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The Importance of Individual Differences in Pornography Use: Theoretical Perspectives and Implications for Treating Sexual Offenders

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The Importance of Individual Differences in Pornography Use: Theoretical Perspectives and Implications for Treating Sexual Offenders

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This article reviews the extant literature regarding pornography's influence on antisocial attitudes, sexual arousal, and sexually aggressive behavior in both noncriminal and criminal samples. The article concludes that when examined in the context of multiple, interacting factors, the findings are highly consistent across experimental and nonexperimental studies and across differing populations in showing that pornography use can be a risk factor for sexually aggressive outcomes, principally for men who are high on other risk factors and who use pornography frequently. Finally, this article presents theoretical implications based on these findings, as well as some clinical implications relevant to the assessment and treatment of sexual offenders.

The influence of pornography on attitudes and behaviors has been a long-standing question that has provoked considerable debate among researchers. In general, investigations focusing on sexual media have often been divided into two categories, based on whether sexual content is embedded within a larger context. Embedded sexual media can be illustrated by a TV soap opera in which some of the scenes, although typically not the majority, include references to or actual portrayals of sexual interactions, depicting varying degrees of sexual explicitness. The second category, typically referred to as “pornography,” is primarily intended to sexually arouse the consumer and predominantly contains explicit sexual content.

Although the focus of this article is on pornography, we believe that it is useful to briefly summarize some of the findings on embedded sexual media because the conclusions reached therein reinforce findings from pornography research and related theoretical models

emphasizing that media's effects interact with other key factors in influencing people's desires, attitudes, and behaviors.

Embedded Sexual Content

Content analyses have generally shown dramatic increases in sexual content in the last 2 decades in popular media (e.g., television, movies), with only a small fraction emphasizing any risks or advantages of birth control or abstinence (Kunkel et al., 2003). Studies on the effects of such content have often focused on youth, particularly adolescents, whose attitudes and behaviors may be particularly malleable and for whom engaging in certain sexual activities may be judged as less appropriate (L. M. Ward, 2003).

In surveys, teens have generally ranked entertainment media as a very influential source for shaping their knowledge and views about sexuality and sexual health, and they believe such media exerts considerable pressure on them to become sexually active. Researchers using systematic studies of whether such effects occur have shown media experiences as one of the complex interacting factors that have significant influence for many, albeit not all, people. Results have primarily been derived from (a) correlational research in naturalistic

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settings, and (b) experimental research designs, usually limited to laboratory settings. When researchers' findings have converged from both types of methodologies, the ability to infer causation in naturalistic settings has improved, although caution is certainly needed in inferring causation based on correlational data alone.

Some longitudinal data have been particularly useful for ascertaining long-term media effects. In one study (Collins et al., 2004), investigators conducted a national telephone survey in 2001 and 2002 in which 1,792 adolescents were surveyed. Important associations were found between amount of sexual content viewed at Time 1 and sexual behavior at Time 2. For example, the likelihood that adolescents would have sexual intercourse over the year in question doubled for those adolescents residing in the 90th percentile in their exposure to sexual TV content as against those in the 10th percentile. In another large longitudinal study, J. D. Brown et al. (2006) surveyed White and Black adolescents from the Southeast United States, and their results indicated media effects for the former but not the latter. J. D. Brown et al. measured the teens' "sexual media diet" (SMD) at baseline, an amalgamated measure evaluating relative exposure from four media: television, movies, music, and magazines. After controlling for factors such as parental disapproval of teen sex and peer sexual norms, the subsequent sexual behaviors of Black adolescents was unrelated to baseline SMD. In contrast, for White teens, even after controlling for other factors, those who had reported the largest SMD at baseline (i.e., those in the top quintile) were 2.2 times more likely than those in the bottom quintile to have had sexual intercourse 2 years later (J. D. Brown et al., 2006). Baseline SMD also predicted precoital sexual behaviors for White but not Black adolescents. Clear parental communication about sex was a strong protective factor against the early initiation of sexual behaviors for both Black and White adolescents. These data support the importance of individual differences based on various factors that may moderate the impact of mass media exposure.

Results from nonlongitudinal research have also pointed to some significant associations. For example, in a study assessing effects of SMD in relation to other contextual factors, investigators found that SMD accounted for more of the variance in adolescent intentions to have sexual intercourse than religious and school factors, but less than peer, parental, and demographic factors. After controlling for these other factors, SMD added a small but significant contribution to the prediction of adolescent sexual intentions (L'Engle, Brown, & Kenneavy, 2006). In another study, Pardun, L'Engle, and Brown (2005) indicated that only music and movie constituents of SMD were strongly associated with adolescent sexual behavior variables (i.e., light and heavy sexual activity), although all four components were found to be significantly associated with adolescent sexual intentions.

Relatively reliable effects of media on attitudinal variables have been found regarding exposure to highly sexual media genres (i.e., soap operas and music videos). These studies also suggested that individual difference factors such as viewer involvement may be influential in determining outcome behaviors. It has also been found that greater exposure to soap operas and music videos is associated with more stereotypical sexual attitudes, greater endorsement of dysfunctional relationship models, and greater acceptance of sexual harassment. Similarly, greater exposure to sexually oriented media genres is associated with adolescent perceptions that "everybody is doing it," referring not only to perceptions about sex, but also affairs, abortions, divorce, and having children out of wedlock. Correlational findings appear to be somewhat stronger and more consistent among women than men, and it should be emphasized that results have been inconsistent with regard to other media types (e.g., exposure to primetime television programming; L. M. Ward, 2003).

In laboratory experiments (i.e., one group is exposed to sexual content, another to neutral content, with the two groups then compared on outcome measures), evidence has suggested that participants exposed to highly sexual media genres become more accepting of casual and stereotypical attitudes about sex and relationships, and that their real-world perceptions come to reflect such media exposure. For example, students exposed to particular types of music videos are subsequently more accepting of sexual harassment than are students exposed to neutral media content. Although many experimentally induced attitudinal changes are likely temporary, to the extent that experimental conditions are habitually replicated in real-world environments, enduring attitudinal changes can be expected (L. M. Ward, 2003).

What of changes in actual sexual behaviors? Again, total media exposure (e.g., total television viewing) has not been linked with behavioral changes, but specific genres, such as music videos and soap operas, have yielded stronger results (L. M. Ward, 2003). Frequent viewing of music videos is associated with more sexual experience and more sexual partners for young women. For men, frequent viewing of television programs containing sexual content has shown similar associations. Last, longitudinal studies demonstrate predictive relations between sexual media exposure and early initiation of sexual behaviors, although associations may vary by demographic variables such as race and age (J. D. Brown et al., 2006).

Pornography

Defining Pornography

Defining and classifying materials that constitute pornography has proven somewhat elusive and has varied considerably across time and across different social

and cultural contexts (Træen, Nilsen, & Stigum, 2006). U.S. Supreme Court Justice Potter Stewart admitted, although he could not define pornography, “he knew it when he saw it” (*Jacobellis v. Ohio*, 1964). Various commissions have acknowledged the difficulties associated with this concept. Members of the 1970 United States Commission of Obscenity and Pornography complained that attempts to draw conclusions about the effects of pornography were marked by confusion over terminology. In addition, the Attorney General’s Commission on Pornography (1986) noted that “the range of materials to which people are likely to affix the designation ‘pornographic’ seems to mean in practice any discussion or depiction of sex to which the person using the word objects” (United States Department of Justice, 1986, p. 227).

In general, the terms *pornography* and *sexually explicit material* have been utilized as overarching conceptualizations describing various media materials (e.g., films, Internet) displaying sexual content (sexual acts or body parts) that are primarily designed to stimulate sexual arousal (Allen, 1991; Mundorf, Allen, D’Alessio, & Emmers-Sommer, 2007). In one study, Senn and Radtke (1990) differentiated between erotica, nonviolent pornography, and violent pornography:

1. Erotica, which was defined as sexual “images that have as their focus the depiction of mutually pleasurable sexual expression between people who have enough power to be there by positive choice. . . . They have no sexist or violent connotations and are hinged on equal power dynamics between individuals as well as between the model(s) and the camera/photographer” (p. 144).
2. Nonviolent pornography, which was defined as sexual “images that have no explicitly violent content but may imply acts of submission or violence by the positioning of the models or the use of props. They may also imply unequal power relationships by differential dress, costuming, positioning . . . or by setting up the viewer as voyeur (the model is engaged in some solitary activity and seems totally unaware or very surprised to find someone looking at her)” (p. 144).
3. Violent pornography, which was defined as sexual “images that portray explicit violence of varying degrees perpetrated against one individual by another” (p. 144).

Using these categories in research, Senn and Radtke (1990) found that their participants (female Canadian undergraduates) could reliably differentiate between these categories of materials. For the stimuli used (depictions taken from *Playboy*, *Penthouse*, and *Hustler*), there was considerable agreement on about 75% of the materials, but considerable disagreement

on about 25% of the materials. Their findings also showed that exposure to different categories of materials produced different effects. For example, violent and nonviolent pornography were negatively evaluated, whereas erotica was positively evaluated. In addition, participants exposed to violent and nonviolent pornography had increased mood disturbance, whereas those exposed to erotica or a control condition did not experience such negative effects, suggesting that different types of material produce different effects. Although these distinctions have proven reliable and useful in experimental designs (e.g., Senn & Radtke, 1990), it is difficult to operationalize distinctions across type of pornography content in naturalistic settings, as what may be considered deviant (e.g., violent) and nondeviant are often interspersed (Malamuth, Addison, & Koss, 2000).

Pornography Use and Its Correlates

The sale of pornography in various media, including magazines, video, cable television, and the Internet is an extremely large multibillion-dollar industry. In recent years, there has been a great increase in the use of the Internet to access pornography, which has, in part, been influenced by the easy accessibility, affordability, and anonymity provided to its users (Cooper, 1998). Indeed, recent reports have suggested that easily available sexually explicit materials are one of the most widely used materials or searched topics on the Internet (D. Brown, 2003; Lam & Chan, 2007).

Individuals who seek out sexual images in one type of media often seek it in other media. For example, among 745 Dutch adolescents, a very high correlation was found between frequency of exposure to sexually explicit content on the Internet and to R- and X-rated TV, movies, and magazines (Peter & Valkenburg, 2006). Studies differentiating among different media exposure, however, suggest the strongest associations for the Internet. For example, in a recent survey of 2,001 Taiwanese adolescents (Lo & Wei, 2005), 38% of whom indicated that they had accessed pornographic Web sites, significant correlations were found between Internet pornography exposure and permissive sexual attitudes and behavior, even when demographic variables, general media use, and exposure to traditional pornography were statistically controlled. Exposure to Internet pornography showed even stronger associations with sexual attitudes and behavior than did exposure to traditional pornography.

Although both genders show considerable pornography use in many cultures, researchers have shown that men are much more likely to be the consumers and to use it, particularly as masturbatory stimuli, across all cultures (Malamuth, 1996). This is even true in countries, such as Denmark that have a long history of sexual permissiveness toward both male and female sexuality (Hald, 2006). Most of the research on the effects of pornography has, therefore, focused on men.

Pornography Use and Sexual Aggression

One of the main foci of this article is on the potential association between pornography use and sexual aggression, particularly as it may be relevant to adjudicated sexual offenders. Given the pornography industry's tremendous growth and accessibility, evidence for or against a link between such material and sexual aggression among sexual offenders would be important to public policy debates and legislation, as well as the assessment and treatment of these individuals (Seto, Maric, & Barbaree, 2001). In this article, we review the current research on pornography's role in sexual aggression and consider the evidence for such use in facilitating an individual's sexual arousal, negative attitudes and beliefs, and inciting aggressive behavior. We also highlight the utility of adopting a cumulative–conditional–probability risk approach for investigating the relation between pornography and aggression, as this method allows for the examination of potentially important moderating characteristics. Finally, we review some recent studies employing this approach and formulate theoretical mechanisms based on these findings, as well as provide some implications for clinical work with sexual offenders.

The Use of Aggregate Data in Determining Causal Effects

What methodology is appropriate to address the question of a possible relation between pornography consumption and sexual aggression? Some researchers have argued for examining the association between the availability of pornography and sex crime rates at the aggregate level (i.e., examining entire societies).

This approach is in the tradition of various cross-national studies in which investigators have attempted to identify important societal indicators as predictors of problematic behavior. For example, some investigators have identified an association between economic inequality and homicide rates (e.g., LaFree, 1999), suggesting that the former, through a variety of mechanisms, influences the likelihood of homicide in a particular society. This methodology has been used to evaluate the relation between pornography and aggression, specifically the correlation between the availability of pornography in a society and fluctuations in the incidence of sexual crimes.

The methodological limitations inherent in these studies on pornography have been discussed in detail by Malamuth and Pitpitan (2007). Similarly, Zimring (2006) has effectively shown how the various explanations for the decline in crime in America ostensibly supported at the “aggregate level” are not well supported when examined in a more precise and critical manner.

Individual-Level Analyses in Determining Casual Effects

In contrast to population-based studies, other researchers have attempted to investigate the existence of a causal link between pornography and aggression at the individual level. These researchers have typically employed experimental paradigms in which participants are exposed to various forms of sexually explicit material and subsequently assessed on their physiological arousal (Malamuth & Check, 1981; Marshall, Seidman, & Barbaree, 1991), negative attitudes and beliefs typically toward women (Allen, Emmers, Gebhardt, & Giery, 1995; Malamuth & Check, 1981; Marshall, 2000), or aggressive behavior (Kingston, Fedoroff, Firestone, Curry, & Bradford, 2008; Vega & Malamuth, 2007).

In identifying these outcome variables, various assessment methods have been used, such as self-reported propensity to sexually aggress, physiological measures of arousal (penile tumescence), analog measures of aggressive behavior (administration of electric shock), and official records of criminal charges or convictions. Several methodological limitations pertaining to each of these assessment methods have been described (see Seto et al., 2001), which include, for example, the tendency of impression management to bias the reliability of self-report data and the generalizability of experimental designs. Nevertheless, individual level analyses provide several advantages over aggregate level investigations, given the ability to include additional predictor variables that may moderate the relation between pornography and aggression.

A number of investigators have indicated that sexual arousal to sexual aggression may be indicative of aggressive tendencies (Lalumière, Quinsey, Harris, Rice, & Trautrimas, 2003; Malamuth, 1986) and, as such, a primary focus of individual level analysis has been to examine the effects of pornography exposure on sexual arousal to rape. Several investigators have examined the extent to which rapists demonstrate sexual arousal to coercive sex, as measured by changes in erectile response (Lalumière et al., 2003; Looman & Marshall, 2005). Indeed, several meta-analyses (Hall, Shondrick, & Hirschman, 1993; Lalumière & Quinsey, 1994) have indicated that rapists, on average, experience greater sexual arousal to scenarios involving rape than do nonoffending populations, although significant concerns pertaining to validity of the assessment method remain (Looman & Marshall, 2005; Marshall & Fernandez, 2000).

Among nonoffender samples, in particular several early investigators examined the effects of repeated exposure to sexually nonviolent stimuli on self-reported or physiologically assessed sexual arousal (Schaefer & Colgan, 1977; Zillmann & Bryant, 1984). Their results indicated that repeated exposure to nonviolent pornography produced a satiation effect—that is, significantly

diminished sexual arousal upon subsequent stimuli presentation. In contrast, when the stimuli involved rape or violent sexual content, nonrapists tended to exhibit greater arousal to subsequent depictions of rape scenarios compared to having viewed consenting sexual material (Gager & Shurr, 1976; Malamuth, 1981; Malamuth & Check, 1981; Malamuth, Haber, & Feshbach, 1980). Further support for association between sexually violent pornography and deviant sexual arousal was obtained in a later study (Marshall et al., 1991) in which prior exposure to images of rape significantly enhanced sexual arousal to rape-related stimuli but not to images of consenting sexual activity, as presented in a subsequent experimental session. Taken together, these investigators suggest that viewing pornography, particularly when it contains images of violence, is associated with subsequent arousal to such content.

In addition to sexual arousal, much of the research on pornography's influence on sexual aggression has focused on attitudes and beliefs supporting violence against women and acceptance of "rape myths" (Burt, 1980; Seto et al., 2001; Vega & Malamuth, 2007), especially given the positive correlation between the expression of such attitudes and aggressive behavior (e.g., Kim & Hunter, 1993). Results found throughout the literature have been generally consistent, such that pornography exposure is associated with attitudes and beliefs supportive of sexual aggression. Allen, Emmers, et al. (1995), for example, conducted a meta-analysis of 24 studies, comprising 4,268 nonoffenders, and found a small, positive correlation between pornography exposure and acceptance of rape myths ($r = .10$). More specifically, the experimental studies showed a significant correlation between acceptance of rape myths and pornography consumption ($r = .15$) and that violent pornography produced a larger effect compared to nonviolent pornography. In contrast, Allen, Emmers, et al. (1995) failed to find a significant association between negative attitudes and pornography consumption in nonexperimental studies ($r = .02$), raising considerable concern regarding the ecological validity of experimental research.

Most recently, Hald, Malamuth, O'Connor, and Yuen (2008) conducted a meta-analysis to determine the relation between pornography consumption and attitudes supporting violence against women, as demonstrated in nonexperimental studies. The Hald et al. meta-analysis, which included nine studies and 3,368 nonoffenders, was conducted to address several concerns evident in the Allen, Emmers, et al. (1995) meta-analysis, such as inappropriate study inclusion and statistical error. The average correlation between pornography consumption and attitudes supporting violence against women was significant ($r = .13$, $p < .001$). Moreover, effect sizes were significant for both nonviolent ($r = .08$, $p < .05$) and violent ($r = .18$, $p < .01$)

pornographic depictions, with violent pornography producing a significantly higher effect size than nonviolent sexually explicit material. Therefore, the findings indicated in Hald et al., especially when viewed in confluence with other recent meta-analysis (e.g., Oddone-Paolucci, Genuis, & Violato, 2000), suggest that pornography consumption, particularly violent pornography, is associated with attitudes supporting violence against women, and this effect is consistent across experimental and nonexperimental research.

The final outcome criterion commonly investigated in pornography research is aggressive behavior. As indicated earlier, researchers have either employed experimental paradigms (e.g., administration of electric shock) or correlated pornography use with self-reported propensity to commit sexual aggression or officially documented acts of aggressive behavior. In a meta-analysis of 33 studies, comprising 2,040 nonoffenders, Allen, D'Alessio, and Brezgel (1995) examined the association between pornography use and nonsexual aggression under experimentally controlled conditions. Pornography was coded into one of three categories: (a) nudity; (b) nonviolent sexual behavior; and (c) violent sexual behavior, defined as sexual behavior with another person without their consent and/or with the intent to injure, including sadomasochistic behavior. Overall, their results indicated an association between pornography use and aggression; however, type of pornography was a moderating variable, such that exposure to nudity decreased aggression, whereas exposure to the latter two categories significantly increased displays of aggressive behavior.

Using more naturalistic designs, pornography's influence on aggression has been explored in both offender and nonoffender populations (Hald et al., 2008; Seto & Eke, 2005, 2006). Among nonoffender populations, in particular, there are a relatively limited number of investigators who have examined the association between pornography consumption and self-reported use of sexual aggression, although their findings have generally supported a positive correlation between these two constructs. For example, in two studies utilizing college men, Boeringer (1994) and Malamuth et al. (2000) found that frequent consumption of pornography, especially when it depicts violence, was positively correlated with self-reported use of coercive sexual behavior or proclivity for sexual aggression. Most recently, Vega and Malamuth (2007) examined frequency of pornography consumption and self-reported history of aggressive sexual behavior among 102 male college students. Similar to the results obtained by Boeringer and Malamuth et al. (2000), Vega and Malamuth's results suggested that high pornography consumption was significantly associated with sexual aggression.

Relatively few investigators have conducted studies on the association between pornography and aggression in naturalistic settings. Even fewer have conducted

research on known groups of sexual offenders. Typically, pornography use in this population has been assessed in terms of frequency of use and preferred type of content, with much of the research producing contradictory findings. With regard to frequency of pornography consumption, there is some evidence suggesting that sexual offenders obtain and view more pornography than nonoffender control samples (Abel, 1985; Marshall, 1988), whereas other researchers have found either no difference between groups (Condrón & Nutter, 1988), or that comparison groups reported more pornography use than sexual offenders (Cook, Fosen, & Pacht, 1971).

In addition to frequency of use among this population, the tendency for pornography to incite a sexual offense has raised considerable interest and investigators have typically examined the use of pornography before, during, and after the commission of the sexual offense. Of particular interest is whether pornography use directly causes sexual offending, which otherwise would not have happened, or whether it is simply a manifestation of a preexisting deviant sexual interest and thus, has no direct impact on the likelihood of sexual crime. Unfortunately, this question is not easily answered, especially given that most investigators have employed correlational and cross-sectional designs, inhibiting statements of causality.

Nevertheless, in two early studies Abel (1985) and Marshall (1988) demonstrated that a significant proportion of offenders reported being influenced to sexually offend as a result of viewing pornography. It is interesting to note, however, that the type of pornography involved was explicit images of adult consenting sex, suggesting that content of pornography may be less important with respect to sexual aggression, at least among sexual offenders (Marshall et al., 1991). In fact, several investigators have shown that some individuals (particularly those with a paraphilia or a propensity toward violence) may use materials not classified as pornographic to elicit preexisting deviant sexual fantasies or interests (Marshall, 1988, 2000). For example, both Howitt (1995) and Marshall (2000) suggested that some child molesters view and obtain conventional advertisements involving clothed images of children, which stimulates internal representations of inappropriate sexual themes. Similarly, some sexual sadists have reportedly collected detective magazines, which they use for fantasy and masturbation purposes (Kingston & Yates, 2008; Marshall, 2000).

More recent investigators have explored offenders' use of pornography prior to the commission of a sexual offense. Langevin and Curnoe (2004), for example, investigated pornography use in a mixed sample of 561 sexual offenders and found that only 17% reported using pornography at some point during the offense chain and that even fewer used pornography directly prior to the offense. Similarly, Proulx, Perreault, and Ouimet (1999)

found that pornography use played a role in prior planning (12 hr before the offence) in only 25% of men. Although these investigators examined important moderating variables, such as type of sexual offender and offense pathway, in neither study was the role of propensity toward violence investigated, which has been shown to be an important moderating variable in non-offender samples (Malamuth et al., 2000; Vega & Malamuth, 2007) and most recently in sexual offenders (Kingston, Fedoroff, et al., 2008).

Individual Differences in Pornography Research

Overview

The research summarized previously generally indicates that there is some association between pornography consumption and deviant sexual arousal, inappropriate attitudes, and subsequent antisocial behaviors, at least under some conditions. However, it is clear that many individuals view pornography and do not act out aggressively in interpersonal contexts and that many sexual offenders do not repeatedly view sexually explicit material. Unfortunately, few researchers have investigated the role of pornography in confluence with other important individual and cultural variables that could potentially moderate the relation and explain why certain individuals are more negatively impacted from viewing such material.

It has been suggested by some researchers that the negative effects of pornography are critically associated with certain individuals based on the complex interaction with particular individual and cultural differences (e.g., Malamuth et al., 2000). Such relevant moderating variables may include key important background factors such as general cultural environments (e.g., a relatively trusting vs. hostile social environment), home environments (e.g., conflictual vs. supportive), and peer environments (e.g., delinquent vs. nondelinquent). Additional variables may include stable personality variables (e.g., general antisocial characteristics, hostile masculinity [HM], impersonal sex [IS] orientation), as well as more transient emotional states (e.g., perceived rejection or anger). Increasingly, researchers' findings have supported many of these factors as important moderating variables, as individuals possessing such characteristics would be more likely to seek out sexually explicit material and be more negatively impacted from the exposure (Malamuth, 2003; Malamuth et al., 2000).

Based on the importance of individual and cultural differences in moderating the relation between pornography and aggression, it is crucial that causal model theorists consider these moderating factors and that they utilize specific analyses allowing for potential interactions among predictor variables. Considering moderating variables within a viable model has been one of

the key goals of the confluence model, initially developed by Malamuth (1986) and advanced by Malamuth and colleagues (Malamuth et al., 2000; Malamuth & Huppert, 2005; Vega & Malamuth, 2007). The confluence model has predominantly guided research on individual susceptibility to sexually explicit material and was constructed from research demonstrating that sexual aggressors possess several key characteristics, which are present both developmentally and at the time of aggression. These characteristics have been empirically reduced into two main clusters of characteristics or paths labeled HM and IS. The HM path is described as a constellation of personality traits, combining a hostile orientation, typically toward women, and satisfaction obtained through dominating, humiliating, and controlling women. The IS path is characterized by a noncommittal, game-playing orientation toward sexual activity and reflects individual differences in the willingness to engage in such acts without closeness or commitment (Malamuth, 2003).

There are a number of unique features to the confluence model that represent an improvement over typical risk models that simply add factors to obtain a cumulative risk profile (i.e., a path-oriented model). For example, the confluence model posits a cumulative-conditional probability explanation for the causes of sexually aggressive behavior containing several interrelated predictions, including (a) the likelihood for most of the included risk and protective factors is impacted by the presence or absence of certain other factors in the relevant constellation; (b) when a combination of certain antecedent factors in a sequence exists, the probability of a particular outcome (e.g., sexual aggression) is greater than when a smaller number of risk factors are present; and (c) although each antecedent factor independently contributes to a higher probability of the outcome, the confluence of factors contributes more than a simple additive effect but instead has a synergistic or interactive effect. The confluence model has received considerable cross-cultural empirical support (e.g., Abbey, 2006; Hall, Teten, DeGarmo, Sue, & Stephens, 2005; Lim & Howard, 1998; Martin, Vergeles, Acevedo, Sanchez, & Visa, 2005) and has been shown to be applicable to a wide variety of relevant responses (e.g., Jacques, Abbet, Parkhill, & Zawacki, 2007; Murnen, Wright, & Kaluzny, 2002; Wheeler, George, & Dahl, 2002).

Of particular relevance to this review, the confluence model highlights the importance of investigating a particular predictor (e.g., pornography) within the context of other personality characteristics and thus accounts for potentially salient moderating variables. According to this approach, individuals who possess certain combinations of risk factors are more likely to seek out particular types of pornography, expose themselves more frequently to pornography, and to be impacted more negatively by such exposure than someone without these same characteristics.

Empirical Support for Individual Differences as Moderators

In the context of individual difference research, investigators have typically addressed whether particular risk characteristics differentially predict the tendency to seek out certain types of pornography or whether such factors are instrumental to how an individual responds to, or is impacted by, the material. Although preference for, and response to, pornography may reflect transitory states (e.g., negative mood states), other more enduring and stable characteristics have been implicated.

Individual variations in the likelihood of consuming pornography at a relatively high frequency and demonstrating a preference for particular types of content likely reflect the congruency between the material and preexisting attitudes and beliefs. Indeed, stable background factors and various enduring personality traits are important moderating variables in media selection, as individuals are most likely to expose themselves to information that is consistent and congruent with such preexisting traits. In terms of background factors, results from two large survey studies (Janghorbani, Lam, & Youth Sexuality Task Force, 2003; Traen et al., 2006) indicated that sexual history variables, such as number of previous sexual partners and experience with group sex, were associated with a greater frequency of pornography consumption.

In addition to background factors, several enduring personality traits have been implicated as important individual difference variables in determining media exposure and preference. Such traits include, although are not limited to, sexual attitudes, aggressiveness, and features consistent with psychopathy. Recently, Lam and Chan (2007) found that individuals who reported using more online pornography scored higher on measures of liberal sexual attitudes and proclivities toward sexual aggression than individuals consuming less pornography. Similarly, Shim, Lee, and Paul (2007) investigated the impact of individuals' affective responses to sex and characteristics of psychopathy on Internet users' tendency to view unsolicited sexually explicit material. Results indicated main effects for personality characteristics and antisocial disposition, such that individuals scoring high in either trait expressed a greater likelihood to pursue unsolicited Internet pornography than individuals scoring low on such traits. Notably, the study also revealed an interaction effect, such that individuals with a combination of high sexual and antisocial dispositions were particularly inclined to pursue Internet pornography when compared to individuals who were low in both traits.

In terms of preference for particular types of pornography content, similar individual characteristics, as noted earlier, have emerged as important moderating variables. Psychopathy, for example, has been

associated with a preference for various antisocial media (e.g., aggressive films, Internet pornography; Williams, McAndrew, Learn, Harms, & Paulhus, 2001). In an investigation utilizing undergraduate men, Bogaert (2001) examined the extent to which personality variables predicted preference for media content (e.g., erotic, insatiable, violent, nonsexual media). Bogaert's results indicated that a number of traits were associated with a preference for pornography content and that overall prediction was improved when such factors were combined. In particular, approximately 50% of the variation in preferring sexually violent films was accounted for by three indicators (antisocial tendencies, lower intelligence, and IS), when considered in confluence with self-reported sexual arousal to such material. In contrast, none of the individual differences were implicated in the preference toward nonsexual media.

The research we have reported suggests that background factors and personality characteristics and predispositions differentially impact individuals' likelihood to pursue sexually explicit material and to prefer certain types of pornography. Perhaps more important, however, is the impact of such individual difference variables on the ways in which men respond to pornographic material (i.e., the impact on arousal, attitudes or beliefs, and behavior).

Individual Differences and Sexual Arousal to Pornography

Important individual differences have been implicated in the likelihood of individuals reporting and experiencing sexual arousal to particular types of sexually explicit media. In fact, one of the most commonly investigated individual difference variables with respect to arousal has been participant gender. Although some early investigators failed to reveal consistent differences in levels of sexual arousal to pornography as a function of gender (Cowan & Dunn, 1994; Schmidt & Sigusch, 1970), more recent researchers have supported the notion that men experience greater levels of sexual arousal, as compared to women, both with regard to non-violent and violent sexual material (Glascok, 2005; Janssen, Carpenter, & Graham, 2003). In addition to these studies, a recent meta-analysis ($k = 19$, $N = 3,530$) compared level of physiological arousal among men and women and found that men experience greater arousal and more positive affect in response to written or visual depictions of sexual stimuli when compared to women (Allen et al., 2007).

Aside from gender, several other key individual difference variables have been identified that are particularly important factors to consider among sexually aggressive populations. In particular, investigators have focused on proclivity to rape, defined in earlier studies as a physiologically assessed preference for sexual aggression, and history of sexually aggressive behavior. In an

early investigation utilizing an experimental design, Ciniti and Malamuth (1984) classified individuals along different dimensions of aggressive tendencies based on preference for sexual violence and found that repeated exposure to sexually violent or nonviolent stimuli resulted in a satiation effect, irrespective of prior level of aggressive inclinations. However, their results contrasted with other investigators (e.g., Malamuth, 1986) who demonstrated that men with higher attraction to sexual aggression or a greater history of sexual coercion were more highly aroused when exposed to sexually violent depictions, when compared to men without these characteristics. Most recently, Hill, Peterson, and Heiman (2007) investigated the impact of hypermasculinity and history of sexual aggression on self-reported sexual arousal to a variety of sexual photos. Their results indicated that a combination of more severe prior sexual aggression with higher degrees of hypermasculinity were associated with a greater degree of sexual arousal than in men who did not possess these characteristics.

Individual Differences and Antisocial Attitudes

A number of individual difference variables, including various background factors and personality characteristics, have been shown to differentiate the extent to which individuals adopt antisocial attitudes resulting from pornography exposure. Similar to the studies reported earlier, many of the individual difference variables have been conceptualized based on propensity for sexual aggression. Malamuth and Check (1985), for example, evaluated rape myth acceptance following exposure to particular types of sexual scenarios (e.g., consenting sex, coercive sex) in men reporting a high likelihood of raping versus a low likelihood of raping. Results supported the importance of this individual difference variable, such that men who admitted a greater likelihood to aggress sexually were more likely to express acceptance of rape myths following their exposure to pornography than men not inclined to be sexually aggressive.

The importance of an individual's propensity toward sexual aggression and the expression of antisocial attitudes were recently demonstrated by Hald et al. (2008), who found that the association between nonviolent pornography and attitudes supporting violence against women was moderated by individual differences in risk for sexual aggression. That is, individuals classified as relatively high risk to commit sexual aggression were particularly influenced, as reflected by their negative attitudes toward women, from pornography exposure.

Aside from the likelihood to commit sexual aggression as an important moderating variable, differential ways in which women are presented in the media, may moderate the formation of negative attitudes and the

acceptance of rape myths. Indeed, several investigators have found that sexually violent pornography that depicts women as enjoying the experience (e.g., experiencing an involuntary orgasm) influences the degree to which men report the acceptance of rape myths (Malamuth & Check, 1981, 1985). It is interesting to note that this moderating variable has also been implicated in the arousal literature described earlier (see Malamuth, Heim, & Feshbach, 1980). Finally, with regard to specific pornographic content, in a recent survey of Dutch adolescents, Peter and Valkenburg (2006) investigated the role of perceived realism of Internet pornography on the formation of recreational attitudes toward sex, broadly defined as attitudes characteristic of an IS orientation. Their results, as well as others (e.g., Bahk, 2001), have supported the notion that perceived realism plays a mediating role between media exposure and recreational attitudes toward sex.

Individual Differences and the Impact of Pornography on Behavior

In terms of the impact of pornography on behavior, individual difference variables as moderators have typically been investigated within the confluence model's dimensions and have utilized samples of noncriminal sexual aggressors (i.e., college students who self-report using sexual coercion; see Malamuth et al., 2000; Vega & Malamuth, 2007). In these studies, participants are typically differentiated based on distal and proximate risk factors for sexual aggression, and investigators examine pornography's impact on self-reported sexual coercion, moderated by risk level. Their results have consistently indicated that pornography use is a significant additional predictor of sexual aggression, after controlling for the other risk factors described by the confluence model, and that frequency of pornography use is a risk factor for individuals assessed to be "at relatively high risk" for perpetrating sexual aggression (Malamuth et al., 2000; Vega & Malamuth, 2007). In other words, these researchers have highlighted an interaction effect in which individuals classified as low-risk demonstrated a small association between frequency of pornography use and sexual aggression, whereas high-risk men showed a large effect between pornography and sexual aggression. Most recently, among undergraduate men, Williams, Cooper, Howell, Yuille, and Paulhus (in press) demonstrated further support for the importance of distal risk factors for aggressive behavior as moderators of the relation between pornography and sexual aggression. In particular, their results revealed that pornography use was associated with more self-reported deviant fantasies and behaviors but that this effect was pronounced among individuals exhibiting traits consistent with a psychopathic personality, as compared to individuals not exhibiting such traits.

Unfortunately, most of the research pertaining to pornography use and aggression, moderated by individual risk factors, has utilized noncriminal populations (i.e., college students) and, as such, the generalizability to sexual offending populations has been questioned (Kingston, Fedoroff, et al., 2008; Marshall, Marshall, Serran, & Fernandez, 2006). Moreover, most investigators, as indicated earlier, have predominantly used cross-sectional research designs and thus, longitudinal data pertaining to the relation between pornography and aggression have been noticeably limited.

In response to these limitations, Kingston, Fedoroff, et al. (2008) directly tested the cumulative–conditional–probability approach highlighted by the confluence model in a sample of sexual offenders. Specifically, they examined the unique contribution of pornography consumption (frequency of use and type of content) to the longitudinal prediction of recidivism in a sample of 341 child molesters. Individual risk level was assessed using the Static-99 (Hanson & Thornton, 1999) and pornography use was collected via self-report. Regression analyses were conducted to examine the unique contribution of pornography use in predicting subsequent recidivism, while controlling for risk of reoffending and investigating possible interactions between risk and pornography use.

Kingston, Fedoroff, et al.'s (2008) results indicated that frequency of pornography use contributed to the prediction of violent (including sexual) recidivism when taking other risk factors for sexual aggression into account. The authors' follow-up analyses indicated that the interaction between pornography and risk of reoffending was consistent with the conditional–probability model, as described by the confluence model and the numerous studies conducted with noncriminal sexual aggressors, reviewed previously (Hald et al., 2008; Malamuth et al., 2000; Shim et al., 2007; Vega & Malamuth, 2007). Specifically, investigators found that a high frequency of pornography consumption was predictive of recidivism among men who were at higher risk of reoffending, whereas frequency of pornography consumption had little predictive value for men assessed to be at lower risk for sexual aggression. It is interesting to note that a significant main effect was revealed for type of content, but no statistical interaction was evident. In other words, individuals who viewed deviant pornography, defined as images depicting children and/or violence, were more likely to recidivate when compared to individuals who did not view deviant pornography; however, this difference was consistent across levels of risk. In sum, Kingston, Fedoroff, et al. (2008) found that frequency of pornography use (irrespective of content) was a significant risk factor for recidivism for the higher risk individuals only, whereas all individuals, regardless of risk level, were negatively impacted by the use of deviant pornography.

Theoretical Mechanisms Underlying Effects

The studies we have reviewed highlight the importance of background factors and personality characteristics that moderate the pornography–aggression relation. As indicated earlier, researchers have demonstrated that individuals possessing certain characteristics (e.g., aggressive sexual inclinations) are more likely to seek out certain types of pornography and experience a more adverse effect from exposure when compared to individuals without these characteristics (Kingston, Fedoroff, et al., 2008; Vega & Malamuth, 2007).

Several theoretical perspectives may be brought to bear on explaining the role of individual differences in the tendency to seek out certain types of pornography and the influence on aggressive tendencies and behavior (Bauserman, 1996; Seto et al., 2001). The effects of pornography use in general and the importance of individual differences in particular may be explained via principles derived from social learning theory (Bandura, 2002). Bandura's theory, in general, posits that behavior, including aggressive behavior, is acquired through modeling, observation, repeated exposure, and intermittent reinforcement occurring within particular biological structures.

More specifically, social learning theory is based on the notion that humans are active agents who are proactive and self-reflective, rather than purely reactive organisms to environmental stimuli. This dynamic has been emphasized within the concepts of reciprocal determinism and triadic reciprocal causation (Bandura, 2002), which highlight the bidirectional influences of personal, behavioral, and environmental determinants. In terms of pornography use and the investigations described earlier, the concept of triadic reciprocal causation demonstrates how individual characteristics (e.g., personality characteristics) differentially affect the tendency for individuals to select or attend to particular forms of media and the extent to which such experiences are rewarding.

According to social learning theory and social cognitive theory (Bandura, 2002), external influences facilitate behavior through cognitive processes that have been best articulated by social information-processing models (Huesmann & Kirwil, 2007). There have been several information-processing models posited that explain cognitive structure and specific sequences of operations that underlie social information processing (Huesmann, 1998; Huesmann & Kirwil, 2007). In general, these models describe the processes involved in the acquisition, storage, and representation of incoming sensory information (T. Ward, 2000).

Information-processing models of human cognition suggest that information is stored in memory in the form of nodes and that links are formed between these nodes via associated pathways, which can be conceptualized as schema (Paul & Linz, 2008) or implicit theories (see

T. Ward, 2000). Of note, schema are deep cognitive structures that enable individuals to interpret experiences in meaningful ways and represent knowledge about a particular stimulus and its attributes (Padesky, 1994). Although the concept of schema was introduced to improve conceptual understanding, it has received criticism because the term has been ambiguously applied and various unrelated terms (e.g., core beliefs, self-referent beliefs) have been used interchangeably throughout the literature (James, Southam, & Blackburn, 2004). As such, T. Ward (2000) posited that cognitive schema be conceptualized as implicit theories, as the latter construct addresses some of the limitations identified earlier and better describes how such processes operate (for a more detailed description, see T. Ward & Keenan, 1999).¹

Ward and colleagues (T. Ward, 2000; T. Ward & Keenan, 1999) posited that knowledge is organized into various implicit theories that typically begin to emerge early in life and are intended to promote an understanding of the world, including one's own behavior and the actions of others. More important, these theories guide information processing, such that incoming stimuli are interpreted in a manner that is consistent with the specific implicit theory. We suggest an extension of this conceptualization as incorporating not only cognitive mechanisms, but also associated motives and affective states (see later discussion).

Few investigators have examined the existence of schema/implicit theories in sexual offenders. In non-criminal sexual aggressors, several lines of research investigating the confluence model of sexual aggression have pointed to the importance of hostile attitudes toward, and sexual arousal in response to dominance over, women (which could be conceptualized as a HM schema) in predicting future sexual aggression (Malamuth, 2003). In sexual offending populations, T. Ward and Keenan (1999) and Polaschek and Ward (2002) formulated several implicit theories for child molesters and rapists based on existing scales measuring cognitive distortions. The five implicit theories of child molesters are *children as sexual beings* (i.e., children enjoy sex with adults), *nature of harm* (i.e., adult–child sex is harmless), *uncontrollability* (i.e., anti-social behavior is uncontrollable), *entitlement* (i.e., an adult's sexual needs must be met), and *dangerous world* (i.e., the world and other people are dangerous or hostile). Rapists were also hypothesized to possess implicit theories related to dangerous world, sexual entitlement, and uncontrollable sex drive but also possess theories pertaining to the category or entity of women—that is, women are fundamentally different and deceitful

¹Although the formulation of implicit theories more clearly elucidates the underlying processes within cognitive structure, the relation to schema is remarkably similar, and the two terms are used interchangeably in this review.

(i.e., women are unknowable) and are constantly sexually receptive (i.e., women as sex objects).

One of the most prominent models explaining the role of media violence in the activation of mental constructs and the relation to behavior has been Berkowitz's (1997) cognitive neo-associationistic model. In particular, this theory suggests that viewing violent (or sexual) media primes aggression-related concepts and makes these constructs accessible and more likely to be used when interpreting ambiguous environmental stimuli. This, in turn, may incite subsequent behavioral action. In numerous *priming* studies, investigators have supported this model such that priming sexuality-associated mechanisms (via images contained in sexually explicit material) may activate relevant maladaptive schema or implicit theories (Anderson, 1997; Bargh & Pietromonaco, 1982). Most recently, Roskos-Ewoldsen, Klinger, and Roskos-Ewoldsen (2007) conducted a meta-analysis (63 studies, 21,087 participants) and demonstrated that violent media primes (i.e., activates) aggressive-related concepts in men, although the effects were temporary and dissipated over time. In keeping with Newell's (1990) classic *Unified Theory of Cognition*, we suggest that cognitive mechanisms are embedded within an overall "embedded architecture" that results in the activation not only of such cognitions but also of associated motives and affective states. Indeed, researchers have supported the existence of such a network of chronic associations for some men (e.g., those high in HM) such that the activation of power motives activates sexual associations and vice-versa (e.g., Zurbriggen, 2000).

Although priming temporarily increases the accessibility of cognitive structure, there is substantial variability in how these constructs guide perception and future behavior. Although variations in the frequency and recency of the prime may explain some of the differences, an important issue is the difference between temporary versus chronic accessibility. Chronically accessible constructs, such as well-entrenched implicit theories, are habitually used in perception and subsequent behaviors and priming such constructs facilitates easier accessibility and more likely influences subsequent behaviors (Roskos-Ewoldsen, Roskos-Ewoldsen, & Carpentier, 2002).

In addition, information-processing models and the accessibility of cognitive structure also highlight the nature whereby related constructs are activated—that is, when one node is activated (e.g., primed through exposure to media), other constructs will be activated to the extent that they are related constructs: a process termed spreading activation (Berkowitz, 1993; Paul & Linz, 2008). Both the activation of nodes and the associations between related constructs can be influenced by media, especially given the way in which certain categories of people (e.g., women, children) are portrayed.

In particular, when individuals are presented with stimuli associating two concepts (e.g., youth and sexuality), the associated network becomes stronger and more accessible. In an example of this process, Paul and Linz (2008) evaluated the extent to which prior exposure to barely legal images (i.e., individuals who are falsely portrayed to be younger than 18 years of age) was related to the construction of associated cognitive structure, involving sexuality, arousal, and youth. They employed a lexical decision-making task and compared individuals exposed to control conditions with individuals exposed to barely legal images. Their results indicated that men and women who were exposed to these latter images were faster at recognizing sexual words after being primed with neutral depictions of girls than were individuals who were originally shown adult pornographic material.

A consequence of the theoretical relation between media consumption (e.g., pornography) and cognitive processing is that individuals will interpret ambiguous information in a manner that is consistent with the particular schema or implicit theory that has been primed from the exposure to the previous stimulus. For example, an individual who holds the belief that women are in a constant state of sexual awareness (i.e., an implicit theory about women) activated by a stimulus such as media content would interpret women's behavior consistent with this implicit theory, regardless of the women's true intentions. For example, Malamuth and Brown (1994) examined men with features suggesting the existence of an implicit theory regarding women and measured their ability to accurately identify heterosocial cues, as demonstrated in several videotaped vignettes. Their results suggested that men possessing a maladaptive implicit theory regarding women were more likely to misinterpret incoming sensory information and to misread heterosocial cues that were provided in these social situations than were individuals without this implicit theory.

These findings suggest that it is primarily sexually explicit depictions of youth or aggression that underlie the observed effects. However, the processes responsible for the association between nonviolent pornography and the activation of maladaptive implicit theories, particularly toward women, may be understood in light of the fact that such pornography often portrays women as highly sexually promiscuous and frequently as being dominated and "used" by men. These images, perceived by many men and women as degrading to women (e.g., Cowan & Dunn, 1994), may prime and reinforce rape myth attitudes or relevant implicit theories that certain women (e.g., "loose" women) only pretend to be forced into sex or deserve to be maltreated sexually. Such effects may be particularly likely (and possibly largely limited to) for those men who adhere to attitudes that women may be dichotomized into "whores" versus "madonnas" or who hold hostile- or

power-implicit theories associated with women and sexuality (Bargh, Raymond, Pryor, & Strack, 1995; McKenzie-Mohr & Zanna, 1990; Zurbriggen, 2000). Such men may be more likely to perceive promiscuous women as “bad” women. This possibility highlights the reasons that in pornography research, individual differences in risk level for committing sexual aggression have very consistently emerged as moderators of effects on various dependent measures (e.g., Kingston, Fedoroff, et al., 2008; Malamuth & Huppin, 2005; Vega & Malamuth, 2007).

Clinical Implications

In general, the findings we have reported suggest that pornography consumption, through a variety of mechanisms may facilitate the likelihood of future sexual aggression, particularly among individuals with a predisposition for sexual offending. More specifically, pornography use among such individuals has been correlated with deviant sexual arousal, antisocial attitudes, and sexually aggressive behaviors (Kingston, Fedoroff, et al., 2008; Malamuth et al., 2000; Seto et al., 2001). Based on these associations and the relative accessibility of pornographic material, there are a number of important implications of these findings for the management and treatment of sexual offenders.

In terms of treatment planning, valid methods of assessing pornography use among sexual offenders are needed, given the importance placed on assessment in evaluating individuals' likelihood of engaging in future sexual aggression and in identifying important treatment targets (Kingston, Firestone, Wexler, & Bradford, 2008; Kingston, Yates, Firestone, Babchishin, & Bradford, 2008; Yates & Kingston, 2007). Information related to pornography use can be obtained using a structured clinical interview that includes questions pertaining to sexual fantasies, interests, and behaviors; frequency of pornography use, type of pornographic content consumed or preferred, and the use of such material implicated in the commission of the sexual offence (McGrath, 1993).

In addition to an initial interview, various self-report and psychological inventories have been designed to assess sexual fantasies and behaviors in general, and pornography use in particular, and are typically administered around the same time as the clinical interview (i.e., prior to treatment). One example is the Multidimensional Assessment of Sex and Aggression (Knight, Prentky, & Cerce, 1994), which identifies sexually aggressive fantasies and behaviors, including use of pornography. Initial psychometric evaluations on the pornography domain scale produced good internal consistency ($\alpha = .80$) and test-retest reliability ($r = .78$). The most recent clinical version of the instrument, the Multidimensional Inventory of Development, Sex and

Aggression contains 55 scales including pornography use, but no psychometric data are yet available. In addition to this instrument, there has been some increasing development of measures pertaining to pornography use on the Internet. Examples include the Internet Behaviors and Attitudes Questionnaire (O'Brien & Webster, 2007) and the Internet Sex Screening Test (Delmonico, 1999), which has been recently revised into a more comprehensive measure (see Delmonico & Griffen, 2008). Both instruments have received some initial empirical support (Delmonico & Griffen, 2008; O'Brien & Webster, 2007), but additional research is necessary before widespread use.

Interviews and psychological inventories can be a valuable component in developing an initial case conceptualization and are important in determining the course of treatment and specific treatment targets. Although some research indicates that these methods are reliable and valid (see Tan & Grace, 2008), there are some potential problems, particularly with forensic populations. In particular, a number of sources of error can adversely affect the quality of the information, such as memory and recall bias, degree of psychological insight, and social desirability responding (Tan & Grace, 2008). Among sexual offenders specifically, the tendency for impression management is the most widely acknowledged issue impacting on the reliability and validity of offender assessment derived from self-report (Kingston, Firestone, Moulden, & Bradford, 2007; Kingston & Yates, 2008; Marshall et al., 2006). Typically, the potential impact of impression management has been addressed by examining the association between measurement scores and statistically controlling for impression management, using measures of socially desirable responding (e.g., the Balanced Inventory of Desirable Responding; Paulhus, 1991). Unfortunately, the content of these scales is no less transparent than other self-report measures, and recent investigators have shown that statistical control methods may actually reduce the true relation between independent variables and the outcome measure (Mills & Kroner, 2006), especially if social desirability is conceptualized as a personality correlate of behavior (Tan & Grace, 2008).

Although we do not discourage the utilization of the initial clinical interview or the administration of relevant self-report instruments, it is important to note that all three sources of error mentioned earlier are particularly salient when formulating conclusions based on self-report that is gathered early in the assessment/therapeutic process. Therefore, we suggest that the best approach to obtain accurate information pertaining to treatment targets subject to socially desirable responding (e.g., pornography use) is to develop a formulation-based conceptualization facilitated by functional analysis (Haynes & O'Brien, 1990). This approach utilizes information derived from the client and from other sources (e.g., initial test results,

collateral reports) into an initial hypothesis about the importance of treatment targets—in this case, pornography use. These hypotheses are then tested and possibly evolve over time (e.g., throughout the course of treatment) as new information becomes available.

Functional analysis and individual case formulation can be utilized in virtually any treatment program but is contingent on several factors. Most important, obtaining information during treatment that is subject to impression management requires group cohesion and a positive therapeutic alliance (Drapeau, 2005). Group cohesion is defined as the unity among group members and therapist, and it is predominately characterized by a collaborative and safe therapeutic environment. To facilitate group cohesion in general, and individual case formulation in particular, both the therapist and treatment program must be flexible to meet the changing goals and needs of the offender.

Flexibility is clearly an important feature in both the therapist and the way in which treatment is designed, as it facilitates change and attainment of specific treatment goals (Serran, Fernandez, Marshall, & Mann, 2003). Although flexibility can be characteristic of any treatment program, it is more readily achieved in programs that are conducted in an open or rolling format (see Marshall et al., 2006) and not guided strictly by procedural guidelines (i.e., strict adherence to manually based programs with distinct and separate modules). More importantly, programs that are open-ended and flexible allow for repeated vicarious learning of relevant treatment targets, which is particularly important for offenders who require more intensive work in that area. This is particularly relevant for this present review, as the research we reviewed previously suggested that frequency of pornography use was not a risk factor for all groups but it was a specific treatment target for individuals possessing certain risk characteristics (Kingston, Fedoroff, et al., 2008; Vega & Malamuth, 2007). Therefore, offenders who have been assessed as relatively high risk of reoffending and who reliably report frequent pornography consumption would benefit from repeated exposure to interventions focused on the implications of pornography use. Clearly, a program that lacks flexibility would be unable to promote such repeated vicarious learning.

Another important issue in the management and treatment of sexual offenders who view pornography pertains to the availability of sexually explicit material to individuals while incarcerated. Spencer (1999), for example, suggested that allowing individuals to obtain pornography while incarcerated contradicts core issues addressed in treatment and therefore should be completely banned within correctional settings. This perspective has influenced some criminal justice organizations in various jurisdictions. Contrary to this position, it has been argued that a total restriction on pornography within correctional settings facilitates an artificial and

unrealistic environment (Marshall, 2000). Indeed, although most sexual offenders are released from prison at some point in many jurisdictions and most communities have ready access to pornography, restricting access to legal pornography may be counter-intuitive, such that individuals might experience an increased desire to obtain the previously restricted material. A more appropriate solution would be to allow similar opportunities in the institution as exist in society and to embed educational information and relevant therapeutic interventions pertaining to pornography's effects in a treatment program. As an example, Correctional Service of Canada, although discouraging offenders from obtaining pornographic material, does not impose a total ban on legal images, although policy allows for the restriction of such materials in an individual case when a specific risk has been identified that is associated with access to pornographic materials. Consequently, the impact of such material, especially for individuals with a predisposition for sexual aggression, can be addressed in a therapeutic environment.

Conclusions and Future Directions

Although the extant literature we have reviewed does not currently enable us to determine a direct causal link between pornography use and aggressive behavior, in several individual studies (e.g., Kingston, Fedoroff, et al., 2008; Vega & Malamuth, 2007) and meta-analytic reviews (e.g., Allen, Emmers, et al., 1995; Hald et al., 2008), researchers have supported the notion that pornography may influence negative attitudes or beliefs and aggressive behavior among sexual and nonsexual offenders (Malamuth et al., 2000; Seto et al., 2001). However, with the goal of developing improved scientific causal models, the relation between pornography and aggressive behavior may be better framed in terms of the confluence of several risk and protective factors.

The suggestion that media has a uniform effect on all individuals is considerably simplistic and, as such, increasing attention has focused on a variety of individual and cultural differences that moderate the way in which pornography influences arousal, attitudes, and behavior. As indicated earlier, several background factors, such as cultural and home environments, as well as peer environments have been implicated as important moderating variables. In addition to background factors, several stable personality characteristics (e.g., IS orientation, psychopathy) are likely factors to consider in developing a causal model. Rather than viewing these factors as "casual-link variables" (i.e., if this 3rd factor was not present, pornography consumption is otherwise harmless), individual difference variables should be viewed within the cumulative–conditional–probability conceptualization described earlier, such that it is the confluence of relevant factors that affects the probability

of a particular outcome. Although some risk factors are undoubtedly more primary than others, it is vital that risk profiles consider various proximal and distal interactive factors that could potentially act in a synergistic manner with other factors.

In this article, we have argued for the utilization of overarching models, such as the confluence model of sexual aggression (Malamuth, 1986), that allow for the incorporation of interacting variables in a predictive equation and for the use of specific analyses that can empirically test for such relations. As indicated earlier, the confluence model has guided research on individual susceptibility to pornography and has identified risk to offend or reoffend sexually as a particularly important moderating variable. With the exception of one study (see Kingston, Fedoroff, et al., 2008), individual susceptibility to pornography research has only been investigated in noncriminal university samples, highlighting the importance for further research with sexual offenders. Nevertheless, researchers looking at individual differences have shown that certain variables (e.g., dominance and aggressiveness) predict preferences for differing types of sexual content in media, including preference for both violent sex and insatiable sex. Moreover, they have consistently found that adverse effects of exposure to various types of pornography are particularly likely for men who, prior to pornographic exposure, are already at relatively high risk of sexual aggression or committing sexually aggressive acts (Malamuth et al., 2000; Vega & Malamuth, 2007).

Proclivity or risk to commit sexual aggression as an important variable in the pornography–aggression relation has important theoretical and treatment implications. In particular, we have highlighted the importance of several theoretical perspectives, such as social cognitive theory, with its emphasis on reciprocal determinism and triadic reciprocal causation (Bandura, 2002) and information-processing models of human cognition (Huesmann & Kirwil, 2007). Indeed, recently, some researchers (e.g., Paul & Linz, 2008) have elucidated the role of media sexuality and violence in the activation (or priming) of mental constructs, which may be associated with underlying maladaptive implicit theories (e.g., pertaining to aggression or deviant sexuality), which, in turn, influence the interpretation of ambiguous stimuli that may incite subsequent antisocial behavior.

Both the theoretical and empirical findings we have reviewed support the notion that, although the majority of men are not influenced by pornography exposure, some who possess certain characteristics or underlying cognitive structures are negatively impacted by such exposure. Clearly, the existence of such traits would be markedly higher in sexual offending populations as compared to nonoffending men and given the significant relation between pornography use and recidivism among some sexual offenders, we feel that increased

attention should be paid to adequately assessing pornography use and effectively treating the antisocial effects from viewing such material. In particular, we have highlighted the important role of self-report and validated psychological inventories (e.g., O'Brien & Webster, 2007) when used in confluence with functional analysis and individual case formulation. We further suggest that these latter features of assessment are contingent on group cohesion and a flexible approach to treatment (i.e., a program that is not *strictly* guided by manually based modules). Indeed, programs that are designed in an open or rolling format and are focused on important therapeutic processes (e.g., therapist characteristics) have shown promise in some preliminary outcome studies (Marshall et al., 2006), and we feel that the likelihood of addressing the problematic effects of pornography use would be particularly salient in such programs.

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