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X-Rated

Sexual Attitudes and Behaviors Associated With U.S. Early Adolescents' Exposure to Sexually Explicit Media

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Correlates of use and subsequent sexual attitudes and behaviors predicted by exposure to sexually explicit content (i.e., pornography and erotica) in adult magazines, X-rated movies, and the Internet were examined in a prospective survey of a diverse sample of early adolescents (average age at baseline = 13.6 years; $N = 967$). Two-thirds (66%) of males and more than one-third (39%) of females had seen at least one form of sexually explicit media in the past year. At baseline, being black, being older, and having less-educated parents, lower socioeconomic status, and high need for sensation were related to greater exposure for both males and females. Longitudinal analyses showed that early exposure for males predicted less progressive gender role attitudes, more permissive sexual norms, sexual harassment perpetration, and having oral sex and sexual intercourse two years later. Early exposure for females predicted subsequently less progressive gender role attitudes, and having oral sex and sexual intercourse. Implications for healthy sexual socialization are discussed.

Keywords: *sexually explicit media; pornography; adolescents; media effects; sexual behavior*

Young people typically grow more curious about sex as their own bodies sexually mature in early adolescence. The mass media can be a private and comfortable way to learn more about sex and sexual norms. Visually sexually explicit media (i.e., pornography and erotica) designed to arouse sexual feelings are increasingly available and may now be more likely to serve as a source of sexual information and norms for young people. No longer do teen boys have to pass around a purloined copy of their older brother's *Playboy* to get a look at women's bodies. Erotic and pornographic content have gone mainstream as cable and satellite television present X-rated content that is readily accessible by the many adolescents who have televisions in their own bedrooms or video capability on their cell phones (Roberts & Foehr, 2004). Now, with a few keystrokes, anyone with Internet access can be on sites that include much more sexual content than *Playboy* ever did.

In the context of a culture that provides little information about sexuality through conventional socialization channels such as parents, schools, and religion but condones a media environment replete with sexual content, the media have become important sexual socialization agents. Zillmann (2000, p. 41), in fact, argued that, "because consensually accepted programs of sexual education are lacking, erotica have come to serve as a primary agent of sexual socialization."

Although concern has been voiced about the possible negative effects of increased access that children and teens have to sexually explicit media, we know relatively little about recent use or effects of such content, especially in the United States. Recent studies in Taiwan (Lo & Wei, 2005), Sweden (Haggstrom-Nordin, Hansom & Tyden, 2005), and the Netherlands (Peter & Valkenburg, 2006a) have documented ready access and frequent use, especially among adolescent boys, but none of these studies have been longitudinal or have assessed both attitudinal and behavioral effects of exposure. Most studies of the effects of pornography have included college students and/or adults, not younger adolescents who may be most susceptible to attitudinal and behavioral effects as they begin to form their own ideas about appropriate and inappropriate sexual relationships and behavior (Malamuth & Huppin, 2005; Zillmann & Bryant, 1988). In this paper, patterns of sexually explicit media use among a demographically diverse panel of early adolescents in the United States are described and relationships between early exposure and sexual attitudes and behaviors two years later are investigated.

Background

Malamuth and Huppin (2005, p. 315) defined pornography as "sexually explicit media that primarily are intended to arouse the viewer sexually." Others have defined pornography as "the description of, or pictures of, naked or nearly naked bodies in genital contact" (Traeen, Nilsen, & Stigum, 2006, p. 245). Given that much time has been spent trying to define what is meant by the terms "pornography," "erotica," and "obscenity," in this paper we'll use the term "sexually explicit media" as a more neutral term and as a way of distinguishing more visually explicit sexual content from most mainstream sexual content that does not include depictions of genitals or genital contact. Sexually explicit content ranges considerably from depictions of rather traditional heterosexual sexual behavior to multiple sexual partners, coercion, and nontraditional sex including bestiality and sadomasochism (Brosius, Weaver, & Staab, 1993).

For hundreds of years, young people have turned to sexually explicit materials to satisfy their curiosity about sexual bodies, how sex is performed, and to arouse themselves sexually (Brown & Bryant, 1989). A few small studies of U.S. adolescents' exposure to sexually explicit magazines and movies in the 1980s found that even then exposure was almost universal by the end of high school. The average age of

first exposure to *Playboy* was 11 years for males and 12 for females; by 15 years old, most had also seen an X-rated film (Bryant & Brown, 1989).

What's different now is that the Internet and other new media technologies such as digital cameras and cell phones have made sexually explicit materials more accessible to younger people than ever before. Appetite for sexually explicit media has been a primary driver for the success of the Internet. In the late 1990s, it was estimated that the online pornography industry was worth more than \$1 billion and that half of all spending on the Internet was related to sexual activity (Griffiths, 2000). The Internet provides space for discussion and depiction of unconventional and bizarre sexual interests (e.g., discussion groups on almost any sexual paraphilia), as well as pornographic picture libraries, live strip and sex shows, and voyeuristic Web-Cam sites (Nathan, 2007).

Patterns of Use

Most recent research about adolescents' use of sexually explicit content has focused on the Internet in other countries. In 2001, about 40% of adolescents (14-17 years old) in Taiwan reported some exposure to Internet pornography (Lo & Wei, 2005). In the Netherlands, more than half (55%) of adolescents (13-18 years old) had seen at least one of five types of sexually explicit content on the Internet with an average frequency of less than once a month (Peter & Valkenburg, 2006a). Teens may sometimes have more trouble avoiding sexual material online than they have accessing it. In a 2001 study, 70% of 15- to 17-year-olds in the United States said they had "accidentally" seen pornography on the Internet (Rideout, 2001). In another survey, about one-fourth of 10- to 17-year-olds said they had experienced unwanted exposure to pictures of naked people or people having sex while online (Mitchell, Finkelhor, & Wolak, 2003).

Relatively little is known about which adolescents are most likely to use sexually explicit media. It is likely that young people, especially males, seek sexual information in the media as they enter puberty and sexual feelings and relationships become more relevant (Traeen et al., 2006; Trostle, 1993). One study of U.S. college students found that males were significantly more likely than females to have used the Internet for viewing sexually explicit media out of curiosity about sex (Goodson, McCormick, & Evens, 2001). In another study of early adolescent girls, those who matured sexually earlier than their age-mates were more interested in non-explicit sexual content in the media than those who had not yet entered puberty (Brown, Halpern & L'Engle, 2005). One online cross-sectional study of Dutch adolescents (13 to 18 years old) found that those who were more sexually interested, less satisfied with their lives, had younger friends, and had a fast Internet connection were those most likely to have seen sexually explicit media on the Internet (Peter & Valkenberg, 2006a). Males who had reached puberty earlier than their age-mates and adolescents with high needs for sensation were also more likely to have seen more

sexually explicit media (Peter & Valkenberg, 2006a; Weisskirch & Murphy, 2004). Sensation seeking may be related to increased exposure to sexual content for arousal as well as a rebellious tasting of forbidden fruit (Donohew et al., 2000). In the study reported here, patterns of use of sexually explicit media among early adolescents in the United States are examined by demographics (race, gender, socioeconomic status [SES], parents' education), as well as pubertal status and need for sensation.

Possible Effects

Much of the concern over increasing accessibility of explicit sexual content is based on the assumption that young people may develop unrealistic ideas about and/or undesirable patterns of sexual behavior from exposure (Nathan, 2007). Although most research on the effects of pornography has been conducted with adults, those studies as well as studies and theories of sexual effects of mainstream media sexual content can be drawn on to postulate that ideas about gender roles, sexual aggression, and specific sexual behaviors could be learned from exposure.

Sexual socialization theory suggests that frequent exposure to consistent themes about gender and sexual behavior can affect a young person's developing sense of what is expected sexually for males and females and may affect subsequent behavior as well. Although only recently applied to sexual content (Aubrey, Harrison, Kramer, & Yellin, 2003), the cognitive information-processing model helps explain how exposure to sexually explicit media may affect young people's attitudes and behavior. Combining tenets of both social learning theory and script theory, the model suggests that through observation of relevant and attractive models in both real life and the media, people create and store "scripts" that guide social behavior. Scripts include information about what happens in the world, how people should behave in specific situations, and the likely outcomes of behavior (Huesmann, 1997). Firmly established scripts are most likely enacted when opportunities arise.

This model as well as the Media Practice Model (Steele, 1999) also help explain why gender differences in reaction to media often are found. Both models predict that use of and attention to media is based in individual identity needs, such that males will attend primarily to male scripts and females will attend to female scripts. Males and females also come to media with existing gender scripts that influence how media content is processed and incorporated in their everyday behavior (Aubrey et al., 2003).

Aubrey et al. (2003) and Ward (2003) have found that the sexual scripts for males and females on primetime television are different and adhere to stereotypes of males as seeking sexual "variety" (i.e., multiple partners) and females as desiring emotional commitment before consenting to sex. In a cross-sectional survey with college students, Aubrey et al. (2003) found that exposure to sexually oriented television was related in males to an expectation of a broad range of sexual activities in relationships and in females to the expectation of earlier sex in relationships, even after controlling for other potential explanations.

In sexually explicit media the male script is probably even more about sexual variety than in mainstream media. Although systematic analyses of current sexually explicit media are rare, studies conducted in the 1980s and 1990s concluded that the typical sexual script is one in which focus is on the sexual desires and prowess of men, while women are the “sexually willing and available” objects (Brosius et al., 1993, p. 163; Cowan, Lee, Levy & Snyder, 1988). Sexually explicit media may be especially appealing to males because the media objectify sex, “making it seem like a thing, rather than an emotion or a relationship between people” and, in the process, “makes getting sex from women seem effortless” (Nathan, 2007, pp. 33-34). So, we might expect that exposure to sexually explicit media in which the male sexual script is exaggerated and the typical female sexual script is subverted to eschew emotional commitment should lead both males and females to hold more permissive sexual norms and less progressive gender role attitudes.

Little research has examined the relationship between exposure to sexually explicit content and gender role attitudes, although a meta-analysis of more than 30 experimental and non-experimental studies found a moderate relationship (effect size of .10) between regular television viewing and endorsement of gender stereotypes (Herrett-Skjellum & Allen, 1996). In a study of adolescents (11-17 years old), girls who saw “sexually objectified women and portrayals of men avoiding commitments” on primetime network television more often reported less “sexual agency”—the perception of having power and control in sexual situations (Tolman, Kim, Schooler, & Sorsoli, 2007, p. 84).

In a series of experiments on the effects of exposure to X-rated movies with college students in the 1980s, Zillmann and Bryant (1988) found increased acceptance of premarital sex, overestimates of the prevalence of uncommon sexual activity, and less support for the concepts of marriage and monogamy. They (p. 521) suggested that viewers adopt more permissive sexual attitudes because, “pornographic scripts dwell on sexual engagements of parties who have just met, who are in no way attached or committed to one another, and who will part shortly, never to meet again. The parties involved . . . enjoy sexual stimulation for what it is, and do so at no social or emotional expense.”

Given these prior findings that exposure to both mainstream and sexually explicit media result in stereotypical beliefs about male and female gender roles and permissive beliefs about sexual relationships, this hypothesis was tested:

Hypothesis 1 (H1): Exposure to sexually explicit content in early adolescence will predict less progressive gender role attitudes and more permissive sexual norms in later adolescence.

Much of the previous research on the effects of exposure to sexually explicit content has focused on the influence of sexually violent portrayals on sexual coercion and sexual violence in real life. Studies of college students have found, however, that exposure to even non-violent sexual content increases what has been called “sexual

callousness,” and beliefs that females enjoy sexual aggression and rape (Check & Guloien, 1989; Zillmann, 1989; Zillmann & Bryant, 1982).

Recent research has focused on sexual harassment and sexual violence in dating relationships among adolescents as other forms of sexual aggression. Some surveys have found that sexual harassment such as touching, grabbing, or pinching in a sexual way; pulling clothing off or down; forcing a kiss; or other unwelcome sexual behavior has become almost normative in some high schools (Fineran & Bennett, 1999). It may be that exposure to sexually explicit materials that frequently depict male domination and female sexual readiness (Cowan & Dunn, 1994) increase early adolescents’ willingness to engage in sexually harassing behavior. Since in early adolescence sexual harassment is more likely than other forms of sexual aggression, the following hypothesis was tested:

Hypothesis 2 (H2): Exposure to sexually explicit content as an early adolescent will predict greater perpetration of sexual harassment in later adolescence, especially for males.

Three recent large-scale longitudinal studies have found that exposure to non-explicit sexual content on television and in other media frequently used by adolescents (music, magazines, and movies) predicts earlier initiation of sexual behaviors, including intercourse (Ashby, Arcari, & Edmonson, 2006; Brown et al., 2006; Collins et al., 2004). These studies have built on a growing body of previous smaller scale content analyses, cross-sectional surveys, and a few experiments that suggested that traditional media do affect teens’ sexual attitudes and behaviors (Escobar-Chaves, Tortolero, Markham, Low, Eitel, & Thickstun, 2005).

Most prior research on the impact of sexually explicit content has focused on the sexual attitudes and arousal of college students and adults using cross-sectional surveys and a few experiments, so little is known about behavioral effects over longer time periods, especially among young adolescents. Earlier experimental studies of young adults showed that exposure to sexually explicit media affected erotic fantasies and increased self-reported sexual activity (Zillmann, 1989). A recent cross-sectional study among 14- to 18-year-old black females found that exposure to X-rated movies was correlated with having sex more frequently, multiple sex partners, and not using contraception (Wingood et al., 2001). Young women in Sweden who had viewed pornography were more likely than those who had not viewed to report having had oral and anal intercourse (Rogala & Tyden, 2003; Tyden, Olsson, & Haggstrom-Nordin, 2001).

Exposure to sexually explicit media may affect sexual behavior by introducing novel sexual scripts, decreasing inhibitions, and increasing arousal. Studies in the 1980s found that nearly all females had been introduced to X-rated materials by someone else, usually an older male, and one-third while on a date (Bryant & Brown, 1989), so some use may occur in the moment as a tool for arousal. For early adolescents, exposure may also increase the perception that such behavior is normative and increase the desire to engage in such behavior.

In this study, the following hypothesis was tested:

Hypothesis 3 (H3): Exposure to sexually explicit media as an early adolescent will predict greater likelihood of having had oral sex and earlier transition to sexual intercourse in later adolescence, for both males and females.

Method

Data Collection and Sample

Adolescents were initially recruited from 14 public middle schools in the Southeastern United States that enrolled rural, suburban, and urban teens and approximately equal proportions of black and white, male and female students. In fall 2001, brief informational sessions inviting students to complete a media use survey were held at each school, and approximately 3,000 7th and 8th graders (65% of eligible students) returned a media survey with parental consent.

From these, a stratified (by gender and by race [black and white]) random sample of 1,200 students was selected to complete a health survey in their homes, and 1,074 (90%) completed interviews in spring 2002. Two years later (2004), 1,017 teens (95% of the baseline health sample) completed a second in-home survey. The parent/guardian and the adolescent signed consent and assent forms guaranteeing confidentiality before the 45-minute-long survey was administered to the teen. The health survey was administered using Audio-Computer Assisted Self Interview (Audio-CASI), which allowed participants to answer survey questions on a laptop computer while hearing questions through private earphones and then touching the computer screen to respond. Adolescents were paid \$20 for their participation in each health survey. This study received approval from the university's institutional review board. Further details about the recruitment protocol are described in L'Engle, Pardun, and Brown (2004).

Data for the present study come from respondents who participated in the baseline and follow-up health surveys and provided complete responses at baseline to three questions about their use of sexually explicit content in movies, magazines, and on the computer ($N = 967$). Respondents were evenly divided by gender ($n = 483$ males, 484 females) and race (478 whites, 489 blacks).

Measures

Baseline Control Variables

Age. Adolescents were first interviewed in the spring and summer of 7th or 8th grade and were 13.6 years old on average at baseline ($SD = .70$) and 15.6 years old at follow-up ($SD = .70$).

Race. The sample included only teens who self-identified as either white or African-American/black. The sample was stratified by race because so little prior work on media effects has included sufficiently large samples of African-American adolescents and because studies of teens' sexual behavior have consistently found significant race differences in age at initiation of sexual intercourse and sexual health outcomes, including higher rates of pregnancy and sexually transmitted diseases among African-American youth (e.g., *Sexually Transmitted Disease Surveillance*, 2003; Ventura, Abma, Mosher, & Henshaw, 2004).

SES. SES was assessed with the question, "Did you receive free or reduced-price breakfast or lunch at school this year?" Adolescents who reported receiving free or reduced-price meals were categorized as low SES (Barone et al., 1996), and all others were categorized as high SES. Approximately one-third (31%) of the participants were categorized as low SES at baseline—a proportion that approximated the 35% of low-SES adolescents in the school population from which the study sample was recruited.

Parent education. Adolescents were asked to report the highest level of education completed by their mother and their father, ranging from "attended high school but did not graduate" to "attended school beyond college (like doctor, lawyer, professor, social worker, or scientist)." The highest level of education completed by the mother or father was used in analyses. About half of the parents (47%) had completed college or done some college work, 31% had post-graduate education, and 22% were high school graduates or less.

Peer puberty comparison. Pubertal development in comparison to peers was assessed with the following item: "Do you think that your body development is earlier or later than most other girls [boys] your age?" Responses ranged from 1 ("much later") to 5 ("much earlier"). Half of the adolescents (51%) reported that their physical development was the same as their peers, 25% reported that it was later, and 24% reported that it was earlier.

Sensation seeking. Sensation seeking was measured with a five-item scale that combined assessments of impulsivity (Donohew et al., 2000) and sensation seeking (Hoyle, Fejfar, & Miller, 2000), which were summed and averaged (Cronbach's $\alpha = .63$). The questions were measured on a 5-point Likert scale from "strongly disagree" to "strongly agree" (mean = 2.93, $SD = .64$). The five items were, "I like new and exciting experiences, even if I have to break the rules," "I like to do scary things," "I do whatever is the most fun," "I do whatever feels good," and "I like friends who are exciting and unpredictable."

Outcome Variables

Permissive personal sexual norms. The personal sexual norms scale (based on Sprecher, McKinney, & Orbuch, 1991) assessed beliefs about appropriate sexual behavior and included the same five items at both waves of the survey (Cronbach's $\alpha = .85$ at baseline and $.86$ at follow-up). Example items are, "People should not have sex before marriage" (reverse scored) and "Sex before marriage is OK if you are in love." All items were measured on 5-point Likert scales that ranged from "strongly disagree" to "strongly agree" (mean = 2.10, $SD = .81$ at baseline; mean = 2.23, $SD = .96$ at follow-up). Higher values indicate more permissive personal sexual norms.

Progressive gender role attitudes. Adolescents' feelings about appropriate gender roles were assessed with ten items at baseline (Cronbach's $\alpha = .73$) and seven items at follow-up (Cronbach's $\alpha = .73$) (Galambos et al., 1985; Murnen & Byrne, 1991; Pleck, Sonenstein, & Ku, 1994). Example questions are, "It is all right for a girl to want to play rough sports like football or hockey," "A guy should always be ready for sex" (reverse scored), and "It bothers me when a guy acts like a girl" (reverse scored). Questions, which were summed and averaged to create the scale score, were measured on 5-point Likert scales from "strongly disagree" to "strongly agree" (mean = 3.64, $SD = .67$ at baseline; mean = 3.50, $SD = .70$ at follow-up). Higher scale scores indicate more progressive gender role norms.

Sexual harassment perpetration. Adolescents' perpetration of sexual harassment was assessed by asking them to indicate which, if any, of seven activities they had engaged in during the past three months (Fineran & Bennett, 1999). The list of activities included, "made negative comments about a schoolmate's body, weight, or clothing," "touched or brushed up against a schoolmate in a sexual way," "cornered a schoolmate in a sexual way," "called a schoolmate a sexually offensive name," "told sexually offensive jokes to a schoolmate or about a schoolmate," "grabbed or pulled at a schoolmate's clothing in a sexual way," and "pressured a schoolmate for a date." These items were summed to indicate how many sexual harassment activities adolescents had perpetrated, ranging from zero to seven (Cronbach's $\alpha = .67$ at baseline and $.70$ at follow-up). At baseline, 63% of adolescents reported no sexual harassment perpetration, 22% reported one harassment activity, and 15% reported two or more activities. At follow-up, 40% reported no harassment, 25% reported one harassment activity, and 35% reported two or more activities.

Oral sex. At both waves of the survey, adolescents were asked, "Have you ever had oral sex?" Respondents could choose to see a definition of oral sex, which was described as "when a girl puts her mouth on a guy's penis, or when a guy puts his

mouth on a girl's vagina." At baseline, 66 adolescents (7% of the sample) reported having had oral sex. At follow-up, 272 adolescents (27% of the sample) reported oral sex.

Sexual intercourse. At both waves of the survey, adolescents were asked, "Have you ever had sex, that is, when a guy puts his penis into a girl's vagina?" At baseline, 129 adolescents (13% of the sample) reported having engaged in sexual intercourse. At follow-up, 327 adolescents (33% of the sample) reported sexual intercourse. Although we asked about sexual orientation, the sample was not large enough to fully analyze how these media effects may or may not occur for non-heterosexual young people. At follow-up, 51 teens (5.1% of the sample) self-identified as gay or bisexual, and 45 (4.5%) said they were "unsure" about their sexual feelings. For these teens, indicating homosexual or bisexual status automatically cued the computer to ask subsequent sexual behavior questions in a gender-neutral way (e.g., "guys and girls").

Sexually Explicit Media Use

To measure 7th and 8th graders' exposure to sexually explicit media three questions were developed for the baseline health survey (Cronbach's $\alpha = .68$). The first question asked, "In the past 12 months, how often did you see X-rated movies?" The second question asked, "In the past 12 months, how often did you read magazines like *Playboy*, *Playgirl*, *Penthouse*, or *Hustler*?" The third question was, "How often do you view pictures of naked women or men on your computer or the Internet?" Response options for all three items were "more than once a week," "about once a week," "about once a month," "just a few times," and "never."

Adolescents at baseline reported very little exposure to sexually explicit media, so responses for each of the three media were dichotomized to reflect no use of sexually explicit media versus any use. Finally, the three dichotomous responses were summed to indicate level of sexually explicit media use, ranging from no use of any of the three media (value = 0) to use of all three media (value = 3).

Data Analyses

Analyses were conducted separately for males and females because previous studies have found that males typically consume more sexually explicit media than females. Chi-square tests between each gender were conducted within other demographic categories to examine differences in sexually explicit media use.

Linear regression analyses with the entire sample were used to predict personal sexual norms, gender role attitudes, and sexual harassment perpetration at follow-up. Logistic regression analyses with adolescents who had not initiated oral sex or sexual intercourse at baseline, respectively, were used to predict oral sex and sexual

intercourse status at follow-up. Since media use patterns and effects on sexual behavior have been found to be different for black and white teens (Brown et al., 2006), race was tested as a statistical moderator in analyses. Regression models included baseline demographic variables, baseline sensation seeking, and the baseline value of the follow-up variable if relevant. Baseline exposure to sexually explicit media was then entered in each regression model. Finally, the interaction between race and sexually explicit media was tested; however, none of the statistical interaction tests were significant at $p \leq .05$, so the interaction term was deleted from further consideration.

Results

As expected, males were significantly more likely than females to report any exposure to sexually explicit media: 53% of males reported sexually explicit media use, while only 28% of females did ($\chi^2 = 74.25$, $df = 1$, $p < .001$). Use of the computer or the Internet for viewing sexually explicit media was most popular among males (40%), followed by viewing X-rated movies (36%) and pornographic magazines (29%). Females were most likely to view X-rated movies (24%), followed by viewing naked people on the computer or Internet (10%) and viewing adult magazines (5%).

A number of differences in patterns of use of sexually explicit media were identified at baseline. The proportion of 12- to 15-year-old males and females who reported using any sexually explicit media in the past year in different demographic, puberty status, sensation-seeking, and outcome variable categories is presented in Table 1. Chi-square tests showed that sexually explicit media use was more frequent among black adolescents as compared to whites, older teens compared to younger teens, lower SES teens, adolescents who had less-educated parents, and higher sensation-seeking adolescents. Even though males were more likely to have used sexually explicit media than females in every demographic category, patterns of use within demographic categories were similar for males and females. For example, both males and females from lower SES (free lunch) households were more likely to have used sexually explicit media than their higher SES (no free lunch) counterparts, but significantly more males had used than females in each SES category.

Notably, sexually explicit media use did not differ with puberty status for either males or females: rates of use were similar regardless of whether teens reported early, late, or on-time pubertal development in comparison to their peers. Adolescents who used sexually explicit media also had more permissive sexual norms, had less progressive gender role attitudes, and perpetrated more sexual harassment activities compared to their peers at baseline. Furthermore, both male and female adolescents who had engaged in oral sex and sexual intercourse were much more likely to be using sexually explicit media than teens who had never engaged in these sexual behaviors.

Table 1
Twelve- to Fourteen-Year-Old Males' and Females'
Use of Any Sexually Explicit Media (Adult Magazines,
X-Rated Movies, Internet Sites) by Demographics,
Sensation Seeking, and Outcome Variables (at Baseline)

	Used Any Sexually Explicit Media in Past Year (%)	
	Males (<i>n</i> = 483)	Females (<i>n</i> = 484)
Race		
White	50.8	20.2
Black	61.3	37.0
Age		
12	43.2	21.2
13	52.5	26.2
14	66.1	38.9
Socioeconomic status		
No free lunch	51.9	23.5
Free lunch	66.4	41.1
Parent education		
Post-graduate	49.3	21.4
Some college/college	58.4	28.2
High school or less	61.1	38.8
Peer puberty comparison ^a		
Later	59.7	30.2
Same	54.0	27.0
Earlier	59.6	32.5
Sensation seeking		
Low	45.7	22.0
High	64.2	38.0
Personal sexual norms		
Less permissive	38.3	14.9
More permissive	76.0	41.0
Gender role attitudes		
Less progressive	64.0	37.9
More progressive	49.4	22.3
Sexual harassment		
No perpetration	37.5	22.9
Some perpetration	76.4	42.7
Ever had oral sex		
No	52.9	27.1
Yes	90.2	63.6
Ever had sexual intercourse		
No	49.6	24.6
Yes	88.3	66.7

Note: Chi-square tests, conducted separately for each gender and within each demographic category, are all significant at $p < .05$ except where indicated.

a. Chi-square tests comparing the use of sexually explicit media for each gender for different levels of peer puberty comparison were non-significant.

Table 2
Zero-Order Correlations (Pearson's *r*) Among Variables for Males (Lower Quadrant)
and Females (Upper Quadrant)

	1	2	3	4	5	6	7	8	9	10	11	12
1. Sexually explicit media use (baseline)		.35***	-.18***	.12**	.12**	.31***	.15**	.17***	.19***	-.14***	.00	.25***
2. Permissive personal sexual norms	.46***		-.10*	.18***	.38***	.43***	.22***	.14**	.12**	-.12**	-.16**	.29***
3. Progressive gender role attitudes	-.12**	-.23***		-.17***	.05	-.06	.00	-.20***	-.15**	.19***	.01	-.13**
4. Sexual harassment perpetration	.26***	.30***	-.26***		.25***	.16**	.06	.10*	.05	-.01	.07	.10*
5. Oral sex (0 = no, 1 = yes)	.32***	.41***	-.12**	.27***		.42***	.12**	-.13**	.04	.00	.16**	.17***
6. Sexual intercourse (0 = no, 1 = yes)	.35***	.38***	-.32***	.23***	.54***		.22***	.20***	.36***	-.21***	.11*	.24***
7. Age (baseline)	.16**	.20***	-.04	.04	.14**	.21***		.07	.12**	-.14**	.14**	.12**
8. Race (baseline) (0 = white, 1 = black)	.12**	.11*	-.27***	.10*	.13**	.40***	.04		.51***	-.33***	.04	.06
9. Receives free lunch (baseline)	.13**	.15**	-.20***	.05	.15**	.28***	.12**	.44***		-.42***	-.08	.08
(0 = no, 1 = yes)												
10. Parent education (baseline)	-.11*	-.10*	.17***	.03	-.20***	-.28***	-.19***	-.30***	-.38***		-.03	-.14**
11. Early puberty (baseline)	.08	.16**	-.12**	.08	.17***	.10*	.03	.00	.00	.03		.03
12. Sensation seeking (baseline)	.27***	.33***	-.14**	.20***	.21***	.15**	-.03	.05	-.09*	-.11*	.04	

Note: Variables are scored so that higher values indicate higher levels of the construct except for free lunch.

p* < .05. *p* < .01. ****p* < .001.

Table 3
Longitudinal Hierarchical Regressions Testing 12- to 14-Year-Old Males' Baseline Exposure to Sexually Explicit Media (SEM) and Sexual Norms, Attitudes, and Behaviors Two Years Later

	Permissive Sexual Norms ^a	Progressive Gender Role Attitudes ^a	Sexual Harassment Perpetration ^a	Oral Sex Status ^b	Sexual Intercourse Status ^b
Age	-.02	.01	.04	1.12	1.34
Black	-.02	-.09	.10	1.64	4.69***
Receives free lunch	.00	-.04	.00	.90	1.20
Parent education	.00	.01	.09	.78*	.78
Early puberty	.06	-.08	.04	1.32	1.12
Sensation seeking	.07	-.02	.12*	1.69*	1.30
Baseline attitude or behavior	.50***	.55***	.32***	—	—
Exposure to SEM	.13**	.00	.10*	1.72***	1.74***
Model R^2	.37***	.37***	.20***	.14***	.19***
SEM increment to R^2	.01**	.00	.01*	.05***	.04***
<i>n</i>	405	401	406	337	340

Note: Dashes indicate that since only adolescents who had not had oral sex or sexual intercourse at baseline were included, baseline measures were not relevant in these analyses.

a. Standardized ordinary least squares regression coefficients are reported.

b. Odds ratios are reported.

c. The model R^2 reported for the binary variables, oral sex, and sexual intercourse is the Cox & Snell R^2 . * $p < .05$. ** $p < .01$. *** $p < .001$.

The zero-order correlations among the variables included in the longitudinal analysis for females (upper quadrant) and males (lower quadrant) are presented in Table 2. This table suggests that a number of relationships exist between baseline exposure to sexually explicit media and the outcome variables at follow-up.

The longitudinal hierarchical regression testing H1, that exposure to sexually explicit media in early adolescence would predict sexual attitudes and gender norms, was partially supported by the data. Among males, increased exposure to sexually explicit media at baseline predicted more permissive personal sexual norms two years later, even after controlling for demographic variables, sensation seeking, and baseline sexual norms (F-change = 8.31, $p = .004$) (see Table 3). On the other hand, after controlling for baseline variables, sexually explicit media use was not predictive of follow-up gender role attitudes, although the zero-order correlation was statistically significant at (Pearson's $r = -.12$, $p = .01$) (Table 2) for males. Among females, increased sexually explicit media use at baseline predicted less progressive gender role attitudes two years later, even after baseline controls (F-change = 6.21, $p = .013$) (Table 4). Sexually explicit media use was not a significant predictor of personal sexual norms among females in the regression model, however, although the zero-order correlation was .35 ($p < .001$) (Table 2).

Table 4
Longitudinal Hierarchical Regressions Testing 12- to 14-Year-Old Females'
Baseline Exposure to Sexually Explicit Media (SEM) and Sexual Norms,
Attitudes, and Behaviors Two Years Later

	Permissive Sexual Norms ^a	Progressive Gender Role Attitudes ^a	Sexual Harassment Perpetration ^a	Oral Sex Status ^b	Sexual Intercourse Status ^b
Age	.06	.03	-.02	1.12	1.48*
Black	-.11*	-.08	.05	.22***	1.03
Receives free lunch	.02	.10	.02	1.41	2.37**
Parent education	.07	.07	.02	.93	.90
Early puberty	.04	.04	.08	1.60**	1.37*
Sensation seeking	.11*	-.04	.04	1.99**	2.13**
Baseline attitude or behavior	.47***	.44***	.32***	—	—
Exposure to SEM	.00	-.12*	.00	1.49*	1.50*
Model R^2	.27***	.25***	.14***	.12***	.13***
SEM Increment to R^2	.00	.01*	.00	.01*	.01*
<i>n</i>	402	396	405	365	367

Note: Dashes indicate that since only adolescents who had not had oral sex or sexual intercourse at baseline were included, baseline measures were not relevant in these analyses.

a. Standardized ordinary least squares regression coefficients are reported.

b. Odds ratios are reported.

c. The model R^2 reported for the binary variables, oral sex, and sexual intercourse is the Cox & Snell R^2 . * $p < .05$. ** $p < .01$. *** $p < .001$.

As predicted in H2, sexually explicit media use was related to sexual harassment perpetration for males but not for females. Increased exposure to sexually explicit media use at baseline predicted more frequent sexual harassment perpetration two years later among males, even after considering baseline controls (demographics, pubertal status, and sensation seeking) (F -change = 3.2, $p = .05$, Table 3). Among females, there was a small but significant zero-order correlation between sexually explicit media use and sexual harassment (Pearson's $r = .12$, $p = .01$, Table 2), but once baseline controls were considered in the regression analysis the association was reduced to non-significance (Table 4).

Strong support was provided for H3, which predicted that baseline exposure to sexually explicit media would predict adolescents' sexual behavior two years later. Only those adolescents who had not had oral sex or sexual intercourse at baseline were included in these analyses. The male adolescents with higher exposure to sexually explicit media at baseline were more likely to have had both oral sex (OR = 1.72, 95% CI 1.35 to 2.19, $p < .001$) and sexual intercourse (OR = 1.74, 95% CI 1.33 to 2.26, $p > .001$) two years later (Table 3). Male adolescents who used all three types of sexually explicit media at baseline were almost three times more likely to report oral sex and sexual intercourse at follow-up compared to males who had used no sexually explicit media (59% vs. 20% for oral sex; 38% vs. 4% for sexual intercourse).

Among female adolescents who had not had sex at baseline, sexually explicit media use was predictive of higher odds of having oral sex (OR = 1.49, 95% CI 1.01 to 2.21, $p = .047$) and sexual intercourse at follow-up (OR = 1.50, 95% CI 1.04 to 2.16, $p = .031$) (Table 4). Female adolescents who used all three types of sexually explicit media at baseline were twice as likely to report oral sex and two and one-half times as likely to report sexual intercourse at follow-up compared to females who had used no sexually explicit media (27% vs. 19% for oral sex; 36% vs. 4% for sexual intercourse).

Discussion

Although a great deal of research has investigated the uses and effects of exposure to sexually explicit materials for older adolescents and adults, we know very little about the use or effects of exposure to such content on the younger adolescents who now have such unfettered access. This study is one of the first to examine the correlates of use and the effects of sexually explicit media on the sexual attitudes and behaviors of early adolescents in the United States over time. The results suggest that by the end of middle school many young people have seen sexually explicit content on the Internet, in X-rated movies, or in magazines. Early exposure is related to subsequent attitudes about gender roles, personal sexual norms, sexual harassment, and sexual behaviors.

In keeping with previous studies, males were more likely than females to have seen sexually explicit media. By age 14, two-thirds (66%) of males and more than one-third (39%) of females reported having seen at least one form of sexually explicit media in the past year. These levels of exposure are similar to those observed recently in other countries (e.g., Janghorbani & Lam, 2003). Although more males used the Internet than used magazines or movies for sexually explicit material, the Internet was not the most frequent source of explicit sexual content for females. More females said they'd seen X-rated movies than had seen sexually explicit content on the Internet or in magazines. This pattern may change, however, as the Internet becomes more portable (i.e., on wireless and hand-held devices). Since these data were collected in late 2001 when only about one-third of the sample had Internet access, the quantity as well as accessibility of sexually explicit material on the Internet has increased dramatically (Nathan, 2007), so the proportion of teens in the United States who have used such content may be even higher now.

Other demographic and personality characteristics were also associated with use of sexually explicit media. Being black, having less-educated parents, and having lower SES were correlated with greater exposure for both males and females. As previous studies have found, higher sensation-seeking adolescent males and females were more likely than those with less need for stimulation to have seen sexually explicit content.

As hypothesized, exposure to sexually explicit media was also related concurrently with more permissive sexual norms and gender role attitudes, as well as early sexual behavior, for both males and females in early adolescence (average age 13.6 years). Some of these patterns were quite striking and of possible concern. More than three-fourths (76%) of the males who reported committing at least some form of sexual harassment also reported having used some sexually explicit media. Almost all (90%) of the males who said they had had oral intercourse and 88% of those who had had sexual intercourse had used sexually explicit media in the past year.

The prospective analyses also showed that early exposure to sexually explicit content is related to subsequently more permissive sexual norms and behaviors as hypothesized, especially for male adolescents. For males, exposure to sexually explicit media in early adolescence (12 to 14 years old) was related to more permissive sexual norms, more frequent sexual harassment, and having had oral sex and intercourse by middle adolescence (14 to 16 years old). For both male and female early adolescents, exposure to sexually explicit media significantly increased the likelihood of having had oral sex and sexual intercourse by middle adolescence. Similar patterns have been found for mainstream sexual content (Ashby et al., 2006; Brown et al., 2006; Collins et al., 2004).

Although the variance explained for each of these outcomes is not large (between 1 and 5%), exposure to sexually explicit media added significantly to each equation. Overall, the models accounted for 12 to 27% of the variance for the females and from 14 to 37% of the variance explained for the males on the five sexual attitudinal and behavioral measures. Of all the variables in the models, exposure to sexually explicit media was one of the strongest predictors, even after controlling for demographics, pubertal status, sensation seeking, and the baseline measure of the sexual attitude (if relevant). Thus, these analyses suggest that exposure to sexually explicit media should be considered an important factor in the sexual socialization of early adolescents.

Experimental studies with young adults typically have found that males' attitudes and behaviors are more affected than females' after exposure to pornography (Zillmann, 1989), while females' attitudes are more affected than males' after exposure to sexual content on mainstream television (Aubrey et al., 2003; Ward, 2003). Some have speculated that the sexual content in mainstream media is either too mild or too feminized to keep young males' attention, so they are less affected by the gender roles and sexual norms presented there (Zurbriggen & Morgan, 2006). Our analyses suggest that males do learn from the more sexually explicit content than is typical in mainstream media and that the fewer females who are exposed to sexually explicit media may learn, too, at least about gender role expectations.

One of the most troubling findings in this study is that exposure was related to not only early oral sex and sexual intercourse for both males and females but also perpetration of sexual harassment by adolescent males. In this study we measured sexual harassment perpetration as a kind of early form of sexual aggression. Although

we do not know exactly what kind of content these young people were seeing, content analyses of pornographic movies have found that the content typically portrays women submitting to the desires of men and often includes coercion and/or violence (Cowan et al., 1988). Previous studies also have found that exposure to even non-violent pornography strengthens the belief in a “rape myth” that women enjoy sexual aggression (Zillmann & Bryant, 1982). This study’s findings suggest that exposure to sexually explicit media in early adolescence may contribute to the high levels of sexual harassment experienced by many adolescents (Fineran & Bennett, 1999). To what extent such early practices lead to other forms of sexual aggression, such as date rape, is worthy of further study.

For the females in our study, early exposure to sexually explicit media was also predictive of less progressive gender role attitudes. Research in other countries has shown that girls who adhere to more traditional gender roles are less likely to use contraception at first intercourse and thus may be more at risk for early pregnancy and sexually transmitted diseases (Varga, 2003). The African-American girls in the Wingood et al. (2001) study who had viewed X-rated movies were more likely to have not used contraception during last intercourse, and were more likely to test positive for Chlamydia, than those who had not viewed sexually explicit movies. In the Wingood study it was not clear if those relationships worked through gender role beliefs or were the result of direct modeling of sexual intercourse without contraception that is typical in sexually explicit media.

The findings about oral sex are also troubling in light of the concomitant findings of less progressive gender roles among girls who used sexually explicit media more frequently. In this study we did not distinguish between the givers and the receivers of fellatio, but considering the traditional scripts of most sexually explicit media, it is likely that young viewers are learning that girls should give and boys may demand such sexual favors. Thus, the gender roles of male dominance and female submission may be reinforced in the sexual scripts young people are learning from sexually explicit media.

Clearly more research on the effects of such content on girls and young women is warranted, as these results suggest exposure may lead to both less powerful gender roles as well as negative sexual health outcomes.

Limitations and Future Research Needs

Even though we were able with two waves of data to take time order into account in these analyses, the design does not allow for full explication of the process of selection, use, and effects. It is not possible with only two waves of data to sort out to what extent young adolescents who have more permissive sexual norms and attitudes and/or are already sexually active are choosing more sexually explicit media rather than vice versa. It is certainly likely that this is in fact a cyclical process in which teens who are beginning to experiment with sexual behavior seek sexual content out of curiosity, may be aroused and/or intrigued by what they see, and come

back for more. More prolonged exposure may affect their ideas about the appropriateness of different kinds of sexual behavior and their ideas about male/female roles and relationships. At least three waves of data would get us closer to being able to establish such a causal sequence with more confidence.

One previous study of older adolescents (college-age) found that initial exposure to what might be considered more "common, nonviolent pornography" lead to later preference for more "uncommon" depictions (bondage, sadomasochism, bestiality), especially among males (Zillmann & Bryant, 1986). Moving to more sexually deviant depictions is more feasible now that the Internet provides easy access to all kinds of sexually explicit material. It remains to be seen if teens who see sexually explicit materials early in their sexual maturation maintain an interest in such material and "graduate" to more explicit content over time, or if they satisfy their curiosity, perhaps grow bored, and move on to other kinds of media content and/or other activities. It will be important to assess the extent to which early consumption may lead to later consumption of potentially more harmful forms of sexually explicit material due to desensitization and the desire to seek content that can still cause arousal as some have speculated (Malamuth & Huppin, 2005). Such a pattern might be more typical for those who are seeking exposure out of a high need for sensation.

Unexpectedly, perceived earlier maturation than age mates was not related to exposure, even though being older was. Since the pubertal status measure was based on self-perception rather than objective physical assessment, pubertal status probably should not be ruled out as a predictor. Starting earlier with assessment of both physical maturation and media exposure would be helpful in establishing the causal sequence as adolescents first begin to be interested in depictions of sexual norms and behaviors.

Other variables not controlled for in these analyses could also cause both exposure to sexually explicit materials and the pattern of sexual attitudes and behaviors found here. Roe (1995), for example, showed that adolescents who were not engaged in school culture were more likely to choose "delinquent" media, such as highly violent and sexually graphic films. These may be the same adolescents who are more likely than those who are achieving status by doing well in school to be engaged in early sexual behavior. The extent of parental monitoring and/or supervision, as well as the presence of older siblings, especially older male siblings, may also affect both exposure to sexually explicit media and sexual behavior and may explain some of the demographic differences seen in these analyses.

Sexually explicit media may serve as sources of sexual information especially for young people who have few other traditional sources of information. Turning to the media for information and norms can be a compelling and less embarrassing way to learn about taboo topics for young people when the other socialization agents in their lives are either reticent or not aware that the young person is interested (Brown et al., 2005). Sexually explicit media might be especially compelling for those who go there to learn something, identify with the characters, and believe that what they are

seeing is realistic. In cross-sectional analyses of Dutch adolescents, Peter and Valkenburg (2006b) have found that perceived realism mediates the relationship between exposure to sexually explicit material on the Internet and “recreational attitudes toward sex.” Aubrey et al. (2003) found that males who were viewing television with a motive to learn held stronger expectations of sexual variety in relationships. The cognitive information processing model predicts that identification with characters also will increase the likelihood of including what is observed into personal sexual scripts. Further study of mediating variables such as perceived reality, motivations for use, and identification with characters will be helpful in learning more about the role sexually explicit media play in the sexual socialization of youth.

Conclusion

By the end of middle school many teens have seen sexually explicit content not only on the Internet but in more traditional forms of media as well. Such exposure is related to early adolescents’ developing sense of gender roles, sexual relationships, and sexual behavior, including perpetration of sexual harassment. These analyses suggest that sexually explicit media should be considered important, but not necessarily healthy, agents in early adolescents’ sexual socialization.

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