



Assessment of attitudes toward Internet pornography in emerging adults using the Internet Pornography Questionnaire

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ABSTRACT

Research suggests that Internet pornography (IP) plays an important role in the lives of emerging adults, particularly when it comes to their attitudes and beliefs about sex. However, surprisingly little work has explicitly examined attitudes toward IP among this population. Even fewer studies have assessed the relationship between such attitudes and other aspects of emerging adults' beliefs about sex, especially those that contribute to the persistence of sexual violence. To fill this gap, we investigated the relationship between emerging adults' attitudes toward IP and rape myth acceptance using the Internet Pornography Questionnaire (IPQ), a new self-report measure designed to evaluate IP consumption patterns, attitudes toward IP, and knowledge about IP in adults. Descriptive analyses indicate emerging adults in this study endorsed diverse and sometimes contradictory patterns of attitudes toward IP. Specifically, participants reported high agreement with both negative and positive statements about IP. After controlling for gender, we found that both positive and neutral attitudes about IP (and not frequency of pornography masturbation) predicted rape myth acceptance, such that more positive or more neutral attitudes were associated with higher rape myth acceptance. Moreover, participants who demonstrated more accurate knowledge about IP endorsed rape myths at significantly lower levels. Study limitation and directions for future research and sexual violence prevention are discussed.

Over the past 30 years, the way people consume pornography has changed dramatically. Previously limited to analog forms of media, pornography is now predominantly distributed and consumed online with staggering ubiquity. Popular Internet pornography (IP) website Pornhub alone hosts 11 petabytes, or 7000 years' worth, of pornographic material (Spitznagel, 2019)—representing an important site of human-computer engagement. Pornhub's usage reports also suggest that IP consumption has been on the rise in more recent years. According to the website's data, annual visits to its site have nearly tripled from 2013, resulting in a total of 42 billion visits in 2019 alone (Pornhub "2019 Year in Review", 2019), and IP consumption has significantly increased during the COVID-19 pandemic (Zattoni et al., 2020). While a number of factors may be at play in the increasing demand for pornography and its widespread prevalence, technological advances such as the increased availability of personal Internet-connected devices and widespread Internet access have generated a "triple A engine" of accessibility,

affordability, and anonymity that fuel pornography consumption (Cooper, 1998 as cited in Cooper, Delmonico, & Burg, 2000, p. 8). Recently, increased stress, lock downs, and social distancing mandates associated with the COVID-19 pandemic have further contributed to pornography use (Sallie, Ritou, Bowden-Jones, & Voon, 2021). This changing context for IP consumption has important implications for emerging adults who are engaging for the first time in romantic relationships, exploring their sexuality, and developing their identities in a world increasingly mediated by online technologies.

1. Internet pornography use in emerging adults

While exact prevalence rates for IP use amongst youth today are hard to estimate, preliminary work suggests that exposure to IP before the age of 18 is now normative (Chen, Leung, Chen, & Yang, 2013; Harsey, Noll, Miller, & Shallcross, 2021; Sabina, Wolak, & Finkelhor, 2008; Ševčíková

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& Daneback, 2014; Weber, Quiring, & Daschmann, 2012). Although estimates vary, research suggests around 90% of adolescent boys and over half of adolescent girls (Sabina et al., 2008; Svedin, Åkerman, & Priebe, 2011) have viewed pornography online. In general, boys report much higher rates of IP exposure (Peter & Valkenburg, 2016) and are more likely to be exposed at an earlier age, to see a higher number of images, to see more extreme images (e.g., rape, child pornography), and to view pornography more often (Flood, 2007; Sabina et al., 2008). Although many children and adolescents first come across IP unintentionally (Harsey et al., 2021; Peter & Valkenburg, 2016; Wolak, Mitchell, & Finkelhor, 2007), by the time individuals reach adulthood, intentional IP use is common. Pornography consumption is common and increasing among emerging adults age 18–25 (Buzzell, 2005; Price, Patterson, Regnerus, & Walley, 2016). For example, a survey of 813 college students from six US college campuses reported that 86% of the men had viewed pornography in the last year (Carroll et al., 2008). Of these male participants, 48.4% were viewing pornography weekly and 19.3% were viewing pornography almost every day. Rates for women were lower. Only 31% of the women in Carroll and colleagues' (2008) study said they had viewed pornography in the last year and 3.2% reported viewing pornography weekly.

Although the long-term implications of IP use for emerging adults remain largely unknown, a small but quickly growing body of research suggests that mainstream IP consumption is related to other important aspects of emerging adults' sexual behavior, attitudes, relationship quality, and general wellbeing (Owens, Behun, Manning, & Reid, 2012; Peter & Valkenburg, 2016; Stewart & Szymanski, 2012). For example, research has shown that pornography consumption is associated with attempts to reenact pornographic acts with sexual partners (Rothman, Kaczmarksy, Burke, Jansen, & Baughman, 2015; Sun, Bridges, Johnson, & Ezzell, 2016; Svedin et al., 2011), suggesting that IP serves as a source of sexual information for many youths who view it. Pornography consumption amongst emerging adults is also associated with risky sexual attitudes and behaviors, negative mental health outcomes, substance use patterns, and non-marital cohabitation values (Braithwaite, Coulson, Keddington, & Fincham, 2015; Carroll et al., 2008; Koletić, 2017; Owens et al., 2012; Peter & Valkenburg, 2016; Willoughby, Carroll, Nelson, & Padilla-Walker, 2014). These associations tend to be more pronounced among young men than young women (Brown & L'Engle, 2009), suggesting that gender is an important moderator for IP outcomes across development.

Although causal inferences about the directionality of influence between such variables cannot be made from correlational research, taken together, these findings suggest that experiences with IP are linked to other important aspects of emerging adult lives and, hence, warrant further study.

2. Gendered violence in mainstream Internet pornography

Although IP is far from homogeneous, depictions of sexual coercion and violence against women and young girls are both common in mainstream (i.e., mass marketed, heterosexual) IP, as are decontextualized sexual interactions, a disproportionate focus on the female body as object, and sex acts that focus on the degradation and humiliation of vulnerable individuals (e.g., unsuspecting "teens," mothers, and racial minorities; Gorman, Monk-Turner, & Fish, 2010; Klaassen & Peter, 2014; Shor & Golriz, 2019; Vannier, Currie, & O'Sullivan, 2014). Such gendered and racialized codes of sexual availability, submission, and bodily fragmentation (see Kuhn, 1985) in IP today may reflect, express, re (produce), and extend dominant ideologies of inequality. Unsurprisingly, recent work suggests that consumption of 'male-centric' verses 'female-centric' pornography appears to have differential impacts on male and female consumers (French & Hamilton, 2018)—highlighting the need for nuanced research that unpacks the impacts of pornography on diverse youth. Building on the anti-pornography advocacy of Andrea Dworkin (1981; Dworkin, 1988; Dworkin, 1997) and others, critics

argue that the production and consumption of sexual subordination in mass-marketed IP, as it exists today, still renders contemporary pornography a significant site of oppression for women (Dines, Jensen, & Russo, 1998), despite arguable progress that may have been made in less financially lucrative domains of the industry (e.g., those producing 'female-centric' pornography).

Given the high prevalence of gendered and racial violence in society on the one hand, and representations of gendered and racial violence in mass-marketed pornography on the other, pornography is a logical target of investigation for research relating to rape-supportive attitudes and behaviors. Working within the framework of theories such as accumulation theory (Defleur & Dennis, 1998), which predicts that consistent messages presented across various forms of media exert a powerful and lasting effect on audiences, much research has been devoted to exploring the relationship between pornography use and the perpetration of sexual aggression and rape (e.g., Allen, D'Alessio, & Brezgel, 1995). Despite often-cited findings to the contrary (e.g., Fisher & Grenier, 1994), Malamuth, Addison, and Koss (2000), amongst others, argue that there are reliable associations between frequent pornography use and sexually aggressive behaviors, especially for violent pornography.

Supporting this, a meta-analysis conducted by Hald, Malamuth, and Yuen (2010), documented an overall significant positive association between pornography use and attitudes supporting violence against women in non-experimental studies. Additional research offers further support for this finding, identifying links between pornography use and hostile sexism, less egalitarian attitudes toward women, rape myth acceptance, and reduced bystander willingness to intervene (Foubert & Bridges, 2017; Foubert, Brosi, & Bannon, 2011; Hald, Malamuth, & Lange, 2013). These attitudes, particularly rape myth acceptance, contribute to a culture that facilitates the perpetration of sexual violence (Suarez & Gadalla, 2010).

3. Attitudes toward pornography use amongst emerging adults

Attitudes toward IP amongst young adults, at least in several recent studies, appear to be largely accepting. In the survey of college students conducted by Carroll et al. (2008), 67% of men and 49% of women agreed that viewing pornographic material was an acceptable way to express one's sexuality. Similarly, a survey of over 1300 Swedish youth found that 77.4% of young men and 28.4% of young women reported feeling at least somewhat positively towards pornography (Johansson & Hammarén, 2007). It is worth noting that, while the rates of IP acceptance for men tend to be lower than men's self-reported IP use, the reverse is true for women. In other words, more women accept IP than consume it, but more men consume IP than accept it. Interestingly, although pornography consumption has increased over the past 40 years, repeated cross-sectional data from the General Social Survey (1973–2012) indicate that young people's beliefs about whether pornography should be illegal have remained relatively constant, and may have actually increased (Price et al., 2016). This suggests that there may be a discrepancy between pornography consumption and changing attitudes. Such discrepancies between use and attitudes raise important empirical questions about the psychological correlates of pornography's cultural acceptance and the processes by which pornography may be impacting young adults today.

Research has identified important predictors of individuals' attitudes towards pornography. Across numerous studies, men have generally reported more acceptance of pornography (e.g., Carroll et al., 2008; Evans-DeCicco & Cowan, 2001; Häggström-Nordin, Tydén, Hanson, Larsson, 2009; Johansson & Hammarén, 2007; Maas, Vasilenko, & Willoughby, 2018; Mattebo, Tydén, Häggström-Nordin, Nilsson, & Larsson, 2014; Negy, Plaza, Reig-Ferrer, & Fernandez-Pascual, 2018). Regardless of gender, however, people who use pornography more frequently also tend to endorse more accepting and positive views of pornographic content (Ortiz, White, & Rasmussen, 2016; Rasmussen,

Grubbs, Pargament, & Exline, 2018; Willoughby, Carroll, Busby, & Brown, 2016; Willoughby et al., 2014). Not surprisingly, research suggests that individuals who abstain from consuming pornography are much less accepting of this sexually explicit media (Brown, Durtschi, Carroll, & Willoughby, 2017).

Other research has reported attitudinal correlates of pornography acceptance. For example, a survey of over 200 Indian men found that those who expressed more negative attitudes toward pornography also indicated more positive and egalitarian views of women (Chettiar & Syed, 2016). Another study investigating pornography attitudes among a sample of 313 undergraduate students living in the US concluded that participants who perceived others to be more accepting of pornography were more likely to endorse sexual double standards (Ortiz, White, & Rassmussen, 2016). However, the research examining attitudes about pornography and other attitudes relating to gender or sexual violence is extremely limited. A number of studies have reported links between pornography use and, for example, rape myth acceptance (Hald et al., 2010), traditional gender role endorsement (Brown & L'Engle, 2009; Koletić, 2017; Wright & Bae, 2015), and notions of women as sex objects (Vandenbosch & van Oosten, 2017); however, the relationship between variables such as these and attitudes about pornography remains largely unknown.

4. Study aims & hypotheses

Taken together, theoretical and empirical work indicates that IP plays an important role in the lives of emerging adults, particularly when it comes to their attitudes and beliefs about sex. However, surprisingly little work has explicitly examined attitudes toward IP in this population or the relationship between such attitudes and other aspects of emerging adults' beliefs about sex, such as those that may contribute to sexual violence. The overall purpose of this study was threefold.

First, we aimed to examine emerging adults' IP use and attitudes toward IP using the Internet Pornography Questionnaire (IPQ). In line with previous research, we predicted that men would report higher IP use and that attitudes toward IP would be mixed but generally accepting, with men endorsing more positive attitudes than women. Moreover, reflecting findings from studies reviewed above, we predicted that IP use would be positively associated with more positive attitudes toward IP.

Second, we planned to assess the relationship between IP use, attitudes about IP, and rape myth acceptance. Given previous work documenting associations between pornography use and rape myth acceptance, we also predicted that such an association would be found in this sample and positive attitudes toward IP would also be linked to rape myth acceptance. Since past research has identified associations between positive views of pornography and acceptance of anti-woman attitudes, we hypothesized that participants with positive attitudes toward IP would also report higher rape myth acceptance.

Third, we explored the extent to which participants demonstrated accurate knowledge of IP. Studies investigating this topic are scarce; some past research has measured youths' awareness of laws pertaining to pornography in the context of a pornography literacy program (Rothman et al., 2018), but it is not clear whether people's perceptions of pornography are in line with common research findings regarding IP content, use, and characteristics. Because of this, we sought to expand the research on individuals' knowledge about IP and investigate its associations with the other major variables in the study. In particular, since knowledge of pornography may index a level of critical engagement with pornography, we expected that more accurate knowledge of pornography would be associated with less positive views of pornography and lower rape myth acceptance.

5. Method

5.1. Participants

A sample of 230 young adults ages 18–25 ($M = 19.74$, $SD = 0.16$; 67% female) was recruited online from a large public university in the Northwestern United States through the Department of Psychology's human subjects pool. Students participated to partially fulfill a course requirement, elected to participate in the study based on schedule availability, and had no knowledge of the study topic prior to enrollment. In this sample, 62.6% of students identified as White/Caucasian, 20.4% as Asian or Pacific Islander, 4.8% as Black/African American, 3.0% as Latino/Latina/Chicano/Chicana/Hispanic, 0.4% as Native American/Native Alaskan, and 6.1% as multi-racial. With respect to sexual orientation, 93% identified as heterosexual, 3.1% identified as gay or lesbian, 2.2% identified as bisexual, and 1.7% identified as other/not listed. Although the majority of students were not currently in a relationship (60%), most stated that they been in a relationship before (83.9%), and the majority had engaged in oral, vaginal, and/or anal sex (73.9%). When asked, "to what extent do you consider yourself to be religious?" 43% of participants responded *not at all/very slightly*, 22.2% *a little*, 19.6% *moderately*, and 3.5% *very much*. In accordance with the Declaration of Helsinki (1975/2013), all procedures for this study were approved by the university Office for the Protection of Human Subjects prior to recruitment.

5.2. Procedure

Participants were asked to complete a series of self-report questionnaires selected to test our hypotheses. These measures were administered via the Qualtrics website and took approximately 1 h to complete. Given the sensitive nature of the topic, two honesty check questions were included to assess participants' honesty in responding to questions about pornography. The means and standard deviations for each study variable by gender are shown in Table 1. The data presented in the present study were obtained a part of a larger exploratory study on Internet pornography use in emerging adults and not all measures collected are reported here.

6. Materials

Demographics. Participants' age, gender, sexual orientation, ethnicity, relationship history, sexual experience, and religiosity were evaluated using a questionnaire created by the researchers.

Internet pornography. Participants' experiences with Internet

Table 1
Means, standard deviations, and gender differences of major study variables.

	Gender				Total	
	Male		Female		Mean	SD
	Mean	SD	Mean	SD		
FPM	3.58	1.70	2.09***	1.08	2.92	1.63
IPQa-Neg	3.99	.87	4.23*	.79	4.15	.82
IPQa-Pos	3.99	.82	3.71*	.73	3.80	.77
IPQa-Neu	14.59	10.39	13.60	8.15	13.92	8.92
IPQ - PK	5.03	.62	4.93	.47	4.96	.52
IRMA	2.54	.60	2.07***	.56	2.23	.61

Note. Asterisks on female participants' means indicate that the difference between men and women's means are statistically significant, * $p < .05$, *** $p < .001$. FPM = Frequency of Pornography Masturbation (among students who self-identified as intentionally viewing Internet pornography at least once in the past six months; $n = 131$); IPQa-Neg = Internet Pornography Questionnaire – Negative Attitudes Subscale; IPQa-Pos = Internet Pornography Questionnaire – Positive Attitudes Subscale; IPQa-Neu = Internet Pornography Questionnaire – Neutral Attitudes Count; IPQ - PK = Internet Pornography Questionnaire – Pornography Knowledge; IRMA = Updated Illinois Rape Myth Acceptance Scale.

pornography (e.g., age of first exposure, use patterns, preferences), knowledge about Internet pornography, and current attitudes toward Internet pornography were assessed using a new questionnaire created by the researchers, the Internet Pornography Questionnaire (IPQ; see Appendix A). At the beginning of the questionnaire, Internet pornography is defined as “any material intended to produce sexual arousal that is available on the Internet.” This measure includes several experience items, 12 knowledge items, 40 attitude questions, and two honesty check items. Response anchors for the experience and honesty items vary. Most relevant to the current study, frequency of masturbation to pornography during the past month (item 12) was measured with the following anchors: 1 = *never*, 2 = *1 or 2 times*, 3 = *1 time/week*, 4 = *2–3 times/week*, 5 = *4–6 times/week*, 6 = *1 time/day*, 7 = *2–3 times/day*, 8 = *3 or more times/day*. This item was used to represent pornography viewing frequency. For each item in the knowledge and attitude sections, respondents are asked to what extent they agree with different statements about Internet pornography using a 7-point Likert scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*). Items on the attitudes section of the questionnaire were averaged to generate a subscale for negative attitudes (20 questions, e.g., “Internet pornography is dangerous,” “People who use Internet pornography to masturbate are more likely to objectify their partners,” and “Internet pornography creates false expectations about sex”) and a subscale for positive attitudes (20 questions, e.g., “Internet pornography makes life less boring,” “Masturbating to Internet pornography is part of having a healthy sex life,” and “Internet pornography is educational”), both of which had excellent internal reliability ($\alpha = 0.91$ for each subscale) in this sample. To assess neutrality toward Internet pornography, an additional neutrality count as calculated by summing the number of attitude items to which participants responded 4 (*neither agree nor disagree*).

The 12 knowledge items were averaged to create a single continuous measure such that higher scores indicate more knowledge of Internet pornography. Responses to these items are made using the same response scale included with the attitudinal items (i.e., 7-point Likert scale ranging from *strongly disagree* = 1 to *strongly agree* = 7). Half of the items on this scale were worded to represent inaccurate statements (for example, “Most people who use Internet pornography to masturbate are only using ‘soft core’ porn, e.g., materials akin to Playboy/Playgirl, genitals not visible”), while the other half of the scale’s items represent statements supported by research on pornography (e.g., “More men use Internet pornography than women”). Internal reliability for this scale was relatively low ($\alpha = .57$).

To assess participants’ honesty in responding to the survey, at the end of the questionnaire participants were asked how honest they were in answering questions about Internet pornography and how honest they thought other people would be in answering these questions. The majority of participants (72.2%) reported that they were “completely honest” while responding to questions about pornography use, while an additional 19.6% of respondents indicated they were “mostly honest.” More women (80.5%) than men (55.3%) indicated that they responded with complete honesty. Only two participants reported that they were “not honest at all” in responding to questions about their own pornography use, one of whom did not answer any of the pornography use items; the other participant’s pornography use reporting did not differ remarkably from other participants’ porn use data of the same gender (male). This participant’s data on pornography use were retained for analyses for two reasons: (1) His responses were not likely going to dramatically affect results, and (2) because of shame and stigma surrounding pornography, it is not likely that participants will overstate their pornography use; in other words, a lack of honest responding may reflect underreporting rather than overreporting. Most participants also reported that they believed other individuals responding to the survey’s pornography questions would be “mostly honest” (42.2%) or “somewhat honest” (37.8%). Only 6.1% of participants believed that other respondents would be “not honest at all.”

Rape myth acceptance. The 22-item Updated Illinois Rape Myth

Acceptance Scale (IRMA; McMahon & Farmer, 2011; Payne, Lonsway, & Fitzgerald, 1998) was used to assess participants’ acceptance of rape myths across four subscales that reflect some of the most commonly endorsed rape myths: “she asked for it,” “he didn’t mean to,” “it wasn’t rape,” and “she lied.” For each item, respondents are asked to what extent they agree with a statement about rape using a 5-point Likert scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). Scores were averaged to produce a variable in which higher scores indicate greater acceptance of rape myths. Scores on this measure ranged from 1 to 4.05 ($M = 2.23$, $SD = 0.61$) and its internal reliability was excellent ($\alpha = .92$).

6.1. Data analysis plan

Items related to participants’ pornography use – such as exposure to Internet pornography, frequency of pornography masturbation, and genres of pornography consumed – were assessed for frequency rates in the sample. After obtaining general descriptive information, gender differences were tested through independent-samples *t*-tests to evaluate our prediction that men would report greater pornography use and more positive attitudes about pornography. Bivariate correlations between participants’ pornography masturbation frequency and rape myth acceptance were conducted to test our hypothesis that a positive association exists between the two variables. Linear regressions were then done to further examine the relationship between attitudes about IP and rape myth acceptance. Specifically, we planned to evaluate whether attitudes about IP predicted rape myth acceptance while controlling for IP use and participant gender. Finally, participants’ scores on the knowledge scale of the IPQ were correlated with rape myth acceptance to test our hypothesis that more knowledge about IP would be associated with less rape myth acceptance. A linear regression predicting rape myth acceptance from IP knowledge was also planned to control for participant gender and IP use.

7. Results

7.1. Internet pornography use

The majority of young adults in this sample indicated they had viewed IP (82.2%), and of these approximately half (58.7%) had intentionally viewed IP on at least one occasion. The age of first unintentional exposure to Internet pornography was significantly younger for men (Range = 5–19, $M = 11.35$, $SD = 2.97$) than for women (Range = 5–21, $M = 14.09$, $SD = 3.15$), $t(169) = -5.54$, $p < .001$. Likewise, the age of first intentional exposure to Internet pornography was also significantly younger for men (Range = 6–18, $M = 13.52$, $SD = 2.38$) than for women (Range = 12–23, $M = 16.34$, $SD = 2.28$), $t(128) = -6.91$, $p < .001$. As expected, among the subsample of participants who said they had intentionally viewed Internet pornography on at least one occasion, significantly more men (85.9%) than women (53.5%) reported using pornography to masturbate at least once during the past six months, Pearson’s $\chi^2(135) = 19.89$, $p < .001$. For those participants who had used pornography to masturbate at least once in the past six months, 25.4% report spending an average of 5 min or fewer viewing pornography per session, 42.1% spend five to 15 min, and 20.6% spend 15–30 min. At home alone (92.2%) and with a sexual partner (18.6%) were the two most frequently reported contexts for participants’ pornography viewing. Among the subsample of IP users, participants reported using IP to masturbate 1 or 2 times a month (31.3%), 1 time a week (9.2%), 2–3 times a week (12.2%), 4–6 times a week (7.6%), once a day (4.6%), and 2–3 times a day (1.5%). One participant reported masturbating to IP more than 3 times a day (0.8%), while nearly a third of participants reported they had not masturbated to IP in the past month (32.8%). Fig. 1 displays these results separated by participant gender. An examination of pornography genre reported by the IP users in our sample revealed that 20.4% reported using material that depicted rough or violent sex, 5.5% material that depicted forced sex, and 2.2% material that

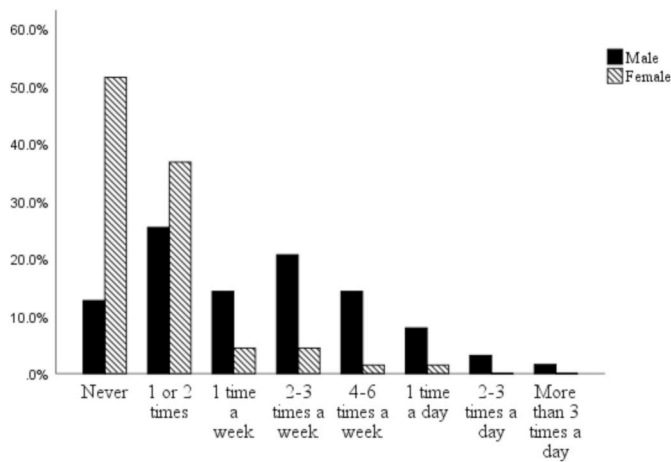


Fig. 1. Bar graph representing proportion of male and female participants' frequency of masturbation to IP in the past month (among participants who have intentionally viewed IP).

depicted rape. Non-parametric tests indicated that these use patterns for pornography containing rough or violent sex did not differ by gender, Pearson's $\chi^2(1) = 0.48, p < .49$. Tests for differences in participant gender were not computed for use of pornography depicting forced sex or rape given the small n for these categories.

7.2. Attitudes toward Internet pornography

As predicted, emerging adults in this study endorsed both positive and negative attitudes toward Internet pornography, with a slightly higher overall mean score for negative attitudes ($M = 4.12, SD = 0.82$) than for positive attitudes ($M = 3.80, SD = 0.77$). Table 2 contains the complete list of the IPQ's attitudinal items and their corresponding endorsement rates. Significant gender difference in these attitudes were observed, such that positive attitude scores were higher for men ($M = 3.99, SD = 0.82$) than for women ($M = 3.71, SD = 0.73$), $t(223) = 2.58, p = .011$ and, conversely, negative attitude scores were higher for women ($M = 4.22, SD = 0.79$) than for men ($M = 3.99, SD = 0.87$), $t(223) = -2.07, p = .04$. Attitudes toward Internet pornography predicted frequency of past month use in the expected directions: positive attitudes were positively correlated with use, Pearson's $r(127) = .29, p < .001$, and negative attitudes were negatively correlated with use, Pearson's $r(126) = -.20, p < .023$. See Table 3 (results across all participants) and Table 4 (results separated by participant gender) for intercorrelations between all major study variables. When positive and negative attitudes were used in a linear regression to predict Internet pornography masturbation frequency, positive attitudes ($\beta = .24, p = .021$) but not negative attitudes ($\beta = -.06, p = .58$) significantly predicted pornography masturbation, $F(2, 120) = 5.09, p = .008$. These findings remained unchanged after controlling for participant gender, $F(3, 119) = 19.73, p < .001$. Strikingly, out of the 40 IPQ items administered to assess individuals' attitudes toward Internet pornography, emerging adults in this sample frequently endorsed the neutral anchor (*neither agree nor disagree*) (Range = 0–40, $M_{items} = 13.92, SD = 8.92$). Although men endorsed a slightly higher number of neutral anchors ($M_{items} = 14.59, SD = 10.39$) than women ($M_{items} = 13.60, SD = 8.15$), this difference did not reach statistical significance, $t(204) = 0.74, p = .458$.

7.3. Knowledge about Internet pornography

Most participants perceived themselves to be somewhat knowledgeable about IP (53%), with smaller portions reporting they were not at all knowledgeable (32.6%), very knowledgeable (10.2%), and

extremely knowledgeable (2.2%). Only 14.3% of participants reported that people they know never talk about IP. Table 5 presents the endorsement rate for all items on the IPQ knowledge scale. Scores from the IP knowledge subscale revealed that men ($M = 5.03, SD = 0.62$) and women ($M = 4.93, SD = 0.47$) reported approximately equivalent levels of knowledge about online pornographic material, $t(223) = 1.24, p = .22$. Knowledge about pornography, however, was not related to frequency of pornography masturbation.

7.4. Rape myth acceptance

On average, participants expressed disagreement with rape myth acceptance ($M = 2.23, SD = 0.61$). Men ($M = 2.54, SD = 0.60$), however, did express significantly greater rape myth acceptance than women ($M = 2.07, SD = 0.56$), $t(222) = 5.73, p < .001$. Overall, all participants expressed agreement through the endorsement of either the *agree* or *strongly agree* anchors with one or more of the statements on the rape myth acceptance scale. Participants agreed with an average of 5.19 ($SD = 3.0$) items on the 22-item scale.

Internet pornography use and rape myth acceptance. Although emerging adults' categorical (yes/no) use of Internet pornography during the past six months was only marginally related to rape myth acceptance, $t(125) = 1.87, p = .065$, the frequency of masturbation to pornography during the past month was positively associated with rape myth acceptance, Pearson's $r(123) = .29, p = .001$. Individually, however, the correlations for men ($r(71) = .26, p = .15$) and women's ($r(140) = .054, p = .68$) pornography masturbation frequency and rape myth acceptance were not significant. To further explore the relationship between gender, pornography use, and rape myth acceptance, a linear regression model predicting participants' rape myth acceptance from participant gender and pornography masturbation frequency was conducted. The analysis revealed participant gender to be a significant predictor ($\beta = -.33, p = .001$) but found that pornography masturbation frequency was not a significant predictor of rape myth acceptance ($\beta = .12, p = .21$), $F(2, 120) = 11.53, p < .001$. Therefore, in the present study, it appears that the relationship between pornography use frequency and rape myth acceptance is largely driven by male participants. Results for this linear regression and the following regressions predicting rape myth acceptance from study variables are shown in Table 6.

Attitudes toward Internet pornography and rape myth acceptance. At the sample level, positive attitudes toward Internet pornography were positively associated with rape myth acceptance, Pearson's $r(204) = .18, p = .011$, such that more positive attitudes predicted greater rape myth acceptance. After controlling for gender using a linear regression analysis, the relationship between positive attitudes toward pornography and rape myth acceptance resulted in marginal significance ($\beta = .12, p = .065$), $F(2, 201) = 15.13, p < .001$. An even stronger association was observed between neutral attitudes and rape myth acceptance. After controlling for gender and pornography masturbation frequency, the number of neutral anchors endorsed significantly predicted participants' rape myth acceptance ($\beta = .19, p = .03$), $F(3, 114) = 7.99, p < .001$. This effect appears to be driven by participants' endorsement of neutral anchors for negative statements about pornography: after controlling for participant gender (pornography masturbation was not included as a predictor in this analysis as it was insignificant in previous linear regression), a linear regression model identified endorsement of neutral anchors of negative statements ($\beta = .27, p = .013$), but not endorsement of neutral anchors for positive statements ($\beta = -.09, p = .40$), as a marginally significant predictor of rape myth acceptance, $F(3, 191) = 11.02, p < .001$.

Knowledge about Internet pornography and rape myth acceptance. A Pearson's correlation indicated a significant and negative relationship between participants' rape myth acceptance and knowledge about pornography, Pearson's $r(211) = -.29, p < .001$. In other words, the data indicate that participants who reported more pornography knowledge also had lower rape myth acceptance. Knowledge

Table 2
Endorsement rates for attitude items in the Internet Pornography Questionnaire (IPQ).

Negative Attitude Items, Sorted by Highest Total Agreement	Agree (%)			Disagree (%)			Neither Agree nor Disagree (%)		
	Men	Women	Total	Men	Women	Total	Men	Women	Total
Internet pornography creates false expectations about sex.	71.2	81.9	78.4	9.6	4	5.9	19.2	14.1	15.8
Internet pornography is degrading to women.	54.1	73.3	67	28.4	12	17.4	17.6	14.7	15.6
Internet pornography is addictive.	64.9	58.7	60.7	17.6	12	13.8	17.6	29.3	25.4
Internet pornography should be more closely regulated.	31.9	61.3	51.8	31.9	11.3	18	36.1	27.3	30.2
People who use Internet pornography to masturbate are more likely to objectify their sexual partners.	38.4	45.6	43.2	27.4	25.5	26.1	34.2	28.9	30.6
Internet pornography places a wedge between couples.	34.7	45.3	41.9	25	21.3	22.5	40.3	33.3	35.6
The world would probably be a safer place for women if Internet pornography did not exist.	33.8	45	41.3	33.8	21.2	25.3	32.4	33.8	33.3
Internet pornography changes how people see members of the opposite sex for the worse.	37	42.6	40.7	25	22.3	23.5	37	35.1	35.7
Most actors/actresses in Internet pornography probably have a lot of problems.	42.5	37.7	39.3	24.7	30.5	28.6	32.9	31.8	32.1
People who use Internet pornography to masturbate are less likely to have satisfying relationships with real partners than people who don't.	29.7	39.6	36.3	32.4	32.9	32.7	37.8	27.5	30.9
Internet pornography is bad for families.	38.4	54.3	33.9	17.8	15.9	16.5	43.8	29.8	34.4
Internet pornography is dangerous.	27.8	36.9	33.9	43.1	30.2	34.4	29.2	32.9	31.7
Internet pornography is bad for society.	20.8	38	32.4	47.2	29.3	35.1	30.3	32.7	32.4
People who use Internet pornography to masturbate are more likely to be aggressive with their sexual partners.	24.3	32	29.5	43.2	28.7	33.5	32.4	39.3	37.1
Masturbating to Internet pornography is problematic.	20.8	29.3	26.6	40.3	37.3	38.3	38.9	33.3	35.1
Internet pornography has a negative impact on how people view racial minorities.	18.9	29.8	26.2	39.2	25.2	29.8	41.9	45	44
Internet pornography has a negative impact on people's sexuality.	19.2	26	23.8	41.1	34	36.3	39.7	40	39.9
People who use Internet pornography are more likely to commit sex crimes than people who don't.	21.6	24	23.2	43.2	32.7	36.2	35.1	43.3	40.6
People who use Internet pornography to masturbate have a more difficult time being close to others.	17.8	18.9	18.5	43.8	37	39.6	38.4	43.6	41.9
Most actors/actresses in Internet pornography were probably sexually abused in childhood.	12.3	12.8	12.6	37	48.3	44.6	50.7	38.9	42.8
Positive Attitude Items, Sorted by Highest Total Agreement	Agree (%)			Disagree (%)			Neither Agree nor Disagree (%)		
	Men	Women	Total	Men	Women	Total	Men	Women	Total
Internet pornography releases sexual tension.	71.6	69.3	70.1	9.5	4.7	6.3	18.9	26	23.7
Masturbating to Internet pornography is an acceptable way to express one's sexuality.	54.8	55.7	55.4	19.2	12.1	14.4	26	32.2	30.2
Internet pornography is stimulating and exciting.	68.5	47.3	54.3	8.2	15.3	13	23.3	37.3	32.7
Internet pornography helps people get in touch with their true desires.	45.2	44.7	44.8	26	25.3	25.6	28.8	30	29.6
Internet pornography is educational.	36.5	38.9	38.1	23.7	36.9	32.7	39.2	24.2	29.1
Internet pornography increases sexual satisfaction.	37	30	32.3	27.4	30	29.1	35.6	40	38.6
People who masturbate to Internet pornography are more likely to be secure with their sexuality.	31.5	31.5	31.5	21.9	27.5	25.7	46.6	40.9	42.8
Internet pornography is good for the pornography actors/actresses.	36.1	25.5	29	25	40.3	35.3	38.9	34.2	35.7
Internet pornography improves people's sex lives.	31.5	27.3	28.7	32.9	33.3	33.2	35.6	39.3	38.1
Internet pornography makes people more confident in their sex lives.	26	29.3	28.3	41.1	30.7	34.1	32.9	40	37.7
Internet pornography makes life less boring.	37.8	22.8	27.8	35.1	38.3	37.2	27	38.9	35
Masturbating to Internet pornography is part of having a healthy sex life.	37	22	26.9	30.1	36.7	34.5	32.9	41.3	38.6
Internet pornography is harmless.	27	21.3	23.2	37.8	49.3	45.5	35.1	29.3	31.3
Internet pornography improves people's quality of life.	21.9	14	16.6	34.2	45.3	41.7	42.1	40.7	41.7
People who masturbate to Internet pornography are more likely to be happy than people who do not.	13.7	15.4	14.9	31.5	40.3	37.4	54.8	44.3	47.7
The world would be a worse place without Internet pornography.	25.7	8	13.8	37.8	54.7	49.1	36.5	37.3	37.1
Internet pornography has a positive effect on self-esteem.	17.6	11.4	13.5	37.8	54.4	48.9	44.6	34.2	37.7
Internet pornography has a positive impact on relationships.	12.3	9.3	10.3	31.5	48	42.6	56.2	42.7	47.1
Internet pornography has a positive impact on how people view homosexuals.	8.2	9.4	9	24.7	34.9	31.5	67.1	55.7	59.5
Internet pornography has a positive impact on how people view women.	12.3	2.7	5.8	57.5	79.3	72.2	30.1	18	22

Note. Analyses in this table are based on the entire sample of male ($n = 76$) and female ($n = 154$) participants. "Strongly agree," "Agree," and "Slightly agree" responses were collapsed to create the "Agree" category in this table. Likewise, "Strongly disagree," "Disagree," and "Slightly disagree" responses were collapsed to create the "Disagree" category. Participants who selected the neutral response option ("Neither agree nor disagree") were placed into the category of the same wording.

about pornography remained a significant predictor ($\beta = -.31, p < .001$) of rape myth acceptance after controlling for participant gender and pornography masturbation frequency, $F(3, 118) = 13.12, p < .001$.

8. Discussion

The purpose of this study was to examine attitudes about IP and its relationship to Internet pornography (IP) use, knowledge about IP, and rape myth acceptance in emerging adults. As expected, emerging adults in this study endorsed both positive and negative attitudes about Internet pornography, and a sizable proportion expressed neutral feelings about IP. In general, male participants and those who reported higher rates of pornography use indicated more positive attitudes toward IP. After controlling for gender, we found that individuals who reported positive or neutral attitudes toward pornography reported

higher rape myth acceptance than participants who indicated more negative views of pornography. Further, for emerging adults in this sample, having more accurate knowledge of pornography was associated with lower rape myth acceptance.

Participants in the study reported having complex views of IP, endorsing relatively high rates of agreement for both items expressing negative views of IP and those representing positive ones. For example, while 70.1% of individuals agreed that IP releases sexual tension, a similar proportion, 78.4%, agreed that IP creates false expectations about sex. Similarly, over half (55.4%) of participants agreed that IP is an acceptable way of expressing one's sexuality, yet 51% expressed agreement that IP should be more closely regulated. The data here suggest that many emerging adults may acknowledge the potential benefits of pornography, such as the release of sexual tension, but also recognize its problematic aspects as well.

Table 3
Intercorrelations among the major study variables.

Variable	FPM	IPQ-Neg	IPQ-Pos	IPQ-Neu	IPQ-PK
1. FPM	–				
2. IPQ-Neg	-.202*	–			
3. IPQ-Pos	.285*	-.605**	–		
4. IPQ-Neu	-.012	-.015	.139*	–	
5. IPQ-PK	.048	.054	.098	-.520**	–
6. IRMA	.288**	-.098	.178*	.191**	-.291**

Note. FPM = Frequency of Pornography Masturbation (among students who self-identified as having any exposure to pornography; $n = 131$); IPQ-Neg = Internet Pornography Questionnaire – Negative Attitudes Subscale; IPQ-Pos = Internet Pornography Questionnaire – Positive Attitudes Subscale; IPQ-Neu = Internet Pornography Questionnaire – Neutral Attitudes Count; IPQ-PK = Internet Pornography Questionnaire – Pornography Knowledge; IRMA = Updated Illinois Rape Myth Acceptance Scale * $p < .05$. ** $p < .01$.

Table 4
Intercorrelations among the major study variables by participant gender (Men’s responses above the diagonal; Women’s responses below the diagonal).

Variable	FPM	IPQ-Neg	IPQ-Pos	IPQ-Neu	IPQ-PK	IRMA
1. FPM	–	-.075	.308*	-.016	.086	.147
2. IPQ-Neg	-.474**	–	-.517**	.038	.120	-.148
3. IPQ-Pos	.372**	-.642**	–	.098	.193	.127
4. IPQ-Neu	-.274*	-.036	.156+	–	-.580**	.215
5. IPQ-PK	-.029	.032	.012	-.482**	–	-.359**
6. IRMA	.054	.005	.132*	.159	-.328**	–

Note. FPM = Frequency of Pornography Masturbation (among students who self-identified as intentionally viewing Internet pornography at least once in the past six months; $n = 131$); IPQ-Neg = Internet Pornography Questionnaire – Negative Attitudes Subscale; IPQ-Pos = Internet Pornography Questionnaire – Positive Attitudes Subscale; IPQ-Neu = Internet Pornography Questionnaire – Neutral Attitudes Count; IPQ-PK = Internet Pornography Questionnaire – Pornography Knowledge; IRMA = Updated Illinois Rape Myth Acceptance Scale + $p = .066$. * $p < .05$. ** $p < .01$.

Of particular interest in this study were participants’ perceptions of IP and its representations of women. Given that research has concluded pornography commonly shows women in degrading and objectifying ways (Bridges, Wosnitzer, Scharrer, Sun, & Liberman, 2010; Klaassen & Peter, 2014), we wanted to determine whether emerging adults perceive this characterization of IP to be accurate. Indeed, 67% of individuals in the current study agreed that IP is degrading to women, indicating that a

Table 5
Endorsement rates for knowledge items in the Internet Pornography Questionnaire (IPQ-IPQ-PKPK).

IPQ Knowledge Items, Sorted by Highest Total Agreement	Agree (%)			Disagree (%)			Neither Agree nor Disagree (%)		
	Men	Women	Total	Men	Women	Total	Men	Women	Total
	More men use Internet pornography than women	78.4	84	82.1	6.8	5.3	5.8	14.9	10.7
Most people have viewed Internet pornography at some point in their lives	79.5	81.9	81.1	2.7	6	5	17.8	12.1	14
Internet pornography consumption has increased over the past 10 years	78.4	75.3	76.3	4.1	2	2.7	17.6	22.7	21
Most college men use Internet pornography to masturbate	65.8	74.7	71.7	6.8	2.7	4	27.4	22.7	24.2
Internet pornography is a growing industry	68.1	71.8	70.6	5.6	2.7	3.6	26.4	25.5	25.8
Internet pornography is very profitable	72.6	63.3	66.4	5.5	7.3	6.7	21.9	29.3	26.9
Internet pornography involves consenting adult actors	67.1	62.4	64	9.6	12.8	11.7	23.3	24.8	24.3
Most people who use Internet pornography to masturbate are not using “hard core” porn that involves sexual violence (e.g. depictions of rape, physical abuse, coercive/non-consensual sex)	40.3	44	42.8	18.1	15.3	16.2	41.7	40.7	41
Most Internet pornography does not involve aggression or violence*	36.5	26.2	29.6	36.5	37.6	37.2	27	36.2	33.2
The most popular kinds of Internet pornography do involve violence and/or coercion*	19.2	19.3	19.3	43.8	32	35.9	37	48.7	44.8
Most college women use Internet pornography to masturbate*	19.2	14.8	16.2	32.9	56.4	48.6	47.9	28.9	35.1
Most people who use Internet pornography to masturbate are only using “soft core” porn (e.g. materials akin to Playboy/Playgirl, genitals not visible)*	5.5	10.1	8.6	60.3	52.3	55	34.2	37.6	36.5

Note. Asterisks indicate items representing less knowledgeable viewpoints of Internet pornography. Analyses in this table are based on the entire sample of male ($n = 76$) and female ($n = 154$) participants. “Strongly agree,” “Agree,” and “Slightly agree” responses were collapsed to create the “Agree” category in this table. Likewise, “Strongly disagree,” “Disagree,” and “Slightly disagree” responses were collapsed to create the “Disagree” category. Participants who selected the neutral response option (“Neither agree nor disagree”) were placed into the category of the same wording.

clear majority of participants believe that mainstream Internet pornographic materials portray women poorly. Moreover, 41% of our sample agreed with the statement that the world would be a safer place for women if IP did not exist; this ostensibly reflects a viewpoint linking pornography use with perpetration of sexual violence against women, an association that has been substantiated by research (Wright, Tokunaga, & Kraus, 2016).

Our findings related to participant gender are in line with previous research. As with other studies, we found that men reported more frequent pornography use (Carroll et al., 2008; Peter & Valkenburg, 2016; Sabina et al., 2008) and more positive attitudes toward pornography (Maas et al., 2018; Mattebo et al., 2014; Negy et al., 2018). These findings are unsurprising given that mainstream IP is largely made for and marketed to a male audience. Although the number of younger women viewing pornography may be increasing (Price et al., 2016; Wright, Bae, & Funk, 2013), men are still the primary consumers of this content. Many forms of media, including (and especially) pornography, are saturated with messages communicating that men’s sexual objectification of women is both normative and desirable (American Psychological Association, 2007; Fredrickson & Roberts, 1997). Through exposure to such media, men are socialized to perceive women as sexual objects (Wright & Tokunaga, 2016). While women may also internalize ideas about women as sex objects (Fredrickson & Roberts, 1997), they tend to be critical of how pornography portrays and treats women (Parvez, 2006), while men exhibit more apathy and detachment (Antevska & Gavey, 2015). Research also suggests that boys and young men are more likely to reinforce an objectifying worldview of women by consuming pornographic content (Peter & Valkenburg, 2009). As such, men are socialized to perceive women as sex objects who exist for men’s pleasure, which likely contributes to the striking gender divide in pornography-related attitudes and consumption.

Across all participants in our sample, pornography use, measured in the current study as frequency of masturbation to IP, was related to elevated rape myth acceptance. This association has been identified in past research (Hald et al., 2010). However, the relationship between these two variables in our study should be interpreted cautiously; after participant gender was controlled for, the association between pornography use and rape myth acceptance was no longer statistically significant. Since men were more likely to report both higher rape myth acceptance and more frequent pornography consumption, responses from male participants were the likely driving force behind the significant association between the two variables, and future research with

Table 6
Linear regression models predicting rape myth acceptance from study variables.

Model	Predictor	Unstandardized coefficients		Standardized coefficients		R ²	F	p
		B	SE	β	p			
1	Gender	−9.29	2.78	−.325	.001	.161	11.53	.000
	FPM	1.09	.862	.123	.208			
2	Gender	−9.54	1.99	−.319	.000	.131	15.13	.000
	IPQ-Pos	.112	.060	.124	.065			
3	Gender	−7.83	2.84	−.275	.007	.177	7.98	.000
	FPM	1.16	.881	.130	.191			
	IPQ-Neu	.319	.147	.189	.042			
4	Gender	−9.28	2.01	−.309	.000	.148	11.02	.000
	IPQ-Neu of negative IP attitudes	.816	.326	.273	.013			
	IPQ-Neu of positive IP attitudes	−.268	.320	−.091	.404			
5	Gender	−9.27	2.68	−.322	.001	.255	13.12	.000
	FPM	1.15	.836	.128	.170			
	IPQ-PK	−8.87	2.29	−.312	.000			

FPM = Frequency of Pornography Masturbation; IPQ-Pos = Internet Pornography Questionnaire – Positive Attitudes Subscale; IPQ-Neu = Internet Pornography Questionnaire – Neutral Attitudes Count; IPQ-PK = Internet Pornography Questionnaire – Pornography Knowledge.

additional male participants is needed to explore these associations further.

Regardless of gender, however, we found that more frequent pornography users in our study held more positive views of pornography. Similar studies investigating attitudes about pornography have also reported this particular finding (Ortiz et al., 2016; Rasmussen et al., 2016; Willoughby et al., 2016). Although our interpretation of this association is limited by the cross-sectional nature of the data, previous studies suggest that pornography use may impact attitudes. For example, longitudinal analyses have found that pornography exposure predicts increases in traditional gender role endorsement (Brown & L'Engle, 2009; Doornwaard, Bickham, Rich, terBogt, & vanLB denEijnden, 2015; Koletić, 2017; Wright & Bae, 2015) and opposition to affirmative action for women (Wright & Funk, 2014). Importantly, these studies found that attitudes do not initially predict pornography use, indicating people do not necessarily seek out pornography due to their pre-existing attitudes – instead, it appears that individuals' attitudes are influenced by pornography over time. Although these longitudinal studies do not specifically examine attitudes related to pornography itself, it is reasonable to draw parallels between attitudes toward gender roles and women and attitudes about IP in general, which is replete with stereotypical gender dynamics (Klaassen & Peter, 2014).

As hypothesized, positive attitudes about IP were linked to rape myth acceptance. In other words, participants in our sample who expressed more positive views of IP were more likely to endorse beliefs that blame female rape victims and exculpate male perpetrators. This finding appears to be a novel contribution to the literature on pornography. Previous studies have examined attitudes about pornography in relation to egalitarian gender beliefs (Chettiar & Syed, 2016) and sexual double standards (Ortiz et al., 2016), but, to the best of our knowledge, none have investigated the link between attitudes about IP and rape myth acceptance. This association is particularly important given the serious contributions of rape myth acceptance to the sustainment of a rape-supportive culture (Suarez & Gadalla, 2010). Based on our findings, interventions aimed at reducing rape-supportive ideas should arguably include discussions or learning modules about types of IP that may perpetuate rape myths, such as that in which women are responding positively or neutrally to acts of sexual aggression and degradation, a common feature of mainstream IP (Bridges et al., 2010). By targeting beliefs about pornography, researchers may subsequently address beliefs and ideas that perpetuate a culture tolerant of sexual violence.

An unexpected but important result of this study highlights young

adults' possible ambivalence toward pornography. Participants who endorsed a higher number of neutral responses (i.e., “neither agree nor disagree”) to the IP attitudes scale reported greater rape myth acceptance. This association was particularly strong among participants who indicated greater neutrality to items describing a negative view of IP, suggesting that neutrality toward critiques or less friendly appraisals of pornography represents an especially problematic perspective. Ambivalence or neutrality has been reported in prior research as a common response to pornography (Johansson & Hammarén, 2007). Qualitative research further reveals that detachment from thinking critically about pornography is normative: after conducting interviews with 21 young men living in New Zealand, Antevska & Gavey (2015) found that most of those interviewed avoided thinking critically about the pornography they consumed or emphasized reasons why it was not necessary to engage with porn in a more critical way (e.g., if a female performer is smiling while being beaten, or if she is paid to appear in pornography, then there is no reason to think about issues relating to equality or violence). According to the researchers, detachment was the most prominent characterization of men's relationship with pornography as most men in the study reported that they did not see the content of pornography as problematic, despite recognizing that women are degraded and subjugated in pornography. As our study result suggest, this lack of critical engagement is a serious concern given its association with greater rape-supportive beliefs and one which warrants further study.

Promisingly, the current study also identified a significant and negative correlation between knowledge about IP and rape myth acceptance, indicating that individuals who endorsed beliefs about pornography supported by research (e.g., that more men than women view pornography, or that a lot of mainstream pornography contains aggression) were also more likely to reject rape myths. As mentioned previously, this finding may have important implications for sexual health education initiatives geared toward helping youth evaluate sources of information about sex and relationships. The IPQ scale measuring knowledge about pornography may be reasonably viewed as representative of individuals' critical evaluation of online pornographic content, and as such could be considered a measure of their “porn literacy.” Research suggests that having such literacy of IP may be important in mitigating some of its negative effects (Albury, 2014), and may reduce pornography-viewers' objectification of women (Vandenbosch & van Oosten, 2017). Still, it is not clear whether providing porn literacy education to youths would moderate the associations between pornography use and, for example, acts of sexual aggression and, thus,

unpacking the differential impact of knowledge and attitudes on behavior represents an important locus of future research in this area.

9. Study limitations and future directions

In the field of pornography research, methodological issues have long troubled otherwise productive discussions about and empirical studies of IP. Perhaps most significantly, there exists little agreement about what is and is not pornography, let alone what constitutes sexual aggression, violence, or degradation. Given this lack of definitional consensus, it is perhaps not surprising then that most empirical quantitative studies of pornography and its impact on individuals have not offered participants a definition of pornography (Short, Black, Smith, Wetterneck, & Wells, 2012). While the current study provided participants with a definition of pornography, future qualitative work might explore how different definitions do or do not resonate with emerging adults and whether youth feel similarly comfortable responding honestly to survey questions about IP consumptions and attitudes toward IP.

Considering many studies include only a very limited number of questions about pornography use and beliefs, the use of the IPQ to assess emerging adults' attitudes toward IP represents a significant strength. Although by no means exhaustive, this measure represents a comparatively thorough assessment of attitudes toward IP and IP literacy. As mentioned previously, alongside the rich descriptive data quantifying emerging adults' attitudes toward IP, to our knowledge this is the first study examining the relationship between attitudes toward IP and rape myth acceptance—providing an important complement to previous work examining links between pornography use and sexual aggression. Several limitations must be taken into consideration when interpreting these findings. First, the data collected for this study was obtained at one university campus with a college student population limited in demographic diversity, so the generalizability of the results to other emerging adult populations remains unknown. Although some of the findings are consistent with prior research, replication with more diverse and larger samples (particularly those which include more male and sexual minority-identified participants) is needed. Moreover, since participants were not prescreened prior to participation, the unequal gender distribution in this study reflected the unequal gender distribution of the Human Subjects Pool. As such, the observed gender differences in this data must be interpreted with caution. Additionally, more research is needed to evaluate and potentially improve the psychometric properties of the IPQ. For instance, the reliability coefficient for the IPQ knowledge questions is relatively low in the present sample. Since this area of study is in its nascence, further research is needed to further develop and refine its instruments. Second, this study included both IP consumers and emerging adults who were not actively using IP. As such, future work should examine both of these populations in further detail. In particular, the better explore how pornography consumption may be contributing to rape culture in male perpetrators of sexual violence, longitudinal studies could explore cross-lagged associations between consumption of pornography depicting violence against women and sexually violent behavior. Lastly, we did not assess the influence of context on attitudes toward IP. This is important because some evidence suggests that, while women appear to be accepting of IP in general, when it comes to pornography use within romantic relationships, their attitudes may be more complex and associated with sexual satisfaction, partner self-esteem, and perceptions of infidelity (e.g., Bergner & Bridges, 2002; Bridges, Bergner, & Hesson-McInnis, 2003; Maltz & Maltz, 2008; Schneider, 2000; Stewart & Szymanski, 2012; Zitzman & Butler, 2009). As such, future work should examine links between the context of IP consumption, attitudes toward IP and emerging adult individual and relational wellbeing.

10. Concluding remarks

Like fashion advertising, Hollywood films, and other forms of media,

Internet pornography may be viewed as a social institution that both reflects and advances ideology through intentionally and unintentionally constructed messages. As such, it represents an important site for analysis, not for the purpose of moralizing or censoring, but rather for insight and understanding. Given the growing prevalence of pornography consumption in youth today and increasing availability of IP content depicting violence against women and ethnic minorities, research that advances our understanding of the relationship emerging adults have with IP may be crucial to the development of effective interventions that aim to reduce the salience of rape culture in favor of healthier models of human sexuality that are, themselves, attuned to the realities of mediated experience that shape identity development across time.

Author credit statement

Laura K. Noll: Conceptualization, Methodology, Software, Formal analysis, Investigation, Writing – original draft, Writing – review & editing, Supervision, Project administration; **Sarah J. Harsey:** Validation, Formal analysis, Visualization, Writing – original draft, Writing – review & editing; **Jennifer J. Freyd:** Conceptualization, Writing – original draft, Supervision.

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Appendix A

Note: Data from several items on this measure were not reported in the current study's results. These items are asterisked.

Internet Pornography Questionnaire

Internet pornography is defined as any material intended to produce sexual arousal that is available on the Internet. The following questions relate to your experience with Internet pornography.

Experience

- (1) Which of the following best describes your experience with Internet pornography?
 - a. I have never viewed Internet pornography, intentionally or unintentionally.
 - b. I have only viewed Internet pornography unintentionally.
 - c. I have intentionally viewed Internet pornography on at least one occasion.
- (2) *(If yes to question 1b)* How old were you when you first unintentionally viewed saw Internet pornography? ____
- (3) **(If yes to question 1b)* What was it? ____
- (4) **(If yes to question 1b)* How did seeing it affect you? ____
- (5) *(If yes to question 1b)* In the past 6 months have you unintentionally viewed Internet pornography on at least 1 occasion? Y/N
- (6) *(If yes to question 1c)* How old were you when you first intentionally viewed Internet pornography? ____
- (7) **(If yes to question 1c)* What was it? ____
- (8) **(If yes to question 1c)* How did seeing it affect you? ____
- (9) *(If yes to question 1c)* In the past 6 months have you intentionally viewed Internet pornography on at least 1 occasion? Y/N
- (10) In the past 6 months have you used Internet pornography to masturbate? Y/N

- (11) (If yes to questions 9 or 10) During the past 6 months, which describes the context in which you have viewed Internet pornography (check all that apply):
- At home alone
 - At a private residence (my home or my partner's home) with a sexual partner
 - At a private residence/shared residence with others who are not my sexual partners (e.g. friends)
 - At work/school alone
 - At work/school with my sexual partner
 - At work/school with someone other than my sexual partner (e.g. friends/co-workers)
 - Elsewhere _____
- (12) (If yes to question 10) How often during the past month have you used Internet pornography to masturbate?
- Never
 - 1 or 2 times
 - 1 time/week
 - 2–3 times/week
 - 4–6 times/week
 - 1 time/day
 - 2–3 times/day
 - more than 3 times/day
- (13) (If yes to question 10) On average, how long do you spend viewing Internet pornography in a session?
- Less than 5 min
 - 5–15 min
 - 15–30 min
 - 30–45 min
 - 45 min- 1 h
 - 1–2 h
 - 3 hrs or more
- (14) (If yes to question 10) In the past 6 months what type of Internet pornography have you used to masturbate? (check all that apply)
- Semi-nude photos
 - Nude photos of people who are not having sex
 - Photos of people having sex
 - Videos of people having sex
 - Heterosexual sex (1 man & 1 woman)
 - Homosexual sex (2 men or 2 women)
 - Group sex (1 women, multiple men)
 - Group sex (1 man, multiple women)
 - Group sex (multiple men only)
 - Group sex (multiple women only)
 - Rough or Violent Sex
 - Forced Sex
 - Rape
 - Other _____
- (15) *(If yes to question 10) Which genre (types) of Internet pornography do you use most often (be as specific as possible)? _____
- (16) People I know talk about Internet pornography:
- Never
 - Rarely
 - Sometimes
 - Often
 - Very Often
- (17) I am:
- Not knowledgeable at all about Internet pornography
 - Somewhat knowledgeable about Internet pornography
 - Very knowledgeable about Internet pornography
 - Extremely knowledgeable about Internet pornography

Please indicate to what extent you agree with the following statements about Internet pornography using the following scale:

1 Strongly disagree

- Disagree
- Somewhat disagree
- Neither agree nor disagree
- Somewhat agree
- Agree
- Strongly agree

Knowledge

- Most Internet pornography does not involve aggression or violence.
- The most popular kinds of Internet pornography do involve violence and/or coercion.
- More men use Internet pornography than women.
- Most people who use Internet pornography to masturbate are only using “soft core” porn (e.g. materials akin to Playboy/Playgirl, genitals not visible).
- Most people who use Internet pornography to masturbate are not using “hard core” porn that involves sexual violence (e.g. depictions of rape, physical abuse, coercive/non-consensual sex).
- Internet pornography involves consenting adult actors.
- Internet pornography consumption has increased over the past 10 years.
- Most college men use Internet pornography to masturbate.
- Most college women use Internet pornography to masturbate.
- Most people have viewed Internet pornography at some point in their lives.
- Internet pornography is very profitable.
- Internet pornography is a growing industry.

Beliefs & Attitudes

- Internet pornography changes how people see members of the opposite sex for the worse.
- People who use Internet pornography to masturbate are more likely to objectify their sexual partners.
- Internet pornography improves people's quality of life.
- People who use Internet pornography to masturbate have a more difficult time being close to others.
- The world would probably be a safer place for women if Internet pornography did not exist.
- Internet pornography has a positive effect on self-esteem.
- Internet pornography is bad for society.
- Masturbating to Internet pornography is problematic.
- Internet pornography helps people get in touch with their true desires.
- People who use Internet pornography to masturbate are less likely to have satisfying sexual relationships with real partners than people who don't.
- Internet pornography creates false expectations about sex.
- Internet pornography makes life less boring.
- People who use Internet pornography to masturbate are more likely to be aggressive with their sexual partners.
- Internet pornography makes people more confident in their sex lives.
- Masturbating to Internet pornography is part of having a healthy sex life.
- Internet pornography is addictive.
- Internet pornography improves people's sex lives.
- Internet pornography is harmless.
- People who use Internet pornography are more likely to commit sex crimes than people who don't.
- Internet pornography releases sexual tension.
- Internet pornography is dangerous.
- Internet pornography is bad for families.

- (23) Most actors/actresses in Internet pornography probably have a lot of problems.
- (24) Internet pornography places a wedge in between couples.
- (25) Most actors/actresses in Internet pornography were probably sexually abused in childhood.
- (26) Internet pornography has a positive impact on relationships.
- (27) Internet pornography has a negative impact on people's sexuality.
- (28) Internet pornography increases sexual satisfaction.
- (29) Internet pornography is good for the pornography actors/actresses.
- (30) Internet pornography has a positive impact on how people view women.
- (31) People who masturbate to Internet pornography are more likely to be secure with their sexuality.
- (32) Internet pornography has a negative impact on how people view racial minorities.
- (33) Internet pornography has a positive impact on how people view homosexuals.
- (34) Masturbating to Internet pornography is an acceptable way to express ones sexuality.
- (35) Internet pornography is degrading to women.
- (36) Internet pornography *should* be more closely regulated.
- (37) The world would be a worse place without Internet pornography.
- (38) Internet pornography is stimulating and exciting.
- (39) People who masturbate to Internet pornography are more likely to be happy than people who do not.
- (40) Internet pornography is educational.

Reporting Information/Honesty Check

- (1) While answering questions about pornography I was:
 - a. Not honest at all
 - b. Somewhat honest
 - c. Mostly honest
 - d. Completely honest
 - e. Not sure
 - f. Would rather not answer
- (2) I believe others who answer these questions about pornography will be:
 - a. Not honest at all
 - b. Somewhat honest
 - c. Mostly honest
 - d. Completely honest
 - e. Not sure
 - f. Would rather not answer

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