

SEXUALITY AND PORNOGRAPHY

Gert Martin Hald, Christopher Seaman, and Daniel Linz

In a two-wave legalization process, Denmark, a small Scandinavian country, became the first country in the world to legalize pornography. In 1967, all pornographic text material was legalized, followed by the legalization of all visual pornography in 1969 (Hald, 2007).

Both before and after this legalization process, the effects of pornography were hotly debated. Consequently, immediately after legalization, research was launched to investigate the effects of pornography predominantly on sexually aggressive behaviors. Correlational research at the aggregate level connecting the circulation of pornography with sexual aggression was used (for critique of this approach, see also Kingston & Malamuth, 2011). The results showed a decline in sexual aggression after the legalization of pornography (Kutchinsky, 1991), which was taken as an indication that pornography probably did not adversely affect sexually aggressive behaviors and perhaps even worked as a buffer against them. Subsequently, these Danish studies were frequently used and cited in the first of the grand U.S. investigations of the effects of pornography, namely the President's Commission on Obscenity and Pornography (1970), set up by President Lyndon B. Johnson. Essentially, the Report of the Commission on Obscenity and Pornography acquitted pornography on all charges. Nonetheless, neither the President's Commission on Obscenity and Pornography nor subsequent U.S. governmental or other international governmental reports or research on pornography have managed to lessen the debate on pornography that today remains hot

among both scientists and the general public (Hald & Malamuth, 2008).

Traditionally, opponents of pornography have claimed that pornography may have damaging effects on beliefs, morals, values, attitudes, and behaviors and hold pornography responsible for a variety of adverse effects, including wrecking marriages, negatively changing men's perceptions of women and women's perceptions of themselves, sexual addiction, and unhealthy attitudes and behaviors (e.g., Manning, 2010; P. Paul, 2005). To the contrary, proponents of pornography have claimed that little or no such effects of pornography consumption are evident. Rather, pornography may benefit the individual by enhancing the sex life, contributing to knowledge about sex, providing a recreational sexual outlet or a buffer against sexual assaults, or helping to assess or cure common sexological dysfunctions (e.g., Britton, Maguire, & Nathanson, 1993; M. Diamond, 2009; M. Diamond, Jozifkova, & Weiss, 2011; Kontula, 2008; Wylie & Pacey, 2011)

Given the controversial nature of pornography, it is important to stress that the following review is not to be seen as an attack on or defense of pornography but as an attempt to synthesize the most important, prevailing, dominant, and influential theoretical positions and empirical literature on pornography available today.

DEFINING PORNOGRAPHY

Originally, the term *pornography* referred to writings about or depictions of harlots or prostitutes. The term

derives from the Greek word *pornographos*, which again derives from the Greek words *pórne*, meaning “whore,” and *graphein*, meaning “to write” (*Encyclopaedia Britannica*, 2011; Malamuth, 1999). Thus, the term originally referred to writings on whores.

The meaning of the term today has changed dramatically from that of the 19th century, perhaps best illustrated by a famous comment made by U.S. Supreme Court Justice Stuart Potter nearly 50 years ago: “Pornography, I know it when I see it” (*Jacobellis v. Ohio*, 1964). Justice Potter’s comment illustrates quite well that the definition of *pornography* may vary from one person to the next. Not surprisingly, this variation also translates into research.

Out of numerous studies on the effects of pornography published in the past 40 years, only a few have had matching definitions of pornography, which is mirrored in the theoretical literature on pornography as expressed by Fukui and Westmore (1994):

Despite several efforts no satisfactory definition of pornography exists. While the term is commonly used with a pejorative meaning, the concept is subjective and differences occur in the interpretation of the term between different groups of people, especially between the sexes. (pp. 600–601)

Furthermore, Malamuth, Addison, and Koss (2000) accurately wrote,

Many researchers have sought to distinguish between different types of sexually explicit media. They suggest that more differentiated distinctions should be made through use of specific terminology instead of blanket designations of all sex-related material under an all-encompassing label, such as pornography. (p. 2)

According to M. Diamond (2009) the most common definition of pornography used by researchers and in the U.S. courts today is “media basically construed as intended to entertain or arouse erotic desire” (p. 304). According to Senn and Radtke (1990), among others, *nonviolent pornography* may be defined as sexually explicit materials without any overt coercive content but that may sometimes

imply acts of submission, coercion, or both by the positioning of the models, use of props, or display of unequal power relationships. In turn, *violent pornography* may be defined as sexually explicit materials in which nonconsensual, coercive, or violent sexual relations are explicitly portrayed (see also Senn & Radtke, 1990).

HISTORICAL IDEOLOGICAL BACKGROUND OF PORNOGRAPHY RESEARCH

Throughout the years, three ideological perspectives have emerged as primary guiding forces underlying pornography research and much of the debate about pornography, especially in the United States: (a) the liberal perspective, (b) the conservative–moralistic perspective, and (c) the radical feminist perspective (Linz & Malamuth, 1993).

Each perspective is perhaps best conceptualized as an overarching label for a variety of opinions and interpretations (sometimes contrasting) concerning pornography. Moreover, each perspective makes assertions about, for example, freedom, human nature, family values, the rights and roles of men and women in society, and freedom of speech that influence definitions of pornography, predictions about the effects of pornography, formation of study hypotheses, selection of outcome variables, and more generally interpretation of results from research on pornography (see also Malamuth, 1999).

The *liberal perspective* holds that individuals who are given free access to information are fully capable of making rational choices and decisions about what constitutes appropriate behavior in their cultural context and act accordingly. Pornography is considered yet another source of information expressing ideas about gender, sex, and intimate relations. Consequently, individuals (specifically adults) should be given access to this information and use pornography as desired. According to Malamuth (1999), four assertions about pornography and the rights and roles of the individual, the state, and society are evident in the liberal perspective:

- (1) Most pornography merely triggers sexual thoughts that are not acted out.

Unless these thoughts result in harmful actions against others, pornography should be considered “harmless”.

(2) Pornography may even be a socially beneficial form of communication that allows for self-expression of sexual interests. (3) The state should not restrict individuals’ basic human rights to free expression of ideas. As long as the recipient restricts his behavior to private actions such as sexual arousal, fantasy or use of pornography with consenting partners, society has no right to interfere. (4) While pornography is generally not harmful, consumers who are particularly susceptible to it and cannot behave rationally may require some form of message restriction once they have acted illegally. (p. 82)

The *conservative–moralistic perspective* holds that although individuals are equipped with a certain degree of free will, the sociocultural environment influences their choices and decisions. Pornography is seen as a part of this environment with the potential to adversely affect morals, values, standards, and behaviors of both the individual and society. The most commonly feared adverse effects of pornography include undesirable sexual behaviors (e.g., adultery), sexual aggression, loss of respect for traditional family structures and values, loss of respect for authorities, and a general nonspecific moral decay. Thus, pornography is seen as a threat to existing “puritanical” values and beliefs in addition to well-established individual and societal structures and norms, such as the nuclear family, fidelity, and belief in the rights and roles of authorities (Linz & Malamuth, 1993).

The *radical feminist perspective* views the world as a social construction shaped by culture and social relations through language; pornography is viewed as an expression or symbol of a male-dominated culture in which women are used and abused for the pleasure and good of men. Moreover, pornography is conceptualized as one of the primary materialistic media through which men’s ongoing discrimination and subordination of women is constructed and

upheld (Fukui & Westmore, 1994) or, as a radical feminist slogan proclaims, “Pornography is the theory—rape is the practice” (R. Morgan, 1980, p. 139).

Andrea Dworkin (2000), one of the leading proponents of radical feminism, described pornography as

the graphic, sexually explicit subordination of women whether in pictures or in words that also includes one or more of the following: women are presented dehumanized as sexual objects, things, or commodities; or women are presented as sexual objects who enjoy pain or humiliation; or women are presented as sexual objects who experience sexual pleasure in being raped; or women are presented as sexual objects tied up or cut up or mutilated or bruised or physically hurt; or women are presented in postures of sexual submission; or women’s body parts are exhibited such that women are reduced to those parts; or women are presented being penetrated by objects or animals; or women are presented in scenarios of degradation, injury, abasement, torture, shown as filthy or inferior, bleeding, bruised, or hurt in a context that makes these conditions sexual. (p. 29)

Radical feminism views pornography as adversely affecting opportunities of employment, education, property, public accommodations, and public services for women (Malamuth, 1999) and as the promoter of sexual aggression by men toward women (Dworkin & MacKinnon, 1988)—or simply as “violence against women in and of itself” (Scott, 1991, p. 80). Other forms of feminism embrace a range of views on pornography.

ORGANIZING MODELS FOR EXISTING RESEARCH ON PORNOGRAPHY

Whereas the liberal, conservative–moralistic, and radical feminist perspectives each offer a unique way of thinking about pornography, all three perspectives lack a more thorough description of the psychological mechanisms and processes by which such effects may or may not occur as well as a more

differentiated and empirically validated integrative framework for organizing such effects. Fortunately, models known from both general media and sexuality research enabling description and integration of such effects are available: (a) the sexual communication model (SCM), (b) the sexual callousness model (SCAM), (c) the violent desensitization model (VDM), and (d) integrative models, illustrated by the confluence model of sexual aggression and the three-path model of sexual coercion.

Historically, the first three models were predominantly used before the 1990s and focus mostly on the psychological mechanisms and processes by which effects of pornographic exposure may occur, and little reference is given to an integration of such effects in a larger theoretical and empirically driven framework. This was first evident in the integrative models, which became especially influential in pornography research from the 1990s onward. In these integrative models, pornography is conceptualized as one risk factor that, in confluence with other risk factors, may directly or indirectly increase the probability of the outcome variable, for example, sexual aggression.

Sexual Communication Model

Various versions of the SCM exist, with the sexual interest and the artistic version being the most predominant. The sexual interest version focuses on the need of the consumer, whereas the artistic version focuses on the need of the artist (Malamuth & Billings, 1984). Regardless of the specific version of the SCM, the basic assumptions and viewpoints are interrelated and view pornography as a natural result of the fact that humans are sexual beings.

Proponents of the SCM often hold that pornography “performs a positive, educational, informational, and therapeutic function by serving as an important source of educational and/or therapeutic aids that help eradicate puritanical attitudes about sex that have long dominated society” (Goldstein, 1984, p. 32). Thus, essentially, pornography is to be regarded as harmless, recreational, entertaining, or even useful material belonging to the sexual sphere (Abramson & Pinkerton, 1995). In this regard, Wilson (1978) argued that pornography is part of a latent mechanism through which society provides the individual with an opportunity to learn about

sex and a potential clinical tool to help overcome sexual problems, such as sexual guilt, shame, and inhibition. Also, “sexual health professionals recommend pornography as entertainment and information for women and men. It may enhance failing marriages and help couples talk about and experiment with sex” (Britton et al., 1993) or serve an important function as part of a public sexual education (Kontula, 2008; Synneväg, 2002; see Chapter 11, this volume).

The SCM also stipulates that pornography may provide a buffer against antisocial impulses and sexual offense rather than causing them and thus be regarded as a substitute for real-world offense (Carter, Prentky, Knight, Vanderveer, & Boucher, 1987; Langevin et al., 1988). This line of thinking can be considered analogous to the psychological rationale of the sexual buffer theory (Carter et al., 1987; Langevin et al., 1988).

Proponents of the SCM have also argued that pornography provides an opportunity for women to learn about their sexuality in new, different, and more liberating ways (Sprinkle & Cody, 2001) or, as expressed by pro-feminist McElroy (1995), “Pornography benefits women, both personally and politically” (p. 1).

Psychologically, the SCM assumes that the average consumer of pornography is cognitively and perceptually capable of recognizing pornographic material as fictive and exaggerated representations of sex and sexuality (Gagnon, 1977). Moreover, it considers the consumer capable of extracting from the pornographic materials that may enhance, teach, or inspire sexual pleasure and development. Thus, the SCM generally assumes a positive view of pornography in which pornography is regarded as causing only minimal, if any, adverse effects (Weaver, 1992).

Sexual Callousness Model

Different versions of the SCAM are available, each with the same underlying assumption, that pornography is dangerous material with the potential to cause severe adverse effects. Thus, as opposed to the SCM, pornography is not to be regarded as potentially beneficial, innocent, or harmless material to be used for recreational purposes, sexual pleasure, sexual development, or learning about sex (Kendrick, 1987). Rather, within this paradigm “advocates from

diverse social and political orientations have identified such materials (pornography) as fostering detrimental perceptions of female sexuality and a misogynous cultural climate, and promoting inter-gender violence” (Weaver, 1992, p. 286).

The SCAM argues that continuous exposure to pornography may cause acceptance and internalization of attitudes, opinions, values, morals, and behaviors portrayed in such materials (Buchmann, 1988). Thus, continuous exposure to pornography “in which women are depicted in a way that disparages and demeans women by portraying them as malleable, obsessed with sex, and willing to engage in *any* sexual act with *any* available partner potentially creates rape myths” (S. Diamond, 1985, p. 42) is considered highly problematic (see Volume 1, Chapter 12, this handbook).

Psychologically, the SCAM assumes that consumers lack the cognitive and perceptual ability to recognize pornographic representations as fictitious or exaggerated or that these representations over time and through repeated exposure are internalized and integrated into sexual fantasies, desires, scripts, and schemata and, moreover, that behavioral inclinations resulting from this integration are normalized, rationalized, and justified. Thus, pornography is seen as material with strong potential to cause callous emotionality, attitudes, and behaviors among others in the sexual sphere.

Violent Desensitization Model

The VDM proposes that it is only gross, violent conspicuous representations of women, sex, and sexuality that may over time foster problematic sexual beliefs, attitudes, and behaviors. Many proponents of the VDM have maintained that concerns about adverse effects of contemporary nonviolent pornography are often ill founded. For example Linz, Donnerstein, and Penrod (1987) argued that unless combined with images of violence, typical nonviolent pornography does not foster negative beliefs, attitudes, or behaviors. In fact, a more contemporary use of the VDM stresses that the violence and not the explicit sexual representation per se may be what is of concern in relation to adverse effects (e.g., Weaver, 1992).

The psychological rationale of the VDM is three-fold. First, a desensitization phase is assumed to

take place during which the consumer becomes less and less emotionally touched or influenced by the themes, language, situations, and behaviors portrayed in the sexually violent material. Second, alongside this desensitization process, a normalization phase occurs in which violent and conspicuous sexual behaviors are gradually normalized and sexual scripts and schemata are transformed accordingly. As such, the violent and conspicuous sexual attitudes and behaviors slowly enter the viewer’s sexual repertoire and become part of his or her sexual fantasies, desires, scripts, and behaviors. Third, as the desensitization and normalization processes are progressing, maintained, or concluded, empathy with or sympathy for the victims is diminished and individual reservations about certain sexual attitudes and behaviors are reduced and subsequently rationalized and justified. Consequently, within the VDM, prolonged exposure to violent pornography is considered problematic.

Integrative Models

From the early 1990s, effects of pornography consumption increasingly began to be analyzed and understood using integrative or comprehensive empirically driven theoretical models. These models enable the consideration of effects of pornography within a larger theoretical framework, including other variables of interest to the outcome variable. These integrative models have predominantly been applied to sexually aggressive outcomes, with the most promising and influential ones being the confluence model of sexual aggression (Malamuth et al., 2000) and the three-path model of sexual aggression (Knight & Sims-Knight, 2003).

Originally proposed by Neil Malamuth and his colleagues, the confluence model considers pornography in the context of personality factors and individual differences that correlate with aggressive sexual behavior (see also Malamuth et al., 2000). The confluence model is organized into two main clusters of characteristic paths labeled *hostile masculinity* and *impersonal sex* (Malamuth, Sockloskie, Koss, & Tanaka, 1991). The hostile masculinity path is described as a personality profile combining two interrelated components: (a) an insecure, defensive, hypersensitive, and hostile–distrustful

orientation, particularly toward women, and (b) sexual gratification from controlling or dominating women. The impersonal sex path is characterized by a promiscuous, noncommittal, game-playing orientation toward sexual relations, which is statistically predicted by certain early familial aggression and adolescent delinquency. Both cross-sectional and longitudinal data have shown that the statistical interaction of these paths is highly predictive of sexually aggressive behaviors (Dean & Malamuth, 1997; Malamuth, Linz, Heavey, Barnes, & Acker, 1995; Malamuth et al., 1991) in both the United States (e.g., Wheeler, George, & Dahl, 2002) and in other countries (e.g., Lim & Howard, 1998; Martín, Vergeles, Acevedo, Sanchez, & Visa, 2005).

The confluence model assumes that although for most consumers pornography may not be considered harmful, for a small subgroup of users who already score high on other known risk factors of sexual aggression, pornography may add fuel to the fire and increase the risk of sexual aggression. In contrast, pornography consumption has little sexual aggression prediction value among men considered to be at relatively low risk for sexual aggression.

Another dominant integrative model of sexual coercion that includes an explicit focus on pornography is the three-factor model of sexual coercion developed by Knight and Sims-Knight (2005, 2011). The three-factor model suggests three major causal pathways to sexual coercion: (a) early abuse (physical and sexual), (b) personality and behavioral traits (callousness and unemotionality, antisocial behavior or impulsivity, hypersexuality), and (c) attitudinal or cognitive variables (negative masculinity, hostility toward women, misogynistic fantasies).

Knight and Sims-Knight (2005, 2011) have developed and tested their model of sexual coercion on adult samples of sexual offenders and community controls. Using data gathered from a computerized interview, they used the three-factor model to predict sexually coercive behavior in a sample of juvenile sexual offenders. The cross-sample consistency of the model provided support for a unified three-factor theory of sexual aggression against women. This work suggests that pornography use may best be considered in a three-factor rather than a two-factor model but maintains that the confluence of

risk factors including pornography is what may best predict sexual coercion. However, further research is needed with larger sample sizes to reliably confirm the three-factor model and the organization of factors and factor components suggested in this model.

The integrative models used in pornography research offer the promise of a more nuanced and differentiated understanding of possible effects of pornography consumption. However, currently well-established and empirically tested integrative models pertaining to other outcome variables than sexual aggression are lacking in pornography research.

Brief Critique and Summary

Ward and Hudson (2001) and Ward and Beech (2006) concluded that logic, consistency, simplicity, and heuristic worth represent important epistemological values against which theories and models may be tested and evaluated. In addition, theories and models may be evaluated against their ability to account for both proximal and distal factors and to extend the scope of existing models or integrate competing or diverse approaches and empirical findings.

On one hand, “proximal factors are triggering processes or events, and emerge from the functioning of vulnerability factors” (Ward & Hudson, 1998, p. 52) that psychologically

function to disinhibit the self-regulation of behavior and thereby erode an individual’s capacity to control strong internal states such as deviant sexual fantasies, strong affect or negative cognitions. The failure to adequately deal with these states increases the chances of a sexual offense, particularly once the opportunity arises. (Ward & Hudson, 1998, pp. 52–53)

Distal factors, on the other hand, are constituted by “pre-dispositional or vulnerability causal factors that emerge from both developmental experiences and genetic inheritance” (Ward & Hudson, 2001, p. 338).

The SCM, the SCAM, and the VDM are all fairly simple and consistent in their understanding of the potential impact of pornography on both an

individual and societal level. Thus, each in its own way represents simplicity and consistency. With their understanding of (some) pornography as a somewhat causal factor in the creation of certain effects, the three models also seem able to include a focus on proximal factors (i.e., pornography). However, neither the functioning of vulnerability factors nor the potential influencing distal factors are accounted for—a problem that lowers both the logic and the heuristic worth of these models. The confluence model of sexual aggression and the three-path model take both proximal and distal factors into consideration and integrate them within a larger theoretical and empirically validated framework. However, the consequences of this integration is an increase in complexity and a (necessary) move away from theoretical simplicity toward a more integrated, differentiated, and nuanced approach to the study of pornography consumption and research.

LEADING PSYCHOLOGICAL PERSPECTIVES ON THE EFFECTS OF PORNOGRAPHY

Both the historical ideological perspectives and the leading organizing models of pornography we have presented do not make use of one specific psychological theory as a basis for the prediction, organization, and interpretation of effects of pornography consumption. Nonetheless, elements from well-known psychological theories are evident in these perspectives and models, as is the application of psychological theory to pornography research in general.

Next, we present five psychological perspectives often used in pornography research. The main focus in the presentation is on how these theories are most commonly applied to pornography research. For a more general introduction to each theory, readers are referred elsewhere.

Conditioning Theories

Built on the principles of predominantly classical and operant conditioning, theories of conditioning suggest that pornography may change, shape, or reinforce certain sexual behaviors or habituate consumers so that increased volumes of pornography are necessary to produce the same response.

Through the process of classical conditioning, pornography may initially be viewed as a neutral stimulus, sexual activity (e.g., masturbation) as the unconditioned stimulus, and sexual arousal and orgasm as the unconditional response. Through the pairing of pornography with sexual activity resulting in sexual arousal and orgasm, pornography may become the conditioned stimulus and sexual arousal and orgasm the conditional response. As a result, subsequent exposure to pornography elicits sexual arousal and orgasm. Similarly, in operant conditioning, on contact with pornography—serving functionally as a discriminative stimulus—individuals may experience a response (e.g., sexual arousal), the consequences of which (e.g., masturbation and orgasm) increase the probability of engaging pornography again. Thus, the reinforcing mechanism of conditioning is also applied to pornography. The continuing use of pornography may depend on its power to work as a positive reinforcer by increasing sexual arousal and providing sexual pleasure or as a negative reinforcer by relieving stress or escaping unpleasant emotional states, which is, for instance, often the case with sexual compulsive behaviors in which pornography is core (Kafka, 2010).

Conditioning theories have also been used as a basis for hypothesizing that individuals may engage in progressively more deviant pornography to create the same response as they habituate to currently exciting content (Seto, Maric, & Barbaree, 2001) or shape their sexual behaviors to the pornographic content (Laws & Marshall, 1990), which is, for example, illustrated in what may be referred to as “slippery slope” thinking:

Initially erotic stimulation is obtained from relatively “mild” forms of representation, but as the habit becomes established, it requires a stronger stimulus to achieve the same effect, and eventually representation itself is no longer strong enough, so that the user is impelled to act out the stimulus. (Cameron & Frazer, 2000, p. 242)

Social Learning Theory

In his early work, Albert Bandura showed that people not only learn through the reinforcement of their

own actions and various kinds of conditioning but also through observation of others' behavior and how this behavior is reinforced. On this basis, Bandura proposed the concepts of vicarious or observational learning and modeling (Bandura, 1986; 1989; Bandura & Walters, 1959). Today, these concepts continue to greatly influence pornography research.

On the basis of social learning theory, pornography may influence attitudes and behaviors by creating role models, learning environments, and scenarios in which certain sexual behaviors, gender stereotypes, sex roles, and attitudes are normalized, encouraged, and reinforced. Moreover, this influence can occur when no punishment or negative social sanctions for otherwise punishable or negative social acts, for example, sexual aggression, are implemented or when such acts are even rewarded. The basic principles of social learning theory are core components of many models used in pornography research, for example, the SCAM (described in the preceding section). In addition, the social learning perspective remains influential in many lines of arguments concerning effects of pornography, for example, the radical feminist slogan "Porn is the theory, rape is the practice" (R. Morgan, 1980), which quite vividly illustrates its basic principle.

More important, social learning theory proposes a range of moderating and mediating mechanisms between the stimulus (here, pornography) and the response (e.g., attitudes and behaviors), highlighting that the stimulus does not automatically produce a certain response, but that this response depends on the moderating and mediating mechanisms. For example, various cognitive and thought processes may influence observational learning so that individuals do not automatically copy or reproduce the behaviors of others (Bandura, 1986, 1989), further highlighted in Rotter's (1982) concept of the *psychological situation*, defined as "the combination of internal and external factors that influences our perception of and response to a stimulus." Consequently, social learning theory would predict that pornography, through various learning and reinforcement mechanisms, may influence the consumer. Should such influence occur, it would be as a function of various social, contextual, perceptive, cognitive, and motivational

mechanisms and individual differences (see also Bandura, 1986, 1989).

Sexual Script Theory

Used extensively in sexuality research, sexual script theory has only recently emerged as a theoretical perspective to guide research and analyses of quantitative data pertaining to pornography. Sexual script theory is an offspring of script theory, which has roots in both cognitive psychology and sociology (see also Frith & Kitzinger, 2001). More than a comprehensive theory, sexual script theory, as proposed by Gagnon and Simon (1973), has been conceptualized as an organizing framework of sexuality relying on social constructionism and the principles of social learning theory. According to Frith and Kitzinger (2001), sexual scripts may be understood as "culturally available messages that define what 'counts' as sex, how to recognize sexual situations, and what to do in a sexual encounter" (p. 210). Simon and Gagnon (1986) compared sexual scripts with scripts used by actors (Wiederman, 2005). In sexual interactions, sexual scripts may serve as a guide and a manual for sexual behaviors.

Pornography may influence the scripting process, the sexual scripts, or the evaluation of sexual relations. The explicit imagery, underlying messages, symbolic normative nature, and order of sexual behaviors as portrayed in pornography may influence the affective, cognitive, and behavioral aspects of sexuality, especially if these are not yet well rooted (Štulhofer, Busko, & Landripet, 2010). As such, pornography, through culturally mediated messages and social learning processes, may write itself into the sexual scripts influencing perceptions of sexuality (e.g., what is sex), sexual situations (e.g., when is a situation sexual), sexual behaviors (e.g., what to do when having sex), and evaluations of sexual relations (e.g., what constitutes good sex).

Needless to say, pornography is not the only existing culturally mediated message about sex and sexual relations. Consequently, culturally mediated messages of pornography are constantly competing with other readily available messages in a continuous reshaping of the sexual scripts. This process is also influenced by sexual experiences, emotional investments, sexual motivations, and so forth and

therefore does not rely solely on culturally mediated messages (see also Wright, Malamuth, & Donnerstein, 2012).

Excitation-Transfer Theory

Excitation-transfer theory has been used to predict behavioral effects of pornography consumption (Bauserman, 1996). Originally developed by Dolf Zillmann on the backbone of Hull's notion of residual excitation and Schachter's two-factor theory of emotion (see also Bryant & Miron, 2003), the excitation-transfer theory proposes that residual excitation from one stimulus, for example, pornography, will intensify or amplify excitatory responses to subsequent stimuli (Bryant & Miron, 2003; Zillmann, 1971). This transfer can occur even if the nature of the excitatory response to the two stimuli differs substantially. For example, pornographic exposure may induce physical arousal in an individual. If the individual is subsequently angered while residuals of physical arousal still linger, the individual's excitatory response (here, the level of anger) will be stronger than if the physical arousal had not been induced by pornography in the first place.

As early as 1971, Zillmann wrote that "communication-produced excitation may serve to intensify or 'energize' post-exposure emotional states" (p. 431). Thus, in theory, pornography may serve as an intensifier to any postexposure emotional state, whether it is feelings of love, sexual excitement, sexual aggression, or other.

The excitation-transfer theory may be most relevant to emotional states or behaviors that follow immediately after exposure to pornography when the probability of lingering residual excitatory responses caused by the pornographic exposure may be greatest. As proposed by Bauserman (1996), it may also concern "the use of pornography immediately before or during sexual offenses, when increased sexual arousal may increase disinhibitions and the likelihood of performing sexual offense" (p. 409).

Thus, according to the excitation-transfer theory, pornography does not produce predetermined specific emotional, attitudinal, or behavioral effects but may serve as an enhancer of subsequent emotional, attitudinal, or behavioral states or behaviors following from other stimuli or vice versa. That is, other

stimuli may serve as an enhancer of emotional, attitudinal, or behavioral effects of pornography consumption.

Evolutionary Theory

Although evolutionary theory has long been applied to research on human mating (see Schmitt, 2005, for an overview), it has only recently emerged within pornography research. An evolutionary perspective posits that the human mind has evolved a variety of domain-specific psychological mechanisms that each solves a particular adaptive problem that existed in our species' history (Tooby & Cosmides, 1992). These psychological adaptations work by creating cognitive, emotional, and behavioral responses that fulfill an adaptive function (Gangestad & Simpson, 2000). Because various adaptive problems of mating existed in humans' history, adaptations that evolved to solve these particular problems should accordingly exist (Buss & Schmitt, 1993). Consequently, certain sexual responses should exist that are not a result of learning or socialization but are rather the outputs of these species-typical mating adaptations (Tooby & Cosmides, 1992). If a sexual response seems to fulfill an adaptive function better than would occur by chance, it would suggest that an adaptation may be responsible for the response.

As an example, evolutionary psychologists have argued that a persistent adaptive problem across human evolutionary history would have been procuring good-quality genes for one's offspring (Buss & Schmitt, 1993; Gangestad & Simpson, 2000). To solve this problem, males and females have both evolved preferences for particular physical characteristics in mates that have been reliable indicators of genetic quality (e.g., symmetry in bilateral features [Gangestad & Simpson, 2000], waist-to-hip ratio in females [Singh, Dixson, Jessop, Morgan, & Dixson, 2010], and facial masculinity in males [Johnston, Hagem, Franklin, Fink, & Grammer, 2001]). Because these preferences show cross-cultural consistency and are especially well suited to solving the problem of procuring good-quality genes for one's offspring, evolutionary psychologists have argued that these preferences show evidence of design by natural selection.

Although current-day forms of pornography did not exist in ancestral environments, psychological

adaptations should process cues within pornography that have persistently been relevant to human mating. Consequently, these adaptations should cause individuals to react to these cues in a way that would have been adaptive in human evolutionary history (even if such a response is no longer adaptive today).

Thus, the application of the evolutionary approach to pornography has generally involved examining whether pornography preferences and responses can be predicted on the basis of presumed mating adaptations or whether evolutionary theory may help explain the consistent findings of gender differences in consumption patterns. As an example of the latter, Hald (2006) proposed that most pornographic material is characterized by women who are willing to engage in casual noncommittal sexual acts and who display a wealth of cues associated with fertility, reproduction, and physical attractiveness, such as younger age, full lips, clear skin, clear eyes, lustrous hair, good muscle tone, absence of lesions, and facial symmetry (Buss, 1999; Rossano, 2002). According to sexual strategies theory (for a detailed overview, see Buss, 1998; Buss & Schmitt, 1993), this is exactly what males are looking for in a short-term mate: sexual accessibility to many different fertile females who demand little or no postmating commitment or parental investment. In contrast, females' short-term mating strategies differ substantially from those of males and show a much greater concordance with their long-term mating strategies—that is, to find a high-status, able-to-protect, high-in-resources male who is willing to invest all or a substantial part of his time and resources in the female and offspring after mating. Even though a large proportion of pornographic material portrays physically strong, high-status, high-in-resources men, it is rare that these men are portrayed as willing to invest in or protect the woman beyond climax. Thus, from an evolutionary perspective, men more than women would be attracted to current pornographic materials in general because such materials almost consistently show greater concordance with men's (short-term) mating strategies than with women's mating strategies.

Furthermore, because males and females each faced unique adaptive problems of mating (Buss &

Schmitt, 1993; Gangestad & Simpson, 2000), gender differences are theorized to occur in pornography preferences and responses as well. Malamuth (1996) and Salmon (2004) have both contended that the forms and functions of both male-targeted and female-targeted sexually explicit media are a result of male and female sexual adaptations, respectively. For example, Malamuth (1996) pointed out that several major themes consistent in male-targeted pornography (e.g., the depiction of many different women engaging in sexual acts, the eagerness of women to quickly consent to sex, the lack of any emotional commitment) correspond almost exactly to the evolutionary short-term problems of mating for males identified by Buss and Schmitt (1993; e.g., the problem of partner number, the problem of sexual accessibility, the problem of minimizing investment).

Indeed, the correspondence between adaptive problems and sexual media content appears uncanny, and evolutionary theory may provide strong explanatory power for the consistent findings of gender differences in pornography research (Malamuth, 1996).

EMPIRICAL FINDINGS: CONSUMPTION PATTERNS

In the sections that follow, we review the prevalence rates of pornography consumption, pornography consumption outlets, types of and reasons for pornography consumption, and situational and interpersonal characteristics of pornography consumption.

Prevalence of Pornography Consumption

Some of the most consistent findings in the area of pornography research are the relatively high consumption rates, especially among men, and the large gender differences in consumption patterns.

With few exceptions (e.g., Bonino, Ciairano, Rabaglietti, & Cattelino, 2006; Daneback, Træen, & Mansson, 2009; Weaver et al., 2011; Wright, 2012; Ybarra & Mitchell, 2005; Ybarra, Mitchell, Hamburger, Diener-West, & Leaf, 2011), international studies have reported consumption rates in the range of 50% to 99% among men and 30% to 86% among women (Gunther, 1995; Hald, Kuyper,

Adam, & De Wit, 2013; Hald & Mulya, 2013; Hammarén & Johansson, 2001; Janghorbani & Lam, 2003; Li & Michael, 1996; E. M. Morgan, 2011; Perse, 1994; Peter & Valkenburg, 2006, 2009a, 2009b; Rogala & Tyden, 2003; Sørensen & Kjærholt, 2007; Štulhofer et al., 2010; Træen, Nilsen, & Stigum, 2006; Tydén, Olsson, & Haggstrom-Nordin, 2001). However, these rates have been found to be heavily influenced by sample characteristics (e.g., age, culture), time period assessed (e.g., pornography consumption in the past 6 months, year, or ever), sexual experience, sexual orientation, definition of pornography, and study methodology and design (see also Flood, 2010; Hald, 2006; Rosser et al., 2012).

Compared with women, men have been found to use pornography more frequently, spend more time on pornography consumption, be exposed to pornography at a younger age, and use pornography more often during masturbation. Moreover, compared with women, men have been found to prefer pornography with many different actors compared with pornography with the same actors performing different acts, to be more attracted to both a wider range of hard core pornography and hard core pornography devoid of relationship context and emotional attachments, and generally, although with some exceptions (Peter & Valkenburg, 2008a; see also Petersen & Hyde, 2011), to be more sexually aroused by pornography (Chivers, Seto, Lalumiere, Laan, & Grimbos, 2010; M. Diamond, 2009; Gardos & Mosher, 1999; Hald, 2006; Hald, Kuyper, et al., 2013; Hald & Malamuth, 2008; Hald & Mulya, 2013; Janghorbani & Lam, 2003; Malamuth, 1996; Mosher & Maclan, 1994; Sabina, Wolak, & Finkelhor, 2008; Steinman, Wincze, Sakheim, Barlow, & Mavissakalian, 1981; Træen, Spitznogle, & Beverfjord, 2004).

According to Edelman (2009), on the basis of a 2008 monitoring of Internet usage patterns, 36% of users visited at least one adult entertainment website per month. Among these 36%, the average number of visits to adult websites was 7.7 times a month with an average visit lasting 11.6 minutes. Estimates have been that around 25% of all Internet search engine requests are for pornography (Markey & Markey, 2010), and some of the most popular search engine request words are sexually related (Ropelato, 2011). Moreover, 12% of websites, equaling approximately 4.2 million websites, contain pornography (Rosser et al., 2012; see Chapter 3, this volume).

Age of first pornographic exposure varies from culture to culture, but most findings have suggested that first nonaccidental exposure happens on average between ages 11 and 15, with men being exposed at a significantly younger age than women (see also Flood, 2010; Hald, 2006; E. M. Morgan, 2011; Sabina et al., 2008).

Pornography Consumption Outlets

Financially, the porn industry is big business, with the largest companies being listed on the stock exchange. In a 2006 estimate, the AVN Media Network, an adult entertainment trade publication, estimated that the total retail sales of pornography in the United States approximated \$13 billion. For comparison, in 1970 the total retail value of hard core pornography in the United States was estimated at \$5 to \$10 million (Rosser et al., 2012).

Up until the late 1990s, the dominant media outlets for pornography consumption were magazines, videos and DVDs, and TV. However, this changed in the wake of the Internet and smartphone revolution when high-speed connections have increasingly allowed for easy, cheap, and convenient access to all types of pornography (Edelman, 2009). For example, by 2000, there were 711 million rentals of hard core pornographic videos in the United States alone, equaling 2.37 videos per U.S. citizen (Rosser et al., 2012). However, by this writing this number has dropped significantly, and the dominant media outlets of pornography consumption are presently the Internet followed by videos and DVDs, television, and magazines (e.g., Bleakley, Hennessy, & Fishbein, 2011; J. D. Brown & L'Engle, 2009; Edelman, 2009; E. M. Morgan, 2011).

Types of and Reasons for Pornography Consumption

Increased concerns regarding the nature of consumption have followed the easy and inexpensive access to all types of pornography, especially concerning the use of violent pornography or more atypical kinds of pornography (e.g., Sabina et al., 2008; see Volume 1, Chapter 12, this handbook). Unfortunately, good baseline studies of dominant types or themes of consumption from when pornography was first legalized are not available for later comparison.

Most of the pornography consumed today is primarily of a nonviolent nature (see also Ogas & Gaddam, 2011; Ybarra et al., 2011). The dominant themes of consumption include vaginal, anal, oral, and group sex. In total, approximately 10% to 15% of users prefer same-gender, violent or coercive, fetish, bondage and discipline, or sadistic and masochistic pornography (Hald, 2006; Kolbein, 2007; Priebe, Åkerman, & Svedin, 2007; Sørensen & Kjørholt, 2007; Štulhofer et al., 2007).

When looking at why people consume pornography, a variety of reasons are given, with the most prevalent being involuntary or chance exposure (e.g., spam, pop-ups), entertainment or fun, curiosity, sexual learning, to enhance sexual fantasies or sex life, and as a prelude to or intensifier in autoerotic activities or sexual intercourse (e.g., Hald, Smolenski, & Rosser, 2013; Lam & Chan, 2007; Lawrence & Herold, 1988; Malamuth & Billings, 1986; E. M. Morgan, 2011; Sabina et al., 2008; Sørensen & Kjørholt, 2007; Svedin, Åkerman, & Priebe, 2011).

In a 2005 study with a sample of 419 participants, 409 men and 10 women, recruited through Usenet newsgroups, Emmers-Sommer and Burns (2005) found that men indicate six main motivations for watching pornography: for sexual thrills, to enjoy a social event, to make sex interesting, to excite a partner, to relieve sexual tension, and to learn about sex.

In a 2008 study using a U.S. Midwestern university sample of 150 men and 171 women, B. Paul and Shim (2008) found similar motivations for pornography consumption for both men and women, namely, out of habit, for mood management, for sexual fantasy, and to build and maintain relationships.

This overlap of sexual motivations for men and women was also found in an interesting study on Nordic youths. In this study, Sørensen and Kjørholt (2007) found that the top three reasons given for watching pornography indicated by Nordic female youths matched those of Nordic male youths, with the one important difference being that the order of preference was reversed. Thus, for female youths, the order was curiosity, for fun, and masturbation; for male youths, the order was masturbation, for fun, and curiosity.

SITUATIONAL AND INTERPERSONAL CHARACTERISTICS OF PORNOGRAPHY CONSUMPTION

Few quantitative scientific studies have examined preferences in and situational and interpersonal characteristics of pornography consumption. In the studies done, however, the main place of use for both men and women has been found to be home and the interpersonal context of use has either been alone or with a regular sexual partner (e.g., Hald, 2006; Svedin et al., 2011; Træen et al., 2006). Although teenagers especially also report watching pornography with friends, it is not common fare (Kolbein, 2007; E. M. Morgan, 2011). Both E. M. Morgan (2011) and Hald (2006), using, respectively, a U.S. and a Danish sample of teenagers and young adults, found that female users were significantly more likely than male users to view pornography with a sexual or dating partner, whereas male users were significantly more likely than female users to report viewing pornography alone.

Pornography is widely circulated and used. In general, many gender differences in pornography consumption patterns have been consistently demonstrated. Although also used by women, pornography consumption among men can be conceptualized as a cornerstone of their autoerotic sexuality.

EMPIRICAL FINDINGS: EFFECTS OF PORNOGRAPHY

Throughout the past 4 decades, a number of international studies, organizations, and politically appointed commissions have sought to clarify the effects of pornography by means of a variety of methodologies and study designs. Qualitatively, mainly individually structured interviews, focus group interviews, and case studies have been used. Quantitatively, circulation studies at the aggregate level, meta-analyses and reviews, survey and questionnaire studies, laboratory studies, and psychophysiological studies have been dominant (Hald, 2007).

Increasingly, in pornography research, across-the-board (adverse) effects of pornography consumption have been refuted and effects, if any, considered in relation to individual, cultural, and contextual differences. Thus, numerous studies

have now demonstrated how these differences may moderate the relationship between pornography consumption and (outcome) variables of interest. For example, previous studies using a variety of designs have identified intellectual ability, attraction to sexual aggression, risk level of sexual aggression, hostile masculinity, hypermasculinity, sexual coerciveness, Eysenck's psychoticism, psychopathy, liking and perceived realism of pornography, sexual promiscuity, and more broadly cultural, peer, and home environments as important individual, cultural, and contextual moderators of a range of potential adverse effects of pornography (Bogaert, 2001; Bogaert, Woodard, & Hafer, 1999; Check & Guloien, 1989; Check & Malamuth, 1985; Davis & Bauserman, 1993; Kingston, Malamuth, Fedoroff, & Marshall, 2009; Lohr, Adams, & Davis, 1997; Malamuth et al., 2000; Malamuth & Check, 1981, 1985; Peter & Valkenburg, 2009a, 2009b, 2010a, 2010b; Williams, Howell, Cooper, Yuille, & Paulhus, 2004; Ybarra et al., 2011). Thus, individuals who like and perceive pornography as realistic; individuals with a hostile social environment, conflictual home environment, or delinquent peer environment; and individuals with low intellectual ability, high psychopathy, high psychoticism, and higher levels of hostile masculinity, hypermasculinity, risk of sexual aggression, sexual coerciveness, attraction to sexual aggression, and sexual promiscuity have been found to be more adversely affected by pornography on outcomes such as, for example, attitudes supporting violence against women or sexual aggression. Such research findings have supported the notion that pornography does not influence individuals uniformly and emphasized the importance of considering individual, cultural, and contextual differences when researching the effects of pornography consumption (see also Hald & Malamuth, 2013; Kingston et al., 2009; Malamuth et al., 2000; Malamuth & Feshback, 1972; Seto et al., 2001; Ybarra et al., 2011).

Categorizing Effects of Pornography

Effects of pornography are studied not only in relation to individuals but also in relation to the porn industry, larger social structures, the economy, and so forth. On this basis, McNair (1996) in part pro-

posed the following useful taxonomy of categories for studying and differentiating effects of pornography:

1. effects on behavior, referring to the ability of pornography to stimulate, create, or evoke behavioral responses, that is, various kinds of sexual acts;
2. effects on attitudes, beliefs, cognitions, and so forth, referring to the extent to which these are influenced or conditioned by pornography;
3. effects on the people directly involved in the industry, referring to the effect of pornography on people such as actors, producers, or retailers who are directly involved in the production or distribution of pornography;
4. effects on ideology and law, referring to the role of pornography in larger systems of ideas, rules, and regulations, for example, family structures or the role of men and women in society;
5. effects on the surroundings, referring to the extent to which pornography influences larger social structures such as neighborhoods, city life, and so forth, for example, red light districts; and
6. effects on economy and employment, referring to the extent to which the production, sale, and distribution of pornography influence the economic structures and employment, that is, companies on the stock exchange, employment rates in a given area, and so forth.

Albeit crude, this taxonomy allows a functional overview and organization of effects. Categories are conceptualized as interdependent, that is, one category may influence the next. For example, the creation of a red light district (Category 5) may influence sexual attitudes (Category 2), behaviors (Category 1), and employment rates (Category 6) in that area.

Because of the scope and aim of this chapter, our focus in the following section will primarily be limited to quantitative studies focusing on Categories 1 and 2.

Common Methodological Problems in Quantitative Research on Pornography

Most of the quantitative studies conducted on the effects of pornography, particularly in the United States, may be described along two orthogonal

dimensions on the basis of (a) whether they used experimental (random assignment to conditions) or correlational methodology and (b) whether the dependent variable they assessed was a response presumably affecting sexual behaviors (e.g., cognitions, attitudes) or some measure of actual behaviors (e.g. sexual aggression; M. Diamond, 2009; Hald, Malamuth, & Lange, 2013; Malamuth et al., 2000).

Common central methodological problems pertaining to these and many other effect studies within pornography research include

1. *Lack of conceptual consensus.* A lack of consensus regarding how to operationally define central variables, such as pornography, different kinds of pornography, and outcome variables, makes direct comparison of results across studies, time, and culture challenging. In fact, claims have been made that inconsistencies in the results of pornographic effects research using experimental design may be explained by inconsistencies in the choice of pornography (e.g., Allen, Emmers, Gebhardt, & Giery, 1995).
2. *Common general methodological problems.* Common and well-known methodological problems pertaining to (psychological) research, such as demand characteristics, self-report bias, low response rates, social desirability, and volunteer bias may be especially pronounced in research on pornography (or sexuality), given the sociocultural and personal sensitivity of the topic.
3. *Nonrepresentative subject samples.* Because of a variety of practical, individual, ethical, and legal concerns, subject samples in pornographic effects research are often nonrepresentative. In experimental research, for example, laboratory experiments involving exposure to pornography, subject samples most often consist of easily available and inexpensive college or university students. In correlational research—for example, survey studies or phone interviews involving a random sample of the general population—response rates have often been very low, that is, in the 25% to 45% range (e.g., Daneback et al., 2009; Gunther, 1995; Træen et al., 2006; Ybarra et al., 2011), which potentially limits the generalizability of results. In addition, compared with the general population, volunteers in sexual research have been found to be both more sensation seeking and sexually experienced (Bogaert, 2001), making the generalization of results further problematic (see Volume 1, Chapter 4, this handbook).
4. *Cultural, ethical, financial, and legal limitations.* Cultural, ethical, and legal concerns influence not only the possibility of getting a representative subject sample but also many other important variables of investigation. For example, for survey studies, the type of questions asked may be limited; for experimental studies, the duration, intensity, and type of exposure materials may be subject to restrictions. Furthermore, in many countries pornography is illegal, with severe punishment for possession and consumption, which makes it very difficult, if not impossible, to conduct valid and reliable epidemiological or other kinds of studies on pornography in these countries.
5. *Prospective, longitudinal, or large laboratory studies.* Although a few prospective or longitudinal studies have very recently appeared in pornography research (see J. D. Brown & L'Engle, 2009; Peter & Valkenburg, 2009b; Ybarra et al., 2011), studies of this type are generally lacking. Specifically, prospective longitudinal studies using large population samples and good measures of known confounding variables affecting the relationships of interest are missing. Similarly, large-scale laboratory studies of exposure effects of pornography that help to more clearly establish cause and effect are lacking.

Although the preceding list provides common methodological problems and challenges pertaining to studies on pornography, clearly others may be present depending on the outcome variables studied, sample characteristics, methodology, and study design.

Effects of Pornography: Attitudes

In the controversy over effects of exposure to pornography, attitudes have long held a central and decisive role. The widely accepted conceptualization of attitudes usually incorporates three components:

affective responses, cognitive evaluations, and behavioral predispositions toward an entity (see also Hald, Malamuth, & Yuen, 2010).

Pornography research has predominately targeted attitudes supporting violence against women (ASV; including rape-supportive attitudes and beliefs), sexist attitudes, sexually permissive attitudes, and attitudes toward pornography (ATP; Hald, Malamuth, et al., 2013; Kingston et al., 2009).

Attitudes supporting violence against women.

Following Malamuth, Hald, and Koss (2012) and Hald et al. (2010), ASV have been conceptualized as (a) affective responses to acts such as rape, other types of sexual aggression, and partner violence; (b) evaluative cognitions; and (c) behavioral predispositions or attractions toward such aggressive acts (Malamuth, 1981a, 1981b, 1989a, 1989b). Consequently, this term also incorporates rape-supportive attitudes and rape myth acceptance (see also Allen, Emmers, et al., 1995).

Generally, data from a wide variety of experimental and correlational studies have converged to show that pornography consumption may increase ASV (Allen, D'Alessio, & Brezgal, 1995; Hald & Malamuth, 2013; Hald et al., 2010). In a recent meta-analysis on the relationship between pornography consumption and ASV in nonexperimental studies, Hald et al. (2010) found a significant association between pornography consumption and ASV, with a significantly stronger effect for violent than for nonviolent pornography. Furthermore, Hald et al. found heterogeneity among the included studies to a degree indicative of moderating variables, although the literature encompassed in this meta-analysis did not enable identifying the basis for such moderation. However, it was made possible in another study by Malamuth et al. (2012) using a large representative sample of U.S. men. Here, they found that the significant association between pornography consumption and ASV was moderated by individual differences in risk of sexual aggression such that consumers at the highest risk level of sexual aggression who reported the most frequent use of pornography also had the highest level of ASV. These results from nonexperimental studies converge with those of

meta-analyses and data from experimental studies. For example, in a meta-analysis on pornography and ASV in experimental studies, Allen, D'Alessio, and Brezgal (1995) also reported a significant effect of pornography consumption on ASV, with a stronger effect for violent than for nonviolent pornography. Moreover, in the largest experimental study to date investigating the association between exposure to pornography and ASV, Hald and Malamuth (2013) found a significant association between exposure to pornography and ASV. In addition, this significant relationship was moderated by the personality trait agreeableness and in part mediated by sexual arousal, thus clearly highlighting the importance of considering individual differences in pornography research (Hald & Malamuth, 2013).

Although potential effects of pornography consumption on attitudes constitute important changes in and of themselves (Malamuth et al., 2012), they are also of major interest because of findings showing that attitudes, for example, ASV, have been shown to be a risk factor for sexually aggressive behavior (Kingston, Fedoroff, Firestone, Curry, & Bradford, 2008; Kjellgren, Priebe, Svedin, & Langstrom, 2010; Seto et al., 2010; Seto & Lalumiere, 2010) and in confluence with other factors predict real-world sexually aggressive behaviors (e.g., Hall, DeGarmo, Eap, Teten, & Sue, 2006; Kjellgren et al., 2010; Malamuth et al., 2000).

Sexist attitudes. *Sexism* has been defined as a form of negative attitudes toward women (or men), including hostility, negative prejudices, and stereotypes (Allport, 1954; Glick & Fiske, 1996; Sigall & Page, 1971). However, on the basis of extensive cross-cultural research, benevolence has more recently been included as part of the conceptualization of sexism (Glick et al., 2000). According to Glick and Fiske (1996, p. 491), *benevolent sexism* includes

a set of interrelated attitudes toward women that are sexist in terms of viewing women stereotypically and in restricted roles but that are participatively positive in feeling tone (for the perceiver)

and also tend to elicit behaviors typically categorized as prosocial (e.g. helping) or intimacy seeking (e.g. self-disclosure).

Sexist attitudes have been linked to a number of adverse effects. These effects include discrimination against women, gender rigidity, hostility and anger toward women (Carr & VanDeusen, 2004; Chapleau, Oswald, & Russell, 2007), greater self-reported likelihood of using violence in relationships with women (Demaré, Lips, & Briere, 1993), acceptance of rape myths (Chapleau et al., 2007), and commission of real-life sexual aggression including rape (J. D. Brown & L'Engle, 2009; Check & Malamuth, 1983; Kjellgren et al., 2010).

Studies on the association between pornography and sexist attitudes have presented an ambiguous and inconsistent picture of effect. Several previous survey and experimental studies have failed to demonstrate significant associations between pornography and sexism or have found only weak positive associations or even negative associations between pornography and sexism (Carr & VanDeusen, 2004; Demaré, Briere, & Lips, 1988; Demaré et al., 1993; Fisher & Grenier, 1994; McKee, 2007; Padgett, Brislin-Slut, & Neal, 1989). These results may be because of the lack of distinction between differing kinds of sexist attitudes (see also Glick & Fiske, 1996) or the overall scientific quality of some of these studies, which has been seriously questioned (Malamuth et al., 2000) or because many of these studies failed to consider individual differences as potentially important effect moderators. In view of the findings from other areas of pornography effects research that specifically highlight the importance of moderators, this shortcoming seems a critical one.

Other research studies, among them prospective and longitudinal studies, have reported that pornography consumption of various kinds increases notions of women as sex objects and is associated with significantly stronger gender-stereotypic attitudes and cognitions in sexually coercive men compared with both normal controls and young men with conduct disorder (Hald, Malamuth, & Lange, 2013). Moreover, men who habitually consume high amounts of Internet pornography are more likely to view women in stereotypical gender roles, perceive a

world inhabited by masculine men, and report the highest level of self-perceived masculine personality characteristics. Moreover, for both men and women, early exposure to sexually explicit media has been found to predict less progressive gender role attitudes and, for men only, greater sexual harassment perpetration 2 years later (J. D. Brown & L'Engle, 2009; see Volume 1, Chapter 2, this handbook; Chapter 12, this volume).

Sexually permissive attitudes. Exposure to pornography has been shown to be significantly associated with sexually permissive attitudes, with stronger associations for Internet pornography than for more traditional types of pornography consumption (Kingston et al., 2009). For example, using a large sample of Dutch youths, Peter and Valkenburg (2008a, 2009b) found that more frequent exposure to sexually explicit Internet material was associated with more positive attitudes toward uncommitted sexual exploration, for example, sexual relations with casual partners or friends or with sexual partners in one-night stands. Similarly, Lo and Wei (2005), using a large Taiwanese sample of adolescents, found significant positive associations between Internet pornography usage and sexually permissive attitudes, even when controlling for a number of other variables (e.g., exposure to more traditional methods of consumption, general media consumption, and sociodemographic variables). Also, Lam and Chan (2007), using a sample of Chinese men in Hong Kong, found significant positive associations between pornography viewing and more premarital sexual permissiveness. Moreover, they found that online pornography consumption significantly predicted sexual permissiveness, even when controlling for offline pornography consumption. In a Danish population study of young adults, Hald and Malamuth (2008) found that pornography consumption was moderately to strongly correlated with perceived positive effects of pornography consumption, including more positive attitudes toward sex.

Similar associations have been obtained using U.S. data. For example, in a large U.S. cross-sectional survey study of adolescents, a significant positive association between the use of sexually explicit websites and sexually permissive attitudes

was found (Braun-Courville & Rojas, 2009). Moreover, in another large-scale longitudinal study of U.S. youths, J. D. Brown and L'Engle (2009) found both that pornography consumption and permissive personal sexual norms at baseline had large, significant positive associations and that, among men, increased exposure to pornography at baseline predicted more permissive personal sexual norms 2 years later, even after controlling for baseline sexual norms, demographic variables, and sensation seeking. Also, using U.S. college students, Weinberg, Williams, Kleiner, and Irizarry (2010) found significant positive associations between pornography consumption and an expansive sexuality including more positive attitudes toward oral and anal sex as appealing.

It is important to note that the designs of the studies cited in this section preclude the assessment of causality and therefore cannot be used to more clearly establish cause-and-effect relationships among variables, that is, pornography consumption and sexually permissive behaviors.

Attitudes toward pornography. In the area of ATP, U.S., Danish, Finnish, Italian, Norwegian, and Swedish studies have all indicated sex differences in ATP (e.g., Herrman & Bordner, 1983; Kontula & Haavio-Mannila, 1995; Lewin, 2000; Sabina et al., 2008; Sørensen & Kjørholt, 2007; Træen, 1998; Træen et al., 2004). These studies found that women more than men favor restrictions on pornography and are more likely to describe pornography as dull, not exciting, or repulsive. Moreover, compared with women, men express more positive ATP and are more likely to view pornography as a means of sexual enhancement (Flood, 2010; Hald & Malamuth, 2008; Svedin et al., 2011; Træen et al., 2004).

Summary: Attitudes. In sum, using a variety of subject samples, study designs, and cross-cultural research, significant positive associations between pornography consumption and attitudes supporting violence against women, sexually permissive attitudes, and attitudes toward pornography have consistently been demonstrated. For the relationship between pornography consumption and sexist attitudes, findings are more conflicting and inconclusive. Across attitudes, various important moderators

of the pornography–attitudinal relationship have been identified.

Effects of Pornography

Cognitions. Problems in the perceptual, memory, or information processing systems may lead to maladaptive, offense-supportive cognitions, and problematic interpretations of stimuli and social encounters (see also Ward & Beech, 2004, 2006). Moreover, these systems may work as preattentive filters biasing the intake and processing of information and prime offense-supportive cognitions (Ward & Beech, 2006). In turn, offense-supportive cognition may evoke emotional, attitudinal, and behavioral responses increasing the probability of sexually aggressive behaviors (see also Mann & Beech, 2003). Pornography exposure likely affects these cognition-related systems.

Cognitively, pornography may prime, maintain, and reinforce offense-supportive cognitions, for example, that women are constantly receptive to men's needs (Polaschek & Ward, 2002), deceptive (Ward & Beech, 2006), or treacherous (Mann & Beech, 2003). When primed repeatedly, such cognitions may result in the chronic accessibility of attitudes that reduce the responsibility of men who commit acts of aggression against women and generally reinforce the acceptance of dominating, controlling, and perhaps even violent acts of aggression against women (e.g., Berkel, Vandiver, & Bahner, 2004; Lonsway & Fitzgerald, 1995; Milburn, Mather, & Conrad, 2000).

Individual differences moderation found in previous research (e.g., Malamuth et al., 2012) suggests that such priming, maintenance, and reinforcement by pornography may be particularly likely for men classified as being at high risk of sexual aggression (see also Malamuth et al., 2000; Ward & Beech, 2006) because these men often already hold hostile and power schemas associated with women and sexuality and view women dichotomously as either whores or madonnas (Bargh, Raymond, Pryer, & Strack, 1995; McKenzie-Mohr & Zanna, 1990; Zurbiggen, 2000). Thus, the availability and accessibility of offense-supportive schemas similar to that of (some) pornography may already be in place for, as well as perceptually and emotionally attended to by,

this group of men. In keeping with these findings, exposure to pornography may not activate similar schemas in men classified as being at low risk of sexual aggression because of the low occurrence or accessibility of such schemas among this group of men. These findings may also help explain the interaction of pornography and individual differences in the development of stronger offense-supportive cognitive schemas supporting violence against women, because men at greater risk for sexual aggression are more likely to choose to expose themselves to violent or similar forms of pornography (Malamuth et al., 2012).

Sexual arousal. In research on pornography and sexual arousal, investigations have usually differentiated between physiological arousal (e.g., erection for men and vaginal blood flow for women) and psychological arousal (e.g., sexual emotions and cognitions). Physiological arousal is typically measured using either self-report or devices intended to measure physiological sexual arousal, such as vaginal photoplethysmography for women and penile plethysmography for men. Psychological arousal is typically measured using some kind of scaled self-report measure of sexual arousal.

More generally in the area of sexual arousal, Chivers et al. (2010), in a large meta-analysis on the agreement between self-reported and genital measures of sexual arousal involving 132 peer- or academically reviewed laboratory studies, found a significantly higher concordance between self-reported and genital measures of sexual arousal for men ($r = .66$) than for women ($r = .26$). This finding extends to visual stimuli, for example, pornography, for which the concordance between subjective and genital measures of sexual arousal was found to be significantly higher for men than for women even when female-centered stimuli were used (Chivers et al., 2010).

More recent research has supported the notion that men experience greater levels of sexual arousal than women with regard to both nonviolent and violent sexual material (Glascok, 2005; Janssen, Carpenter, & Graham, 2003). These findings refuted earlier investigations that failed to reveal consistent gender differences in levels of sexual arousal to por-

nography (e.g., Cowan & Dunn, 1994; Sigusch & Schmidt, 1970). Comparing men's and women's physiological and psychological sexual arousal response to pornography, Allen et al. (2007), in a large meta-analysis, found that, compared with women, men both report higher levels of physiological arousal and experience more positive affect to pornography. This finding was in contrast to an earlier meta-analysis (Allen & D'Alessio, 1993) in which the magnitude of physiological sexual arousal to pornography as measured by genital blood volume increase was found to be the same for men and women. However, apart from being older, this latter meta-analysis also only included five studies and a total of 40 subjects.

Individual differences have been implicated in the likelihood of individuals reporting and experiencing sexual arousal to particular types of pornography. Aside from gender, investigators have focused on relationship context clues; proclivity to rape, defined in earlier studies as a physiologically assessed preference for sexual aggression; and history of sexually aggressive behavior (Chivers & Timmers, 2012; Kingston et al., 2009). For example, Malamuth (1986) found that men with higher attraction to sexual aggression or a more severe history of sexual coercion were more highly aroused when exposed to sexually violent depictions than men without these characteristics. Moreover, Hill, Peterson, and Heiman (2007) reported that the combination of a more severe prior history of sexual aggression with a higher degree of hypermasculinity was associated with a greater degree of sexual arousal to a variety of sexual photos. Allen et al. (2007), in their comprehensive meta-analysis on physiological and psychological reactions to pornography, found that although women generally reported more negative emotional responses to pornography than men, for example, guilt, regret, shame, or anger, both men and women showed a positive association between physiological arousal and positive emotional affect.

In conclusion, men consistently report greater arousal to pornography than women. Moreover, the concordance between subjective and genital measures of sexual arousal is generally much larger for men than for women.

Behavioral outcomes. The million-dollar question in pornography effects research has been whether and how pornography influences behavior. Traditionally, mainly two groups of behaviors have been studied: sexual behaviors and sexually aggressive behaviors. Sexual behaviors primarily include autoerotic, interpersonal, and relationship behaviors, such as frequency of masturbation, number of sexual partners, and frequency of sexual intercourse. Sexually aggressive behaviors include verbal and physical sexual aggression (see also Kuyper, de Wit, Adam, & Woertman, 2012).

Sexual behaviors. Research has generally supported the notion that pornography consumption is related to sexual behaviors and background variables. For example, Lewin (2000), in a Swedish survey study, found a positive relationship between number of sexual partners during the past year and pornography consumption during the same time. This finding was replicated in a large Norwegian population study that found that number of sex partners was associated with use of pornography in all media (Træen et al., 2006). Also, this study found that experience with group sex predicted amount of exposure to pornography in all media. Janghorbani et al. (2003), in a large survey study of young adults from Hong Kong, found that number of sexual partners and frequency of masturbation during the past week were associated with sexual media use. Furthermore, Haavio-Mannila and Kontula (2003), using a Finnish population sample, found that pornography consumption was especially high for highly sexually active individuals and that those with a higher frequency of masturbation also used more pornography. Moreover, Wingood et al. (2001), using a sample of adolescent African American girls, found that adolescents exposed to X-rated movies were more likely to have attitudes nonsupportive of sexually transmitted infection prevention, to engage in sexually transmitted infection sexual risk behaviors, to engage in contraceptive risk practices, and to test positive for a sexually transmitted infection (see also Hald, Kuyper et al., 2013).

More recently, using a Croatian sample, Štulhofer et al. (2010) reported significant path associations between early exposure to pornography

and varied sexual experiences among paraphilic pornography consumers. Peter and Valkenburg (2006), using a Dutch youth sample, found that increased sexual interests (i.e., often thinking about sex and expressing an interest in sex) predicted pornography use. Likewise, Svedin et al. (2011), using a sample of Swedish male adolescents, found that greater sexual desire predicted more frequent pornography consumption. Hald (2006) and Hald and Malamuth (2008), using a representative sample of young Danish adults, found that for both men and women, higher frequency of masturbation was associated with increased pornography consumption. Carroll et al. (2008), using a U.S. sample of university students, found that pornography use and acceptance were significantly related to number of sexual partners in the past 12 months, number of lifetime sexual partners, and acceptance of casual sexual behaviors. Weinberg et al. (2010), using a U.S. sample, found positive associations between more frequent viewing of pornography and the likelihood of having multiple lifetime sexual partners, having had more than one sexual partner in the past 3 months, and having engaged in anal sex. Similarly, J. D. Brown and L'Engle (2009), using a large sample of U.S. adolescents and a prospective study design, found that those who had engaged in oral sex and sexual intercourse were much more likely to be using sexually explicit media. Moreover, Bleakley et al. (2011), using a national sample of U.S. adolescents, found that the active seeking of sexual content, for example, pornography, was significantly positively associated with precoital sexual behaviors and lifetime vaginal sex. E. M. Morgan (2011), in a study of 782 U.S. college students of both genders, found that after controlling for gender, religiousness, and dating status, frequency of pornography consumption still significantly predicted a variety of sexual behaviors and preferences including age of first intercourse, number of casual sex partners, and kinky sex. Finally, Braun-Courville and Rojas (2009), using a sample of U.S. adolescents, found that adolescents exposed to Internet pornography were more likely to have multiple lifetime partners, to have had more than one sexual partner in the past 3 months, and to have engaged in anal sex.

These findings essentially mirror past cross-sectional studies of older date. For example, Athanasiou and Shaver (1971), Wallace (1973), and Coles and Shamp (1984) found that sexual attitudes and sexual experience were key correlates of the use of sexually explicit materials. Moreover, these findings extend to the relatively few studies published on the association between pornography and sexual behaviors or attitudes among men who have sex with men. Among men who have sex with men, pornography consumption or specific pornographic genres have been found to be positively associated with anal activities as appealing, interest in third-party sex, masturbation, and unprotected anal intercourse (Rosser et al., 2012; Stein, Silvera, Hagerty, & Marmor, 2011; Træen & Daneback, 2012; Weinberg et al., 2010). Furthermore, use of pornography during partnered sex among men who have sex with men has been found to be negatively correlated with condom use during first intercourse with the most recent partner and positively correlated with experience with group sex (Træen & Daneback, 2012).

In conclusion, with great consistency and across studies, cultures, and population samples, pornography consumption has been found to be associated with a diversity of sexual behaviors. However, this is not evidence of causal links between pornography consumption and sexual behaviors. As proposed by Hald (2006; Hald, Malamuth, et al., 2013), among others, associations between pornography consumption and sexual behaviors may be spurious and accounted for by one or more third factors, such as, for example, (sexual) sensation-seeking behaviors, a high sex drive, or a high interest in sex (Hald, Kuyper, et al., 2013)

Sexually aggressive outcomes. Some of the most feared adverse effects of pornography consumption are sexually aggressive behavioral outcomes. Sexually aggressive behavioral outcomes may be conceptualized as verbal, situational, or physical sexual aggression, for example, verbal manipulation, taking sexual advantage of an intoxicated person, or physically forcing someone into sexual activities against his or her will (see also Kuyper et al., 2012).

Longitudinal studies, reviews, and meta-analyses of existing literature have all shown positive associations between pornography consumption and sexu-

ally aggressive behaviors (e.g., Allen, D'Alessio, & Brezgel, 1995; Kingston et al., 2009; Malamuth et al., 2000; Oddone-Paolucci, Genius, & Violato, 2000; Ybarra et al., 2011). However, these associations have also been shown to be moderated by various individual differences (see also Kingston et al., 2009; Ybarra et al., 2011). In this regard, accumulating integrative lines of research have demonstrated that in the area of sexual aggression, pornography may best be operationalized as one among many risk factors. Moreover, research has suggested that the confluence or interactive combination of these risk factors, including pornography, is what has the strongest predictive utility and thus social and practical significance (e.g., Vega & Malamuth, 2007), not the single risk factor per se that often shows only weak associations with sexually aggressive behavioral outcomes.

This line of thinking is evident in leading integrative or multimodal models of sexual aggression, such as the confluence model of sexual aggression (e.g., Malamuth, 2003) and the three-path model (e.g., Knight & Sims-Knight, 2005, 2011). In these models, sexual aggression is predicted on the basis of a cumulative–conditional–probability approach from the integration of a large number of known risk factors of sexual aggression organized within separate paths. Within these models, pornography has been conceptualized as one of the risk factors that may increase the probability of committing sexual aggression in real life (see also Knight & Sims-Knight, 2005, 2011; Malamuth et al., 2000). In this regard, however, studies have also indicated that such increased risk may only be evident among men who are (more) predisposed to sexual aggression and among the most frequent pornography consumers (e.g., Malamuth et al., 2000; Vega & Malamuth, 2007). That is, for men who are not at high risk for committing sexual aggression, pornography may not add fuel to the fire (Malamuth et al., 2012) and be a risk factor for sexually aggressive outcomes (Malamuth et al., 2000; Seto et al., 2001).

In known groups of sexual offenders, pornography use has been assessed in terms of frequency and type of pornography used. However, much of this research has been equivocal and remains inconclusive (see also Kingston et al., 2008). Nonetheless, a

recent study examining the unique contribution of pornography consumption to the longitudinal prediction of criminal recidivism in a large sample of child molesters found that after controlling for general and specific risk factors for sexual aggression, pornography still added significantly to the prediction of recidivism and, moreover, that frequency of pornography consumption was primarily a risk factor for higher risk offenders (Kingston et al., 2008).

In sum, research on pornography and sexually aggressive behavioral outcomes has stressed that the confluence or interactive combination of general criminogenic, contextual, and specific sexuality-related risk factors, including pornography, is what has the strongest predictive utility of sexually aggressive behaviors in the general population (see also Kjellgren et al., 2010; Malamuth et al., 1995; Seto & Lalumiere, 2010; Vega & Malamuth, 2007). In addition, potential effects of pornography on sexually aggressive outcomes are best conceptualized and understood within comprehensive integrative and empirically validated theoretical frameworks. Finally, increased risk of sexually aggressive outcomes on the basis of pornography consumption may occur only for a small subgroup of users, namely, those already at relatively high risk of committing sexual aggression and among the most frequent pornography consumers (Hald & Malamuth, 2013; Kingston et al., 2009; Malamuth et al., 2000; Seto & Lalumiere, 2010; Ward & Beech, 2006).

CLINICAL AND EDUCATIONAL IMPLICATIONS OF PORNOGRAPHY RESEARCH

Reflections on how research-based knowledge about pornography may apply to clinical and educational settings are limited. This may be due to the controversial nature of the topic or simply because the interpretation of research on pornography may differ substantially depending on ideological vantage point (see also Hald & Malamuth, 2008; Linz & Malamuth, 1993). Nonetheless, it seems paradoxical not to draw implications of basic research on pornography for applied settings given the consistently

high prevalence rates of consumption, the attention given to sex and pornography in the media in general, and the debate on pornography that is often seen arising in a diversity of public settings.

Thus, one may argue that basic research on pornography may in a number of ways apply to areas as diverse as education, individual and relationship therapy, and work with sexual offenders or users identified as being at risk of sexually aggressive behaviors (Britton et al., 1993; Kontula, 2008; Vega & Malamuth, 2007; Ybarra et al., 2011). Crucial in this regard is the respect for personal boundaries, relational and contextual issues, individual backgrounds, and cultural traditions, in addition to an awareness of compliance pressure, social desirability responses, and appropriate person–porn match if pornography is used in clinical interventions.

The data on consumption patterns of pornography have shown that pornography is especially a cornerstone of male autoerotic sexual activities. This finding can be used to increase clinical awareness of the role of pornography in sexuality and underscore the importance of assessing pornography consumption in relevant settings.

Pornography may be used as a treatment supplement for common sexological dysfunctions, such as desire problems, arousal and orgasm problems, erectile dysfunctions, and pain disorders. Here, pornography may be used to assess sexual functioning, as a supplement to explore or evoke sexual fantasies, to increase sexual arousal, to induce or maintain erection, or to divert attention from sensations of pain or distracting perceptions and cognitions. In relation to counseling and therapy, pornography may also be used to enhance sexual feelings, sexual inspiration, or sexual communication (Britton et al., 1993; Hald & Malamuth, 2008). Finally, Wylie and Pacey (2011), on the basis of existing literature, made a convincing argument that pornography may be used in fertility services for the production of sperm samples.

Pornography research on attitudes and sexual aggression may be used to identify particular groups of individuals vulnerable to adverse effects of exposure to pornography (see also Vega & Malamuth, 2007), which may include specific groups of sexual offenders (see also Kingston et al., 2008) or individuals

at high risk of committing sexual aggression (see also Hald & Malamuth, 2013; Malamuth et al., 2000; Vega & Malamuth, 2007; Ybarra et al., 2011). In addition, with these groups, research on pornography may be used as a point of reference for discussion or intervention.

In sexual education and sexual health teachings, pornography may also be used as a point of reference to start discussions on various important sexual themes, such as sexual acts and preferences, personal boundaries, sex and emotions, body image, and so forth (Kontula, 2008; Synnevåg, 2002). Using pornography as a point of reference may also apply to more clinically oriented work to much the same effect as well as to increase sexual awareness and sexual self-acknowledgment when relevant.

FUTURE DIRECTIONS

Although research on pornography effects has produced a large and developed literature, many new directions for future research still exist. One notable area that remains to be tapped is empirical tests of evolutionary hypotheses of pornography. Although Malamuth (1996) and others (e.g., Pound, 2002; Salmon, 2004) have done some initial work in this area, almost no empirical studies have tested the hypotheses these scholars have suggested. For example, Malamuth (1996) suggested that evolutionary theory would predict that popular actresses in pornographic films would have a high degree of body symmetry because of the adaptive advantage preference for body symmetry would afford (see Gangestad & Simpson, 2000, for an overview). However, such hypotheses have yet to be empirically tested.

In particular, as Malamuth (1996) pointed out, although the functions of sexually explicit media for each gender are generally well accounted for by evolutionary theories of human mating, attempting to use evolutionary theory to predict the effects of pornography is less straightforward. However, given recent research on mating in evolutionary psychology, a wealth of potential studies could be done to elucidate how psychological adaptations may moderate the effects of pornography.

For example, Gangestad, Garver-Apgar, Simpson, and Cousins (2007) found that women place more importance on the physical attractiveness of short-term mates when they are most likely to conceive, presumably because they can capitalize on the good genes offered by a physically attractive mate during this time. An interesting research question emerges, however, when considering female arousal to pornography across the ovulatory cycle. If female attention to male physical features increases during ovulation, would ovulating females also be more aroused by pornography? Could it be that during ovulation, women become more likely to consume and enjoy depictions of attractive men engaging in sex? Are they subsequently more susceptible to messages in pornography during ovulation? These are just a few examples of questions that could be explored, and there are many other adaptations identified by evolutionary psychologists (e.g., Buss & Schmitt, 1993; Gangestad & Simpson, 2000) that could similarly be investigated.

Another future direction for pornography effects research is to examine the role of exposure states in pornography research (Peter & Valkenburg, 2008a, 2008b). Generally, most pornography effects research implicitly assumes that participants are consciously aware of all the elements and messages in the content they are being exposed to. However, some research has indicated that this may not be the case. For example, Mosher and Maclan (1994) found that men were more highly absorbed than women when watching pornography. Potter (2009) has suggested that individuals may actually be operating within at least three other types of exposure states when processing media messages: automatic, transported, and self-reflexive. Each of these states is distinguished by level and intensity of attention given to the media message. The automatic state is characterized by unconscious and automatic processing of information (Potter, 2009). Potter (2009) argued that in the media-saturated environment of modern society, the automatic state represents the most common exposure state for most media messages. The transported state involves becoming so absorbed in the message that one loses a sense of separateness from the message itself (Potter, 2009). Finally, a self-reflexive state is when one is aware of

not only the media message itself but also of how one is processing and reacting to that message (Potter, 2009). Potter (2009) has argued that exposure states are important to consider, in part because media effects should vary depending on the state in which the media content is processed.

Furthermore, despite a large body of psychological research demonstrating automatic information processing of many other types of content (for an overview, see Bargh & Chartrand, 1999), no research study has examined automatic processing of pornography messages and its subsequent effects. Therefore, an important area for future research is to explain how effects may occur under these different exposure states, which may represent how most people process pornography in everyday use.

Another future direction for pornography effects research is to further explore how elements of form and content within pornography alter their effects. For example, many of the earlier studies on the effects of pornography used magazines, slides, or even verbal descriptions of sexual acts (e.g., Malamuth & Check, 1980; Taylor, 2006; White, 1979), and researchers have often equated the results of pornography studies that have used different forms of media outlets. Doing so may be problematic because the effects of verbal descriptions of nonviolent pornography may be vastly different from those of vivid audiovisual depictions of violent pornographic stimuli. Indeed, a recent study by Ybarra et al. (2011) with young U.S. children and adolescents ages 10 to 15 found that consumers of violent pornography were close to 6 times as likely as non-consumers of violent pornography to report sexually aggressive behavior over a 36-month study period. Moreover, the same study found that although consumption of violent pornography—whether online, in movies, or in magazines—was associated with sexually aggressive behavior, the magnitude of association was higher for those exposed online and via movies than through magazines (Ybarra et al., 2011).

Researchers may want to pay attention not only to form and content itself, but also to how participants interpret form and content. For example, what is the implication for the outcome variable if two people watch particular pornographic content and

one sees it as violent and the other does not? How might this change how each of the two individuals is affected? Current research cannot answer these types of questions. Therefore, integrating some degree of perception of content and perhaps form into study designs will go a long way toward better understanding the process through which pornography may have an effect. To accomplish this, researchers need to go a step further and examine why individuals perceive content in the way that they do. Put another way, researchers could examine how an individual's preexisting cognitive schemata are triggered by pornography to produce a particular interpretation or perception of that content. By better understanding how pornography triggers these interpretations, one can then determine how interpretation interacts with content elements within pornography to produce various effects within individuals.

Another interesting direction for future research on pornography is to explore how the sexual behavior that typically accompanies pornography use influences pornography's effects. Sexual behavior concurrent with pornography use is very rarely ever measured, especially in experiments. In particular, as also demonstrated earlier, quite a bit of evidence has suggested that the primary reason males use pornography is to aid masturbation. For example, Perse (1994) found that males often reported using pornography for both sexual release and as a substitute for an actual partner, and laboratory studies have confirmed that men are much more likely to have masturbated after watching pornography than are women (M. Brown, Amoroso, & Ware, 1976; Mosher & Maclan, 1994). In the only experiment of pornography effects to actually measure the effects of masturbation, Schaefer and Colgan (1977) found that arousal responses to pornography increased over time when viewing was followed by sexual gratification (i.e., ejaculation). However, libido has also been found to decrease directly after orgasm in both men and women (Krüger, Haake, Hartmann, Schedlowski, & Exton, 2002). Therefore, current research has seemed to ignore both the potential for masturbation to act as positive reinforcement (Ceniti & Malamuth, 1984) and the fact that sexual release (and a subsequent drop in arousal) usually

accompanies pornography consumption in real life and that this might also affect the outcome variable of interest. Pornography effects research could benefit tremendously by taking into consideration how sexual behavior (such as masturbation) influences outcomes (such as aggression).

Finally, good representative community-based samples, longitudinal studies, and epidemiological and effect studies from various parts of the world where investigations of pornography consumption and associated behaviors are rare but are needed both for global comparison and to assess how pornography consumption over time may potentially influence individuals.

CONCLUSION

Legal or not, pornography is widely available in most countries today, not the least because of smartphones and the World Wide Web. Especially among men, pornography consumption rates have been found to be consistently high and pornography a cornerstone of the autoerotic sexuality of males. The economic turnover of pornography is staggering, as is the easy availability of all types of pornography.

Effects of pornography are widely debated both scientifically and by the general public. Pornography research has offered specific models for these effects, most successfully conceptualized in integrative comprehensive effect models in which a number of risk factors are organized in paths to predict outcome variables of interest, for example, sexual aggression. Within these models, pornography is operationalized as one of the risk factors potentially directly and indirectly affecting the outcome variable.

Currently, research has indicated that pornography is linked to a variety of sexual behaviors and attitudes, including attitudes supporting violence against women and sexual aggression. At the same time, it is, however, important to note that research has also indicated that pornography may only adversely affect a smaller subgroup of users, namely those already at high risk of sexual aggression or with specific personality characteristics or individual, cultural, or environmental backgrounds. Thus, for most users, commonly feared adverse effects of pornography consumption, for example, sexual

aggression, have not been documented and have causal links neither to pornography consumption nor investigated outcome variables.

Research on pornography may have wide practical utility and both individual and social relevance. Thus, with care and sensitivity, pornography may be used directly, for example, through the viewing of pornography, or indirectly, for example, as a point of discussion, in both clinical and educational settings.

To further advance pornography research, a number of challenges need to be met. Among others, these challenges include concept consensus, large representative samples from a diversity of populations, longitudinal prospective studies, large-scale laboratory studies, and an expansion of technological methodology.

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