

Young People's Pornography Use and Sexual Health Attitudes, Development and Behavior: A Rapid Evidence Review

In recent years, there have been increased efforts to characterize pornography as a public health concern within research, policy and public discourse, citing increased access and consumption of sexually explicit material since the advent of the internet.¹⁻³ In particular, there are concerns that young people are exposed to pornography prior to first sexual experience and that sexually explicit material may shape attitudes, values and behaviors related to sex.⁴ Yet, the research is far from establishing a clear conclusion about the effects of pornography on young people's health with some public health researchers calling for caution and scrutiny in the interpretation and application of the research as it currently stands.^{5,6}

This brief summarizes key findings from the quantitative literature on adolescent pornography use, including:

- + the prevalence of adolescents' use of sexually explicit media (SEM);
- + relationships between SEM use and adolescents' sexual health outcomes; and
- + methodological issues with current research.

YOUNG PEOPLE'S PORNOGRAPHY USE

Research studies estimating rates of adolescent pornography use cite a wide range of exposure, depending on the context. According to a 2016 systematic review by Peter and Valkenburg,³ studies that measured unintentional use (e.g., exposure via mistyped web address) reported rates ranging from 19%-84%. Studies that measured intentional use (e.g., deliberate and purposeful exposure) reported rates ranging from 7%-59%. Additional studies that measured on 'any use' reported rates of 7%-71% exposure in the last year and 25%-81% lifetime exposure.

Overall, Peter and Valkenburg concluded from their review that a 'sizable minority' of young people have been exposed to SEM (i.e., any use) but an exact number cannot be derived from the literature in part due to the methodological issues described below.³

Issues in Measuring Pornography Use

Several systematic reviews on the measurement of SEM use report considerable variation between studies.^{1,7} Less than 20% of studies provided a definition of SEM or pornography in surveys.¹ Among those that did, measures of SEM were different in definition (e.g., nudity, sexual behavior), function (e.g., for sexual gratification or arousal) and duration (e.g., use in past year). As a result, respondents may interpret SEM use within different cultural contexts and differently than the researcher intended. For example, Fisher and Kohut argue that judging the 'intended use' of SEM material may be subjective (e.g., sexual arousal vs. art) and difficult to predict with accuracy.⁵ While measuring the frequency of SEM use is common (67% of studies), timeframes varied (e.g. in past year, month, week) and episodes/duration (e.g. 1-2 times, 1-2 hours).¹ In addition to presenting challenges for combining use rates across studies,¹ there is potential to underestimate use by infrequent users (e.g., women) and, thus, the relationship of use with other measures of interest.⁵

Measures of SEM use also lack reliability. Less than 5% of studies used validated measures¹ and no self-reported measures have been validated against other ways of measuring SEM use, such as computer history logs or pay-per-view purchases.⁵ Most studies develop their own measures and do not report reliability rates,¹ making it difficult to determine if respondents interpreted survey questions as they were intended. Overall, these measurement issues cause problems for interpreting research about pornography use rates and generalizing results to multiple settings and populations.

RELATIONSHIPS OF PORNOGRAPHY USE WITH YOUNG PEOPLE'S SEXUAL HEALTH OUTCOMES

To explore the hypothesis that exposure to pornography influences young people's sexual health outcomes, we conducted a rapid review of observational studies. Experimental studies are the best indicators of causal or influential relationships but are not possible in this field because pornography use is illegal for adolescents in most countries. Instead, we examined longitudinal studies which can point to a temporal association between SEM use and subsequent sexual health outcomes.

To be included in our review, studies must have:

- + reported outcomes of an adolescent population (i.e., ages 10-19);
- + measured use of SEM as an exposure variable;
- + measured sexual health as an outcome variable, such as attitudes, development, and behavior; and
- + employed a longitudinal design where SEM use was measured prior to the sexual health outcome.

We conducted a database search in PubMed using key words and conducted references checks. Studies were screened on abstract, confirmed through full text then extracted and assessed for quality using the NIH Quality Assessment Tool for Observational Cohort and Cross-Sectional Studies.⁸ Because of the variability in SEM measures and reporting, we could not conduct a quantitative synthesis (i.e., meta-analysis) and instead synthesized narratively by outcome category, study quality and direction of effect.

Limitations in Outcomes Research

A lack of evidence for causality is one of the primary limitations cited in the research of pornography use on outcomes.²⁻⁵ Because pornography use is typically illegal for adolescents, it is not possible to conduct experimental research. Therefore, we rely on observational research (primarily, cross-sectional research where all data is measured at the same time point), which can only point to potential relationships. Even in longitudinal studies where some temporal associations can be determined, observational evidence does not fully take into account social desirability bias or third variable explanations (i.e. factors which are related to SEM use and health outcomes), such as pubertal maturation.^{3,5} Without considering potential confounding factors and alternative explanations, research may over- or underestimate the relative importance of pornography on young people's sexual development.

Our interpretation of the research is also limited by our ability to generalize across studies. The overwhelming majority of studies on adolescent SEM use come from the Netherlands or other high-income country contexts and middle- and high- income youth populations, limiting generalization based on cultural and social differences between these and countries which have not been the subject of study. For example, the terms 'pornography' or 'sexually explicit media' or descriptors in their definitions, such as 'sexual behavior' or 'nudity,' may be interpreted differently across countries, communities and individuals.¹ Additionally, studies predominantly explore heteronormative behavior and focus on the distinctions between male- and female-identified adolescents without consideration for youth engaging in other sexual behaviors or youth who are transgender or nonbinary.³

Studies in our rapid review cited over 25 theories hypothesizing the relationship between SEM and sexual health outcomes. However, many studies on adolescent SEM use do not adequately account for the social and cultural contexts in which young people shape their attitudes and make decisions about sexual behavior.^{3,5} In the absence of a theory supported by evidence, several researchers have noted a dominant harm-focused narrative,^{3,5,6} resulting in an imbalance of measures that assess the potential harms over potential benefits of adolescent pornography use.³ Fisher and Kohut also argue that this narrative may lead to a failure to 'maintain appropriate skepticism' (p. 196) and make room for the possibility of a no effect relationship.⁵

FINDINGS FROM LONGITUDINAL STUDIES

Our search yielded 11 studies reported in 27 papers from 5 countries: the Netherlands, the United States, Croatia, Belgium and Taiwan. The majority of studies were assessed as low or medium quality primarily due to loss to follow-up and a failure to fully account for key confounders.

Based on existing longitudinal research, the evidence is largely unclear on whether SEM use influences future sexual health outcomes among adolescents (Table). However, there is:

- Limited evidence among young people overall and female subgroups and some evidence among male subgroups that SEM use may predict an increased risk of sexual risk behavior; and
- Limited to some evidence that SEM use may predict an increased risk of sexual aggression and/or violence perpetration among male adolescents.

Where studies reported associations between SEM and sexual health, a number also reported small effect sizes,^{9–13} indicating other factors play a substantial role in shaping young people's attitudes, development and behaviors. Despite an attempt to establish a temporal relationship (i.e., SEM use precedes sexual health outcomes), these studies cannot establish a causal relationship. In fact, SEM use and sexual health appear to have a complex relationship where:

- SEM use and sexual attitudes, development and behaviors may evolve in conjunction over time;^{10,13–16}
- Factors, such as age at first SEM use or existing attitudes about gender, may change how much SEM influences sexual health, in some cases reducing rather than increasing the risk of negative outcomes.^{11,14–25}

Analyses of mediators also suggest that the role of SEM on sexual health may be weakened or strengthened by young people's attitudes or responses to SEM, such as perceived utility or realism, or peer approval.^{9,10,13,15,26,27} Despite reporting effects by gender, studies largely reported that outcomes by gender were not significantly different from each other.^{9,11–13,15,18,20,22,26–28} Authors cited limitations in study design (including the use of convenience samples), measurement, and generalizability.

WHERE NEXT WITH RESEARCH?

Research on the role of pornography use on adolescent health is worthy of further exploration. To help the field establish a more robust body of evidence, future research should:

- + Further test theories which hypothesize the role of pornography use on adolescent outcomes;³
- + Establish validated measures of SEM use;^{1,5,7}
- + Explore longitudinal associations between SEM use and outcomes which account for theoretically-derived confounding factors, baseline outcomes and reverse effects, and explore alternative explanations;^{2–4}
- + Explore the potential benefits as well as potential harms of adolescent SEM use;^{3,5}

- + Employ sampling and recruitment methods that reduce selection bias;^{4,5}
- + Consider findings from observational research in context of qualitative research that aim to explore young people's own views on pornography; and
- + Explore research opportunities in collaboration with countries and communities that are underrepresented in pornography research on adolescents.^{3,4}

TABLE. Associations of SEM use and subsequent adolescent sexual health outcomes in longitudinal studies

Directions of association: Decreased risk Increased risk Null association

	OUTCOME CATEGORY	QUALITY OF STUDY / ANALYSES			CONCLUSION <i>based on direction and quality of evidence</i>
		High Quality	Medium Quality	Low Quality	
OVERALL Population of Adolescents	Sexual Behavior	Dutch panel study 2008 ¹¹	Dutch panel study 2013-14 ¹³ Belgium panel study 2010-2011 ²³	Taiwan Youth Project 2000-17 ^{29,30} Annenberg Sex and Media Study 2005-07 ³¹	Limited evidence that SEM use predicts an increased risk of sexual risk behavior.
	Sexual Attitudes			Dutch panel study 2008 ¹² Dutch panel study 2009-10 ¹⁴ Dutch panel sample 2006-07 ^{15,32} Belgium panel study 2010-11, 2016 ²⁸	Unclear association
	Sexual Development	Dutch panel study 2013-14 ²⁵		Dutch panel study 2006-07 ^{9,16,26}	Unclear association
	Sexual Aggression and Violence		Growing Up With Media Study 2006-08 ³³		Limited evidence that SEM use predicts an increased risk of sexual aggression and/or violence.
MALE Adolescents	Sexual Behavior	U.S. panel study 2002-04 ³⁴ PROBIOPS Study 2015-17 ¹⁹	Project STARS Study 2011-13 ²⁴	Taiwan Youth Project 2000-17 ²⁹ Project STARS 2011-2013 ³⁵	Some evidence that SEM use predicts an increased risk of sexual risk behavior among male adolescents.
	Sexual Attitudes	U.S. panel study 2002-04 ³⁴		Dutch panel study 2009-10 ¹⁴ PROBIOPS Study 2015-17 ²⁰	Unclear associations
	Sexual Development	Dutch panel study 2013-14 ²⁵	PROBIOPS Study 2015-17 ¹⁷	PROBIOPS Study 2015-17 ¹⁸ Project STARS 2011-13 ²⁷	Unclear association
	Sexual Aggression and Violence	U.S. panel study 2002-04 ³⁴	Growing Up with Media Study 2006-08 ^{22,33}	PROBIOPS Study 2015-17 ^{21,36}	Limited to some evidence that SEM use predicts an increased risk of sexual aggression and/or violence by male adolescents.
FEMALE Adolescents	Sexual Behavior	U.S. panel study 2002-04 ³⁴ PROBIOPS Study 2015-2017 ¹⁹	Project STARS 2011-13 ²⁴	Taiwan Youth Project 2000-17 ²⁹ Project STARS 2011-13 ³⁵	Limited evidence that SEM use may predict an increased risk in sexual behavior among female adolescents.
	Sexual Attitudes	U.S. panel study 2002-04 ³⁴	PROBIOPS Study 2015-17 ²⁰	Dutch panel study 2009-10 ¹⁴	Unclear association
	Sexual Development	Dutch panel study 2013-14 ²⁵		Project STARS 2011-13 ²⁷ PROBIOPS Study 2015-17 ¹⁸	Unclear association
	Sexual Aggression and Violence	U.S. panel study 2002-04 ³⁴	Growing Up with Media Study 2006-08 ^{22,33}		Unclear association

Additional information about the directions of association by study are available by request (Supplementary Table 2)

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Suggested Citation: Peterson, A.J., Silver, G.K, and Coyle, K.K. Young people's pornography use and sexual health attitudes, development and behavior: A rapid evidence review. ETR, 2021.

To honor ETR scientist Dr. Douglas B. Kirby for his lifetime contributions to the field, ETR and its partners created an invited summit – known as the Kirby Summit – to foster collective dialogue on current research, promising interventions, and the role of policy to promote the sexual and reproductive health of young people. The Kirby Summit 2021 goal is to bring together a transdisciplinary group of experts to explore how to address pornography in sex education.

For more findings from the Kirby Summit, visit etr.org/kirby-summit

