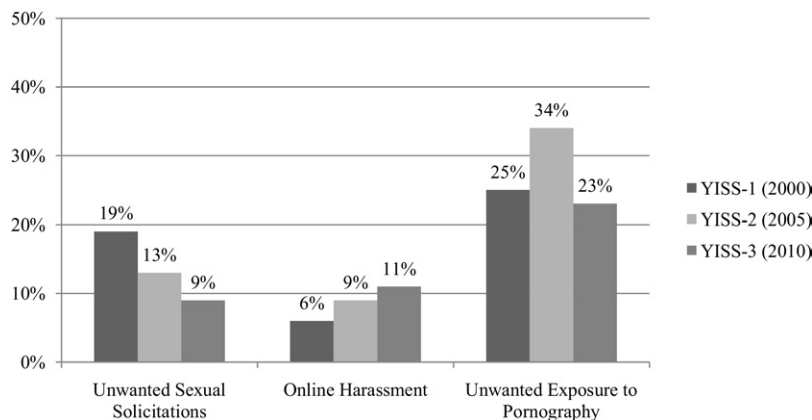
afraid as a result of a sexual solicitation or harassment incident, or as very or extremely upset because of an unwanted exposure to pornography.

#### Internet use characteristics

Youth also reported on their Internet use, including the amount and location of use. High Internet use was operationalized using a summation score derived from a factor analysis of the following four responses: high experience with the Internet, high importance of the Internet,  $\geq 4$  days per week spent online, and  $\geq 2$  hours per day spent online. A summation score was dichotomized at 1 SD above the mean for each YISS study to reflect a high level of Internet use.

#### Demographic information

Caregivers reported on the youth's gender, age, the highest household education, and the previous year's household income. Youth reported information on race and ethnicity.



**Figure 1.** Trends in unwanted experiences on the Internet for youth: YISS-1 (2000), YISS-2 (2005), and YISS-3 (2010). For all percentage differences,  $p < .001$ .

### Analyses

Differences between YISS-1, YISS-2, and YISS-3 were tested for statistical significance based on the rates of occurrence of specific incidents and experiences within the full samples. Logistic regression analyses were conducted to calculate odds ratios comparing the 2005 and 2010 samples of youth on the prevalence of unwanted Internet experiences by age, gender, and race after adjusting for the other demographic characteristics, amount, and locations of Internet use. SPSS 19.0 [8] was used for all analyses.

### Results

There were significant changes in youth reporting unwanted or problematic experiences using Internet technology across the 2000, 2005, and 2010 YISS studies, but they varied according to the type of problem experienced (Figure 1). Unwanted sexual solicitations declined from 19% in 2000 to 13% in 2005, and finally to 9% in 2010; thus, there was a total 50% decline in reports of this problem between 2000 and 2010. However, aggressive solicitations (in which offline contact was attempted or made) did not change significantly across the three surveys (3%, 4%, and 3% in 2000, 2005, and 2010, respectively; data not shown). There was a small but statistically significant increase in reports of online harassment, from 9% in 2005 to 11% in 2010. This continued an increase seen between 2000 and 2005 (from 6% to 9%). Finally, there was a decline in youth reports of unwanted exposure to pornography between the 2005 and 2010 YISS surveys, from 34% to 23%. This decline followed an increase between 2000 and 2005 (from 25% to 34%).

#### Trends by age

The declines in unwanted sexual solicitations occurred primarily for younger adolescents [9–14] (Table 2). Among 10–12-year olds, there was a 63% decline in reports between 2005 and 2010, whereas for 13–15-year olds, the decline was 52%. No significant decline in overall sexual solicitations was seen for the youth aged 16 and 17 years. However, there was a significant decline among this group of youth in reports of distressing sexual solicitations—from 6% in 2005 to 3% in 2010. Aggressive sexual solicitations also declined by 46% among youth aged 13–15 years, from 5% in 2005 to 3% in 2010. Between 2005 and 2010, no

significant differences in reports of online harassment were identified when examining the trends by age group.

Overall, unwanted exposure to pornography, as well as distressing exposure, declined primarily for older adolescents aged 13–15 years and 16 and 17 years. Unwanted exposure to pornography was almost reduced to half for these groups, from 9% in 2005 to 5% in 2010.

#### Trends by gender

There were significant declines in reports of unwanted sexual solicitations for girls and boys (40% and 46%, respectively) (Table 3). A decline in distressing and aggressive sexual solicitations was only seen among girls; boys reported low rates of distressing sexual solicitations.

Reports of general and distressing online harassment increased significantly for girls only. Rates of online harassment increased 50% for girls, from 10% in 2005 to 15% in 2010. Significant declines in reports of unwanted exposure to pornography and distressing exposures occurred equally for both boys and girls.

#### Trends by Race and ethnicity

Finally, some differences were also noted across racial and ethnic groups. There was a significant decline in reports of unwanted sexual solicitations among white and black youth (40% and 50% declines, respectively) (Table 4). A decline in distressing sexual solicitations was also noted among white, non-Hispanic youth (55%). No changes in aggressive sexual solicitation were noted when examined by race and ethnicity.

There were no significant differences in rates of online harassment across the three ethnic and racial groups. Declines in unwanted exposure to pornography were largest for white, non-Hispanic youth (47%) and Hispanic or Latino youth (48%).

### Discussion

The current intensive media attention to the problem of Internet safety can sometimes give the impression that Internet risks are increasing for youth. However, for two out of three online problems measured by YISS-3 in 2010, rates decreased when compared with earlier studies. A decreasing trend was identified for unwanted sexual solicitations of youth online, and also for unwanted exposure to pornography by youth, but a

**Table 2**  
Multivariate (adjusted) trends in unwanted Internet experiences by youth age

Unwanted Internet experiences	Year 2000 % (number)	Year 2005 % (number)	Year 2010 % (number)	Adjusted OR 2005–2010 (95% CI) <sup>a</sup>
<b>Any sexual solicitation</b>				
10–12 years	10 (34)	5 (19)	2 (7)	.37 (.15–.92)*
13–15 years	21 (152)	15 (95)	8 (55)	.48 (.34–.70)**
16–17 years	23 (100)	17 (86)	14 (72)	.76 (.53–1.09)
<b>Distressing sexual solicitation</b>				
10–12 years	5 (17)	3 (10)	1 (4)	.44 (.14–1.46)
13–15 years	4 (32)	5 (29)	3 (19)	.54 (.29–.99)*
16–17 years	5 (23)	6 (28)	3 (14)	.47 (.25–.92)*
<b>Aggressive sexual solicitation</b>				
10–12 years	1 (3)	1 (4)	1 (3)	.42 (.08–2.25)
13–15 years	3 (23)	5 (35)	3 (22)	.54 (.31–.95)***
16–17 years	4 (17)	5 (24)	4 (22)	.81 (.44–1.49)
<b>Any harassment</b>				
10–12 years	5 (18)	5 (16)	6 (20)	1.43 (.72–2.86)
13–15 years	7 (47)	10 (66)	10 (66)	1.17 (.83–1.65)
16–17 years	7 (30)	10 (48)	13 (68)	1.21 (.81–1.81)
<b>Distressing harassment</b>				
10–12 years	2 (8)	3 (10)	2 (8)	.93 (.36–2.43)
13–15 years	3 (19)	3 (21)	5 (37)	1.53 (.88–2.68)
16–17 years	2 (10)	4 (19)	6 (33)	1.50 (.83–2.70)
<b>Any unwanted exposure to pornography</b>				
10–12 years	9 (29)	19 (65)	15 (50)	.70 (.46–1.06)
13–15 years	28 (201)	35 (225)	23 (161)	.57 (.45–.73)**
16–17 years	33 (146)	44 (222)	28 (150)	.49 (.38–.64)**
<b>Distressing unwanted exposure to pornography</b>				
10–12 years	2 (6)	10 (33)	6 (20)	.56 (.31–1.01)
13–15 years	8 (55)	9 (58)	5 (35)	.57 (.37–.88)*
16–17 years	7 (30)	9 (45)	5 (24)	.51 (.30–.86)*

OR = odds ratio.

95% confidence interval (CI) refers to being 95% confident that the interval contains the population percentage.

The rate calculations are based on the total number of youth in each age category and survey year.

10–12-year olds: Year 2000 (n = 337), Year 2005 (n = 345), and Year 2010 (n = 333).

13–15-year olds: Year 2000 (n = 725), Year 2005 (n = 651), and Year 2010 (n = 694).

16–17-year olds: Year 2000 (n = 439), Year 2005 (n = 504), and Year 2010 (n = 533).

<sup>a</sup> Adjusted odds ratios are based on multivariate logistic regression tests that control for other demographic characteristics, amount of Internet use, and locations of Internet use.

\*  $p \leq .05$ ; \*\*  $p \leq .001$ ; \*\*\*  $p \leq .01$ .

steady and significant increase in online harassment was identified as occurring since 2000.

#### Online sexual solicitations

In 2010, one in 10 youth reported receiving an unwanted sexual solicitation, a 50% reduction in rates when compared with one in five youth who reported such an experience when the YISS was conducted in 2000. The reason for the steady decline in rates could be due to several factors. It may be that online behavior has changed in ways that reduce such solicitations. For example, youth have migrated from chat rooms to social networking sites over past several years [9]. In social networking environments, youth may be confining more of their interactions to people they know, thus reducing online unwanted sexual comments or requests. It is also possible that young people have become more cautious regarding who they interact with because of Internet safety education. A tremendous effort has been made during the past decade to warn young people about the dangers of online sexual interactions. Also, publicity about criminal prosecutions may have deterred some of the aggressive sexual messaging. There have been many prosecutions of adults during the past decade for directing sexual messages to youth. Although research has found that most unwanted sexual messages online come from other youth and not adults, the potential to get into

legal trouble from sending such messages may have been impressed on all Internet participants.

It is important to emphasize that the YISS measure of unwanted sexual solicitation is not a measure of online sexual predation by adults. Our research has shown that to the extent that youth know the age of the solicitors, they believe most of them to be other youth, not adults [2]. Moreover, the vast majority of unwanted sexual solicitations are readily deflected by their recipients [2]. Successful online predator crimes typically involve sexual solicitations that are considered flattering and desired by the recipients [10]. The current findings should not be interpreted to mean that one in 10 youth are solicited by online adult predators or that online predation by adults has declined. Nonetheless, if young people are subject to less unwanted sexual messaging, it does suggest some improvement in the online environment.

#### Unwanted exposure to pornography

The study also found a recent substantial decrease in youth exposure to unwanted pornography. This does not mean that young people who are voluntarily accessing pornography are having a hard time finding it. Rates of intentional viewing of X-rated material among young Internet users range from 13% to 23%, and percentages have remained relatively stable over time

**Table 3**  
Multivariate (adjusted) trends in unwanted Internet experiences by youth gender

Unwanted internet experiences	Year 2000 % (number)	Year 2005 % (number)	Year 2010 % (number)	Adjusted OR 2005–2010 (95% CI) <sup>a</sup>
Any sexual solicitation				
Girls	27 (188)	18 (140)	13 (101)	.60 (.45–.81)*
Boys	12 (97)	8 (60)	4 (33)	.54 (.34–.84)**
Distressing sexual solicitation				
Girls	8 (54)	7 (54)	4 (31)	.51 (.32–.81)**
Boys	2 (18)	2 (13)	1 (6)	.43 (.16–1.14)
Aggressive sexual solicitation				
Girls	4 (29)	7 (50)	5 (38)	.62 (.40–.98)***
Boys	2 (14)	2 (13)	1 (9)	.72 (.30–1.71)
Any harassment				
Girls	7 (46)	10 (75)	15 (121)	1.47 (1.07–2.01)***
Boys	6 (49)	8 (55)	7 (55)	.82 (.55–1.22)
Distressing harassment				
Girls	3 (21)	5 (34)	8 (62)	1.65 (1.06–2.56)***
Boys	2 (16)	2 (16)	2 (16)	.96 (.48–1.94)
Any unwanted exposure to pornography				
Girls	23 (159)	31 (236)	22 (176)	.63 (.50–.79)*
Boys	27 (216)	37 (275)	24 (185)	.51 (.41–.65)*
Distressing unwanted exposure to pornography				
Girls	6 (41)	10 (77)	5 (40)	.45 (.30–.67)*
Boys	6 (50)	8 (58)	5 (39)	.62 (.40–.94)***

OR = odds ratio.

95% confidence interval (CI) refers to being 95% confident that the interval contains the population percentage.

The rate calculations are based on the total number of boys and girls in each survey year.

Girls: Year 2000 (n = 708), Year 2005 (n = 760), and Year 2010 (n = 775).

Boys: Year 2000 (n = 790), Year 2005 (n = 738), and Year 2010 (n = 785).

<sup>a</sup> Adjusted odds ratios are based on multivariate logistic regression tests that control for other demographic characteristics, amount of Internet use, and locations of Internet use.

\*  $p \leq .001$ ; \*\*  $p \leq .01$ ; \*\*\*  $p \leq .05$ .

[11,12]. The decline identified by the YISS studies involves unwanted exposure, such as those that occur through errors in searches, unwanted pop-ups, and spam e-mail [2]. The decrease in exposure could be due to two factors. First, spamwares and filters have been increasingly present on networks and individual computers, and their detection capacities have become more refined. Second, young people may have become better educated and more savvy about opening unidentified e-mail or clicking on unidentified links.

#### Online harassment

The 2010 YISS findings show an increase in Internet harassment, from 9% in 2005 to 11% in 2010, continuing an increase from 2000. It is interesting that this trend is opposite the direction of the trend for sexual solicitation. As described earlier, online harassment involves things such as making aggressive or demeaning statements or spreading rumors online. One might have expected that some of the same mechanisms that reduced sexual solicitation, such as increased education, would have reduced harassment as well. However, several features of harassment may make its trend different from sexual solicitation. First, more of the harassment may come from within the youth's chosen social network, for example, classmates who have been accepted as friends on social networking sites. Second, mobilization and education against online harassment are not as long-standing and intensive as that against sexual solicitation. Public concern over "cyberbullying" only took off in recent years. Now that cyberbullying has become a more widespread topic of news and education, it will be interesting to see whether harassment declines as sexual solicitation has done.

Even though online harassment has increased, this cannot be interpreted as a general increase in harassing and bullying be-

havior by youth (i.e., new types of perpetrators being drawn in to harassing peers). It is possible that general harassment and bullying behavior is migrating online in the same way that general adolescent communication has migrated. There is some evidence for this, given that survey data with youth show decreases in general peer harassment and bullying happening over the same period [13].

Nonetheless, the increase in online harassment suggests it is an important area for additional attention by parents, schools, and health professionals. The increase in harassment for girls is a particularly concerning trend. Research has identified gender differences in the bullying behavior and victimization; one study of school bullying among youth in grades 6–10 found boys were more involved in physical or verbal bullying, whereas girls were more involved in relational bullying [14]. The current findings suggest that whatever is driving the increase in harassment is happening mostly for girls.

One obvious direction is to increase the integration of online harassment prevention into existing evidence-based peer victimization and bullying programs. Evidence also has shown that social and emotional learning programs in early elementary grades can improve behavior and reduce aggression down the road [15]; interventions such as these are likely to continue decreasing trends in offline bullying and reverse the trend in online harassment as well.

#### Limitations

Findings should be interpreted keeping in mind several limitations. First, as with all self-report measures, some youth respondents may not have disclosed all unwanted Internet experiences. Response rates declined somewhat between the YISS studies, reflective of a general decrease in response rates for

**Table 4**  
Multivariate (adjusted) trends in unwanted Internet experiences by youth race/ethnicity

Unwanted Internet experiences	Year 2000 % (number)	Year 2005 % (number)	Year 2010 % (number)	Adjusted OR 2005–2010 (95% CI) <sup>a</sup>
Any sexual solicitation				
White, non-Hispanic	19 (207)	12 (128)	8 (83)	.60 (.44–.81)*
Black, non-Hispanic	18 (28)	20 (32)	10 (20)	.38 (.20–.71)**
Hispanic or Latino	25 (27)	19 (24)	13 (19)	.77 (.38–1.58)
Distressing sexual solicitation				
White, non-Hispanic	4 (47)	4 (44)	2 (19)	.45 (.26–.78)**
Black, non-Hispanic	7 (10)	7 (11)	4 (9)	.52 (.20–1.35)
Hispanic or Latino	7 (8)	6 (8)	4 (6)	.85 (.27–2.69)
Aggressive sexual solicitation				
White, non-Hispanic	3 (32)	4 (37)	2 (23)	.64 (.37–1.09)
Black, non-Hispanic	1 (2)	8 (13)	5 (10)	.41 (.17–1.01)
Hispanic or Latino	5 (5)	8 (10)	7 (11)	1.05 (.41–2.66)
Any harassment				
White, non-Hispanic	6 (70)	10 (105)	11 (116)	1.05 (.79–1.40)
Black, non-Hispanic	5 (7)	5 (8)	12 (25)	2.18 (.93–5.12)
Hispanic or Latino	11 (12)	7 (9)	11 (16)	1.38 (.57–3.33)
Distressing harassment				
White, non-Hispanic	2 (25)	4 (38)	5 (48)	1.23 (.79–1.93)
Black, non-Hispanic	2 (3)	3 (4)	6 (13)	2.13 (.67–6.83)
Hispanic or Latino	5 (5)	3 (4)	7 (11)	2.72 (.82–8.98)
Any unwanted exposure to pornography				
White, non-Hispanic	26 (279)	36 (381)	23 (243)	.53 (.43–.64)*
Black, non-Hispanic	24 (36)	27 (44)	22 (46)	.77 (.48–1.26)
Hispanic or Latino	30 (32)	42 (54)	27 (41)	.52 (.31–.86)***
Distressing unwanted exposure to pornography				
White, non-Hispanic	6 (60)	9 (99)	5 (49)	.48 (.33–.68)*
Black, non-Hispanic	11 (16)	8 (12)	5 (11)	.59 (.24–1.44)
Hispanic or Latino	9 (10)	15 (19)	9 (13)	.53 (.25–1.14)

OR = odds ratio.

95% confidence interval (CI) refers to being 95% confident that the interval contains the population percentage.

The rate calculations are based on the total number of youth in each race/ethnicity category and survey year.

White, non-Hispanic: Year 2000 (n = 1,091), Year 2005 (n = 1,070), and Year 2010 (n = 1,048).

Black, non-Hispanic: Year 2000 (n = 153), Year 2005 (n = 161), and Year 2010 (n = 208).

Hispanic or Latino: Year 2000 (n = 108), Year 2005 (n = 130), and Year 2010 (n = 152).

<sup>a</sup> Adjusted odds ratios are based on multivariate logistic regression tests that control for other demographic characteristics, amount of Internet use, and locations of Internet use.

\*  $p \leq .001$ ; \*\*  $p \leq .01$ ; \*\*\*  $p \leq .05$ .

national telephone surveys [16–18] facing the challenges of caller identification, confusion with telemarketers, and survey saturation among the general population. However, analyses suggest that the decline in participation has not influenced the validity of most surveys conducted by reputable surveying [17]. Keeter et al. [17] noted that compared with government benchmarks, the demographic and social composition of telephone survey samples are quite representative on most measures (p. 777).

## Conclusions

Findings from the YISS studies suggest that trends in youth online unwanted experiences may contradict impressions that the general population, professionals, and the media have about what is happening. It is important that such trend data be collected and disseminated by professionals, integrated into prevention directions and material, and used to inform policy. Problems that have been highlighted and may cause parents to be reluctant to let their youth use the Internet are relatively infrequent and, importantly, have decreased over the past 5 years.

However, because the current study suggests that online harassment may be increasing for youth, particularly girls, this topic may require additional mobilization, using tested and evaluated programs that can incorporate messages relevant to age and demographic subgroups. Parents and youth need information about what do to in cases where Internet harassment occurs.

Bystander education, which has proven successful in other prevention campaigns [19–21] should be included so that youth can help intervene effectively when they see problems like harassment occurring. Schools need to have policies in place for when online harassment incidents become serious bullying problems that threaten the healthy functioning of youth in school environments.

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## References

- [1] Mitchell KJ, Finkelhor D, Wolak J. Youth internet users at risk for the most serious online sexual solicitations. *Am J Prev Med* 2007;32:532–7.
- [2] Wolak J, Mitchell KJ, Finkelhor D. *Online Victimization: 5 Years Later*. Alexandria, VA: National Center for Missing and Exploited Children; 2006.

- [3] Brick JM, Brick PD, Dipko S, et al. Cell phone survey feasibility in the U.S.: Sampling and calling cell numbers versus landline numbers. *Publ Opin Q* 2007;71:23–39.
- [4] Hu SS, Balluz L, Battaglia MP, Frankel MR. The impact of cell phones on public health surveillance. *Bull World Health Organ* 2010;88:799.
- [5] Mitchell KJ, Jones LM, Wolak J. The Youth Internet Safety Survey (YISS) Methodology Report. Available at: <http://unh.edu/ccrc/internet-crimes/papers.html>.
- [6] Smith A. Technology trends among people of color. Pew Internet and American Life Project; 2010. Available at: <http://www.pewinternet.org/Commentary/2010/September/Technology-Trends-Among-People-of-Color.aspx>. Accessed September 30, 2010.
- [7] Pew Research Center. Demographics of teen internet users. Available at: <http://www.pewinternet.org/Static-Pages/Trend-Data-for-Teens/Whos-Online.aspx>. Accessed June 27, 2011.
- [8] Statistical Package for the Social Sciences (SPSS). Armonk, NY: IBM, 2011.
- [9] Lenhart A, Purcell K, Smith A, Zickuhr K. Social Media and Mobile Internet Use among Teens and Young Adults. Available at: [http://www.pewinternet.org/~media/Files/Reports/2010/PIP\\_Social\\_Media\\_and\\_Young\\_Adults\\_Report.pdf](http://www.pewinternet.org/~media/Files/Reports/2010/PIP_Social_Media_and_Young_Adults_Report.pdf). Accessed June 8, 2010.
- [10] Wolak J, Finkelhor D, Mitchell KJ, Ybarra ML. Online “predators” and their victims: Myths, realities, and implications for prevention and treatment. *Am Psychol* 2008;63:111–28.
- [11] Mitchell KJ, Jones LM, Finkelhor D, Wolak J, 3rd. Youth Internet Safety Survey. Durham, New Hampshire: Crimes against Children Research Center, University of New Hampshire, 2011.
- [12] Ybarra ML, Mitchell KJ, Hamburger M, et al. X-rated material and perpetration of sexually aggressive behavior among children and adolescents: Is there a link? *Aggress Behav* 2011;37:1–18.
- [13] Finkelhor D, Turner H, Ormrod R, Hamby SL. Trends in childhood violence and abuse exposure: Evidence from two national surveys. *Arch Pediatr Adolesc Med* 2010;164:238–42.
- [14] Wang J, Iannotti RJ, Nansel TR. School bullying among adolescents in the United States: Physical, verbal, relational, and cyber. *J Adolesc Health* 2009;45:368–75.
- [15] Durlak JA, Weissberg RP, Dymnicki AB, et al. The impact of enhancing students' social and emotional learning: A meta-analysis of school-based universal interventions. *Child Dev* 2011;82:405–32.
- [16] Curtin R, Presser S, Singer E. Changes in telephone survey nonresponse over the past quarter century. *Public Opin Q* 2005;69:87–98.
- [17] Keeter S, Kennedy C, Dimock M, et al. Gauging the impact of growing nonresponse on estimates from a national RDD telephone survey. *Public Opin Q* 2006;70:759–79.
- [18] Kempf AM, Remington PL. New challenges for telephone survey research in the twenty-first century. *Annu Review Public Health* 2007;28:113–26.
- [19] Banyard VL, Moynihan MM, Plante EG. Sexual violence prevention through bystander education: An experimental evaluation. *J Community Psychol* 2007;35:463–81.
- [20] Foubert JD. The longitudinal effects of a rape-prevention program on fraternity men's attitudes, behavioral intent, and behavior. *J Am Coll Health* 2000;48:158.
- [21] Stueve A, Dash K, O'Donnell L, et al. Rethinking the bystander role in school violence prevention. *Health Promot Pract* 2006;7:117–24.