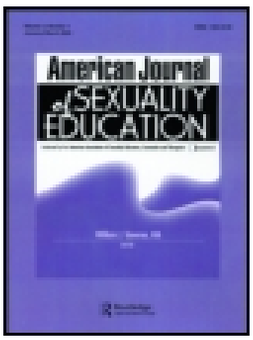

American Journal of Sexuality Education

ISSN: 1554-6128 (Print) 1554-6136 (Online) Journal homepage: http://www.tandfonline.com/loi/wajs20

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To cite this article: Emily F. Rothman, Avanti Adhia, Tiffany T. Christensen, Jennifer Paruk, Jessica Alder & Nicole Daley (2018): A Pornography Literacy Class for Youth: Results of a Feasibility and Efficacy Pilot Study, American Journal of Sexuality Education

To link to this article: https://doi.org/10.1080/15546128.2018.1437100

Published online: 22 Feb 2018.

AMERICAN JOURNAL OF SEXUALITY EDUCATION
2018, VOL. 0, NO. 0, 1–17
https://doi.org/10.1080/15546128.2018.1437100

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A Pornography Literacy Class for Youth: Results of a Feasibility and Efficacy Pilot Study

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ABSTRACT

The purpose of this study was to evaluate the preliminary efficacy of a media literacy curriculum focused on pornography among a sample of U.S-based, urban-residing youth. Participants were 24 youth between the ages of 15–24 years old, although 65% were 17–18 years old. The sample was 43% female, 43% male, 9% transgender, 52% Black, 22% Hispanic, 13% other race, 64% heterosexual, 14% gay, lesbian or bisexual, and 18% other sexual orientation. Participants completed a pre-test prior to the first class session and a post-test after the fifth and final session. Pornography-related knowledge increased from pre- to post-test. A change in the anticipated direction was observed for some pornography-related attitudes, and some pornography-related behavioral intentions. Pornography-related behavior (e.g., seeking out pornography for the first time) did not change from pre- to post-test. The novelty of these findings are two-fold. First, the study demonstrated that it is feasible to implement a pornography literacy curriculum in a nonschool setting, and second, that this particular curriculum may have had some positive impact.

KEYWORDS

Pornography; sexually explicit media; media literacy; sex education

Introduction

Nationally-representative data suggest that 42% of 12–17 year olds in the United States have viewed sexually explicit media (i.e., pornography) online in the past year either on purpose or accidentally (Wolak, Mitchell, & Finkelhor, 2007). It is estimated that approximately 15%–23% of U.S. adolescents reported intentional exposure to pornography in the past year (Ybarra & Mitchell, 2005; Ybarra, Mitchell, Hamburger, Diener-West, & Leaf, 2011) while rates of unintentional pornography viewing may be as high as 68% for some groups of adolescents (Hardy, Steelman, & Ridge, 2013). The average age of youths' first exposure to pornography is unknown, although in 2004 an antipornography activist website reported the age was 11, and that unsubstantiated claim has been so often repeated it is now rarely questioned (Ropelato, 2004).

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The idea that exposure to sexually explicit media—-and present-day internet pornography in particular—harms youth is contentiously debated. As Peter and Valkenburg relay in their 2016 review of the literature on adolescents and pornography, on the one hand, there have been a handful of longitudinal research studies that suggest that exposure to pornography may be causally associated with several sequelae for adolescents that many people consider negative, including feeling unsure about one's sex-related values (Peter & Valkenburg, 2010a), more permissive attitudes about casual sex (Doornwaard, Bickham, Rich, ter Bogt, & van den Eijnden, 2015; Peter & Valkenburg, 2010b), greater endorsement of traditional or stereotypical gender norms (Brown & L'Engle, 2009; Peter & Valkenburg, 2009a), less sexual satisfaction (Peter & Valkenburg, 2009b), sexual preoccupancy (Peter & Valkenburg, 2008), earlier age of sexual debut (Cheng, Ma, & Missari, 2014), more experience with casual sex (Cheng et al., 2014), decreased condom use (Luder et al., 2011), and sexual harassment and assault perpetration (Brown & L'Engle, 2009; Ybarra et al., 2011). On the other hand, other longitudinal studies have assessed and found no relationship between adolescent pornography use and subsequently having sex without a condom (Peter & Valkenburg, 2011), experiencing an earlier sexual debut (Luder et al., 2011), or having a greater number of sexual partners (Luder et al., 2011). Moreover, despite concerns that pornography gives youth unrealistic perceptions of sex and sexuality, Peter and Valkenburg (2016) found that the majority of adolescents in a Dutch sample did not perceive pornography as either realistic or a good source of factual information about sex (Peter & Valkenburg, 2016).

Two studies have identified possible positive effects of pornography on some youth. First, pornography provides some lesbian, gay, bisexual, transgender, queer, and other nonheterosexual (LGBTQ+) youth affirmation that they are not alone in their sexual desires (Harper, Serrano, Bruce, & Bauermeister, 2016). Second, one cross-sectional study found that in a sample of 18–44 year old women, those with more exposure to pornography were more likely to report satisfaction with the appearance of their vulvas (Truong, Amaya, & Yazdany, 2017). Thus, while self-esteem and body image may be negatively affected by pornography exposure for some (Cranney, 2015), depending upon the type of pornography and why it is being consumed, it is possible that some youth are not negatively affected.

The substantial body of literature on less explicit, but sexual, media exposure and its potential to influence youth behavior is often overlooked during debates about pornography. Sexual media is often classified, in a binary fashion, as either explicit or nonexplicit. The reality is that the degree of explicitness of sexual media is on a continuum, and may range from nonexplicit (e.g., a children's television show that depicts two characters holding hands), to somewhat explicit (e.g., a underwear manufacturer's advertisement featuring women in revealing bras), to explicit (e.g., a music video in which naked people dance and simulate sex), to the most explicit (e.g., a video clip on a pornography website featuring close-ups of genitals while people are engaged in sexual acts); for this reason, the Motion Picture Association of America has long grappled with how to evaluate and label degrees of sexual explicitness in films (Doherty, 2017; Nalkur, Jamieson, & Romer, 2010). From this

perspective, it makes sense to consider the whole of the existing research about youth exposure to sexual media more generally, and not only to focus on the most explicit form (i.e., pornography) in isolation. Indeed, theoretical models for how media influence youth, such as the Media Practice Model, contend that virtually all people are now subjected to a vast array of multiple forms of media on a daily basis (including radio, TV, self-made videos, and online and print advertising and news), and that these multiple forms of media interact and work together to create an influential system of ideas that each consumer reinforces by selecting to be exposed to more media, of various types, that reify those same values (i.e., "creating a media bubble") (Brown, 2000; Steele, 1999). Brown suggests that there are three primary mechanisms through which media likely influence sexual behavior: (a) media may be an ever-present reminder for individuals to prioritize sex and keep sexual behavior on their agendas, (b) media may generally reinforce one set of sexual and relationship norms, and (c) media may function as a "super peer" and reinforce the idea that sexually irresponsible behavior is normative (Brown, Halpern, & L'Engle, 2005). Others have argued that for adolescents, the mechanisms through which media influences sexual behavior pertain to the internalization of ideals related to appearance, valuation of appearance over competence, and subsequent body surveillance relative to media ideals (Vandenbosch & Eggermont, 2015).

Variation in the theoretical explanations notwithstanding, the research evidence overwhelmingly supports the conclusion that sexual media does influence youths' sexual scripts, attitudes, and behavior. For example, a two-wave study of 1,765 Dutch youth found that watching sexual reality television predicted adolescents' distribution of sexual images of themselves on social media (Vandenbosch, van Oosten, & Peter, 2015). Data from this same panel study also suggest that exposure to sexual music videos can influence youths' misogynistic beliefs (van Oosten, Peter, & Valkenburg, 2015). Those findings are consistent with those of a U.S-based study that found youths' exposure to sexual television shows was associated with a decreased expectancy that engaging in sexual intercourse will result in pregnancy or contracting a sexually transmitted infection (STI) (Ragsdale et al., 2014). In addition to the studies of the effects of media on adolescent sexual behavior, a comprehensive review of 135 studies on media and sexualization of people of any age concluded that there is consistent evidence that exposure to sexualized media results in self-objectification and body dissatisfaction, provides support for sexist beliefs and attitudes supportive of sexual violence against women, and encourages both men and women to hold negative views of women (Ward, 2016). Given related research, including a meta-analysis of 130 studies of children's exposure to media violence that concluded that exposure to video game violence is a causal risk factor for increased aggressive behavior, violence desensitization, lack of empathy, and lack of prosocial behavior (Anderson et al., 2010), it is unsurprising that there is an emerging consensus in the field that youth exposure to violent and/or sexual media likely has at least some impact on what many adolescents think, believe ,and do.

"Media literacy" is the ability to access, analyze, evaluate, and create print, video, and internet messages, and think critically about society's consumption and

production of these messages (Aufderheide, 1993; Thoman& Jolls, 2003). Media literacy education programs are not designed to regulate or limit the quantity or type of media that youth consume. Instead, they are designed to impart critical thinking skills to empower youth to engage with media in an informed manner (Bergsma & Carney, 2008), and lessen adverse effects of media exposure by making transparent the ways in which media may shape behavior (Boyd & Dobrow, 2011). Media literacy interventions have been used effectively to prevent youth tobacco and alcohol use, violence perpetration, body dissatisfaction, and disordered eating (Fingar & Jolls, 2014; Gordon, Jones, & Kervin, 2015; McLean, Paxton, & Wertheim, 2016; Primack, Douglas, Land, Miller, & Fine, 2014). A meta-analysis of 51 media literacy interventions on a range of topics found significant positive effects on media knowledge, media criticism (e.g., understanding of intent, skepticism), perceived realism of media, influence on viewers, behavioral beliefs, attitudes, self-efficacy, and behavior, supporting the idea that media literacy is an effective strategy to ultimately change risky behaviors (Jeong, Cho, & Hwang, 2012).

To our knowledge, there have been no evaluations of media literacy interventions designed to improve youths' critical understanding of pornography. The purpose of this study was to evaluate the preliminary efficacy of a media literacy curriculum focused on pornography using a sample of U.S-based, urban-residing youth (called a "pornography literacy curriculum" herein). The curriculum was developed in 2016 by the first, fourth, and fifth authors who used the Theory of Planned Behavior (Ajzen, 1991) to develop curriculum objectives and link curriculum content with anticipated outcomes. The goal of the curriculum was to provide evidence-based information to youth in an atmosphere free of judgment about sexual orientation and consensual sexual behavior. It was designed to be equally engaging for youth who had seen and had not seen internet pornography. The curriculum was created to promote the idea that traditional gender norms are restrictive and can lead to double standards that penalize women and girls, that lack of consent is never acceptable, and that healthy relationships do not feature coercion or violence. However, in the spirit of media literacy, the purpose of the class was not to regulate the participants' pornography-related behavior or pass judgment on their choices, but to give them tools for critical analysis that would enable them to make selections about pornography that were consistent with their values.

The content of the five-session curriculum was created cooperatively, and drew upon prior experience teaching adolescents about healthy relationships and sexuality and teaching adults about current social science findings related to pornography. After it was drafted, one master's level, trained sex educator, and one expert on positive youth development provided feedback that was incorporated into a subsequent draft. The curriculum was then pilot-tested with three separate groups of students; two classes were held at the local public health department and was offered to teenage youth enrolled in a dating violence prevention program in the summer and fall of 2016, and one class was held at a local youth service organization for LGBTQ+ youth and delivered in the spring of 2017. Each class session was 90–120 minutes. Detailed information about each class session is provided in Figure 1.

Session	Themes	Objectives
1	(a) The rationale for having a pornography literacy class	• Participants will be able to define pornography • Participants will understand their own views about pornography and think critically about what shaped them • Participants will explore their attitudes about how society has taught them to feel about youth viewing pornography
	(b) The history of sexually explicit images in society	• Participants will understand when in European/U.S. history the concept of pornography was invented • Participants will think critically about how ruling parties have defined obscenity strategically to oppress groups • Participants will consider the classism of considering certain sexually explicit images "pornography" and others "art" • Participants will begin to discuss the body ideals and relationship norms put forward in mainstream pornography
2	(a) Pornography and norms related to gender and sex	• Participants will think about gender norms promoted in mainstream pornography • Participants will consider social norms related to sex in their peer group and whether pornography affects those norms
	(b) Potential harms of pornography exposure & adolescent development	• Participants will hear about the results of research studies that have found that pornography use may be associated with increased risk for negative sequelae • Review the debate about whether adolescent sexual development can be adversely affected by pornography, in terms of compulsive use, desensitization, relationship satisfaction • Basic review of reproductive and sexual anatomy • Basic review of facts about condom use, STIs and symptoms, where to get STI testing, pregnancy prevention, and referral to additional resources for more information
3	(a) The unreal representations of sex in pornography; the link to commercial sexual exploitation	• Participants will think about ways in which some pornography presents unrealistic sexual scenarios • Participants will review case studies about the commercial sexual exploitation of youth • Participants will decrease acceptance of the idea that pimping is glamorous
	(b) Healthy intimacy	• Participants will evaluate their feelings about intimacy, respectful behavior in dating and sexual relationships
4	(a) Occupational safety and health in the pornography industry	• Participants will learn about variability in how much pornography performers are paid • Participants will learn about labor conditions, with a focus on California state laws • Participants will learn about pornography performers working as independent contractors and tax ramifications
	(b) The non-consensual dissemination of pornography	• Participants will define "revenge porn" and state law related to the non-consensual dissemination of pornography • Participants will receive factual information about sexting underage
5	(a) Parents & peers	• Participants will discuss whether and how others show support for healthy dating and sexual boundaries
	(b) Wrap up	• Participants will feel increased self-efficacy to make choices related to dating and sex • Participants will review the parts of the class that were meaningful to them and explain why • Discuss local and national resources for dating violence victimization; sexual violence victimization; teen pregnancy; STI testing and treatment; depression and anxiety; substance use; compulsive pornography use

Figure 1. Overview of pornography literacy curriculum content, by session.

The instructors' adherence to the manual was tracked by the Research Assistant (RA) who used a fidelity form prepared in advance that elicited information about whether instructors covered all topics as planned and whether any activities seemed to be any more or less engaging for the participants than expected.

The primary hypotheses of the evaluation research were:

1. The pornography literacy curriculum will be feasible to implement.
2. Participants' pornography-related knowledge will improve.
3. Participants' pornography-related attitudes and behavioral intentions will change from pre- to post-test.

A fourth, exploratory aim was to document the percentage of youth who reported having used pornography at pre-test and post-test in order to explore whether participation in the class encouraged pornography viewing, and to generate estimates that could be used for planning future randomized controlled trials' power calculations.

Methods

Sample, recruitment, and data collection procedures

Evaluation study participants were recruited from the three classes in which the curriculum was pilot tested. Youth could opt to be in the class and nevertheless opt not to participate in the evaluation research being conducted during the class. No youth that was invited to participate in the pornography literacy class opted not to participate. The research protocols were reviewed by the Institutional Review Board (IRB) at the first author's institution. To be eligible for research participation, individuals had to be at least 14 years old. Unless youth were over the age of 18,

parental/guardian consent to participate in research was required. To recruit participants into the study, packets of information about the class and research study were mailed home to parents of those younger than 18 years old who were attending the class via the public health department program prior to the first session.

On the first day of class, the RA attended the session to distribute and review the assent and consent forms and invite youth to participate in the research. Underage youth delivered signed parental consent forms to the RA. The RA provided paper-based surveys prior to the start of the first class session, which took participants approximately 10–15 minutes to complete. Surveys were completed anonymously. The RA returned to the final class session and again invited participants to complete the paper-based survey during the final 15 minutes of the class. All surveys were completed anonymously.

Measures

The pre- and post-test survey comprised 52 original questions and took participants approximately 15 minutes to complete. The questions were cocreated by three experts with knowledge about pornography, adolescent behavior, healthy relationships, and gender socialization.

Pornography-related knowledge

Participants' knowledge regarding pornography was assessed using 13 questions (Table 1). An example item was: "If someone texts, emails, or posts online sexually explicit images of a person less than 18 years old, that person is breaking the law." Response options were on a scale from 1 to 4, where 1 = *definitely agree*, 2 = *somewhat agree*, 3 = *somewhat disagree*, and 4 = *definitely disagree*. Scores of 1 and 2 were grouped, as were scores of 3 and 4. The Cronbach's α in this sample was 0.66 on pre-test and 0.71 on post-test.

Pornography-related attitudes

Participant attitudes regarding pornography were also assessed using 15 questions (Table 2). Example items were: "Being in professional pornography is a good way to make a lot of money," and "Pornography is a good way for young people to learn about sex." Response options were on a scale from 1 to 4 from "definitely agree" to "definitely disagree," and were reverse-coded for this analysis. The Cronbach's α in this sample was 0.75 on pre-test and 0.71 on post-test.

Pornography-related behavioral intentions

Participants were asked 12 questions to measure their behavioral intentions regarding pornography (Table 2). Example items were: "I would probably ask my boyfriend/girlfriend for a naked selfie," and "I would act in pornography is someone asked me to." Response options were on a scale from 1 to 4 from "definitely agree"

Table 1. Percentage of participants answering pornography knowledge questions correctly on pre- and post-tests.

	Pre-test ($n = 24$)[‡]	Post-test ($n = 22$)[‡]	χ^2 or Fisher's exact *p*-value
(1) If someone younger than 18 views pornography:			
(a) He or she is breaking the law (false)[†]	79% (19)	32% (7)	<0.01**
(b) The person or website that showed them the pornography is breaking the law (true)	25% (6)	55% (12)	0.02**
(2) If someone younger than 18 participates in pornography as an actor/actress:			
(a) He or she is breaking the law (false)	9% (2)	9% (2)	0.50
(b) The person or group that made the pornography is breaking the law (true)	91% (21)	95% (21)	0.29
(3) If someone texts, emails, or posts online sexually explicit images of a person < 18 years old, that person is breaking the law (true)	88% (21)	100% (22)	0.04**
(4) If you are younger than age 18, it is a crime for you to text or send a naked selfie (true)	57% (13)	91% (20)	<0.01**
(5) If someone shares a sexually explicit image of you that you gave to them willingly, but don't want them to share, they are breaking the law (true)	92% (22)	95% (21)	0.30
(6) You can use an American Express credit card to pay for pornography online (false)	23% (5)	19% (4)	0.38
(7) It's illegal for schools to teach kids whether pornography is realistic or not (false)	67% (16)	73% (16)	0.33
(8) Pornography has always been illegal—even during Medieval times (false)	77% (17)	70% (14)	0.30
(9) What counts as pornography is clearly defined according to U.S. law (false)	57% (12)	33% (7)	0.06*
(10) All experts agree that pornography is addictive (false)	55% (11)	36% (8)	0.11
(11) Pornography is created mainly for male viewers (true)	25% (6)	52% (11)	0.03**
(12) Pornography fetishizes actors and actresses of color (true)	67% (14)	71% (15)	0.37
(13) Once a person has been in pornography, it is easy for them to quit and find a new job whenever they want (false)	78% (18)	86% (19)	0.24

*$p \leq 0.10$; **$p < 0.05$.

[†]The correct answer is that he or she is *not* breaking the law; more participants answered correctly on pre-test as compared to post-test.

[‡]The denominator for some questions was less than $n = 24$ due to missing data (i.e., students chose to skip that question).

to "definitely disagree," and were reverse-coded for this analysis. The Cronbach's α in this sample was 0.70 on pre-test and 0.77 on post-test.

Pornography-related behaviors

Respondents were asked five questions about pornography-related behaviors (Table 3). For example, they were asked if they had ever seen internet pornography on purpose for 5 minutes or longer. Response options were "yes" and "no." Respondents were asked to identify their primary source of education about sex by ranking a set of eight options: "Thinking about your life, which of these have taught you the MOST about sex? Put them in order where you give a 1 to the thing that taught you the most, and an 8 to the one that taught you the least." Response options included "my parents (or guardians)," "a doctor," "school of teachers at school," "my pastor or religious leader," "my brother, sister, cousin or friends (kids my age),"

Table 2. Comparison of mean average agreement score with pornography-related attitude and behavioral intention statements (pre- vs. post-test)[†].

	Pre-test Mean (*SD*)	Post-test Mean (*SD*)	*t*-test *p*-value
Attitudes			
(1) Being in professional pornography is a good way to make a lot of money	2.6 (1.1)	1.5 (0.9)	<0.01**
(2) If my best friend watched pornography every day, I'd be fine with it	3.3 (0.6)	3.4 (1.0)	0.26
(3) If my boyfriend/girlfriend wanted me to watch pornography with them, I'd be fine with it	2.8 (1.0)	2.9 (1.2)	0.37
(4) If I found out that my boyfriend/girlfriend watches pornography without me, I'd be fine with it	3.5 (0.8)	3.4 (0.9)	0.33
(5) Pornography is a good way for young people to learn about sex	2.2 (0.9)	1.6 (0.8)	0.01**
(6) Pornography is harmless	2.3 (1.0)	1.9 (0.9)	0.08*
(7) Pornography is going to exist no matter what, so we might as well get used to it	3.0 (0.9)	2.7 (0.9)	0.17
(8) Calling a girl "nasty" or "slut" during sex is something everyone does	1.6 (0.8)	1.2 (0.4)	0.03**
(9) Most people like to be slapped, spanked, or have their hair pulled during sex	2.1 (1.0)	1.5 (0.7)	0.01**
(10) Pornography is realistic	2.0 (1.1)	1.1 (0.3)	<0.01**
(11) A lot of people think it is sexy when a girl cries, chokes, gags, or vomits during sex	1.7 (0.9)	1.8 (1.0)	0.37
(12) Watching pornography makes me want to try what I see	2.3 (1.0)	1.9 (0.9)	0.08*
(13) Pornography promotes unhealthy expectations of male and female sexuality	3.1 (1.1)	3.6 (0.9)	0.05**
(14) Most pornography helps show people consensual behavior	1.8 (0.7)	1.6 (0.9)	0.22
(15) One good thing about pornography is that curious people can see a range of sexual behavior	2.9 (0.9)	2.6 (1.0)	0.22
Behavioral intentions			
(1) I will probably watch pornography once a week or more often when I'm an adult	2.2 (1.2)	2.3 (1.0)	0.43
(2) It is my plan to never watch pornography	1.8 (0.8)	2.0 (1.1)	0.22
(3) If my boyfriend/girlfriend asks me to imitate things that they first saw in pornography, I will always say no	2.1 (0.8)	2.3 (0.9)	0.25
(4) I would let my teenage children watch pornography	2.1 (0.9)	2.8 (1.0)	0.02**
(5) If my friends watch pornography, I am going to talk about what they know about how it's made	2.5 (1.2)	2.8 (1.1)	0.24
(6) I would probably ask my boyfriend/girlfriend for a naked selfie	2.3 (1.2)	2.0 (1.2)	0.23
(7) I would probably send my boyfriend/girlfriend a naked selfie	2.0 (1.0)	1.9 (1.1)	0.27
(8) I would act in pornography if someone asked me to	1.6 (1.0)	1.2 (0.7)	0.05*
(9) If I found myself watching pornography more than I could handle, I would ask for help	2.6 (1.3)	3.0 (1.0)	0.15
(10) If I needed help with too much pornography use, I know someone that I could ask for who would have good advice for me	2.0 (1.1)	2.6 (1.2)	0.04**
(11) I am going to hide how much pornography I use from my future wife, husband, boyfriend, or girlfriend	1.5 (0.8)	1.5 (0.7)	0.46
(12) I would send around a naked photo of someone without their permission	1.1 (0.4)	1.1 (0.4)	0.45

Note. *$p \leq 0.10$; **$p < 0.05$.

[†]Higher scores indicate more agreement.

‡The denominator for some questions was less than $n = 24$ due to missing data (i.e., students chose to skip that question).

"pornography," "TV or movies (nonpornographic)," and "other." The percentage of respondents assigning a value of 1, indicating that a source had taught them the most, was tabulated. Respondents were also asked their primary reason for using or seeing pornography in the last year. Response options included "I did not want to (it was an accident)," "I did not want to (someone else made me watch it)," "I

Table 3. Pornography-related behaviors as reported on pre-test and post-test.

	Pre-test ($n = 24$)[‡]	Post-test ($n = 22$)[‡]	χ^2 or Fisher's exact p-value
Ever seen internet pornography on purpose for 5 minutes or longer	83% (19)	82% (18)	0.94
How many friends watch porn more than once a month?			
A few of them	25% (6)	23% (5)	0.86
Most of them	25% (6)	32% (7)	0.61
All of them	21% (5)	32% (7)	0.40
Don't know	29% (7)	14% (3)	0.20
Primary source of education about sex			
Pornography	30% (7)	20% (4)	0.43
School or teachers	17% (4)	15% (3)	0.83
Siblings or peers	13% (3)	15% (3)	0.85
Parents/guardians	13% (3)	10% (2)	0.76
Nonsexually explicit TV or movies	9% (2)	15% (3)	0.52
Doctor	4% (1)	10% (2)	0.47
Other	13% (3)	15% (3)	0.85
Primary motivation to use/see pornography in last year			
Boredom	38% (9)	24% (5)	0.32
Sexy or horny mood	21% (5)	43% (9)	0.11
Curiosity	17% (4)	5% (1)	0.20
Accident	8% (2)	19% (4)	0.29
Someone else made me watch it	4% (1)	5% (1)	0.92
Other	13% (3)	5% (1)	0.36
Primary feeling about having watched porn in last year			
Fine, happy or great	57% (12)	64% (14)	0.66
Ashamed or embarrassed	14% (3)	18% (4)	0.73
Other	29% (6)	18% (4)	0.42

Note. [‡]The denominator for some questions was less than $n = 24$ due to missing data (i.e., students chose to skip that question).

was bored," "I was in a sexy or horny mood," "I was feeling depressed and wanted to cheer up," "I wanted to escape my problems," "I was curious," "I wanted to fit in with other people; other people do it so I felt like I should too," and "other."

Analytic procedures

Descriptive statistics were calculated for the pre- and post-test samples. Differences in responses to questions about pornography-related knowledge, attitudes, behavioral intentions, and behavior were assessed using chi-square or *t*-tests. Fisher's exact tests were used in place of chi-square tests in cases where cell sizes were ≤ 5. Due to the relatively small sample size, a cut point of $p < 0.10$ was used to avoid Type II error (Burton, Gurrin, & Campbell, 1998; Trafimow & Marks, 2015). One-sided tests were used for questions related to knowledge improvement, attitudes, and behavioral intentions. Two-sided tests were used for behavior-related questions presented in Table 3. Stata version 13.1 was used for all statistical analyses.

Results

A total of 27 youth attended the classes (11 in class one; 9 in class two; 7 in class three). Of the 27 youth who attended, we were unable to obtain parent or guardian consent for research participation for three; thus the analytic sample was 24 participants. Of the 24 youth who completed pre-tests 92% ($n = 22$) also completed

post-tests. The average age of participants was 17.7 years old. Almost half (42%) were in 11th grade and approximately two thirds (65%) were 17–18 years old. The sample was 43% female, 43% male, 9% transgender, 52% Black, 22% Hispanic, 13% other race, 4% Asian, 64% heterosexual, 14% gay, lesbian or bisexual, and 18% other sexual orientation.

Hypothesis 1: The pornography literacy curriculum will be feasible to implement.

The first question about the pornography literacy curriculum was whether it would be feasible to implement. Before the pilot sessions took place, the instructors wondered if parents would permit their children to participate in a pornography literacy class, if youth would be able to participate meaningfully, if the instructors understood the subject matter well enough to provide useful information and guidance to youth, and if the planned activities would be engaging. We found support for the hypothesis that it would be feasible to implement. None of the parents who were contacted about the class expressed concern or refused to let their children participate. Anecdotally, two parents relayed to the instructors that they were glad that someone was willing to address this topic with their children. Youth did giggle, joke, and get distracted during class sessions, but not substantially more than during class sessions on other topics in which they participated. They engaged in each of the activities as anticipated, and no participant behaved in a way that was inappropriate and merited disciplinary action (such as being asked to leave the room) by an instructor at any time. The youth did ask some questions that instructors couldn't answer. For example, in one session one youth asked whether it was possible to contract gonorrhea in one's eyes from ejaculate, and in another session someone asked what types of people were drawn to acting in pornography. In these instances the instructors told youth that they would look up correct answers and relay them during the next class session, or that it wasn't possible to give an evidence-based answer. In conclusion, it was feasible to implement the class in afterschool settings with both heterosexual and LGBTQ+ youth.

Hypothesis 2: Participants' pornography-related knowledge will improve.

The vast majority of participants ($\geq$ 75%) answered five of the 15 knowledge-related questions correctly at pre-test (Table 1). These questions pertained to whether it is legal to make pornography of children younger than 18 years old, whether it is legal to text, email or post online sexually explicit images of children younger than 18 years old, whether it is legal to share sexually explicit images of people without their consent, whether pornography has always been illegal throughout history, and whether it is easy for people to quit pornography and find new jobs whenever they want after having been a performer.

There was support for the hypothesis that participants' knowledge about pornography improved. There were substantial positive increases in knowledge evidenced by responses to four of the knowledge questions (Table 1). For example, at pre-test, only 25% of participants understood that websites or people that permitted minors to view pornography were committing an illegal act, but at post-test 55% understood

this ($p = 0.02$). Although a majority of participants already understood at pre-test that e-mailing, texting, or posting online sexually explicit images of a person less than 18 years old was a crime (88%), at post-test fully 100% understood that this is true ($p = 0.04$). At pre-test, a smaller percentage of participants understood it was not legal for them to email, text or post online sexually explicit images of themselves if they were less than 18 years old (57%), but by post-test 91% indicated that they understood this was true ($p < 0.01$). Finally, at pre-test only 25% of the participants knew that pornography is created mainly for male viewers, while at post-test 52% ($p = 0.03$) answered this question correctly. There were several questions that most, or many, respondents answered incorrectly at pre-test or at post-test, including for example, "all experts agree that pornography is addictive" (55% thought this was true at pre-test, and 36% thought this was true at post-test, though the statement is false).

Participants were less likely to get the correct answer on two of the survey questions at post-test as compared to pre-test. These two questions were about whether a child who views pornography has committed a crime, and whether there is a clear definition of what counts as pornography according to U.S. law (Table 1).

Hypothesis 3: Participants' pornography-related attitudes and behavioral intentions will change from pre- to post-test.

Participants' level of agreement with eight of the 15 attitude-related questions changed substantially from pre-test to post-test. At post-test, participants were less likely to agree that being in professional pornography is a good way to make money, that pornography is a good way for young people to learn about sex, that pornography is harmless, that calling a girl "nasty" or "slut" during sex is something that everyone does, that most people like to be slapped, spanked, or have their hair pulled during sex, that a lot of people think it is sexy when a girl cries, chokes, gags, or vomits during sex, and that watching pornography "makes me want to try what I see." In addition, at post-test, participants were more likely to agree with the statement "pornography promotes unhealthy expectations of male and female sexuality" (Table 2).

Participants' level of agreement with three of the 12 behavioral intentions questions changed substantially from pre- to post-test. At post-test, participants were less likely to agree that they would act in pornography if someone asked them to, and more likely to agree that they knew someone they could ask for advice if they needed help with too much pornography use (Table 2). Participants were also more likely to agree at post-test that they would permit their own teenage children to watch pornography (Table 2).

Exploratory aim: Documenting participants' pornography-related behavior

None of the participants' pornography-related behaviors changed from pre- to post-test. Specifically, the percentage that reported that they had ever watched internet pornography on purpose remained the same (83% vs. 82%) (Table 3). The majority of participants listed pornography as their #1 source of education about sex at

both pre- and post-test. The primary motivations for using pornography in the past year were "boredom" (38%) and "sexy or horny mood" (21%) at both pre- and post-test; notably the percentage that reported using pornography because they were in a sexy or horny mood doubled between pre- and post-test (from 21% to 43%), though the change was not statistically significant. The majority of youth reported feeling "fine, happy or great" about having watched pornography in the past year at both pre- and post-test.

Discussion

There are several noteworthy findings from this pilot evaluation study of a pornography literacy curriculum for youth. First, it's possible to implement the five-session program. Parents agreed to have their children participate, the youth participated with high levels of enthusiasm, and the instructors were able to adhere to a manual-based curriculum. Second, it would appear that the curriculum increased knowledge about several pornography-related facts. Of note, participants were surprised to hear that sending other minors sexually explicit photos of themselves, if they were less than 18 years old, was illegal for both sender and recipient. This may have created confusion, though, about whether it is legal for people under age 18 years old to view all pornography—it is not legal for any person or entity to show pornography to someone less than 18 years old, but if a child views pornography featuring adults that child has not committed a delinquent act. The curriculum should clarify this fact for future groups of participants. Youth may have become confused about which behaviors were legal and illegal for minors because too much information was presented to them at once. Third, there was strong evidence that the curriculum changed attitudes. Notably, participants were less likely to view pornography as lucrative or a good way to learn about sex (despite the fact it was nevertheless their primary source of education about sex), and the perception that girls like to be called "nasty" or "slut," or that most people find it sexy when girls cry, choke, gag, or vomit during sex, was substantially reduced.

The implications of these findings are that pornography literacy is an intervention that should be tested more thoroughly in different settings. Building on the strong evidence base that has demonstrated that media literacy interventions generally have a positive effect relative to whichever public health topics they are intended to address, coupled with the preliminary evidence from this pilot study that this particular pornography literacy curriculum was both feasible to implement and shifted participants' knowledge, attitudes, and behavioral intentions helpfully, there is reason to believe that further refinement and larger-scale evaluation is in order.

There have been several calls for more comprehensive sex education in U.S. schools so that pornography is not the primary source of information about sex and sexuality for young people (Laws, 2013; Wallmyr& Welin, 2006). Adolescents themselves have also stressed the potential importance of including pornography literacy in sex education (Lofgren-Martenson& Mansson, 2010). However, as of June 2017,

only 24 states and the District of Columbia mandate sex education be provided to students in public school, and if provided, only 13 states require that the instruction be medically accurate (The Guttmacher Institute, 2017). To our knowledge, no sexual education in use presently provides pornography literacy as part of its package.

There is at least one other curricula in use in the United States, and two outside the United States, that provide pornography literacy—though to our knowledge they have not been evaluated. In the United States, the Unitarian Universalist Church provides a sexual education curriculum for youth called Our Whole Lives (OWL) and it includes one session on pornography (Unitarian Universalist Association, 2017). In Australia, a program called "Reality & Risk: Pornography, Young people and Sexuality" addresses the influence of pornography on healthy sexual development (Crabbe & Corlett, 2010; "Reality & Risk," 2014). Finally, in County Kerry in Southwest Ireland, a curriculum called "Healthy Sexuality" that educates youth about pornography has been in use since 2012 (Anna Marie O'Shea, personal communication, May 10, 2017). Our knowledge of curricula in use throughout the world is not comprehensive, so there are undoubtedly other curricula addressing this topic as well. A centralized and publicly-accessible database of programs, which makes clear the intended target audience, number of sessions, and evidence of efficacy or effectiveness, would benefit the field.

This evaluation study faced several limitations. First, the sample size was small and results may be biased toward the null both because of a lack of statistical power, and because the samples that participated in the pilot tests were already somewhat knowledgeable about sex and sexuality issues. Second, there was no comparison group. It is possible that because of an event in the media, or some other factor, all youth in the locale where this pilot took place experienced pornography-related knowledge and attitude change independent of this program. This seems unlikely given that the class was taught three different times, so the independent factor would have had to influence three separate sets of youth during three different time periods, and that there was no notable news event that took place during the period of time when the course was taught that can be recalled by the instructors. Third, it is likely that not all readers will agree with the pornography-related knowledge or attitude statements. For example, some might feel that pornography is not constructed primarily for male viewers. We acknowledge that the curriculum reflects a particular point of view; the novelty and importance of our findings to the field of sexology are that it was possible to produce a pornography-literacy curriculum, implement it, and change youth knowledge, attitude and some behavioral intentions. Documenting that is an important advance for the field as it has not happened previously. Other experts may want to create curricula that advance points of view that differ from ours. Finally, our measures have not been tested for discriminant or concurrent validity. Creating original measures was necessary because no available instrument was designed to evaluate a pornography literacy curriculum. A next step would be to test the validity of our questions. Moreover, there are many other measures that we might have considered adding to our survey—including measures of adherence

to traditional gender norms, sensation-seeking measures, and so forth. Because the survey took 15–20 minutes to complete, and the attention span of youth is limited, we selected to include fewer survey questions so that a greater percentage of surveys would be complete.

Conclusion

This evaluation of a pornography literacy curriculum pilot answered an important preliminary question about the feasibility of implementing a pornography literacy educational program and found that it was, in fact, possible to obtain parental permission, enroll students, and encourage critical thinking related to sexually explicit media. Second, results suggest that participants experienced some changes in knowledge, attitudes and behavioral intentions, and that the curriculum did not encourage youth who were pornography-naïve to seek out pornography for the first time. Future steps include consulting with a wider range of experts to improve the content, implementing the curriculum with additional groups of youth in diverse settings, creating a parent education component, and having the content of the curriculum reviewed for alignment with National Sexuality Education Standards for grades K–12 in the United States (Future of Sex Education Initiative, 2012).

Acknowledgments

The authors would like to thank Megara Bell, Jamelia Willock, Maree Crabbe, Boston GLASS, and all of the Boston Public Health Commission Start Strong youth for their role in the development and evaluation of this curriculum.

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