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"Adding fuel to the fire"? Does exposure to non-consenting adult or to child pornography increase risk of sexual aggression?

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ABSTRACT

This article is the first to integrate the vast research literatures on non-consenting adult and on child pornography (also a form of non-consenting pornography) by using the framework of the Confluence Model of sexual aggression. In contrast to the contradictory conclusions reached by various reviewers and commentators who have typically emphasized a particular methodology or parts of the literature, this review finds a great deal of consistency and convergence among the differing methodologies and literatures that have examined the impact of pornography on individuals. It is concluded that pornography use may add to the risk of sexual aggression only for those men already predisposed to aggress sexually due to more primary causes than pornography use.

1. Introduction

1.1. Divergent scientific views

Does scientific research suggest causal associations between pornography use and risk for sexual assault? A wide range of answers to this question exists both regarding attitudes supporting sexual assault and actual aggressive behaviors. Such wide divergence is evident both with respect to adult and to child pornography.

In discussing research on adult pornography, at one end of the spectrum, both noted scholars and advocacy groups claiming to primarily rely on scientific research conclude with much confidence that the scientific evidence shows that pornography consumption does contribute to greater sexually assaultive attitudes and behaviors (e.g., see Ward, 2016 and http://fightthenewdrug.org). For example, in discussing adult pornography, one noted scholar concluded in 2016 that "the findings provided consistent evidence that both laboratory exposure and regular, everyday exposure to this content are directly associated with a range of consequences, including … greater tolerance of sexual violence toward women" (Ward, 2016, p. 560). At the other extreme, also writing in 2016, commentators concluded, after claiming to examine the wealth of research evidence, that "statistically speaking, pornography does not lead to sexual assault" (Rymel, 2016). Even more strongly, a similar article was titled "evidence mounts: more porn less sexual assault" (Castleman, 2016). Such conclusions had also been reached by some reviewers in academic journals and books, writing emphatically for example "…. that it is time to discard the hypothesis that pornography contributes to increased sexual assault …." (Ferguson & Hartley, 2009, p. 323). Moreover, other reviewers of the scientific literature have concluded that "… the data reported and reviewed suggests that … if anything, there is an inverse causal relationship between an increase in pornography and sex crimes" (Diamond & Uchiyama, 1999, p. 34; also see Diamond, 2009). Yet somewhere in the middle of this spectrum are other academic reviewers, who also in 2016 concluded that while there is indeed scientific evidence of some association between males' pornography consumption and sexual aggression, in their view shortcomings in the literature preclude conclusions about causal connections (Peter & Valkenburg, 2016).

Similar divergent opinions have been expressed by scientists regarding research on the effects of child pornography. Some argue that the data show that both adult and child pornography have detrimental effects, including increasing various antisocial behaviors (Dines, 2010) while others contend that the data actually support the opposite conclusion, namely that increased pornography availability, particularly child pornography, actually leads to a reduction in sex crimes including child sexual abuse (Diamond, 2009). Others conclude that the data as yet are inconclusive (Fisher, Kohut, Gioacchino, & Fedoroff, 2013).

How can such a wide range of contradictory opinions exist, supposedly based on the same widely available scientific research literature? Is it just a matter of preconceived partiality or ideological differences that lead to such extreme divergence in filtering the same scientific literature? Is the literature itself so conflicting and confusing that anyone can draw whatever conclusion they desire? Are some reviewrs reluctant to acknolwedge that the scientific evidence supports the occurrence of some limited effects relevant to sexual misconduct or aggression because some politicians have made extreme assertions

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about the supposedly terrible effects of pornography and therefore scientists are concerned that any acknowledgment of more nuanced effects might be misused by such politicians?

In the present article I attempt to show that while it may appear that there are conflicting findings emerging from various studies, a comprehensive examination of the scientific literature guided by a relevant theoretical framework actually yields a rather coherent picture that justifies certain causal conclusions. Moreover, these conclusions apply not only to adult pornography but to the effects of child pornography as well. While these two areas of research (on adult and on child pornography) have in the past been dealt with as totally separate, justifying differing conclusions, I argue here that they actually can be integrated within the same framework and suggest similar conclusions. This analysis also seeks to explain why such divergence of opinions persists among various reviewers of the scientific literature.

I intend to present this comprehensive discussion of research on pornography, separating the vast research on the effects on individuals and cross-cultural comparisons, in two separate but interrelated articles. The present article integrates the experimental and correlational research scientific literature on adult and on child pornography that examines the impact on individuals. A second article will discuss the conclusions emerging from aggregate population level, cross-cultural data. Such cross-cultural data may appear to yield completely contradictory conclusions from those presented here. However, I intend to show that those data as well can be well integrated within the current framework and conclusions.

1.2. The Confluence Model as a unifying framework

The Confluence Model was initiated in 1986 and has been further developed and well supported since then (e.g., for a recent review see Malamuth & Hald, 2017). It was designed primarily to identify the characteristics or profile of men in the general population most predictive of sexual aggression. From early in its development, this model also provided a framework to consider the appeal and effects of exposure to various types of pornography (e.g., Malamuth, Addison, & Koss, 2000), primarily focusing on adult pornography generally and nonconsenting or sexually violent pornography specifically. This framework was also separately extended to the literature on child pornography (Malamuth & Huppin, 2006).

This confluence framework emphasizes that individual propensity for sexual offending is a function of the interaction of both "risk factors," which increase the risk of sexually offending behaviors, and "protective factors," which reduce or eliminate the risk of such behaviors. Pornography use is only one of the many risk factors that must be considered within a broader model of the potential contributors to sexual offending. It is clear that the interaction among various risk and protective factors does not easily lend itself to a simple causative formula, but nevertheless, a practical predictive statistical model may be derived that has clear utility. Consequently, the effects of pornography are likely to differ among individuals as a function of various risk and protective factors. Indeed, from early on this confluence approach has emphasized the critical importance of individual differences in assessing responsiveness to particular types of pornography and on various outcomes that may result from exposure (e.g., Malamuth, 1981; Malamuth & Check, 1983, 1985).

Within a hierarchical model encompassing both general factors predictive of aggression generally and specific factors particularly relevant to sexual assault, a key feature of this model relevant to the present analysis is the distinction between relatively primary and secondary risk factors. The primary factors are hypothesized to be more formative in the development of risk. They include such general characteristics as stable personality features (e.g., psychopathic tendencies, antisociality or low agreeableness, and narcissism) and early experiences such as coming from a home with abuse and often followed later by adolescent delinquency or association with adolescent delinquent peers. They also include factors more specific to risk for sexual aggression, including hostility toward women, attitudes supporting violence against women, power as a motive for sexual arousal, and a general impersonal sexual orientation. Such risk characteristics have been shown mostly to reliably be part of two largely independent constellations, each with a latent common basis, that have been labeled Impersonal Sex and Hostile Masculinity (Malamuth, Linz, Heavey, Barnes, & Acker, 1995). These two constellations are similar to those described in more recent research on sexual offenders that emphasizes Sexual Deviance and Antisociality (e.g., Hanson & Morton-Bourgon, 2005; Hawes, Boccaccini, & Murrie, 2013; Lalumière & Quinsey, 1996). In addition, the model has postulated the role of relatively secondary risk factors, including low nurturance or empathy (Dean & Malamuth, 1997), alcohol use (Abbey, Jacques-Tiura, & LeBreton, 2011) and attending settings where much alcohol is consumed, friends supportive of sexual assault and heavy pornography use, particularly non-consenting or other types of "extreme" pornography (Malamuth et al., 2017).

The secondary factors are postulated to have an important influence only if the primary risk factors have already created a considerable risk. The key prediction regarding the potential causal effects of pornography, particularly certain types (e.g., non-consenting pornography), is that if the individual is already predisposed to commit acts of sexual aggression, heavy exposure to pornography may prime and potentially reinforce that tendency, whereas if a person does not have such a relatively high proclivity based on various other risk factors, then pornography exposure is not likely to contribute to sexually aggressive responses.

1.3. Parallels between adult and child pornography

While the limitations inherent to conducting research with child pornography are quite prohibitive, there is considerably more opportunity to conduct research on adult pornography. This is particularly true for studies that attempt to establish cause and effect by randomly assigning individuals to be exposed or not to be exposed to pornography, since exposing participants to child pornography would violate the law but typically that is not the case with adult pornography. Below, I summarize a research program that focuses particularly on the effects of non-consenting adult pornography (elsewhere sometimes referred to as violent pornography, sexually aggressive pornography or sexually aggressive media). Such portrayals are defined as sexually explicit media designed primarily to sexually arouse the consumer in which one or more of the participants are portrayed as not fully consenting to the sexual activities. I suggest that research on the effects of such adult, non-consenting pornography is important not only in and of itself as it may reveal causal effects, but it is also potentially, but not necessarily, relevant to the effects of child pornography as well. First, similar processes may occur with both types of pornography. Second, child pornography may also be considered a form of non-consenting pornography since a child under the age of consent can never legally consent to participate in such sexual acts, even if she or he is portrayed as aroused or responsive.

Questions may be raised nonetheless concerning whether child pornography should be considered as a distinct phenomenon from nonconsensual porn. Indeed, as noted below, the research literatures on the effects of these two types of pornography have been completely separated from each other. Moreover, it could be argued that laws regarding age of consent are not based on psychological data but on somewhat arbitrary legal policy that has varied across time and jurisdictions. However, common elements may be found including the fact that the participants in the pornography may be viewed as people who are relatively powerless or unable to reject the sexuality by virtue of their age in child pornography and the use of some form of coercion in the case of non-consenting adult pornography. In child pornography such perception may be related to the age of the participants portrayed with relatively young children being the ones more likely to be perceived as

relatively powerless. A similar point has been made by Suzanne Ost (2002):

> "[W]ith regards to the content and themes of child pornography and because of the completely unequal relationship of power between adult and child, the child can only ever feature as a passive subject, exploited as a sexual object by the adult … [and] will always lack the capacity to consent to involvement in child pornography" (p. 436).

A broader question concerns the generalizability of any research findings and furthermore the ability to transfer research conclusions on adult pornography to child pornography. Every study may be evaluated for internal and external validity. One of the clear strengths of some of the research on the effects of non-consenting adult pornography is a high degree of internal validity, since it has been feasible to assign participants randomly to varying conditions of exposure (including exposure to non-consenting pornography) and observe the effects of such exposure in controlled settings. Moreover, as described below, the conclusions of controlled studies high in internal validity have been complemented by and consistent with the findings of studies examining similar associations in naturalistic settings, where random assignment is much more difficult. Such "naturally occurring" associations may be observed, often with statistical controls applied to attempt to eliminate competing explanations. When the findings of the associations in naturalistic settings correspond to those under highly controlled settings, we have much more confidence in the overall research conclusions, as has indeed been the case with the non-consenting pornography research summarized here, wherein there has been much convergence in conclusions of methodologically diverse approaches to addressing the relevant hypotheses.

In attempting to generalize from research on adult to child pornography (or vice-versa), it is useful to consider whether some similarities may exist among consumers particularly attracted to non-consenting and to child pornography. A limited amount of data exists suggesting some similarities. Particularly noteworthy is a study by Bogaert (2001) that examined the extent to which individual differences among undergraduate men predict preferences for and choices of various forms of sexual (e.g., erotic, female insatiability, non-consenting adult pornography, or child pornography) and nonsexual (e.g., violent or nonviolent) media. The individual difference variables used in this study were generally predictive of men's preferences for particular types of pornography but were unrelated to their preferences for nonsexual media. Those males who particularly preferred non-consenting (or sexually violent) adult pornography were males lower in intelligence and higher in dominance/hostility, impersonal-sex, and aggressive/antisocial tendencies. Except for the intelligence variable, all of these profile characteristics were also found to predict individual differences in preferences for child pornography. In contrast, the same profile was not equally predictive of preference for other types of pornography. Although this research does not show that individuals who are particularly attracted to non-consenting adult pornography are necessarily also attracted to child pornography, it does reveal a high degree of similarity between the underlying profile characteristics that determine attraction to both types of pornography.

Using samples of nonoffenders and offenders, I will examine here, among other hypotheses, the following: Repeated exposure to certain types of pornography adversely affect males who a) have relatively high antisocial tendencies (such as Hostile Masculinity) and b) an orientation to sex that leans toward preferring certain sexual acts (e.g., in the case of pedophiles, an attraction to children; in the case of potential sexual aggressors, an attraction to impersonal sexuality). Such an interactive combination of the two constellations of characteristics (e.g., high Hostile Masculinity and high Impersonal Sex) has been emphasized by the Confluence Model. Moreover, the decision by consumers to use certain amounts and types of pornography does not occur in a vacuum but reflects various individual differences that also appear to be influenced by high levels of these two types of constellations (e.g., see research of Bogaert (2001) described directly above). The research described below is examined within a conceptualization that suggests bidirectional causal associations, i.e., men with certain predispositions seek out certain types and amounts of pornography that then may strengthen those tendencies. This hypothesis incorporates the possibility that for individuals with relatively low self-control and high impulsivity (characteristics correlated with Hostile Masculinity and antisociality), exposure to some types of pornography may have "tipping point" effects (Lamberson & Page, 2012), moving pre-existing tendencies that do not result in actual sexual assault beyond a threshold necessary to elicit actual offending behavior.

1.4. Methodological diversity

Although not as prohibitive as when studying child pornography, the difficulties in conducting research on the effects of other types of pornography are considerable nonetheless. From the exclusive perspective of the ideal research design to establish causation, addressing the questions of scientific interest here may require a study in which young boys would be randomly assigned to be exposed or not exposed to various types of pornography over a formative period of years, and then their later sexual aggression studied in natural settings. Obviously, ethical considerations preclude such a study. Instead, a realistic research program requires putting together relevant pieces of research that are feasible to conduct. Consequently, some of the existing research has proceeded in two primary parts—the first part focusing on whether exposure to pornography may affect such factors as attitudes, sexual arousal patterns, and fantasies, and the second part assessing whether such factors as these are actually predictive of sexual aggression in naturalistic settings. This research supports the possibility that exposure to certain pornography may change important factors such as attitudes, arousal, and fantasies, and that these factors may in turn lead to changes in sexually aggressive behaviors. Research has also examined effects on less-extreme behaviors that may reflect a cultural climate of acceptance of violence against women, such as domineeringness in conversation, the way a person votes as a member of a jury in a rape trial, and a person's willingness to intervene to help a bystander who might be experiencing sexual violence (e.g., Foubert & Bridges, 2017). Although these latter types of changes may not necessarily be considered serious antisocial acts in and of themselves, they may affect the cultural climate that indirectly affects the likelihood of various antisocial acts such as sexual aggression. There are also studies that attempt to examine the more direct effects of pornography exposure on aggression using various laboratory analogues but these, of course, cannot be the ideal study because of certain ethical and other constraints. Instead, research can only be done using a variety of methods that are in and of themselves not the "ideal" design but hopefully the conclusions emerging from these differing complementary approaches converge to indicate similar conclusions. The methodology that has been feasible in pornography research consists of four types of studies, each with certain complementary advantages and disadvantages.

1.4.1. Random assignment experiments

There are a substantial number of studies, referred to as experiments, wherein participants were randomly assigned to different conditions and researchers manipulated which type and/or how much pornography, if any, the participants were exposed to. Though usually conducted in controlled laboratory environments, some relevant experiments have also been successfully completed in naturalistic settings. As noted earlier, the value of such research is that it can determine cause and effect with confidence due to the random assignment of conditions. The primary disadvantage concerns generalizability, in that these studies may establish that such causal effects are indeed possible but such conclusions may not be generalizable to naturalistic settings that differ considerably from the controlled environments used

to conduct the research. Also, the fact that the researchers intervened in some way (e.g., exposed the participants to pornography) may have created an experience that participants otherwise would not have had and again may limit generalizability. This type of research (with random assignment) will at times be referred to below as "Type 1: Causal or Experimental Studies".

1.4.2. Cross-sectional correlation studies

The second type of research consists of surveying people regarding how much and what type of pornography they have been exposed to in their daily lives. This typically involves a single "observation" wherein all the variables of interest are measured. Researchers then examined whether statistically significant correlations existed between amount and type of pornography consumption and relevant differences in attitudes and behaviors. These are referred to as "cross-sectional" correlation studies. Causation is not possible to establish based on these associations alone, since there are always competing "third variable" explanations, even though such studies have often used statistical controls to attempt to rule out some of the competing explanations. Although in this type of research it is more difficult to identify causal connections with confidence, they have the advantage of studying people in their usual environments and therefore establishing whether associations exist in these naturalistic settings. This type of research will at times be referred to below as "Type 2: Correlational Studies."

1.4.3. Longitudinal studies

The third type of research consists of longitudinal studies that also examine correlations but are better able to identify possible causal effects. They require at least two "observations" and often more and thereby collect data over time. The term can be used rather broadly to encompass repeated cross-sectional studies, prospective studies, and retrospective studies. Herein I will include only prospective studies measuring the same individuals repeatedly. Here the researcher has been able to examine when exposure to pornography has occurred and when later certain changes in attitudes and behaviors can be identified. Such studies have the advantage that they better enable control of potential confounds and examine individuals' changes over time, thereby enabling with more confidence causal conclusions than in cross-sectional designs, although longitudinal studies are still fundamentally correlational. This type of research will at times be referred to below as "Type 2: Longitudinal Studies."

1.4.4. Aggregate population studies

The fourth type of research has examined in various cultures how much pornography is available or potentially being consumed in the society at large and what are the corresponding overall levels of attitudes and behaviors, such as beliefs in rape myths and known rates of rape. Changes in pornography availability have then been correlated with other changes in the society, such as changes in sexual crimes. The advantage of such studies is that they provide an intuitively appealing examination of whether changes in in the society or population in one variable (e.g., pornography availability) has been associated with changes in another (e.g., sexual assault). The disadvantage of such research concerns difficulties with inferring changes in individuals' behaviors from changes at the societal level. For example, there are typically many other changes that have occurred in a society at the same time as changes in a particular variable. This type of research will be referred as "Type 3: Aggregate Population Studies" and will be fully discussed in the future article mentioned earlier.

I suggest that the existence of the wide range of opinions among reviewers about the conclusions that are justified from research on pornography has been highly influenced by which of the methodologies described they have relied on. (It is also possible, that for some which methodology they emphasize is the result of motivated reasoning in light of their ideological commitment to a particular conclusion). On the one hand, some of the reviewers believe that controlled studies with random assignment to conditions are most crucial, particularly if the conclusions are consistent with correlational associations found in naturalistic settings (methodologies 1 and 2). They recognize that when it comes to studies on sexual assault it is difficult to also conduct longitudinal studies and therefore if some findings do exist using this methodology they rely on those heavily in the context of the other research, particularly when consistently supported by meta-analyses of many studies. Moreover, they may look to other longitudinal studies in related areas examining the longitudinal relationship between pornography consumption and other outcomes (Koletić, 2017; Perry & Schleifer, 2017; Wright, 2013) and believe that apparent causal connections in such areas support their overall conclusions supported by the first two methodologies (i.e., that pornography consumption can influence outcomes related to sexual assault). Further, such reviewers have been more likely to focus on individual differences as critical moderators of the effects, thereby helping explain why there have not been widely sweeping changes in the rates of sexual assault, as only a minority of men may actually have been negatively influenced. They may ignore findings of aggregate studies or dismiss them due to some of the limitations noted above. Other reviewers seem to have accepted that the first two methodologies justify conclusions about some connection between sexual assault and pornography, but without much direct longitudinal data in this specific area, they attempt to choose a "middle ground" when it comes to sexual assault, indicating that the evidence is not sufficiently convincing, although they do accept causal effects with other outcomes (Peter & Valkenburg, 2016). On the other hand, some reviewers seem to believe that no matter how many meta-analyses of controlled and/or correlational studies may show connections between pornography consumption and sexually assaultive attitudes and behaviors, these are only of passing interest unless the data also show that in the "real world" at the societal level there have been actual changes in the documented rates of sexual assault (Diamond, 2009).

1.5. Confluence Model's predictions

When it comes to the importance of individual differences, the Confluence Model's predictions are as follows: To help the reader navigate through the many studies discussed below, one may consider a simple 2 × 2 table (see Table 1). One dimension would divide individuals into relatively low vs. high risk, based on various other factors (e.g., home environments, antisocial personality, hostility toward women, prior sexual aggression, etc.). The other dimension would divide individuals into Low or Non-Porn vs. High Porn Consumers. Although for descriptive purposes these are listed as dichotomies, in reality they are likely to be continuous distributions. The Confluence Model predicts that the highest levels of sexually aggressive behaviors and other outcomes (e.g., attitudes supporting violence against women) will be for the High Risk Individuals who are High Porn Consumers (cell 4 in Table 1) (Note that these are referred to as "duel offenders" in making similar predictions below when discussing child pornography). Among those who are Low Risk, the Confluence Model predicts low levels of sexually aggressive outcomes for both Non-Porn and High Porn Consumers (cells 1 and 2). Those with High Risk due to other factors but who are non-porn consumers are predicted to have intermediate levels of sexually aggressive outcomes (cell 3). This table will be used later in this article when the discussion turns to the critical role of individual differences.

Table 1
Confluence Model's predictions about levels of sexually aggressive outcomes as a function of levels of risk and pornography consumption.

	Non-Porn Consumer	High Porn Consumer
Low Risk Individuals	LOW (cell 1)	LOW (cell 2)
High Risk Individuals	MEDIUM (cell 3)	HIGH (cell 4)

2. Research on adult non-consenting pornography

2.1. Hypothesized effects

As described below, a variety of potential negative effects have been hypothesized to result from exposure to non-consenting pornography. Some of the relevant research examines separately the effects of such pornography but some includes consumption of consenting pornography as well. Moreover, some scholars have argued that there should be a distinction made within consenting pornography between "dehumanizing pornography" and "erotica," (e.g., Waltman, 2017; Check & Guloine, 1989). Generally, whenever the effects of non-consenting pornography have been examined separately, the effects have been shown to be more in keeping with hypothesized negative effects so that whenever the studies show such effects of combinations of consumption of non-consenting and other forms of pornography, it is reasonable to assume that the negative effects would be at least as evident had the effects of non-consenting material been examined separately.

The data can be divided both by the type of methodology used and by the type of dependent measures focused on, as described below. Prior to focusing on the majority of the research, which has focused on attitudes and/or aggressive behavior, I will consider potential effects on changing sexual arousal patterns and on priming of sexually coercive fantasies.

2.2. Conditioning of sexual arousal and priming of fantasies

Although not specifically examining sexual arousal and non-consent, some research supports the possibility that sexual arousal may become conditioned based on the pairing of stimuli. Indeed, a recent review of the scientific literature concludes that "… sexual arousal showed to be conditionable in both men and women" (p. 38, Brom, Both, Laan, Everaerd, & Spinhoven, 2014). An example of a "Type 1 Causal Study" using systematic procedures, essential control comparisons, and direct physiological measures of sexual arousal to investigate the general possibility that sexual arousal may be conditioned to some degree as a function of exposure to various stimuli was conducted by Plaud and Martini (1999). The researchers repeatedly paired a previously neutral stimulus with sexually arousing material over three sessions held in three consecutive weeks. They found that, with such repeated pairing, young men's sexual arousal could be successfully conditioned on a previously neutral stimulus. Similar findings had been reported by Lalumière and Quinsey (1998). Although there isn't similar research that I am aware of specifically examining this potential arousal conditioning with respect to non-consenting adult or child pornography, there is certainly a reasonable possibility that such conditioning could occur with some pairings of sexual images with such stimuli.

Although this research suggests that sexual responses may be affected by exposure to non-consenting pornography, there has also been some limited research conducted in naturalistic settings that did not find data to support such conditioning (Ceniti & Malamuth, 1984). It should be noted that this research did not involve actual systematic pairing of stimuli by the researchers as in the studies cited above. That is, the researchers did not systematically pair non-consent and sexual stimuli in terms of when and how they were presented, which may be important to finding conditioning effects over a relatively short period of time. Instead, participants were given the opportunity of being exposed over several weeks to a few commercially available non-consenting sexual depictions (e.g., books, movies, etc.) that were presented in their original form. The researchers assessed whether there were differences in the extent to which participants were sexually aroused before and after repeated exposure to this non-consenting sexual material and did not find significant effects.

In the only study I am aware of that examined whether exposure to pornography affected the content of participants' self-generated sexual fantasies (a Type 1 Causal Study), there was support in a laboratory setting indicating that exposure to non-consenting pornography increased sexually violent fantasies (Malamuth, 1981). In this study, effects particular to males already predisposed to be sexually aggressive (as predicted by the Confluence Model) were found. This result supports the idea that the effect of exposure to non-consenting pornography is different and potentially more evocative of sexual aggression for males who already exhibit tendencies toward sexual aggression. Moreover, recent research suggests that among such relatively higher risk individuals such fantasies may be more likely to affect actual behavior (Visser, DeBow, Pozzebon, Bogaert, & Book, 2015).

In this context, it is useful to consider whether sexual arousal to non-consent (or force) is potentially a risk factor for sexual aggression. Meta-analyses have indeed shown that it is with both self-identified and criminal sexual aggressors (e.g., Hall, Shondrick, and Hirschman (1993); Lalumière, Quinsey, Harris, Rice, & Trautrimas, 2003), Moreover, the research suggests that the lack of consent may be a particularly relevant factor to stimulating offenders' sexual arousal (Harris, Lalumière, Seto, Rice, & Chaplin, 2012). Indeed, self-identified sadistic rapists have been found to primarily be aroused by the violence and infliction of suffering per se (Seto, Lalumière, Harris, & Chivers, 2012). From an evolutionary perspective, it has been suggested that sexual arousal to non-consent may be a "specialized mechanism" that enables the use of coercion for sexual access (for a review see Huppin & Malamuth, 2016).

2.3. Effects on attitudes and behaviors

Varied methodologies and dependent measures have been used to study the effects of pornography. Most of the studies may be described along two orthogonal dimensions based on whether they used 1) an experimental (random assignment to conditions) or correlational methodology and 2) whether for the dependent variable they assessed a response presumably associated with sexual aggression (e.g., attitudes supporting such aggression) or some behavioral measure of actual aggressive behavior. These may be organized into a 2 × 2 table, but with two of the cells in this table having two sub-types of studies (see Table 2). As indicated in this table, one type of research involved experiments (usually, but not exclusively in laboratory settings) that manipulated whether participants were exposed to some type of pornography and examined whether there were differences between the experimental and control groups in responses such as attitudes accepting of aggression against women. The second type of research (see

Table 2
An organizational framework for the differing types of pornography studies and available meta-analytic studies.

		Method	
		Experiments	Correlational studies
Dependent measure	Attitudes	(Cell 1) significant effects	(Cell 2a) significant for cross-sectional (Cell 2b) significant for few available longitudinal studies
	Aggressive behavior	(Cell 3) significant effects	(Cell 4a) criminals vs. non-criminals – significant (Cell 4b) Significant for aggression of non-criminals in cross-sectional and longitudinal

Note: all of the meta-analyses in all of the cells show significant associations with pornography, particularly non-consenting pornography.

upper right corner Table 2) assessed whether differences among men in such attitudes are correlated with self-reported aggression in naturalistic settings. The third type of research (see bottom left corner of this table) manipulated in the laboratory whether participants were exposed to some type of pornography and measured the type of aggressive behavior that can be measured in the laboratory (e.g., delivery of noxious stimuli to another person). The fourth category (see bottom right corner of table) consists of correlational studies focusing on the potential relationship in naturalistic settings between pornography consumption and actual sexual aggression. Here there are two subtypes of research studies. The first focuses on differences between individuals convicted of crimes such as rape (i.e., criminals) and men from the general population (i.e., non-criminals) in their pornography use. The second focuses on non-criminals only, but considers a potential association between pornography use and individual differences in reported sexual aggression that has not resulted in criminal conviction. Since a majority of acts of sexual aggression, including rape, are never successfully prosecuted, this is also an important comparison.

2.4. Overview of meta-analyses

Several meta-analytic studies have been published integrating the findings in the pornography literature. Below are the findings of the various meta-analyses, which fortunately correspond to all of the cells in Table 2. The ones described below are particularly useful, since they meet rigorous standards, such as weighing the average effect using the study's sample size and when encountering possible heterogeneous average correlations, testing for moderators. Unless otherwise indicated, the conclusions of the ones presented here are completely consistent with others available in the literature.

2.4.1. Meta-analysis of attitude experiments (see cell 1 of Table 2)

Allen, Emmers, Gebhardt, and Giery (1995) conducted a meta-analysis on the relationship between pornography exposure and attitudes supporting sexual aggression (referred to in their paper as rape myth acceptance). They included both experiments and correlational studies. In this sub-section I focus on the former and discuss the latter type below.

Most of these experiments were in laboratory settings, but some of the research consisted of experiments in field settings (e.g., Malamuth & Check, 1981). There were a total of 16 experiments with 2248 participants. The overall average effect combining all of the studies (which included depictions of consenting and non-consenting pornography) showed a significant increase in attitudes supporting sexual aggression following pornography exposure, and this effect held when non-consenting and consenting pornography were examined separately. Eight studies included separate data for non-consenting and for consenting materials and enabled a more direct comparison. Here it was found that non-consenting pornography resulted in significantly greater increase in attitudes supporting aggression than did consenting pornography, although the latter still had a significant impact.

2.4.2. Meta-analysis of aggressive behavior experiments (see cell 3 of Table 2)

There are studies that examine whether exposure under laboratory conditions to various types of pornography causes greater aggression against women, but these, of course, rely on the type of aggression that can be ethically measured, such as subjecting a female “confederate” to electric shock or imposing upon her exposure to non-consenting pornography after she indicated that she intensely dislikes it. Such laboratory assessments have been shown to have considerable validity and generalizability to aggression in naturalistic settings (e.g., Anderson, Lindsay, & Bushman, 1999).

Allen, D'Alessio, and Brezgel's (1995) meta-analysis included a total of 33 studies with 2040 participants. While overall the data showed that exposure to pornography does cause an increase in behavioral aggression, follow-up moderator analyses revealed different effects as a function of the type of pornographic stimuli used. Exposure to nudity alone (9 studies) was found to reduce aggression, whereas exposure to either non-consenting (24 studies) or consenting depictions (7 studies) of sexual activity increased aggression.

Although the results of the meta-analysis in this area seem consistent and clear, in one other single study the investigators (Fisher & Grenier, 1994) questioned the validity of those studies and reported a contradictory result. Although as Malamuth et al. (2000) discuss in detail, the methodology of that single study was extremely inadequate, those researchers did contend that what was unique about their study was that they enabled a choice between an aggressive response and a non-aggressive one. Fortunately, more recently a similar but much better conducted experiment by Yang and Youn (2012) also included such a choice. The latter study was far better in its methodology by including a control group that was not exposed to pornography, having a successful check on the random assignment, and affective mediation was examined. The earlier Fisher and Grenier (1994) study did not include such important elements. Yang and Youn (2012) reported results very consistent with the meta-analysis (i.e., pornography exposure generally increased male aggressive responses toward females and non-consenting pornography did even more so).

2.4.3. Meta-analysis of attitudes correlational studies (see cell 2a of Table 2)

Although correlational studies do not enable cause and effect conclusions, they have the advantage of assessing responses occurring in naturalistic settings. Allen, Emmers, Gebhardt, & Giery (1995) conducted a meta-analysis on the relationship between pornography exposure and attitudes supporting violence against women (ASV) in non-experimental studies. These investigators reported no significant association. However, Hald, Malamuth, and Yuen (2010) found several errors and problems with this meta-analysis and after correcting for these and adding more-recent studies to the meta-analysis, they found that indeed a significant association with pornography use did exist. Moreover, in a separate study published since the Malamuth et al. (2000) article, using a representative sample the investigators also found a significant association between amount of pornography consumption in naturalistic settings and attitudes supporting violence against women (Malamuth, Hald, & Koss, 2012). As highlighted below, this correlation was more pronounced for certain men than for others, in keeping with the predictions made in Table 1.

Although as indicated in Table 2, there is not currently a meta-analysis of longitudinal studies with attitudes but as indicated below Wright, Tokunaga, and Kraus (2015) did provide such an analysis with sexually aggressive behavior.

2.4.4. Meta-analysis of aggression correlational studies

As noted above, there are two types of relevant research studies here. The first compares criminals to non-criminals and the second examines associations within the non-criminal population between amount of pornography use and sexually aggressive behavior.

2.4.4.1. Criminals vs. non-criminals (see cell 4a of Table 2). Allen, D’Alessio, & Emmers-Sommer, (2000) conducted a meta-analysis focusing on the pornography use of convicted sex offenders as compared to men from the non-criminal general population. They examined several types of dependent measures: 1) Frequency of pornography use, 2) age of first exposure, 3) the degree to which pornography was a direct prelude to some sexual act (masturbation, consensual sex or forced sex), 4) and degree of sexual arousal, measured by direct genital measures of such arousal.

An analysis focusing on the frequency of use or the age of first use did not find any significant difference between criminals and non-criminals. However, a relatively strong effect was found when considering the average effect on the consumer across the 7 studies that

examined sexual activity after viewing pornography ($r = 0.23$). Criminals were more likely than noncriminals to perform some sexual act, such as masturbation, consensual, or criminal sex after viewing pornography.

Analyses by these investigators of the degree of physiological sexual arousal, across 32 studies, indicated that generally sexual criminals were more aroused than non-criminals ($r = 0.15$, N = 2099). However, when the studies separated portrayals of consenting and nonconsenting sex, it was found that sex criminals were more aroused by non-consenting sex in comparison to noncriminals ($r = 0.39$) but that the difference was in the opposite direction with consenting sexual portrayals ($r = -0.26$). It should be noted that although criminals may be less aroused sexually by consenting depictions than noncriminals, the data on "sexual acting out" suggest that they may still be more likely than non-criminals to engage in some sexual activity following either type of pornography exposure.

2.4.4.2. Correlations within noncriminals (see cell 4b of Table 2). Wright et al. (2015) conducted a meta-analysis examining the associations between pornography consumption and actual acts of sexual aggression within non-criminals. Examining 22 studies from 7 different countries they did find a significant positive association, both for verbal and physical sexual aggression, in both cross-sectional and the few available longitudinal studies. In keeping with the other meta analyses, they also found that non-consenting content in pornography was an exacerbating factor.

2.4.5. Longitudinal studies (see cell 4b of Table 2)

While as noted directly above Wright et al. (2015) conducted a meta-analysis of longitudinal studies relating pornography consumption to sexual aggression among non-criminals, in light of the importance of such methdology I will describe briefly two additional studies that have been published since that publication as well as two earlier studies that are particularly relevant either because they were related to the more recent longitudinal research or because they included attitudes as well as behaviors. Ybarra and Thompson (2017) reported that between 2006 and 2012 six waves of data were collected nationally online. The participants were 1586 youth between 10 and 21 years of age. Various types of sexual violence were measured, including reports of sexual harassment, sexual assault, coercive sex, attempted rape, and rape. They found that even after controlling for other potential contributing factors, current exposure to non-consenting pornography as well as prior exposure to parental spousal abuse were strongly associated with the emergence of most of the types of sexually violent perpetration. These conclusions were in keeping with those found by Ybarra, Mitchell, Hamburger, Diener-West, and Leaf (2011) wherein 1159 adolescents were followed up over several years. Similarly, in another longitudinal study Brown and L'Engle (2009) reported that male adolescents were more likely to report having engaged in sexual harassment perpetration if exposed to sexually explicit material in early adolescence. Finally, in a two-wave study (separated by a year) of Polish university students, additional data were provided suggesting a role for pornography use in predicting attitudes and behaviors. Tomaszewska and Krahé (2018) found that pornography use assessed at Time 1 predicted sexual aggression perpetration in the subsequent 12-month period via its association with sexual aggression perpetration since the age of 15. The researchers also found that pornography use at Time 1 significantly predicted attitudes supporting sexual coercion, which had a direct prospective link to perpetration 12 months later. Overall, these findings support Wright et al.'s (2015) meta-analyses' conclusions that both cross-sectional and longitudinal data indicate that pornography consumption predicts sexual aggression among non-criminals.

2.5. Integrating the data

Although the data described above indicate that there is indeed some association between consumption of pornography and sexual aggression against women and, when examined, that the associations are typically stronger for non-consenting adult pornography than for other types of pornography, they generally do not speak to the issue of individual differences among consumers. Other studies have highlighted such associations' dependence on the type of person who consumes the pornography as well as on the content of the material used, thereby presenting data most relevant to the predictions made in Table 1, which are very consistently supported. Individual differences, particularly those relating to antisocial or aggressive tendencies, clearly moderate the effects of non-consenting pornography (and some other types of pornography) revealing that the overall associations for outcome measures of sexual arousal, attitudes, fantasies and particularly sexually aggressive behavior are actually due largely or exclusively to a subset of the samples studied. These findings have been summarized in several reviews (e.g., Kingston, Malamuth, Fedoroff, & Marshall, 2009; Malamuth & Hald, 2017; Malamuth & Huppin, 2005). The research suggests that if a man already has relatively strong tendencies to be sexually aggressive toward women, then heavy pornography consumption may "add fuel to the fire" and increase his aggressive tendencies. This seems to be particularly likely if the type of pornography by which he is sexually aroused includes non-consenting content. In contrast, if a man has no or only a slight proclivity toward sexual aggression against women, then whether he consumes pornography or not is likely not to have an impact on risk for subsequent sexual aggression. In other words, this research suggests that the extent to which a person possesses certain combinations of risk factors determines how likely it is that there is a relationship between his pornography exposure and his sexual aggression.

I now consider the following related question: In correlational studies (Type 2 Correlational Studies) does exposure to pornography enable additional prediction of sexual aggression, after controlling for other known risk factors? Although this type of analysis cannot show support for causality the way Type 1 Causal Studies can, it can nonetheless better support such a possibility by statistically controlling for other factors. In other words, does pornography use in and of itself matter, or are observed cross-sectional and longitudinal relations between pornography use and sexual aggression in some sense illusory and merely the result of "guilt by association" with other variables, such as family violence or juvenile delinquency? This question was addressed in one study by Malamuth et al., 2000 that used a random sample of the entire USA male population of males who are in some form of post-high school higher education (about 42% of the male population). The researchers found that after controlling for key risk factors (e.g., family violence, delinquency, attitudes accepting of violence, impersonal sex, and Hostile Masculinity), consumption of pornography remained a significant predictor of sexually aggressive behaviors. Moreover, additional analyses showed that only for those men who were at relatively high risk (a clear minority of the sample) did pornography consumption make a significant difference in levels of sexual aggression.

In another similar study, using a non-representative sample of over 100 men (Vega & Malamuth, 2007), the researchers examined the role of pornography use in a predictive equation that included similar risk factors but also included general antisocial tendencies (e.g., impulsivity, grandiosity, and irritability). Here as well, a predictive role for pornography use in the commission of sexual aggression was evident even after controlling for the other risk factors. Moreover, a third study also found that pornography use, assessed by various types of media, was an important risk factor predicting sexual aggression after controlling for other factors, such as alcohol use, attitudes accepting of violence, and sexual victimization as a child (Carr & VanDeusen, 2004),

These three studies provided data that addresses the question

pertaining to the High Risk and High Porn cell in the 2 × 2 table presented at the beginning of this article. They do show that individuals who are relatively high in risk based on other factors and are relatively high consumers of pornography are likely to commit more sexual aggression than those in all of the other three cells of the table. Can we use these data to estimate how much of an increase in sexual aggression would occur in the overall population based on pornography consumption? The best estimate comes from the study that used a random sample, namely Malamuth et al. (2000). There were 1713 men who included. Using the data from other risk factors, 218 of these were classified as being at relatively high risk. Of these, 27 not only had high scores on the other risk factors but they also viewed pornography very frequently. This constitutes 0.0157% (or rounded off to close to 2%) of the entire sample of 1713 men. Virtually all admitted to rape and their average score on a ten point maximum scale for sexual aggression was over 8. Additional groups that showed somewhat elevated scores of sexual aggression, albeit much less, were as follows: The next highest average level of sexual aggression were 31 men, who had been classified as being at moderate risk based on other factors and also reported using pornography very frequently. Their average score was close to 3. In addition, 61 participants were classified as high risk based on other factors and reported "somewhat frequently" using pornography. Their average score was about 2.5, which was very similar to 119 men who were classified as high risk based on other factors but seldom used pornography and 176 men who were classified at moderate risk based on other factors and reported using pornography somewhat frequently. It seems then that the combination of being classified at high risk based on other factors and using pornography very frequently was associated with a very dramatic elevation in sexual aggression for this small percentage of men. Either being classified as moderate risk or high risk based on other risk factors and using pornography somewhat frequently was associated with an increased level of sexual aggression, albeit far less dramatic. Finally, a moderate increase in sexual aggression was also found for men who were classified as high risk based on other factors. Taken together, these data fit very well with the predictions outlined in Table 1.

A number of cautions need to be noted about this estimate. First, these data were gathered some years ago, prior to the proliferation of the Internet, and the data were based on the consumption of sexually explicit magazines of various types. Moreover, participants defined for themselves what constituted different frequencies of pornography use. Second, the participants were relatively educated and rates of sexual aggression may be expected to be somewhat higher in less educated individuals. Third, if one were to conduct similar analyses for any of the other known risk factors by themselves, similar conclusions may have resulted. This has led us to include the role of multiple interacting factors, as emphasized in the Confluence Model, which together account for a much larger percentage of the variance.

Nevertheless, if we would extrapolate to the overall rates of known sexual assault in the general population, a 1% increase in rates of sexual assault might be expected, if everything else were "kept constant." While this may not seem to be a powerful impact, if it were considered in terms of human suffering over a large population, it would be a major "cost" indeed. Has this happened even more with the increasing availability of various types of pornography on the Internet?. As discussed in more detail in the second part of these two interrelated articles, it is very difficult to judge. First, there have been many countervailing influences in the past years as pornography has become more widely available, including mandatory prevention programs on virtually all university campuses, Title IX based prosecutions, heightened awareness of the harm of sexual assault, etc. Second, some indeed claim that there have been dramatic increases in sexual misconduct and various sex crimes on university campuses. For example, in examining changes over a 10 year period on college campuses, The Bureau of Justice Statistics (Robers, Kemp, Rathbun, Morgan & Snyder 2014) found that "the rates per 10,000 students for all types of reported crimes on campus were lower in 2011 than in 2001, except in the case of forcible sex offenses, which was higher in 2011 (2.2 per 10,000 students) than in 2001 (1.9 per 10,000 students)" (p. 97, Bureau of Justice Statistics: Indicators of School Crime and Safety: 2013. Available at https://timedotcom.files.wordpress.com/2014/06/2014042.pdf)

It may, of course, be that over that time period the countervailing factors noted above may have contributed to a greater willingness to report such assault and it is therefore difficult to evaluate to what extent an increase in assaults has actually occurred.

Conclusions pertaining to individual moderators are also revealed in both experimental and correlational recent research where the outcome was attitudes supporting violence against women (Hald, Malamuth, & Lange, 2013; Malamuth et al., 2012). Particularly relevant is a study using a representative Danish young adult population (Hald et al., 2013). The investigators used the Confluence Model to predict individual difference moderation of the personality trait of Agreeableness from the well-established five factor model of personality. As predicted, among men, experimental effects of exposure on attitudes supporting violence against women were evident only for men low in agreeableness and this effect was mediated by sexual arousal. These data aligned very well with the predictions made in Table 1.

2.6. Conclusions from non-consenting adult pornography

The research I have summarized here on adult pornography shows a high degree of convergence between experiments in controlled settings, correlational findings in naturalistic settings, and the longitudinal research. The research indicates that those individuals who are relatively high in risk characteristics, including antisociality and hostility toward women, are more likely to choose to be exposed to non-consenting pornography and to be sexually aroused by it. Not only are they more likely to be exposed to such media, but when they are exposed, they are likely to be changed by such exposure—for example, in their attitudes about the acceptance of violence against women. As well, research indicates that such high-risk individuals are the ones upon whom pornography use makes the clearest difference in whether they are actually sexually aggressive or not. For individuals who do not have relatively high risk characteristics, pornography exposure has generally not been found to affect the outcome variables examined in this research.

As discussed, it may likely be that pornography's effects are important for some individuals but not for others, and that they may prime behaviors only as they interact with certain other risk factors. This may be particularly so among adolescent populations, whose attitudes and behaviors are more ambiguously defined than those of adults and among whom organizing effects of pornography exposure may be more significant in reinforcing developing constellations of personality characteristics. This proposition fits with the emphasis in social learning theory on the concept of reciprocal determinism, defined as a continuous reciprocal interaction between personal, behavioral, and environmental determinants (Bandura, 1977). Also likely to be significant are processes involving activation or priming of what is already brought by the person to a situation and strengthening of existing tendencies in ways that may create tipping-point effects on behaviors if other risk factors are also present. Associations between pornography consumption and aggressiveness toward women could be explained by a circular relationship between high coercive tendencies and interest in certain content in pornography, whereby aggressive men are drawn to the images in pornography that reinforce and thereby increase the likelihood of their controlling, impersonal, and hostile orientation to sexuality. The way relatively aggressive men interpret and react to the same pornography may differ from that of nonaggressive men. In some cases, these reactions may be manifested in actual aggression. In many other cases, these effects may "only" be found in expressed social attitudes, interpersonal domineeringness, increased sexism, and increased acceptance of the degradation of some groups.

3. Research on child pornography

3.1. Overview and predictions

I will present a relatively comprehensive description of child pornography studies that compare a) individuals who have not been exposed to child pornography to those who have been exposed, b) those known only to use child pornography (without any "hands on" criminal violation), and c) those who have known history of both use of child pornography and "hands on" offenses (referred to as "duel offenders"). Such comparisons are relevant to the Confluence Model's predictions (see Table 1). First, the model would predict that "duel offenders" (cell 4 of Table 1) will be much more likely to aggress than those who have neither offense history (cell 1 of Table 1) or who are pornography consumers only (cell 2 of Table 1). Second, the model would predict that duel offenders, i.e., who are relatively high on risk due to prior history and are pornography offenders (cell 4 of Table 1) will be more aggressive than those who are prior "hands on" offenders or high in risk only but who are not pornography consumers (cell 3 of Table 1).

As noted earlier, there are severe difficulties in implementing research on child pornography. Given the reality of the illegality of such pornography in virtually all countries, it is not possible to conduct experiments where participants are randomly assigned in some conditions to actually be exposed to child pornography. Of the few studies using non-pedophiles or non–child molesters, only a very small subset of the relevant issues was analyzed. In particular, Bryant & Linz (2008) sought to study the impact of exposure to child pornography on non-pedophiles' associations of children and sexuality as well as on their acceptance of child pornography. Because of the legal and ethical barriers to using actual child pornography, they used images from Barely Legal magazines that portray youthful looking girls who in fact are at least eighteen years old. This research concluded that exposure to child pornography may result in stronger associations between children and sexuality (as measured by a word recognition task). However, this research did not find support for the possibility that exposure to such barely legal pornography caused a change in people's acceptance of child pornography or adult sex with children.

3.2. Sexual arousal to child pornography

In considering the risk profiles of potential sexual offenders against children, we might begin by considering the question of who is sexually aroused by child pornography. It should be noted that some child-sex offenders are likely to fall into this category. However, if the existence and/or possibility of significant sexual arousal to child images occurs only for a very small percentage of the population rather than a significant percentage, there would be different implications of the availability of child pornography. If only a small percentage could become aroused, we would want to focus our potential concerns only on that segment. However, if a much larger group might be aroused, this may justify considering research about potential adverse effects involving non-pedophiles or non–child molesters. Although sexual arousal to pedophilic stimuli per se is, of course, in and of itself not equivalent to any act of child molestation, it may well increase the motivation for and perceived attraction of such acts.

Studies of undergraduate students and the general population indicate that there is a significant portion of the population who experience some sexual interest in or arousal to children. In one study of undergraduate men, 22 of 100 men reported sexual attraction to a child (as did only 3 of 100 undergraduate women surveyed) (Briere & Smiljanich, 1996). In a sample of 193 university males, researchers found that 21% reported some sexual attraction to small children, 9% had fantasized about having sex with children, 5% admitted to masturbatory fantasies involving sex with children, and 7% indicated some likelihood of having sex with children if they could be assured of not being caught or punished (Briere & Runtz, 1989). Using physiological indices of penile arousal (i.e., by a penile plethysmograph), researchers have found that significant numbers of men also show penile responses to images of children and young teenagers. For instance, in a sample of non-pedophilic men, erections to pictures of pubescent and pre-pubescent girls averaged 70% and 50%, respectively; as strong as their responses to adult females (Quinsey, Steinman, Bergersen, & Holmes, 1975). Over 25% of community participants in another study indicated pedophilic interests via self-reporting or penile response measures (Nagayama-Hall, Hirschman, & Oliver, 1995). Research with men from the general population has demonstrated that a similar measure of sexual arousal to rape stimuli is by itself quite highly correlated with reports of actual sexual aggression in naturalistic settings, in comparison to other risk factors. The incidence of such arousal when combined with information from the other risk factors is indeed a strong predictor of such actual aggression (e.g., Malamuth, 1986). As described later in this article, this measure of sexual arousal has also proven to be a relatively strong predictor in samples of child molesters.

A study in Japan surveyed 573 members of the general population above the age of 18 (Taguchi, 2015). About 10% of the sample acknowledged such sexual interest in children. Such interest was correlated with use of child pornography as well as attitudes supporting violence against women and sexual offenses against women. Similarly, another recent study (Dombert et al., 2016) reported that 4.1% of a survey of 8718 German men reported sexual fantasies involving prepubescent children, and that such fantasies were positively related to sexual offending against prepubescent children. However, men who reported child pornography use exclusively differed on various dimensions from those who also had contact sexual offenses against prepubescent children.

Accepting that a significant portion of the male population demonstrates some pedophilic interests, not all men exhibiting such interests are likely to fit the clinical diagnosis of pedophilia. As defined by the American Psychiatric Association, a clinical diagnosis of pedophilia requires "[o]ver a period of at least 6 months, recurrent, intense sexually arousing fantasies, sexual urges, or behaviors involving sexual activity with a prepubescent child or children (generally age 13 years or younger)" (p. 572, American Psychiatric Association, 2000). It is also important to emphasize that sexual offending against children and pedophilia are not mutually inclusive. Of adult offenders with child victims, it is estimated that 40–50% meet the diagnostic classification of pedophilia. Some sex offenders with child victims act opportunistically, but are not distinctively attracted to children while some pedophiles do not act on their sexual attractions (Seto, 2004). Therefore, pedophilia is clearly an important, though not a determinative risk factor for sexual molestation (and, as described later, for interest in child pornography). As with all risk factors, it is necessary to consider pedophilia in the context of the confluence of other protective and risk factors, through a framework emphasized in this article.

3.3. Child pornography use as an indicator of pedophilia

If sexual arousal to images of children is not necessarily an indication of a mental disorder or substantial likelihood of child molestation and if a substantial percentage of the male population might evidence such arousal under some circumstances, perhaps the mere possession of child pornography is not necessarily an indication of pedophilia but might reflect a more-general interest in sexual variety. To examine whether the use of child pornography is a valid indicator of pedophilia, Seto, Cantor, and Blanchard (2006) assessed the pedophilic interests of 685 male patients referred to an addiction and mental health center between 1995 and 2004 because of illicit sexual behaviors. The researchers concluded that child pornography offending is indeed a valid indicator of pedophilia. They detailed their theory as to why child pornography offending might better predict pedophilia than child sexual offending alone. To rely solely on child sexual offending can become problematic in that is encompasses too many groups that may

not be related. For example, not all men who victimize children are pedophiles. Because men often choose to view pornography corresponding to their sexual interests, child pornography is a more accurate indicator of pedophilic interests. Thus, child pornography offenders might be expected to have a higher pedophilic index than would a group of men that included both pedophiles and general sexual opportunists.

3.4. Were sexual offenders exposed to more pornography?

There is research examining experiences of child molesters with pornography during their own child or adolescent development. For instance, one study surveyed four groups of juvenile offenders (rapists, child molesters, violent non-sex offenders, and status offenders) (Ford & Linney, 1995). Sex offenders (i.e., juvenile rapists and child molesters) reported more exposure to hard-core pornography than did the other groups (42% to 29%). Comparisons also indicated that sex offenders had been exposed to pornography at an earlier age than the other offenders, and further that child molesters had been the most frequently exposed. In a meta-analysis of various studies focusing on male adolescent sexual offenders, Seto and Lalumière (2010) found that such offenders had more exposure to adult pornography than male adolescent nonsex offenders. Overall, these self-report surveys indicate that child molesters have had more pornography exposure than other groups.

As illustrated by research with rapists, amount and time of exposure to pornography may not be as important a variable to consider as type of pornography and the degree to which they were affected. While some of this research has often been cited as indicating that during their childhood rapists had less exposure to pornography than controls did, some of the conclusions drawn from such findings (e.g., by Fisher & Grenier, 1994) can be misleading. When considered in depth, the research shows that while rapists actually report less exposure to pornography in adolescence than control comparison groups do, the type and degree differed (Goldstein & Kant, 1973). For example, rapists reported an earlier age of "peak experience" with pornography (Goldstein & Kant, 1973). In addition, they were far more likely to have encountered pornographic photos displaying explicit sexual acts (rather than nude photographs) at an early age and to have had a greater desire to imitate the activity portrayed in pornography (although they said they were less likely to have actually done it). Rapists were more likely to relate daily masturbation to thoughts of pornography, to have developed a stronger interest in pornography early in life, to have become repeatedly aroused by a particular theme, and to have more feelings of frustration and guilt related to their pornography exposure than control subjects. It is expected that research on child molesters would similarly find complex and differing early-childhood and adolescent experiences and that the amount of exposure may not be the only or even the major dimension to examine; how the exposure affected the person may be more relevant.

3.5. Child pornography offenses and molestation

3.5.1. Offender samples

A considerable number of studies examined the overlap between offenses for child pornography and other offenses, particularly child molestation. The studies described in this section involved individuals convicted of crimes. It should be noted that there are some problems of interpretation, since the samples used are necessarily skewed; they measure individuals who have been successfully prosecuted for various crimes.

In considering the relation of child pornography offenses to sex offenses against children there is significant overlap between having been convicted of or charged with child pornography offenses and a conviction of or charges with other offenses. About half (43 of 100 men) of the sample of child pornography offenders studied by Seto and colleagues had also been charged with a child sexual offense (Seto et al., 2006). Moreover, in a comprehensive research on recidivism among child pornography offenders, Seto and Eke (2015) found that the widely used predictors of recidivism for sex offenders were not predictive of any re-offense among those who were only known to have committed child pornography offenses. As well, Federal Bureau of Prisons researchers who studied re-offense rates in 2014 concluded that the overall re-offense base rate of those who only committed child pornography viewing offenses was very low (Faust, Bickart, Renaud, & Camp, 2014). Importantly, these statistics may suggest that, for some category of offenders, use of child pornography only may not be predictive of any future abusive behaviors.

Wheeler (1997) also assessed pornography consumption and found that child molesters (N = 150) were generally higher users of pornography than non-molesters (N = 122) but that the most common type of material used by these individuals involved nudity or consenting sexual activities between adults. Approximately 93% of child molesters reported having some fantasies about sexually offending against children. Over one-third used pornographic materials shortly before sexually offending against their child victims. It was also reported that many of the child molesters perceived that pornography generally had had a negative effect on their lives.

Langevin and Curnoe (2004) focused on a sample of 561 sex offenders. Of these, 181 had offended against children, 144 had offended against adults, and 223 were incest offenders. Ninety-six of the offenders (17%) reported using pornography during their crimes, with most (89%) of the ninety-six men reporting that pornography had been generally available to them prior to their crimes. Fifty-three of the pornography users (55%) showed pornographic materials to the child victims as part of "grooming" them for the crimes, with the majority of the pornography used being heterosexual adult pornography. Thirteen percent of the men used the pornography to self-stimulate themselves prior to the crime but not during the crime. About 40% of the offenders against children took pictures of their victims to use for self-stimulation later.

By comparison, only 30% of the sex offenders who did not use pornography in their crimes reported pornography being generally available to them. Use of pornography was considerably more common among offenders against children than offenders against adults. Whereas 21% of the offenders against children used pornography in the course of their crimes, only 8% of the offenders against adults used pornography. These overall findings are similar to those of several other studies (e.g., Becker and Stein (1991), Carter, Prentky, Knight, Vanderveer, and Boucher (1987), Howitt (1995), and Langevin et al. (1988)). Moreover, Marshall (1988) compared samples of male sex offenders (including rapists and child molesters) to male non-offenders. He found that when comparing the current "use of any type of 'hard core' sexual stimuli," most groups of sexual offenders generally did use pornography more than non-offenders. For example, in terms of current use, 67% of heterosexual child molesters and 83% of rapists, as compared to 29% of non-offenders, reported currently using pornography. However, he noted that "child molesters do not have markedly higher access to 'kiddie porn' than do other subjects …" (p. 279). Marshall also reported that rapists and child molesters frequently used pornography in a deliberate manner, "while preparing themselves to commit an offense." (p. 267). Elliott, Browne, and Kilcoyne (1995) similarly reported that, of 91 child sex abusers interviewed, 21% said they used pornography to lessen their inhibitions prior to committing child abuse.

Several hypotheses have been advanced as to why a considerable number of child molesters report using pornography in connection with their crimes, even while often reporting the use of adult pornography, rather than exclusively using child pornography. Among these are lack of easy availability of child pornography and its associated illegality. Still others speculate that there are other possible reasons:

"Perhaps the heterosexual adult pornography was intended mainly

> to arouse the child's curiosity. However, a number of the men clearly used the adult materials for a combination of self-stimulation and to groom and excite their victims. Another possible explanation is that these men were aroused by heterosexual adult pornography as well as by child pornography. Men who sexually assault children are a mixed group, some of whom are as attracted to adult women as to children. Others show courtship disorders … in which exhibitionism or voyeurism, for example, may be as stimulating to them as the body characteristics of children …" p. 584, Langevin and Curnoe (2004)

A study in Ireland of a group of thirteen men convicted of downloading child pornography is quite informative, despite the small sample (Quayle & Taylor, 2002). The researchers concluded that child pornography served different functions: e.g., as a masturbatory aid, in facilitating online relationships within communities of pedophiles, and in reinforcing perceived permission to act on fantasies. One interviewee noted that downloaded child pornography "made me want to do the things I wanted to do. It gave me more courage to do them … knowing that I've seen it on there … they were doing it … I can do it." (p. 340). The researchers concluded that for some offenders, child pornography "was used as a substitute for actual offending, whereas for others, it acted as both blueprint and stimulus for a contact offense." (p. 354). Importantly, other studies suggest that sophisticated child sex offenders may be more likely to use pornography as a stimulus to further offense than less-premeditated, less-experienced offenders. Proulx, Perreault, and Ouimet (1999) found that half of a sample of extra-familial child sex offenders who explicitly planned their offenses and who may have had more experience in offending used pornography in the 12 h preceding their offense; only 13% of unpremeditated offenders reported such use. This is a highly statistically significant difference between groups. The type of pornography used was not reported in this study.

The Butner Prison Study (Bourke & Hernandez, 2009), collected data from a residential sexual offender treatment program at the Butner Federal Prison. The study reported that while a majority of the child pornography users (115 of the 155 participants) initially denied any contact offenses with children, by the end of treatment only 24 participants denied that they had actually had at least one hands-on sexual offense, an increase of 59%. The investigators argued that the data proved that this major increase in the number of admitted offenses "challenges the often-repeated assertion that child pornography offenders are 'only' involved with 'pictures'." However, the study indicated that the clear majority reported that they had committed abuse prior to obtaining child pornography.

There has been considerable criticism of this study, however. In particular, one critic argued that the participants may have had an incentive to lie about having committed an offense in order to receive positive reviews from the study's leaders (see United States v. Johnson, 2008). Moreover, some former inmates at Butner reported that the encouragement to accept responsibility for their actions actually led them to "supposedly remember" acts of molestation that they now claimed did not actually happen (Aviv, 2013). Indeed, one of the study's authors (Hernandez, 2009) actually warned against interpreting the study's results as conclusive and indicated that it actually did not address how exposure to child pornography impacts on individuals. It should be noted nonetheless that various other studies using polygraphs have supported the conclusion that official records are likely to underestimate considerably the rate of true offenses among sexual offenders. For example, a line of research using polygraph illustrates this (e.g., see DeLisi et al., 2016).

Another study involved interviewing law enforcement investigators about cases involving internet sex crimes (Wolak, Finkelhor, & Mitchell, 2005). The study indicated that 55% of cases involving child pornography possession involved offenders who had sexually abused children or attempted to do so. However, they found that in cases originating as a child pornography possession investigation, only in one out of six was a dual offender identified.

Findings on recidivism rates are exemplified by a study by Faust et al. (2014) comparing those who were child pornography offenders only to those who had actual physical contact with children as well as being child pornography offenders (referred to as "dual offenders"). Dual offenders showed considerably higher rates of re-offense on various measures of recidivism. Moreover, a recent large national study in Switzerland (Goller, Jones, Dittmann, Taylor, & Graf, 2016) focused on all individuals convicted of an illegal pornography offense since 1973 and followed these offenders until 2008. Almost all of the illegal pornography convictions were for child pornography. Reconvictions were assessed using criminal records. There were a total of 4249 illegal pornography offenders and 363 dual offenders. Comparison of 3-year reconviction rates revealed that of those convicted only of illegal pornography use, only 0.2% were later convicted of child sex offenses, whereas the rate of conviction for any sexual offense was significantly higher for "dual offenders" and was 2.6% for child sex offenses. Very similar rates were found after 5- and 10-year follow-up observations. Since all of these were individuals arrested for child pornography use, we do not have the comparison available in this study alone for those convicted only of child sex offenses other than use of child pornography.

As noted at the outset, the research in this area has many limitations and cannot lead to simple implications vis-à-vis the potential impact of child pornography. However there are some relevant conclusions that seem appropriate to note here. At the least, a considerable minority of sexual offenders against children report that the use of some form of pornography had some salient influence on their criminal behavior. The type of pornography reportedly used in these studies is not necessarily exclusively child pornography and may also include adult pornography. At times, the type of pornography is not reported. It may follow that some readers may conclude, therefore, that any restrictions on the availability of child pornography would be irrelevant, given the easy access to other types of pornography for potential offenders. However, I remind the observer of the research reviewed earlier indicating a strong connection between the use of child pornography and pedophilia and between pedophilia and child molestation. I have emphasized that pedophilia is not in and of itself determinative of child molestation. Given the fact that a substantial percentage of child molesters report that pornography use increased their likelihood of offending, and the fact that those who offended repeatedly against children are more likely (but not necessarily) to be pedophilic, suggests that the availability of child pornography to some offenders may be an aggravating factor.

3.5.2. Non-offender samples

In non-offender (or non-forensic) samples, a separate source of information about the reported association of child pornography with sexual offending comes from an anonymous Internet survey that solicited participants by announcements posted on various Internet sites (Riegel, 2004). Respondents, 290 self-identified "Boy-Attracted Pedosexual Males," reported, among other things, on their viewing of boy erotica, their reasons for viewing it, and its effects upon them. Of the 290 respondents, about one-third (34%) expressed that they viewed boy erotica on the Internet "quite regularly," 26% "frequently," 18% "occasionally," 11% "sporadically," 7% "rarely," and 5% "never." The mean length of usage was about 3.5 years.

When asked to relate if their viewing of boy erotica redirected their sexual urges away from actual sexual contacts with boys, 49% reported that this was the case "invariably," 25% "usually," 10% "frequently," 8% "occasionally," 3% "rarely," and 5% "never." Similarly, 39% reported that their viewing "invariably" had no effect on behavior and was used for entertainment purposes only, 29% "usually" had no effect, 13% "frequently," 9% "occasionally," 7% "rarely," and 3% "never" (i.e., about 10% always or nearly always experienced some behavioral effects).

Phrasing the question another way, respondents were asked if the

use of erotica increased their tendencies for seeking out boys for sexual contacts. 60.5% related that this was "never" the case, 24.0% "rarely," 7.4% "occasionally," 4% "frequently," 2% "usually," and 2% "invariably." Note that although the majority clearly deny that the use of erotica increased tendencies to seek out boys, a total of 39.5% indicated that this has occurred rarely or more often and 15.4% indicating that this has occurred occasionally or more often. However, these self-reported responses reflect the participants' own perceptions of their tendencies, not reports of actual molestation behavior. Alternatively, when asked if, and how often, boy erotica was used as a masturbatory aid, 64% indicated that they used it as a masturbatory aid "frequently," 25% "occasionally," 6% "rarely," and 5% "never." When asked if they used boy erotica to seduce boys, 6% responded "occasionally" or more frequently, 10% "rarely," 7% "once," and 77% "never." Again, it is worth noting that while a majority indicated that they have not used such child pornography to seduce children, 23% reported doing so at least once.

In another description of findings with a non-offender sample (at least comprised of those not known to have been convicted or charged with a sex crime), the investigators reported data from thirty-nine individuals who were assessed at an outpatient clinic due to concerns about their Internet use for sexual purposes (Galbreath, Berlin, & Sawyer, 2002). Fifty-five percent of these outpatients had downloaded child pornography, and 34% had attempted to meet a minor for sex. It is not clear, however, from the information provided whether there was an association between pornography use and attempts to solicit minors for sex.

A related study (Frei, Erenay, Dittmann, & Graf, 2005) looked at individuals who had been convicted of child pornography possession, but the sample was obtained in a rather unusual way. When the owners of an international provider of child pornography were arrested, law enforcement was able to get access to the credit card numbers of many consumers. The researchers examined the characteristics of 33 such consumers of child pornography in the Swiss canton of Lucerne. They examined police files and obtained personal statements from these men, focusing on criminological, psychosocial, and psychosexual data. Although many of these men had not had any long-term intimate relationships, only one had a relevant criminal record. The researchers concluded that although these men clearly had high levels of "deviant sexual fantasies," this was not associated in this sample with actual "contact" crimes.

Ray, Kimonis, and Seto (2013) compared pornography users who report child pornography consumption with those who do not. Participants were recruited on the internet to complete an anonymous online survey focusing on "problematic pornography use." About 21% reported consuming child pornography. Those reporting child pornography exposure were more frequent users of pornography generally, and reported greater interest in engaging in sexual contact with a minor than those not exposed to child pornography.

Seto et al. (2015) reported, in keeping with research described earlier, that both antisociality and sexual deviance predicted self-reported exposure to child pornography in a population-representative sample of 1978 young Swedish men, of whom 4.2% reported ever viewing child pornography. More specifically, seven factors independently predicted child pornography viewing. These included "ever had sex with a male," "likely to have sex with a child aged 12–14", "perception of children as seductive," "having friends who watched child pornography," "frequent pornography use," "ever viewed violent pornography." Similar findings were reported by these investigators in a separate Norwegian sample.

3.6. Factors distinguishing those most at risk for re-offending

The following sections focus further on some studies of the prediction of recidivism among sexual offenders, including child molesters. This serves dual purposes. It should be highlighted that, by and large, researchers have focused on risk factors other than pornography use (of any type). And, when pornography use has been included in a predictive equation, it has been included in a relatively limited way.

To begin with, there have been a considerable number of studies examining variability in risk of re-offending for various crimes. For instance, established risk factors for re-offending in a wide range of crimes, including sexual offenses, are higher levels of employment instability, substance-abuse problems, pro-criminal attitudes, and antisocial personalities, e.g., Hanson and Bussière (1998). Karl Hanson and colleagues have more specifically examined the recidivist tendencies of sex offenders, including child sex offenders, in a series of studies, offering a comprehensive account of sex-offender risk profiles and recidivism. The single best predictor of sexual recidivism was sexual interest in children, as measured by penile response when viewing or listening to child sexual stimuli. The researchers found a 0.32 correlation between phallometrically assessed penile response to the presentation of child sexual stimuli and offender recidivism rates (Hanson, Morton, & Harris, 2003). A meta-analysis (Hanson & Morton-Bourgon, 2005) showed that two factors, labeled "deviant sexual interests" and "antisocial orientation," were the major predictors of recidivism among sexual offenders, whereas antisocial orientation was the only major predictor of recidivism among non-sexual offenders. Other studies have also found support for the relationship between sexual recidivism and pedophilic interests (e.g., Seto & Eke, 2015; Seto, Harris, Rice, & Barbaree, 2004). The fact that deviant sexual interest has been identified as an important predictor of sexual offending (in combination with antisocial characteristics) suggests the possibility that, for some individuals, repeated use of child pornography may both reflect and reinforce pedophilic sexual desires.

An example of research where the investigators concluded that child pornography consumption alone is not a risk factor for later hands-on offenses is a Swiss study (Endrass et al., 2009). The investigators followed 231 men who had been charged with possession of child pornography but very few any known contact offenses for a period of about 6 years. Using a broad definition of recidivism, they found that six years later about 4% had a record of a hands-on sexual offense and about 4% had a record of a hands-off sexual offense.

There have also been research efforts that focused more specifically on child-pornography offenders in relation to other types of sexual offending. Seto and Eke's (2005) studied 201 child-pornography offenders culled from a sex-offender registry. Because registration requires the offender to record charges related to the current offense along with past criminal offenses, the researchers could analyze the relation between prior action and subsequent offending. The researchers were also able to incorporate additional criminological information into their analysis from a national database maintained on violent offenders, including sex offenders. The most relevant analysis in this research divided offenders into three groups, according to their other criminal involvement. The three groups consisted of 49 men with records of nonsexual offending in addition to their child pornography offending, 76 men with records of contact sexual offending in addition to their child pornography offending, and 76 men who had committed child pornography offenses only. This grouping revealed that child-pornography offenders who were also contact sexual offenders were more likely than the child pornography–only offenders to commit a new contact sexual offense in the 2.5-year follow-up period.

These data therefore support the conclusion that the commission of child pornography offenses coupled with an act of molestation poses a greater risk than the commission of a child-pornography offense alone. However, this study lacks the ability to make an adequate comparison between individuals who had committed only another contact offense with those who had committed another contact offense and a child-pornography offense. Such a comparison could have perhaps more clearly indicated whether, above and beyond the commission of other offenses, child-pornography offenses provide additional statistical prediction of later behavior.

Table 3
Relationship between frequency of pornography use and recidivism as a function of risk for sexual aggression for child sexual molesters.

	Low porn frequency user (scores of 1 to 4)	High porn frequency user (scores of 5 to 8)
Low risk (Based on Static99 scores of 0 or 1)	(N = 33)	(N = 36)
Sexual recidivism	9%	19%
Violent recidivism	15%	30%
Any recidivism	24%	50%
High risk (Based on Static99 scores of 2 or higher)	(N = 28)	(N = 33)
Sexual recidivism	10%	24%
Violent recidivism	21%	42%
Any recidivism	43%	55%

"Low risk" = Static-99 scores of 0, 1 and "High risk" represents scores of 2 or greater (this includes individuals who are at least a low-moderate risk or above). Note: Static-99 (and updated version adjusted for age) is the most widely used sex offender risk assessment in the world.
The participants in this sample are extra-familial child molesters who had been convicted of a hands-on sexual offense against an individual under the age of 16 at the time of the offense. Participants were assessed between 1982 and 1992. The follow-up period was assessed upon release to the community and ranged up to 15-years with an average of about 8 years.
Reference for these data: Kingston et al. (2008). Note: This table was computed by Drew Kingston for this article.

Table 4
Relationship between type of pornography use and recidivism as a function of risk for sexual aggression.

	Non-deviant pornography user	Deviant pornography (child and/or violent pornography) user
Low risk (Static99)	N = 56	N = 13
Sexual recidivism	14%	15%
Violent recidivism	21%	30%
Any recidivism	35%	46%
High risk (Static99)	N = 50	N = 10
Sexual recidivism	12%	50%
Violent recidivism	30%	50%
Any recidivism	46%	60%

Low risk = Static-99 scores of 0, 1 and "High risk" represents scores of 2 or greater (this includes individuals who are at least a low-moderate risk or above). Note: Static-99 (and updated version adjusted for age) is the most widely used sex offender risk assessment in the world.
The participants in this sample are extra-familial child molesters who had been convicted of a hands-on sexual offense against an individual under the age of 16 at the time of the offense. Participants were assessed between 1982 and 1992. The follow-up period was assessed upon release to the community and ranged up to 15-years with an average of about 8 years.
Reference for these data: Kingston et al. (2008). Note: This table was computed by Drew Kingston for this article.

Kingston, Fedoroff, Firestone, Curry, and Bradford (2008) followed a sample of 584 adult male sexual offenders, of whom 84 were rapists and 500 were child molesters, over a fifteen-year period after they had been released from jail. They examined whether use of non-deviant and deviant pornography (e.g., child pornography, nonconsenting pornography, bestiality, etc.) enabled better prediction of recidivism. They found that after controlling for other relevant factors, including prior convictions, in keeping with the predictions of the Confluence Model, pornography use was a significant additional predictor of violent (including sexual) recidivism. More specifically, by the end of the fifteen-year follow-up period, 39% of the high-frequency pornography users had re-offended, as compared to 16% of the low-frequency users. Regarding the type of pornography, the researchers found that 37% of the offenders using deviant pornography had recidivated versus 24% of the non-deviant users. At my request for the purposes of this article, Drew Kingston, re-computed their findings in light of the predictions made in Table 1 of the present article and the results are presented herein in Tables 3 and 4. The findings fit very well with the predictions made herein in Table 1.

In a meta-analysis Babchishin, Hanson, and VanZuylen (2015) compared the characteristics of three groups: 1) online child pornography-only offenders, 2) typical (off-line) sex offenders against children, and 3) offenders with both child pornography and contact sex offenses against children (mixed). Using 30 unique studies, the researchers found that sex offenders against children and mixed offenders were found to score higher on indicators of antisociality than those who were online child pornography offenders (CPOs). CPOs were also more likely to have "inhibiting factors" (e.g., greater empathy) to sexual offending than the other two groups. Mixed offenders were found to be the most pedophilic, even more than CPOs. The researchers concluded that child pornography offenders only differed in apparently reduced risk from those who offended against children only, but that those who both offended against children and used child pornography were a particularly high risk group. This provides additional support for the hypothesis that pornography may "add fuel to the fire" in that those with a history of offending who were consumers of child pornography constituted the highest risk group.

In a study in the Netherlands, the researchers examined cases where prior history of victimization of children would predict the final outcome of an investigation into child pornography use. They reported that 90% of the investigations of "dual offenders" resulted in charges for direct victimization, whereas only 10% of the cases were similarly adjudicated for those who did not have any history of victimizing children (i.e., child pornography suspects only). Moreover, among the latter group, it was found that a majority did have some other prior police contacts, charges or other convictions (Smid, 2014).

3.7. Integrating the data on child pornography

In keeping with the emphasis of the Confluence Model, the data reviewed in this section point to varying uses and effects of child pornography for differing consumers. It is important here to recall the distinction between pedophiles (individuals who are sexually aroused by children) and child molesters (individuals who commit acts of sexual molestation against children). To the extent that one can rely on offenders' self-reports, the data suggest that, for many pedophiles, pornography of various types is used in a variety of ways. Some of these individuals believe that such materials may have actually reduced their tendencies to engage in molesting behaviors, while a minority do report the materials cause increased tendencies. For still others, they believe it is used primarily as a masturbatory aid that did not affect their behavioral inclinations.

For a considerable minority of child molesters and other offenders, however, pornography may be used to "groom" children and to "whet the appetites" of molesters for engaging in offending behaviors. Here we see considerable evidence that, for some offenders, pornography is used for self-stimulation prior to committing a sex crime as well as during the crime. Although it is reported that adult pornography has often been associated with child molestation, this may be a function of two facts: that some child molesters are not primarily pedophilic in their sexual arousal patterns, and that the former type of pornography is usually legal, while the latter is not.

For convicted sex offenders, sexual interest in children, as measured by penile response when viewing or listening to child sexual stimuli, emerged as a strong predictor of recidivism, as did deviant sexual preferences more generally. Heavy pornography use may be an indicator of a greater likelihood of recidivism, although the evidence here

is somewhat mixed. While such pornography use may be interpreted as a symptom of "sexual compulsivity" rather than necessarily having a causal role in the strengthening of antisocial tendencies, the two processes are by no means mutually exclusive, and the frequent use of pornography, particularly of certain types, may both reflect and reinforce certain tendencies. It is valuable to recognize that child-pornography offenders without a history of contact sexual offending appear to differ reliably from other child-pornography offenders. While within both groups a substantial percentage indicated pedophilic interests, those who had prior contact offenses and were users of child pornography were much more likely to commit contact sexual offenses during follow-up observation periods.

4. Overall summary and conclusions

Examining the research findings on the factors contributing to sexual aggression, only relatively modest associations have been typically found between any single variable and sexually aggressive outcomes. However, when examining the role of certain risk factors in interaction with other risk factors, in keeping with the Confluence Model, the effects appear much clearer and stronger.

The extensive literature integrated in this article, encompassing several relevant methodologies on adult and on child pornography, converges to clearly support the following conclusions: First, pornography use by itself is not likely to cause people to commit sexual aggression. Second, in interaction with other risk factors that predispose certain individuals to be at more at risk for sexual aggression, exposure to non-consenting adult or to child pornography may increase the risk of aggressive outcomes. More specifically, men predisposed to aggress sexually, based on more "primary" risk factors than pornography use, have been found to be more attracted to non-consenting pornography (and possibly some other forms of "extreme" pornography) than men not pre-disposed to such aggression and to be more adversely affected by exposure to it, an apparent circular causal relationship. In the literature on adult pornography, predisposition to aggress has been measured primarily by high levels on the constellations of Hostile Masculinity and Impersonal Sex. In the child pornography literature, predisposition to aggress has been measured by previous child contact offenses, although there as well a two factor underlying latent structure for has been emerging (e.g., Antisociality and Deviant Sexual Interests). For such high risk men, exposure to either adult or to child non-consenting pornography can add to the risk of committing sexual aggression (i.e., add "fuel to the fire") and in some cases may actually function as a "tipping point" that leads a person at risk who might not act aggressively to actually commit a sexually aggressive offense. Men not predisposed to aggress sexually have not shown increased risk for sexual aggression as a result of exposure to pornography.

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References

Abbey, A., Jacques-Tiura, A. J., & LeBreton, J. M. (2011). Risk factors for sexual aggression in young men: An expansion of the confluence model. *Aggressive Behavior, 37*(5), 450–464. http://dx.doi.org/10.1002/ab.20399.

Allen, M., D'Alessio, D., & Brezgel, K. (1995). A meta-analysis summarizing the effects of pornography II: Aggression after exposure. *Human Communication Research, 22*(2), 258–283. http://dx.doi.org/10.1111/j.1468-2958.1995.tb00368.x.

Allen, M., Emmers, T., Gebhardt, L., & Giery, M. A. (1995). Exposure to pornography and acceptance of rape myths. *The Journal of Communication, 45*(1), 5–26. http://dx.doi.org/10.1111/j.1460-2466.1995.tb00711.x.

Allen, M., D'Alessio, D., & Emmers-Sommer, T. M. (2000). Reactions of criminal sexual offenders to pornography: A meta-analytic summary. In M. Roloff (Vol. Ed.), *Communication Yearbook. 22. Communication Yearbook* (pp. 139–169). Sage: Thousand Oaks CA.

American Psychiatric Association (2000). *Diagnostic and statistical manual of mental disorders* (4th edn., rev. edn.). Washington, DC: Author.

Anderson, C. A., Lindsay, J. J., & Bushman, B. J. (1999). Research in the psychological laboratory: Truth or triviality? *Current Directions in Psychological Science, 8*(1), 3–9. http://dx.doi.org/10.1111/1467-8721.00002.

Aviv, R. (2013). The science of sex abuse. Is it right to imprison people for heinous crimes they have not yet committed? *The New Yorker Magazine*. Retrieved from https://www.newyorker.com/magazine/2013/01/14/the-science-of-sex-abuse (January 14, 2013 issue) .

Babchishin, K. M., Hanson, R. K., & VanZuylen, H. (2015). Online child pornography offenders are different: A meta-analysis of the characteristics of online and offline sex offenders against children. *Archives of Sexual Behavior, 44*(1), 45–66. http://dx.doi.org/10.1007/s10508-014-0270-x.

Bandura, A. (1977). *Social learning theory*. Oxford, England: Prentice-Hall.

Becker, J. V., & Stein, R. M. (1991). Is sexual erotica associated with sexual deviance in adolescent males? *International Journal of Law and Psychiatry, 14*(1–2), 85–95. http://dx.doi.org/10.1016/0160-2527(91)90026-J.

Bogaert, A. F. (2001). Personality, individual differences, and preferences for the sexual media. *Archives of Sexual Behavior, 30*(1), 29–53. http://dx.doi.org/10.1023/A:1026416723291.

Bourke, M. L., & Hernandez, A. E. (2009). The 'butner study' redux: A report of the incidence of hands-on child victimization by child pornography offenders. *Journal of Family Violence, 24*(3), 183–191. http://dx.doi.org/10.1007/s10896-008-9219-y.

Bryant, P., & Linz, D. (2008). The effects of exposure to virtual child pornography on viewer cognitions and attitudes toward deviant sexual behavior. *Communication Research, 35*, 3–38. http://dx.doi.org/10.1177/0093650207309359.

Briere, J., & Runtz, M. (1989). University males' sexual interest in children: Predicting potential indices of "pedophilia" in a nonforensic sample. *Child Abuse & Neglect, 13*(1), 65–75. http://dx.doi.org/10.1016/0145-2134(89)90030-6.

Briere, J., & Smiljanich, K. (1996). Self-reported sexual interest in children: Sex differences and psychosocial correlates in a university sample. *Violence & Victims, 11*(1), 39–50.

Brom, M., Both, S., Laan, E., Everaerd, W., & Spinhoven, P. (2014). The role of conditioning, learning and dopamine in sexual behavior: A narrative review of animal and human studies. *Neuroscience & Biobehavioral Reviews, 38*, 38–59. http://dx.doi.org/10.1016/j.neubiorev.2013.10.014.

Brown, J. D., & L'Engle, K. L. (2009). X-rated: Sexual attitudes and behaviors associated with US early adolescents' exposure to sexually explicit media. *Communication Research, 36*(1), 129–151. http://dx.doi.org/10.1177/0093650208326465.

Carr, J. L., & VanDeusen, K. M. (2004). Risk factors for male sexual aggression on college campuses. *Journal of Family Violence, 19*(5), 279–289. http://dx.doi.org/10.1023/B:JOFV.0000042078.55308.4d.

Carter, D. L., Prentky, R. A., Knight, R. A., Vanderveer, P. L., & Boucher, R. J. (1987). Use of pornography in the criminal and developmental histories of sexual offenders. *Journal of Interpersonal Violence, 2*(2), 196–211. http://dx.doi.org/10.1177/088626087002002005.

Castleman, M. (2016). Evidence mounts: More porn, less sexual assault. *Psychology Today*. Retrieved from https://www.psychologytoday.com/blog/all-about-sex/201601/evidence-mounts-more-porn-less-sexual-assault.

Ceniti, J., & Malamuth, N. M. (1984). Effects of repeated exposure to sexually violent or nonviolent stimuli on sexual arousal to rape and nonrape depictions. *Behaviour Research and Therapy, 22*(5), 535–548. http://dx.doi.org/10.1016/0005-7967(84)90056-1.

Check, J., & Guloine, T. (1989). Reported proclivity for coercive sex following repeated exposure to sexually violent pornography, non-violent dehumanising pornography, and erotica. In D. Zillmann, & J. Bryant (Eds.). *Pornography: Recent research, interpretations, and policy considerations* (pp. 159–184). Hillsdale, NJ: Lawrence Erlbaum Associates, Inc.

Dean, K. E., & Malamuth, N. M. (1997). Characteristics of men who aggress sexually and of men who imagine aggressing: Risk and moderating variables. *Journal of Personality and Social Psychology, 72*(2), 449–455.

DeLisi, M., Caropreso, D. E., Drury, A. J., Elbert, M. J., Evans, J. L., Heinrichs, T., & Tahja, K. M. (2016). The dark figure of sexual offending: New evidence from federal sex offenders. *Journal of Criminal Psychology, 6*(1), 3–15. http://dx.doi.org/10.1108/JCP-12-2015-0030.

Diamond, M. (2009). Pornography, public acceptance and sex related crime: A review. *International Journal of Law and Psychiatry, 32*(5), 304–314. http://dx.doi.org/10.1016/j.ijlp.2009.06.004.

Diamond, M., & Uchiyama, A. (1999). Pornography, rape, and sex crimes in Japan. *International Journal of Law and Psychiatry, 22*(1), 1–22. http://dx.doi.org/10.1016/S0160-2527(98)00035-1.

Dines, G. (2010). *Pornland: How porn has hijacked our sexuality*. Boston, MA: Beacon Press.

Dombert, B., Schmidt, A. F., Banse, R., Briken, P., Hoyer, J., Neutze, J., & Osterheider, M. (2016). How common is men's self-reported sexual interest in prepubescent children? *The Journal of Sex Research, 53*(2), 214–223. http://dx.doi.org/10.1080/00224499.2015.1020108.

Elliott, M., Browne, K., & Kilcoyne, J. (1995). Child sexual abuse prevention: What offenders tell us. *Child Abuse & Neglect, 19*(5), 579–594. http://dx.doi.org/10.1016/0145-2134(95)00017-3.

Endrass, J., Urbaniok, F., Hammermeister, L. C., Benz, C., Elbert, T., Laubacher, A., & Rossegger, A. (2009). The consumption of internet child pornography and violent and sex offending. *BMC Psychiatry, 9*(1), 43. http://dx.doi.org/10.1186/1471-244X-9-43.

Faust, E., Bickart, W., Renaud, C., & Camp, S. (2014). Child pornography possessors and child contact sex offenders: A multilevel comparison of demographic characteristics and rates of recidivism. *Sexual Abuse: A Journal of Research and Treatment, 27*(5), 460–478. http://dx.doi.org/10.1177/1079063214521469.

Ferguson, C. J., & Hartley, R. D. (2009). The pleasure is momentary… the expense

damnable?: The influence of pornography on rape and sexual assault. *Aggression and Violentgoldstein Behavior, 14*(5), 323–329. http://dx.doi.org/10.1016/j.avb.2009.04.008.
Fisher, W. A., & Grenier, G. (1994). Violent pornography, antiwoman thoughts, and antiwoman acts: In search of reliable effects. *Journal of Sex Research, 31*(1), 23–38. http://dx.doi.org/10.1080/00224499409551727.
Fisher, W. A., Kohut, T., Gioacchino, L. A., & Fedoroff, P. (2013). Pornography, sex crime, and paraphilia. *Current Psychiatry Reports, 15*(6), 362. http://dx.doi.org/10.1007/s11920-013-0362-7.
Ford, M. E., & Linney, J. A. (1995). Comparative analysis of juvenile sexual offenders, violent nonsexual offenders, and status offenders. *Journal of Interpersonal Violence, 10*(1), 56–70. http://dx.doi.org/10.1177/088626095010001004.
Foubert, J. D., & Bridges, A. J. (2017). Predicting bystander efficacy and willingness to intervene in college men and women: The role of exposure to varying levels of violence in pornography. *Violence Against Women, 23*(6), 692–706. http://dx.doi.org/10.1177/1077801216648793.
Frei, A., Erenay, N., Dittmann, V., & Graf, M. (2005). Paedophilia on the Internet—A study of 33 convicted offenders in the canton of lucerne. *Swiss Medical Weekly, 135*(33–34), 488–494 doi: 10.1.1.462.6331&rep = rep1&type = pdf.
Galbreath, N. W., Berlin, F. S., & Sawyer, D. (2002). Paraphilias and the internet. In A. Cooper (Ed.). *Sex and the internet: A guidebook for clinicians* (pp. 187–205). New York, NY: Brunner-Routledge.
Goldstein, M. J., & Kant, H. S. (1973). *Pornography and sexual deviance: A report of the legal and behavioral institute.* Beverly Hills, CA: U. of California Press.
Goller, A., Jones, R., Dittmann, V., Taylor, P., & Graf, M. (2016). Criminal recidivism of illegal pornography offenders in the overall population—A national cohort study of 4612 offenders in Switzerland. *Advances in Applied Sociology, 6*(2), 48–56. http://dx.doi.org/10.4236/aasoci.2016.62005.
Hald, G. M., Malamuth, N. M., & Yuen, C. (2010). Pornography and attitudes supporting violence against women: Revisiting the relationship in nonexperimental studies. *Aggressive Behavior, 36*(1), 14–20. http://dx.doi.org/10.1002/ab.20328.
Hald, G. M., Malamuth, N. N., & Lange, T. (2013). Pornography and sexist attitudes among heterosexuals. *The Journal of Communication, 63*(4), 638–660. http://dx.doi.org/10.1111/jcom.12037.
Hall, G. C. N., Hirschman, R., & Oliver, L. L. (1995). Sexual arousal and arousability to pedophilic stimuli in a community sample of normal men. *Behavior Therapy, 26*(4), 681–694. http://dx.doi.org/10.1016/S0005-7894(05)80039-5.
Hall, G. C. N., Shondrick, D. D., & Hirschman, R. (1993). The role of sexual arousal in sexually aggressive behavior: A meta-analysis. *Journal of Consulting and Clinical Psychology, 61*(6), 1091–1095. http://dx.doi.org/10.1037/0022-006X.61.6.1091.
Hanson, R. K., & Bussière, M. T. (1998). Predicting relapse: A meta-analysis of sexual offender recidivism studies. *Journal of Consulting and Clinical Psychology, 66*(2), 348–362. http://dx.doi.org/10.1037/0022-006X.66.2.348.
Hanson, R. K., Morton, K. E., & Harris, A. J. (2003). Sexual offender recidivism risk. *Annals of the New York Academy of Sciences, 989*(1), 154–166. http://dx.doi.org/10.1111/j.1749-6632.2003.tb07303.x/full.
Hanson, R. K., & Morton-Bourgon, K. E. (2005). The characteristics of persistent sexual offenders: A meta-analysis of recidivism studies. *Journal of Consulting and Clinical Psychology, 73*(6), 1154–1163. http://dx.doi.org/10.1037/0022-006X.73.6.1154.
Harris, G. T., Lalumière, M. L., Seto, M. C., Rice, M. E., & Chaplin, T. C. (2012). Explaining the erectile responses of rapists to rape stories: The contributions of sexual activity, non-consent, and violence with injury. *Archives of Sexual Behavior, 41*(1), 221–229. http://dx.doi.org/10.1007/s10508-012-9940-8.
Hawes, S. W., Boccaccini, M. T., & Murrie, D. C. (2013). Psychopathy and the combination of psychopathy and sexual deviance as predictors of sexual recidivism: Meta-analytic findings using the Psychopathy Checklist—Revised. *Psychological Assessment, 25*(1), 233–243. http://dx.doi.org/10.1037/a0030391.
Hernandez, A. E. (2009, April). Psychological and behavioural characteristics of child pornography offenders in treatment. *Paper presented at the global symposium for examining the relationship between online and offline offenses and preventing the sexual exploitation of children.* Chapel Hill, NC: University of North Carolina.
Howitt, D. (1995). Pornography and the paedophile: Is it criminogenic? *Psychology and Psychotherapy: Theory, Research and Practice, 68*(1), 15–27. http://dx.doi.org/10.1111/j.2044-8341.1995.tb01810.x.
Huppin, M., & Malamuth, N. M. (2016). Sexual coercion. In D. Buss (Ed.). *Handbook of evolutionary psychology: Volume 1, foundations* (pp. 462–481). (2nd ed.). New York, NY: Wiley.
Kingston, D. A., Fedoroff, P., Firestone, P., Curry, S., & Bradford, J. M. (2008). Pornography use and sexual aggression: The impact of frequency and type of pornography use on recidivism among sexual offenders. *Aggressive Behavior, 34*(4), 341–351. http://dx.doi.org/10.1002/ab.20250.
Kingston, D. A., Malamuth, N. M., Fedoroff, P., & Marshall, W. L. (2009). The importance of individual differences in pornography use: Theoretical perspectives and implications for treating sexual offenders. *Journal of Sex Research, 46*(2–3), 216–232. http://dx.doi.org/10.1080/00224490902747701.
Koletić, G. (2017). Longitudinal associations between the use of sexually explicit material and adolescents' attitudes and behaviors: A narrative review of studies. *Journal of Adolescence, 57*, 119–133. http://dx.doi.org/10.1016/j.adolescence.2017.04.006.
Lalumière, M. L., & Quinsey, V. L. (1996). Sexual deviance, antisociality, mating effort, and the use of sexually coercive behaviors. *Personality and Individual Differences, 21*(1), 33–48. http://dx.doi.org/10.1016/0191-8869(96)00059-1.
Lalumière, M. L., & Quinsey, V. L. (1998). Pavlovian conditioning of sexual interests in human males. *Archives of Sexual Behavior, 27*(3), 241–252. http://dx.doi.org/10.1023/A:1018686817316.
Lalumière, M. L., Quinsey, V. L., Harris, G. T., Rice, M. E., & Trautrimas, C. (2003). Are rapists differentially aroused by coercive sex in phallometric assessments? *Annals of the New York Academy of Sciences, 989*(1), 211–224. http://dx.doi.org/10.1111/j.1749-6632.2003.tb07307.x.
Lamberson, P. J., Scott, E., & Page, S. E. (2012). Tipping points. *Quarterly Journal of Political Science, 7*, 175–208. http://dx.doi.org/10.1561/100.00011061.
Langevin, R., & Curnoe, S. (2004). The use of pornography during the commission of sexual offenses. *International Journal of Offender Therapy and Comparative Criminology, 48*(5), 572–586. http://dx.doi.org/10.1177/0306624X03262518.
Langevin, R., Lang, R. A., Wright, P., Handy, L., Frenzel, R. R., & Black, E. L. (1988). Pornography and sexual offences. *Annals of Sex Research, 1*(3), 335–362. http://dx.doi.org/10.1177/107906328800100301.
Malamuth, N. M. (1981). Rape fantasies as a function of exposure to violent-sexual stimuli. *Archives of Sexual Behavior, 10*(1), 33–47. http://dx.doi.org/10.1007/BF01542673.
Malamuth, N. M. (1986). Predictors of naturalistic sexual aggression. *Journal of Personality and Social Psychology, 50*(5), 953–962. http://dx.doi.org/10.1037//0022-3514.50.5.953.
Malamuth, N. M., Addison, T., & Koss, M. (2000). Pornography and sexual aggression: Are there reliable effects and can we understand them? *Annual Review of Sex Research, 11*, 26–91. http://dx.doi.org/10.1080/10532528.2000.10559784.
Malamuth, N. M, & Check, J. V. P. (1981). The effects of mass media exposure on acceptance of violence against women: A field experiment. *Journal of Research in Personality, 15*, 436–446.
Malamuth, N. M., & Check, J. V. (1983). Sexual arousal to rape depictions: Individual differences. *Journal of Abnormal Psychology, 92*(1), 55–67. http://dx.doi.org/10.1037/0021-843X.92.1.55.
Malamuth, N. M., & Check, J. V. (1985). The effects of aggressive pornography on beliefs in rape myths: Individual differences. *Journal of Research in Personality, 19*(3), 299–320. http://dx.doi.org/10.1016/0092-6566(85)90021-2.
Malamuth, N. M., & Hald, G. M. (2017). The confluence mediational model of sexual aggression. In A. R. Beech, & T. Ward (Eds.). *Volume I: Theories. The wiley handbook on the theories, assessment and treatment of sexual offending* (pp. 53–71). (2nd ed.). Oxford, UK: Wiley.
Malamuth, N. M., Hald, G. M., & Koss, M. (2012). Pornography, individual differences in risk and men's acceptance of violence against women in a representative sample. *Sex Roles, 66*(7–8), 427–439. http://dx.doi.org/10.1007/s11199-011-0082-6.
Malamuth, N. M., & Huppin, M. (2005). Pornography and teenagers: The importance of individual differences. *Adolescent Medicine Clinics, 16*(2), 315–326. http://dx.doi.org/10.1016/j.admecli.2005.02.004.
Malamuth, N. M., & Huppin, M. (2006). Drawing the line on virtual child pornography: Bringing the law in line with the research evidence. *NYU Review of Law & Social Change, 31*, 773–911.
Malamuth, N. M., Lamade, R. V., Schreiber, J., Dickinson, Lopez, E., Koss, M. P., & Prentky, R. A. (2017, August). Factors associated with predicting sexual aggression. *Paper presented at the annual meeting of the American Psychological Association Convention, Washington, D.C.*
Malamuth, N. M., Linz, D., Heavey, C. L., Barnes, G., & Acker, M. (1995). Using the confluence model of sexual aggression to predict men's conflict with women: A ten year follow-up study. *Journal of Personality and Social Psychology, 69*(2), 353–369. http://dx.doi.org/10.1037/0022-3514.69.2.353.
Marshall, W. L. (1988). The use of sexually explicit stimuli by rapists, child molesters, and nonoffenders. *Journal of Sex Research, 25*(2), 267–288. http://dx.doi.org/10.1080/00224498809551459.
Ost, S. (2002). Children at risk: Legal and societal perceptions of the potential threat that the possession of child pornography poses to society. *Journal of Law and Society, 29*(3), 436–460. http://dx.doi.org/10.1111/1467-6478.00227.
Perry, S. L., & Schleifer, C. (2017). Till porn do us part? A longitudinal examination of pornography use and divorce. *The Journal of Sex Research,* 1–13. http://dx.doi.org/10.1080/00224499.2017.1317709.
Peter, J., & Valkenburg, P. M. (2016). Adolescents and pornography: A review of 20 years of research. *The Journal of Sex Research, 53*(4–5), 509–531. http://dx.doi.org/10.1080/00224499.2016.1143441.
Plaud, J. J., & Martini, J. R. (1999). The respondent conditioning of male sexual arousal. *Behavior Modification, 23*(2), 254–268. http://dx.doi.org/10.1177/0145445599232004.
Proulx, J., Perreault, C., & Ouimet, M. (1999). Pathways in the offending process of extrafamilial sexual child molesters. *Sexual Abuse: A Journal of Research and Treatment, 11*(2), 117–129. http://dx.doi.org/10.1177/107906329901100203.
Quayle, E., & Taylor, M. (2002). Child pornography and the Internet: Perpetuating a cycle of abuse. *Deviant Behavior, 23*(4), 331–361. http://dx.doi.org/10.1080/01639620290086413.
Quinsey, V. L., Steinman, C. M., Bergersen, S. G., & Holmes, T. F. (1975). Penile circumference, skin conductance, and ranking responses of child molesters and "normals" to sexual and nonsexual visual stimuli. *Behavior Therapy, 6*(2), 213–219. http://dx.doi.org/10.1016/S0005-7894(75)80143-2.
Ray, J. V., Kimonis, E. R., & Seto, M. C. (2013). Correlates and moderators of child pornography consumption in a community sample. *Sexual Abuse, 26*(6), 523–545. http://dx.doi.org/10.1177/1079063213502678.
Riegel, D. L. (2004). Letter to the editor: Effects on boy-attracted pedosexual males of viewing boy erotica. *Archives of Sexual Behavior, 33*(4), 321–323. http://dx.doi.org/10.1023/B:ASEB.0000029071.89455.53.pdf.
Robers, S., Kemp, J., Rathbun, A., Morgan, R. E., & Snyder, T. D. (2014). *Indicators of school crime and safety.* Washington, DC: National Center for Education Statistics, U.S. Department of Education, and Bureau of Justice Statistics, Office of Justice Programs, U.S. Department of Justice2013. Retrieved from https://timedotcom.files.wordpress.com/2014/06/2014042.pdf.
Rymel, T. (2016). Does pornography lead to sexual assault? *Huffington Post.*. Retrieved

from https://www.huffingtonpost.com/entry/does-pornography-lead-to-sexual-assault_us_57c0876ae4b0b01630de8c93.
Seto, M. C. (2004). Pedophilia and sexual offenses against children. *Annual Review of Sex Research, 15*(1), 321–361. http://dx.doi.org/10.1080/10532528.2004.10559823.
Seto, M. C., Cantor, J. M., & Blanchard, R. (2006). Child pornography offenses are a valid diagnostic indicator of pedophilia. *Journal of Abnormal Psychology, 115*(3), 610–615. http://dx.doi.org/10.1037/0021-843X.115.3.610.
Seto, M. C., & Eke, A. W. (2005). The criminal histories and later offending of child pornography offenders. *Sexual Abuse: A Journal of Research and Treatment, 17*(2), 201–210. http://dx.doi.org/10.1177/107906320501700209.
Seto, M. C., & Eke, A. W. (2015). Predicting recidivism among adult male child pornography offenders: Development of the child pornography offender risk tool (CPORT). *Law and Human Behavior, 39*(4), 416–429. http://dx.doi.org/10.1037/lhb0000128.
Seto, M. C., Harris, G. T., Rice, M. E., & Barbaree, H. E. (2004). The screening scale for pedophilic interests predicts recidivism among adult sex offenders with child victims. *Archives of Sexual Behavior, 33*(5), 455–466. http://dx.doi.org/10.1023/B:ASEB.0000037426.55935.9c.
Seto, M. C., Hermann, C. A., Kjellgren, C., Priebe, G., Svedin, C. G., & Långström, N. (2015). Viewing child pornography: Prevalence and correlates in a representative community sample of young Swedish men. *Archives of Sexual Behavior, 44*(1), 67–79. http://dx.doi.org/10.1007/s10508-013-0244-4.
Seto, M. C., & Lalumière, M. L. (2010). What is so special about male adolescent sexual offending? *Psychological Bulletin, 136*(4), 526–575. http://dx.doi.org/10.1037/a0019700.
Seto, M. C., Lalumière, M. L., Harris, G. T., & Chivers, M. L. (2012). The sexual responses of sexual sadists. *Journal of Abnormal Psychology, 121*(3), 739–753. http://dx.doi.org/10.1037/a0028714.
Smid, W. J. (2014). *Sex offender risk assessment in the Netherlands: Towards a risk need responsivity oriented approach. Doctoral dissertation.* van Amsterdam: Universiteit.
Taguchi, S. (2015). The relationship between acknowledging sexual interest in prepubescent girls and sexual offence, personal factors and child pornography use. *Japanese Journal of Forensic Science and Technology, 20*(2), 175–183. http://dx.doi.org/10.3408/jafst.689.
Tomaszewska, P., & Krahé, B. (2018). Predictors of sexual aggression victimization and perpetration among polish university students: A longitudinal study. *Archives of Sexual Behavior, 47*(2), 493–505. http://dx.doi.org/10.1007/s10508-016-0823-2.
United States v. Johnson (2008). *588 F. Supp. 2d 997, 1006 (S.D. Iowa)*.
Vega, V., & Malamuth, N. M. (2007). Predicting sexual aggression: The role of pornography in the context of general and specific risk factors. *Aggressive Behavior, 33*(2), 104–117. http://dx.doi.org/10.1002/ab.20172.
Visser, B. A., DeBow, V., Pozzebon, J. A., Bogaert, A. F., & Book, A. (2015). Psychopathic sexuality: The thin line between fantasy and reality. *Journal of Personality, 83*(4), 376–388. http://dx.doi.org/10.1111/jopy.12110.
Waltman, M. (2017). Appraising the impact of toward a feminist theory of the state: Consciousness-raising, hierarchy theory, and substantive equality laws. *Law & Inequality: A Journal of Theory and Practice, 35*, 353–391.
Ward, M. L. (2016). Media and sexualization: State of empirical research, 1995–2015. *The Journal of Sex Research, 53*(4–5), 560–577. http://dx.doi.org/10.1080/00224499.2016.1142496.
Wheeler, D. L. (1997). The relationship between pornography usage and child molesting. *Dissertation Abstracts International Series A: Humanities & Social Sciences, 57*(8-A), 3691.
Wolak, J., Finkelhor, D., & Mitchell, K. J. (2005). Child pornography possessors arrested in Internet-related crimes. Alexandria, VA: Department of Justice, National Center for Missing and Exploited Children. Retrieved from http://www.missingkids.com/en_US/publications/NC144.pdf doi: https://doi.org/10.1177/1079063210382043.
Wright, P. J. (2013). A three-wave longitudinal analysis of preexisting beliefs, exposure to pornography, and attitude change. *Communication Reports, 26*(1), 13–25. http://dx.doi.org/10.1080/08934215.2013.773053.
Wright, P. J., Tokunaga, R. S., & Kraus, A. (2015). A meta-analysis of pornography consumption and actual acts of sexual aggression in general population studies. *The Journal of Communication, 66*(1), 183–205. http://dx.doi.org/10.1111/jcom.12201.
Yang, D. O., & Youn, G. (2012). Effects of exposure to pornography on male aggressive behavioral tendencies. *The Open Psychology Journal, 5*(1), 1–10. http://dx.doi.org/10.2174/1874350101205010001.
Ybarra, M. L., Mitchell, K. J., Hamburger, M., Diener-West, M., & Leaf, P. J. (2011). X-rated material and perpetration of sexually aggressive behavior among children and adolescents: Is there a link? *Aggressive Behavior, 37*(1), 1–18. http://dx.doi.org/10.1002/ab.20367.
Ybarra, M. L., & Thompson, R. E. (2017). Predicting the emergency of sexual violence in adolescence. *Prevention Science,* 1–13. http://dx.doi.org/10.1007/s11121-017-0810-4.