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# Pornography Use, Two Forms of Dehumanization, and Sexual Aggression: Attitudes vs. Behaviors

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### ABSTRACT

Sexual objectification is a common pornographic theme. Research shows that sexual objectification leads to the expression of aggressive attitudes and behaviors toward women. Based on a survey study of 320 male participants, this study re-conceptualizes sexual objectification in terms of two forms of dehumanization. Evidence suggests men's pornography use is positively associated with both forms, but mechanistic dehumanization of women is more associated with aggressive attitudes while animalistic dehumanization is more associated with aggressive behaviors. Findings indicate how objectifying pornography use may relate to aggressive attitudes and behaviors and inform the future education campaigns and interventions to reduce sexual aggression.

When women are sexually objectified, they are reduced to their body, body parts, or sexual functions (Fredrickson & Roberts, 1997). Objectification is a common theme in various types of media content like men's magazines, reality TV shows, popular music, and especially in pornography (also referred to sexually explicit materials or SEM; Bazzini, Pepper, Swofford, & Cochran, 2015; Bridges, Wosnitzer, Scharrer, Sun, & Liberman, 2010; Flynn, Craig, Anderson, & Holody, 2016; Flynn, Park, Morin, & Stana, 2015; Fritz & Paul, 2017; Klaassen & Peter, 2015; Messineo, 2008; Messner, Dunbar, & Hunt, 2000). Frequent pornography users, especially male users, are more likely to treat women as sexual objects compared to other individuals (Peter & Valkenburg, 2007, 2009; Wright & Tokunaga, 2015, 2016). This outcome is alarming because conceptualizing women as objects leads to the expression of aggressive attitudes and behaviors toward women (Vasquez, Ball, Loughnan, & Pina, 2018; Wright & Tokunaga, 2016; Wright, Tokunaga, & Kraus, 2016).

Although a scholarly consensus has demonstrated that sexual objectification leads to aggression against women, there is a need of additional refinement of the concept "sexual objectification." Scholars disagree about the degree and the forms of agency-reduction in sexual objectification. More specifically, some researchers define sexual objectification as a reduction in the total agency of women, i.e., treating them as sexual instruments (e.g., Fredrickson & Roberts, 1997; Klaassen & Peter, 2015). Others argue that sexual objectification also includes treating women as hypersexual creatures with limited agency (Cowan & Dunn, 1994; Gervais, Sáez, Riemer, & Klein, 2020; Hatton & Trautner, 2011). While both types of agency-reduction usually are studied as indicative of "objectification" without further disambiguation, we argue that they have distinctive conceptual features and may contribute to aggression against women differently.

The current study explicates the two types of agency reduction in sexual objectification through the lens of Haslam's (2006) two forms of dehumanization. Objectification in the current

study encompasses two dimensions: mechanistic dehumanization and animalistic dehumanization. Women are mechanistically dehumanized when they are objectified as inanimate sexual tools. For example, pornography may mechanistically dehumanize women by ignoring their sexual pleasure and depicting them only as sex toys for men's sexual pleasure. Women are animalistically dehumanized when they are objectified as impulse-driven animal-like creatures with limited agency in the sexual domain. One example of animalistic dehumanization in pornography is that women might be depicted as always willingly and eager to lure men into sexual intercourse, under any conditions. To examine these forms of dehumanization, one survey study has been conducted on 320 American young men from 18–35 years old. Based on the results, the theoretical implications for connecting dehumanization and objectification and practical implications for advancing sex education are discussed.

## Pornography use and effects

Pornography refers to visual or audiovisual media content aimed at enhancing sexual arousal, including explicit depictions of genitalia and/or sexual acts (Hald, 2006). A comparative study of three different national data sets compiled using different measures (2008–2012 General Social Survey, 2011–2012 New Family Structures Survey, and 2014 Relationships in America project) showed that around 55 to 70 percent of men and 25 to 40 percent of women between 18 and 39 years old reported pornography consumption in the previous year (Regnerus, Gordon, & Price, 2016). According to one of the most recent representative samples on adults' pornography use in the United States, 94% of men and 87% of women between 18 to 60 years old consumed pornography at least once, with the average age for first pornography exposure at 13.8 for men and 17.8 for women (Herbenick et al., 2020). Pornography users in this recent study most commonly accessed pornography via free websites, but also indicated use of social media apps, printed magazines, and books. Similarly, results from national surveys conducted outside the U.S suggest that pornography viewing is a common part of many people's, especially men's, daily life around the world (e.g., Australia, Rissel et al., 2017; Hungary, Bőthe et al., 2018; Norway, Traeen et al., 2004).

Owing to the popularity of pornography use in the U.S, a substantial amount of research focusing on the relationship between exposure to SEM and subsequent aggressive attitudes and behaviors have been undertaken. Some scholars claimed that there is solid evidence supporting that higher frequency of pornography exposure is associated with aggressive attitudes (e.g., acceptance of rape myth or attitudes supporting violence against women), aggressive intention (e.g., likelihood of raping), and actual aggressive acts (e.g., Allen, D'Alessio, & Brezgel, 1995; Allen, Emmers, Gebhardt, & Giery, 1995; Hald, Malamuth, & Yuen, 2010; Oddone-Paolucci, Genuis, & Violato, 2000; Wright et al., 2016). Other scholars, however, have contested these findings by asserting there is no causal relationship—or even finding an inverse relationship—between pornography consumption and sexual assault (e.g., D'Amato, 2006; Diamond, 2009; Diamond & Uchiyama, 1999; Kohut, Landripet, & Štulhofer, 2021). They have argued that both the academic world and the public overestimate the negative effects of pornography on viewers' attitudes and behaviors (Attwood, 2011; Diamond, 2009; Döring, 2009; Gouvernet et al., 2020; McKee, 2009) and ignore the potential benefits of pornography viewing such as positive sexual feelings, better sexual quality, more comfort in self-exploration of sexual preference, higher sexual confidence, and more gender egalitarian attitudes (Döring, 2009; Kohut, Baer, & Watts, 2016; Morrison, Harriman, Morrison, Bearden, & Ellis, 2004; Poulsen, Busby, & Galovan, 2013; Weinberg, Williams, Kleiner, & Irizarry, 2010).

When considering previous studies in greater detail, two factors may lead to the contradictory interpretations and results. First, many studies do not consider individual difference among pornography consumers, which should play an important role in the relationship between

pornography consumption and aggression. Malamuth and his colleagues proposed a confluence model of sexual aggression (e.g., Malamuth, 1986, 2018; Malamuth, Hald, & Koss, 2012; Malamuth, Linz, Heavey, Barnes, & Acker, 1995). This model explains that pornography use may increase the risk of sexual aggression but mostly for those men with high hostile masculinity and impersonal sexual orientation. Baer et al. (2015) added a third variable to the confluence model, which suggest that the individual differences in sex drive actually might be responsible for the effects previously attributed to pornography use. Second, these studies do not always focus on examining specific themes or elements in pornography like sexual objectification or non-consenting content. This approach may lead to obfuscating the specific psychological factors that mediate the relationship between pornography use and aggression, such as treating women as sexual objects (Wright & Tokunaga, 2016), the perceived realism of pornography (Landripet, 2016), and low agreeableness of sexual arousal (Hald & Malamuth, 2015). If that is the case, pornography consumption may not necessarily lead to sexual aggression, but the consumption of media in which certain specific themes or elements are especially pronounced may. Such themes or elements could be similarly prevalent in other types of media content rather than being limited to pornography. Consequently, controlling the specific themes depicted in pornography or the psychological factor during pornography consumption might be an effective mean to attenuate or even delink the association between pornography consumption and aggression.

Objectification of women has been observed as a common theme not only in pornography (Bridges et al., 2010; Fritz & Paul, 2017; Gorman, Monk-Turner, & Fish, 2010; Klaassen & Peter, 2015; McKee, 2005), but also in other types of media content, such as advertisements (e.g., Messineo, 2008; Stankiewicz & Rosselli, 2008), popular music (e.g., Flynn et al., 2016; Frisby & Aubrey, 2012), reality television programs (e.g., Ferris, Smith, Greenberg, & Smith, 2007; Flynn et al., 2015), sports television (Messner et al., 2000), and even health magazines (e.g., Bazzini et al., 2015). Consumption of such media content can lead to both men's objectification of women, as well as women's self-objectification (Karsay, Knoll, & Matthes, 2018; Wright & Tokunaga, 2015, 2016). Seen in this light, pornography is sub-type of a much broader media landscape. At the same time, although sexual scripts provided in recently created pornographic content are highly homogeneous across different sub-categories (Zhou, Paul, Malic, & Yu, 2019), some specific types of pornography objectify women less than others, even though female objection is a hallmark of mainstream portrayals. For example, Fritz and Paul (2017) found that feminist pornography contains significantly less depiction of female objectification than both mainstream and "For women" pornography. Thus, pornography has important similarities with other form of objectifying media, but pornography also has a substantial degree of variation across sub-types. However, many previous studies treat pornography as a special and relatively homogenous category of media, an approach that oversimplifies both what is and is not unique to pornographic media content while preventing sustained attention to the potential role of objectification.

Only few previous studies examined the mediation role of objectification of women in the relationship between pornography exposure and sexual aggression (e.g., Seabrook, Ward, & Giaccardi, 2019; Wright & Tokunaga, 2016). Scholars have not even reached a consensus on the definition of objectification of women in terms of the level and forms of agency-reduction, which leads to ambiguousness and controversies in previous studies. In the following sections, the current study re-conceptualized sexual objectification of women using Haslam's (2006) two forms of dehumanization theory and examined the specific roles of the two forms of dehumanization in the relationship between pornography exposure and sexually aggressive attitudes and behaviors.

## Sexual objectification of women in pornography

Fredrickson and Roberts (1997) defined sexual objectification as "when woman's body, body parts, or sexual functions are separated out from her person, reduced to the status of mere

instruments, or regarded as if they were capable of representing her" (p. 175). Similarly, Klaassen and Peter (2015) argued that pornography objectifies women by using women's body parts for males' sexual pleasure, treating women as interchangeable objects, and ignoring women's agency and feelings. This group of definitions of objectification emphasizes the tendency to regard objectified women as inanimate objects, without any human feelings and agency. Based on these definitions, previous studies found that pornography consistently objectifies women by focusing on women's sexual body parts (e.g., Cowan, Lee, Levy, & Snyder, 1988; Fritz & Paul, 2017; Gorman et al., 2010; Klaassen & Peter, 2015), focusing on men's sexual pleasure and orgasms while ignoring women's (e.g., Bridges et al., 2010; Brosius, Weaver, & Staab, 1993; Klaassen & Peter, 2015; McKee, 2005), and depicting women as the sex tools for non-normative sexual behaviors such as double penetration and facial ejaculation (e.g., Bridges et al., 2010; Fritz & Paul, 2017).

Some studies, however, offer contradictory evidence that women in pornography are not always depicted as without desire and agency. Previous studies found that women are equally or even more likely to initiate sex in pornographic content (Fritz & Paul, 2017; McKee, 2005; Prince, 1990; Vannier, Currie, & O'Sullivan, 2014). Similarly, Gorman et al. (2010) found that women demonstrate eagerness and willingness to have sex in nearly half of the online pornography videos. In addition, women also talk as much as, or even more than men in pornography, either to the camera or to other characters (McKee, 2005). Some scholars interpret this as evidence of women not being more objectified than men (e.g., McKee, 2005; Prince, 1990). However, we are more inclined to concur that sexual objectification could happen in a way that affords women some agency (Gervais et al., 2020; Hatton & Trautner, 2011). Following this logic, scholars have argued pornography degrades women by depicting them as "highly promiscuous with insatiable sexual urges" who cannot restrain their willingness to oblige any male's sexual desire or the pleasure they derive from it (p. 4, Donnerstein, Linz, & Penrod, 1987; as cited in Cowan & Dunn, 1994). When women are depicted as highly sexually active or desirous of sex, viewers have little flexibility to interpret the women as something other than wild animals which could be utilized as objects for sexual pleasure (Fasoli, Durante, Mari, Zogmaister, & Volpato, 2018; Hatton & Trautner, 2011).

Some investigations of sexual objectifying content were rooted in definitions that recognized at least some agency in women. This understanding of sexual objectification provides a possible explanation for why objectified women are still depicted as being more likely to initiate sex in SEM (Fritz & Paul, 2017; McKee, 2005; Prince, 1990; Vannier et al., 2014). In a content analysis of online pornography, Fritz and Paul (2017) coded women's sexually alluring dancing as a form of sexual objectification. Milburn, Mather, and Conrad (2000) also selected a striptease and lap dancing scene as the stimuli representing an objectifying R-rated movie scene in a study exploring the relationship between R-rated movie viewing and audiences' perceptions of date rape. Similarly, in a study of the effects of pornographic themes on degradation of women, Cowan and Dunn (1994) categorized a scene of a man observing and criticizing a woman for stimulating herself as objectification. In all these cases, objectified women are acknowledged to have degree of agency that permits them to sexually arouse or provoke another person.

In sum, objectification of women as sex tools and as sexually active animals are distinctive characterizations that conceptually coexist in pornography, although in practice, the depiction of women may switch from one type—or predominantly one type—to another in the same film or scene. The current study aims to clarify the possible conceptual differences between these two forms by mapping them to Haslam's (2006) dehumanization theory, and more importantly explores the how pornography consumption relates to both types of objectification, and their relationship with men's aggressive attitudes and behaviors.

## Dual dimensions of dehumanization

Objectification theory and later studies suggest that women are treated less like human beings when they are objectified (Fredrickson & Roberts, 1997; Klaassen & Peter, 2015; Nussbaum,

1995), which suggests a possible connection between sexual objectification and dehumanization. Following the logic of this potential linkage, we argue that insights from dehumanization theory can lead to a more complex understanding of objectification.

Haslam (2006) created a theoretical framework to explain the dual dimensions of humanness: *human nature* and *human uniqueness. Human nature* refers to characteristics that are fundamental to humans and distinguish human beings from inanimate objects but cannot distinguish humans from other animals. Characteristics of human nature typically are considered biologically intrinsic to a variety of living organisms (Morris, Goldenberg, & Boyd, 2018). For example, emotional responsiveness is fundamental to human beings, but a pet cat or dog can likewise express a range of emotions. Other traits of human nature according to Haslam (2006) include interpersonal warmth, cognitive openness, agency, and depth. When one's human nature is reduced, this type of dehumanization is termed *mechanistic dehumanization*. Mechanistically dehumanized human-beings will be treated as inert, cold, passive, or totally lacking agency, appearing like simple tools or robots. In the pornographic context, mechanistic dehumanization is related to the type of sexual objectification that fully strips women's agency and equates them to inanimate objects and sexual instruments.

The second type of dehumanization is related to the denial of *human uniqueness,* which refers to the characteristics that define the boundary between human beings and other animals. Human uniqueness emphasizes socially constructed traits that need to be taught and learned (Morris et al., 2018). Haslam (2006) proposed five traits of human uniqueness, including civility, refinement, moral sensibility, rationality/logic, and maturity. When a person's *human uniqueness* is denied, they are still considered as being able to express emotion and demonstrate agency, but they are also seen as irrational, uncivilized, or driven by instinctual motives. This type of dehumanization is called *animalistic dehumanization.* As discussed above, pornographic content animalistically dehumanize women by focusing on women's sexual insatiability while ignoring other aspects of their humanity. Therefore, animalistically dehumanized women are depicted as uncivil, immoral, and hyper-sexual creatures who cannot control their instinctual sexual desire. Accordingly, studies have already demonstrated that sexualized women whose human uniqueness is reduced are more likely to be associated with animals rather than instruments (Bongiorno, Bain, & Haslam, 2013; Vaes, Paladino, & Puvia, 2011).

When people are dehumanized, one or both dimensions of their humanness may be denied. Existing literatures has noted that though the two forms of dehumanization are distinctive, they are not necessarily mutually exclusive and may interact with each other (Haslam, Loughnan, Reynolds, & Wilson, 2007). Existing literature therefore reveals the conceptual differences between the two forms of dehumanization. Therefore, sexual objectification may be an appropriate term to encompass both tendencies, and yet the two types may exert different impact on pornography viewers' sexual attitudes and behaviors.

## Dehumanization linking pornography exposure and sexual aggression

Several meta-analyses of both experimental and non-experimental studies of pornography use have shown that pornography use, no matter whether it involves the consumption of violent or nonviolent content, is positively associated with both aggressive attitudes (Allen, D'Alessio, et al., 1995; Allen, Emmers, et al. 1995; Hald et al., 2010) and actual aggressive behaviors against women (Wright et al., 2016). Wright et al. (2016) further explained that nonviolent pornography consumption predicts sexually aggressive behavior owing to the fact that a great amount of nonviolent pornography is still highly objectifying and degrading. Therefore, in the current study, we first propose the following hypothesis:

> *H1*: *The more pornography young men consume, the more likely they will have sexually aggressive attitudes and behaviors against women.*

Previous empirical studies provide evidence that objectifying media consumption is associated with greater acceptance of the notion of women as sexual objects (e.g., Hust & Lei, 2008; Peter & Valkenburg, 2009; Ward, Vandenbosch, & Eggermont, 2015). Studies also show that, treating women as sexual objects is associated with aggressive intention and behaviors against women (e.g., Bevens & Loughnan,2019; Rudman & Mescher, 2012; Vasquez et al., 2018). However, only relatively few studies considered specific genres of media consumption, the notion of women as sexual objects, and aggressive attitudes and behaviors in the same model (e.g., Wright & Tokunaga, 2016; Seabrook et al., 2019).

Wright (2011; Wright & Tokunaga, 2016) provided a theoretical account for the mediating role of sexual objectification in the process of how pornography use contributes to attitudes supporting violence against women (ASV). According to Wright's script acquisition, activation, application model (3AM, Wright, 2011) of sexual media socialization, pornography users acquire novel sexual scripts by watching pornography, which are activated by repetitive exposure before being applied in real life. Therefore, as objectification is a common theme across different types of pornography, heterosexual male audiences will acquire an objectification script from pornography use (specific scripting, Wright & Tokunaga, 2016). The more pornography they consume, the more likely the objectification script will be re-activated. They then apply this script and treat women as sexual objects in real life. Men may then attempt to deduce general principles behind this script and apply them in other situations, meaning will be more likely to use women only as a tool for obtaining sex and may be more willing to punish women who refuse to be sexually subservient to men (abstract scripting).

To measure the effects of objectifying pornography viewing on an audience's sexual script, Peter and Valkenburg (2007) created an assessment of notions of women as sexual objects. Morse (2007) created a similar assessment named "the Sexual Objectification Scale" Both assessments have been adopted widely in studies of pornography consumption and objectification of women (e.g., Peter & Valkenburg, 2009; Seabrook et al., 2019; Vandenbosch & van Oosten, 2017; Wright & Tokunaga, 2016). The assessments themselves, again, suggest that sexual objectification might be multi-dimensional. In the assessments, some items focus on men treating women as tools while ignoring their feelings and agency, such as "There is nothing wrong with boys being primarily interested in a woman's body" (Peter & Valkenburg, 2007), and "Okay to stare at the body of a woman he doesn't know" (Morse, 2007). Other items focus more on men treating women as sexually active creatures who are always willing to have sex, such as "Unconsciously, girls always want to be persuaded to have sex" (Peter & Valkenburg, 2007), and "My girlfriend/ wife willing to have sex whenever" (Morse, 2007). As the notions of women as sex objects are theoretically related to both mechanistic and animalistic dehumanization of women, we therefore hypothesize that:

> **H2**: *The more pornography young men consume, the more likely they will mechanistically (**H2a**) and animalistically dehumanize (**H2b**) women in their real lives.*

We are particularly interested in possible differentiated mediation effects of mechanistic and animalistic dehumanization in the relationship between pornography use and aggressive attitudes and behaviors toward women. To explain why men are sexually aggressive toward women, two main explanations have been proposed (Bartol & Bartol, 2014; Briere & Malamuth, 1983). Bartol and Bartol (2014) divided sexual aggression into two main categories: *instrumental* sexual aggression and *expressive* sexual aggression. The two types of sexual aggression differ in their goals. *Instrumental sexual aggression* refers to sex offenders using just enough coercion to make victims compliant. In instrumental sexual aggression, sex offenders are more likely to treat victims as inanimate sexual objects; the purpose of sexual aggression is not to demean the victims but to control them. Some scholars (see Sanday, 1981) argue that sexual aggression is primarily

instrumental aggression, which is a byproduct of men's sexual desire to obtain sexual satisfaction from women regardless of the women's level of interest or willingness.

In contrast to instrumental sexual aggression, *expressive sexual aggression* primarily aims at harming the victims physically and psychologically. In expressive sexual aggression, sex offenders want to see victims' reactions to the harm, and therefore treat victims as reactive living people rather than inanimate sexual objects. Some scholars (e.g., Briere & Malamuth, 1983; Burt, 1980) believe that sexual aggression is expressive aggression. Burt (1980) interprets sexual aggression as the extension of the ideology that women are inferior to men because women are submissive, promiscuous, and cannot control their sexual desire. The ideology leads to the belief that women's sexual desire could and should be aggressively exploited or punished.

When different approaches are used to explain the same phenomenon, it is often the case that all the approaches contribute something to the phenomenon. In a study of two forms of dehumanization of women, Morris et al. (2018) suggested that mechanistic dehumanization might be more associated with the instrumental sexual aggression while animalistic dehumanization might be more related to expressive sexual aggression. For the former, Morris et al. (2018) found that when a woman is mechanistically dehumanized, people will be more likely to believe that she is less capable of feeling pain compared to un-dehumanized women and animalistically dehumanized women. Based on this result, Morris et al. (2018) hypothesized that men might harm a mechanistically dehumanized woman because they will be more indifferent to women's suffering of pain and therefore could be aggressively used as a sex tool. The aggression, in this situation, is just a byproduct in the process of fulfilling the men's sexual desires, which is consistent with instrumental sexual aggression. In comparison, men might harm an animalistically dehumanized woman with a different mental model. They are aggressive to her because they know that she can feel pain and want her to feel it. Thus, Morris et al. (2018) discussed this type of aggression has a more "deliberate and retributive nature" (p. 1311), which is correspondent to expressive sexual aggression. However, Morris et al. (2018) did not test their assumption of the relationship between two forms of dehumanization and two types of sexual aggression.

In the current study, we hypothesize that, if pornography use is related to instrumental sexual aggression by priming the script that women are inanimate sexual objects then:

> **H3a**: *There will be a positive indirect effect of pornography use on sexual aggression via mechanistic dehumanization.*

However, if pornography use is related to expressive sexual aggression by imprinting the belief that women are wild animals and whose sexual desire should be exploited or disciplined, then:

> **H3b**: *There will be a positive indirect effect of pornography use on sexual aggression via animalistic dehumanization.*

Previous studies usually explored the influence of sexual objectification on either aggressive attitude or intention (e.g., Attitudes Supporting violence Against Women, Acceptance of Rape myth, e.g., Seabrook et al., 2019; Wright & Tokunaga, 2016) or actual aggressive behaviors (e.g., Gervais, DiLillo, & McChargue, 2014; Vasquez et al., 2018). Both lines of studies consistently have found a significant association between sexual objectification and both aggressive attitudes and behaviors. However, previous meta-analysis on the relationship between attitudes and behaviors suggest that attitudes and behaviors are not necessarily correspondent to each other, which indicates the existence of a more complicated psychological processing mechanism in between (Albarracin, Johnson, Fishbein, & Muellerleile, 2001; Glasman & Albarracin, 2006). In addition, in a study of sociosexual attitudes and behaviors, Webster and Bryan (2007) found that behavioral and attitudinal sociosexuality might be two factors, in which the former one is more related to narcissism while the latter one is more related to hostility. Therefore, we measured both sexually aggressive attitudes and behaviors, and explore if the attitudes and behaviors stem from the same or different forms of dehumanization:
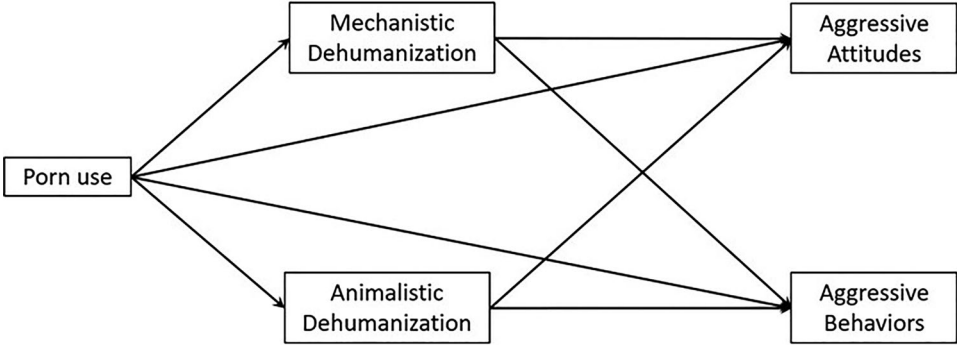
**Figure 1.** The proposed model.

*RQ1: Are sexually aggressive attitudes and behaviors associated with the same or different forms of dehumanization?*

See Figure 1 for a conceptual model of the proposed hypotheses.

## Method

### *Participants*

A confidential online survey was conducted between October 2018 to March 2019, using Amazon Mechanical Turk (Mturk) following Institutional Review Board approval of the study. Mturk is an online service through which requesters distribute tasks to anonymous workers to complete. The interface allows researchers to recruit a more diverse population than traditional non-representative sample (e.g., student sample or convenience sample) for a reasonable cost (Aguinis, Villamor, & Ramani, 2020; Casler, Bickel, & Hackett, 2013; Redmiles, Kross, & Mazurek, 2019). Mturk workers originate from more than 20 countries around the world, but the majority of them (75%) are U.S residents (Difallah, Filatova, & Ipeirotis, 2018). For the current study, Mturk workers were first presented with the consent form and those who agreed to participate were redirected to the questionnaire. We focused on young men's aggressive attitudes and behaviors toward women. Women, men who were younger than 18 or older than 35 years old (one common definition for young adults, Klassen, Douglass, Brennan, Truby, & Lim, 2018; Napolitano et al., 2017), and men who identified as homosexual were excluded at the beginning of the study. One attention check question (Imagine three people, Victor, Pete, and Adam. Suppose Victor is older than Pete, and Pete is older than Adam. Who is the youngest among the three?) was randomly inserted in questionnaire for each user to remove bots and participants who did not pay sufficient attention to the study. Participants were informed at the beginning of the study that their response would be rejected if they failed the attention check question. Results from participants who share the same IP address were removed from the data analysis. A total of 320 male participants completed the study. Participants' ages ranged from 18–35 (M = 28.56, SD = 4.39). The majority of the participants self-identified as heterosexual (N = 287, 89.69%), while 32 of them (10.00%) self-identified as bisexual and one of them self-identified as "other." Of the 320 participants, 192 of them self-identified as Caucasian (60.00%), 60 as Asian (18.75%), 26 as African American (8.10%), 15 as Hispanic/Latino (4.70%), and 27 as others (8.44%).

### Measurement

### Pornography use

Three questions were asked to measure the frequency of exposure to pornography. Participants were asked how frequently they viewed online pornography, watched pornographic videotapes or DVDs, and viewed printed pornographic pictures. Response options ranged from (1) never to (6) everyday ($M_{online} = 4.31$, $SD = 1.23$; $M_{dvd} = 2.01$, $SD = 1.50$; $M_{printed} = 2.09$, $SD = 1.47$). Average scores of the three items create the measurement of pornography exposure ($M = 2.80$, $SD = 1.04$, Cronbach' $\alpha = .58$, McDonald' $\omega = .68$).
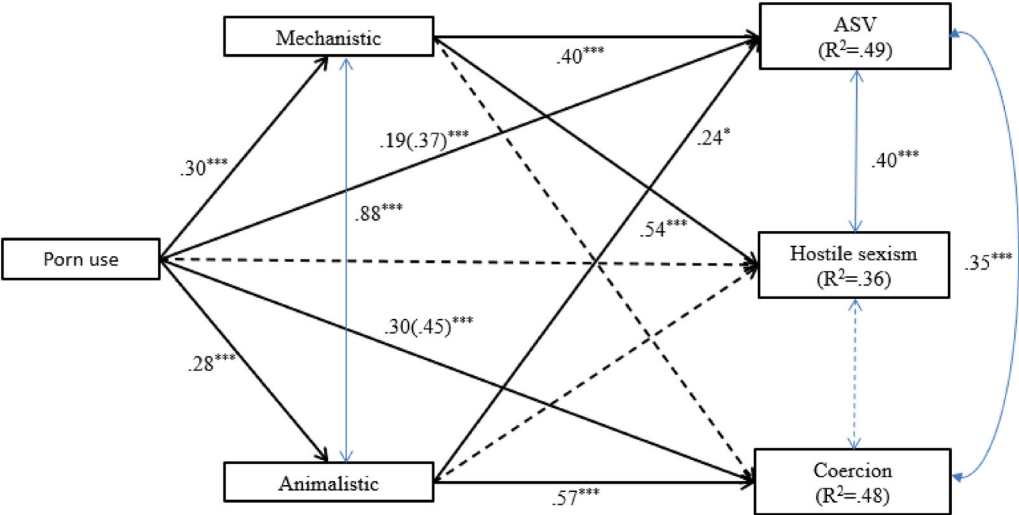
### Dehumanization

An eight-item scale was adopted from Bastian, Jetten, and Radke (2012) to assess the extent to which participants dehumanize women. There were four mechanistic dehumanization items (e.g., "I felt like women are generally mechanical and cold, like a robot," "I felt like women are generally impassive, like they are not responsive and warm"). Participants rated their agreement with statements using a (1) strongly disagree to (7) strongly agree Likert scale ($M = 3.09$, $SD = 1.59$, Cronbach' $\alpha = .92$, McDonald' $\omega = .92$). Similarly, there were also four items addressing animalistic dehumanization (e.g., "I felt like women are generally irrational and illogical, like they are not intelligent" and "I felt like women are generally lacking self-restraint, like an animal"), measured from (1) strongly disagree to (7) strongly agree ($M = 2.95$, $SD = 1.59$, Cronbach' $\alpha = .91$, McDonald' $\omega = .92$).

### Aggressive attitudes

To measure participants' aggressive attitudes against women, we adopted two commonly used scales, hostile sexism, and attitudes supportive of violence against women (ASV).

*Hostile sexism.* Hostile sexism encompasses general aggressive attitudes toward women who challenge men's dominance role in the society (Glick & Fiske, 1996). In the current study, the subscale of hostile sexism from the short version of Ambivalent Sexism Inventory (ASI; Glick & Fiske, 1996) was used. The subscale consists of six items and has been accepted as having good psychometric properties that are consistent with the original versions of the scales (Rollero et al., 2014). Example questions include "Women seek to gain power by getting control over men" and "Once a woman gets a man to commit to her, she usually tries to put him on a tight leash." Participants rated their agreement with the statements from (1) strongly disagree to (7) strongly agree. All responses were averaged to create a measurement of hostile sexism ($M = 4.24$, $SD = 1.37$, Cronbach' $\alpha = .89$, McDonald' $\omega = .89$).

*Attitudes supportive of violence against women (ASV).* ASV focuses on the attitudes toward sexual aggression. It is defined as "positive affective responses to acts such as rape, other types of sexual aggression, and partner violence; evaluative cognitions justifying these acts; and behavioral predispositions or attractions toward such aggressive acts" (Malamuth et al., 2012, p. 428). A five-item scale from Burt (1980) was used to assess ASV (e.g., "Being roughed up is sexually stimulating to many women," and "Sometimes the only way a man can get a cold woman turned on is to use force"). Participants rated their agreement with the statements from (1) strongly disagree to (7) strongly agree. All responses were averaged to create a measurement of ASV ($M = 3.21$, $SD = 1.58$, Cronbach' $\alpha = .90$, McDonald' $\omega = .90$).

**Figure 2.** Relationship between pornography use, mechanistic dehumanization, animalistic dehumanization, ASV, and previous sexual coercive behaviors.

### Aggressive behaviors

Participants' actual sexually aggressive behaviors toward women were measured using the *previous sexual coercion measure*, a nine-item scale adopted from Bohner, Jarvis, Eyssel, and Siebler (2005). Participants were asked to report how many times they have engaged in each manipulative, coercive, or violent sexual behavior (e.g., "Obtained sexual intercourse with a woman by deliberately getting her too drunk to resist," and "Had sexual intercourse with a woman when she didn't want to because you used or threatened to use physical force if she didn't cooperate"). Response options include (1) never, (2) one to two times, (3) three to five times, (4) six to ten times, and (5) more than 10 times. All responses were averaged to create a measurement of aggressive behaviors toward women ($M = 1.61$, $SD = 0.93$, *Cronbach' α* $= .96$, *McDonald' ω* $= .96$).

### Data analysis framework

The hypotheses and proposed model were tested using the lavaan package in R (Rosseel, 2012) with pornography exposure as the independent variable, and hostile sexism, ASV, and previous sexual coercion as dependent variables. Mechanistic dehumanization and animalistic dehumanization were run simultaneously as the parallel mediators. The correlation between mechanistic and animalistic dehumanization was considered in the data analysis. In this way, we could clearly see the specific association between each form of dehumanization and aggressive attitudes and behaviors (Figure 2). Based on Biesanz, Falk, and Savalei's (2010) recommendations, bootstrap analysis was conducted using 10,000 iterations and bias-corrected estimates to test the robustness of the mediation effects. We adopted the Full-Information Maximum Likelihood (FIML; Arbuckle, 1996) estimation procedures to handle missing values. As both direct and indirect pathways were of interest, the current model is a fully saturated path analysis model which model fit is necessarily perfect. Therefore, the model fit is not reported in the current study (Hayes, Preacher, & Myers, 2011; van den Berg, Neilands, Johnson, Chen, & Saberi, 2016).

**Table 1.** Zero-order correlations, means, standard deviations, and VIF

|  | 1 | 2 | 3 | 4 | 5 | Mean | SD | VIF |
|---|---|---|---|---|---|---|---|---|
| 1. Porn exposure |  |  |  |  |  | 2.80 | 1.04 | 1.09 |
| 2. Mechanistic | .29*** |  |  |  |  | 3.09 | 1.59 | 4.73 |
| 3. Animalistic | .28*** | .88*** |  |  |  | 2.95 | 1.59 | 4.73 |
| 4. Hostile Sexism | .25*** | .60*** | .54*** |  |  | 4.24 | 1.37 |  |
| 5. ASV | .37*** | .67*** | .65*** | .64*** |  | 3.21 | 1.58 |  |
| 6. Sexual Coercion | .45*** | .57*** | .63*** | .40*** | .64*** | 1.61 | 0.93 |  |

***$p < .001$.

## Results

### Preliminary analysis

Pearson's correlations between variables of interest are presented in Table 1. All the variables are correlated below the significance level of .001. Predictor variables were checked for multicollinearity using a variance inflation factor (VIF) cutoff = 5 (Rogerson, 2001).

### Hypothesis and model testing

Figure 2 presents the results of the model test. We first consider the direct association between pornography exposure and sexually aggressive attitudes and behaviors (*H1*). Bivariate analyses show that pornography exposure is positively associated with hostile sexism, ASV, and sexual coercion (Table 1). The path analysis, however, shows that pornography use is directly associated with ASV, $\beta = .19$, $SE = .07$, $p < .001$, 95% CI [0.16, 0.43], and sexual coercion, $\beta = .30$, $SE = .05$ $p < .001$, 95% CI [0.17, 0.37], but not hostile sexism, $p = .13$. The results show that the relationship between pornography use and hostile sexism has been fully mediated by the two forms of dehumanization.

Hypotheses 2a and 2b focus on the relationship between pornography exposure and two forms of dehumanization of women. Results indicate that the frequency of pornography use is positively associated with both mechanistic and animalistic dehumanization of women. The more male participants were exposed to pornography, the more likely they mechanistically dehumanize women, $\beta = .30$, $SE = .09$, $p < .001$, 95% CI [0.28, 0.64]. Similarly, the heavier pornography users were also more likely to animalistically dehumanize women, $\beta = .28$, $SE = .09$ $p < .001$, 95% CI [0.25, 0.60]. Therefore, *H2a* and *H2b* are both supported.

Finally, we turn to *H3a* and *H3b*, which predict the mediation effects of two types of dehumanization between pornography use and sexually aggressive attitudes and behaviors in the model. For aggressive attitudes, both mechanistic dehumanization and animalistic dehumanization are positively associated ASV, $\beta_{mech} = .40$, $SE_{mech} = .12$, $p < .001$, 95% CI [0.16, 0.62], $\beta_{anim} = .24$, $SE_{anim} = .11$, $p = .04$, 95% CI [0.02, 0.47]. Mechanistic dehumanization partially mediated the relationship between pornography exposure and ASV, $\beta_{ind} = .12$, $SE_{ind} = .07$, $p < .01$, 95% CI [0.06, 0.33]. The indirect path between pornography consumption and ASV through mechanistic dehumanization is not significant (marginally) though, $p = .07$. Only mechanistic dehumanization is positively associated with hostile sexism in the model, $\beta_{mech} = .54$, $SE_{mech} = .08$, $p < .001$, 95% CI [0.31, 0.62]. The indirect effects of mechanistic dehumanization between pornography consumption and hostile sexism is also significant, $\beta_{ind} = .16$, $SE_{ind} = .06$, $p < .001$, 95% CI [0.11, 0.33]. Animalistic dehumanization was not significantly associated with hostile sexism, $p = .67$.

For aggressive behaviors, results show a different pattern from aggressive attitudes. In the model, animalistic dehumanization is positively associated with the sexually coercive behaviors, $\beta = .57$, $SE = .06$, $p < .001$, 95% CI [0.22, 0.44]. The mediation test shows that animalistic dehumanization partially mediates the relationship between pornography exposure and sexually

coercive behaviors, $\beta_{ind} = .16$, $SE_{ind} = .04$, $p < .001$, 95% CI [0.07, 0.22]. Mechanistic dehuman-ization, however, is not significantly associated with coercive behaviors, $p = .72$. Therefore, both *H3a* and *H3b* are only partially supported.

Finally, in relation to the study's research question, the results indicate that that sexually aggressive attitudes and behaviors might be two different forms of sexual aggression. In the path model, aggressive attitudes (ASV and hostile sexism) are more related to mechanistic dehumanization, while aggressive behaviors (sexual coercion) are only associated with animalistic dehumanization.

## Discussion

A substantial number of experiments and surveys have been conducted to clarify the relationship between pornography exposure and aggressive attitudes, intention, and actual behaviors (e.g., Boeringer, 1994; Demaré, Briere, & Lips, 1988; Garcia, 1986; Linz, Donnerstein, & Penrod, 1988; Malamuth & Check, 1985). However, results from these studies do not support a consensus. Several meta-analyses found a positive association between pornography exposure and aggressive attitudes and behaviors, regardless of whether the pornographic content includes depictions of violence (Allen, D'Alessio, et al., 1995; Allen, Emmers, et al. 1995; Wright et al., 2016). Some studies, including one recent meta-analysis, show that only exposure to violent pornographic content might trigger sexually aggressive attitudes or behaviors (e.g., Ferguson & Hartley, 2020; Linz et al., 1988; Malamuth & Check, 1985). Still, a few previous studies failed to confirm an associ-ation between any type of SEM exposure and aggressive attitudes and behaviors, which casts some doubts on the reliability of previous theories and studies on the effects of SEM (e.g., Fisher & Grenier, 1994; McKee, 2007; St. Lawrence & Joyner, 1991).

One explanation for why nonviolent pornography could result in aggressive behaviors is that nonviolent pornography may still objectify women. As objectification of women is a common theme in the mainstream pornography, heavier pornography use may inculcate objectifying sexual scripts to viewers and make them more likely to treat women as sexual objects in real life. The main contribution of the results of the current study is to further clarify the association between sexual objectification and violence against women by reference to the two forms of dehumaniza-tion, as described by Haslam (2006). Although scholars have typically regarded the two forms of dehumanization or their analogs as evidence of sexual objectification, the results demonstrate dis-tinctions in the mediating roles in the relationship between pornography consumption and aggression against women.

The current study shows an interesting double dissociation of the two forms of dehumaniza-tion as distinct predictors of both aggressive attitudes and behaviors against women. Pornography use is associated with both mechanistic and animalistic dehumanization. The two types of dehu-manization are also highly correlated with each other. Consequently, men who use more pornog-raphy are more likely to see women as close-minded, impassive, cold, or mechanical, much like instruments or robots. They are also more likely to see women as uncivilized, irrational, unsophisticated, or lacking self-constraint, like animals or beasts. The two types of dehumaniza-tion combine to provide male pornography viewers with a specific sexual script in which women either are denied their full agency and human nature, or only have agency only within the narrow role of a wild sexual creatures that lacks characteristics of human uniqueness.

In the model, mechanistic and animalistic dehumanization were set as parallel mediators and their correlation has been considered. This approach foregrounds the unique relationship for each form of dehumanization with aggressive attitudes and behavior. Both mechanistic and ani-malistic dehumanization are associated with aggressive attitudes against women in the model. When male pornography users dehumanize women, either mechanistically or animalistically, they are more likely to support the *ideas* that women could be treated violently. The relationship

between mechanistic dehumanization and aggressive attitudes are stronger and more stable. Specifically, mechanistic dehumanization is associated with both hostile sexism and ASV. Animalistic dehumanization in the model, however, is only marginally significantly associated with ASV, and not significantly associated with hostile sexism. In other words, the bivariate correlation between animalistic dehumanization and aggressive attitudes might be explained to a high degree by mechanistic dehumanization. The results demonstrate that aggressive attitudes could be either instrumental or expressive but are more likely to be instrumental. Although both hostile sexism and ASV reflect aggressive attitudes against women, they focus on different perspectives. Hostile sexism focuses on the misogynistic ideas that preserve men's dominance over women, while ASV focuses on attitudes supportive of sexually aggressive behaviors against women. This difference may result in their different relationships with mechanistic and animalistic dehumanization. Previously studies used both hostile sexism and ASV to measure participants' sexually aggressive attitudes and tendencies. The current study, however, suggests that motives behind them might be different and require further study.

For aggressive behaviors against women, we only find an association between animalistic dehumanization and previous sexual coercion in the path analysis. The results suggest that pornography use is more strongly associated with expressive sexually aggressive behaviors through the path of animalistic dehumanization. In expressive sexual aggression, sex offenders intentionally harm their victims and wish to see the victims' response to the harm. When women are animalistically dehumanized, they will be regarded as being emotionally responsive like a human being, but less civilized, sophisticated, and self-constrained than human beings. Pornography users who animalistically dehumanize women may engage in coercive behaviors either because they believe that women are always driven by sexual instincts and therefore will enjoy sexual aggression, or because they believe that women are only animals who are inferior to men and therefore should be punished if they refuse to fulfill men's sexual desire.

Generally speaking, male pornography users will be more likely to harbor aggressive attitudes against women when they learn the sexual script of ignoring women's free will and treating them as sex tools, i.e., mechanistic dehumanization, but actually behave aggressively toward women in sex when they believe that women are inferiors who lack self-control and are only driven by their instinctive desires, i.e., animalistic dehumanization.

The results provide an insight into the difference between aggressive attitudes and actual aggressive behaviors against women: aggressive attitudes are more instrumental while aggressive behaviors are primarily expressive. Without the ignorance of women's human uniqueness, ignoring women's human nature itself is not necessarily associated with actual sexually aggressive behaviors. More specifically, when controlling for animalistic dehumanization of women, pure mechanistic dehumanization could be associated with some men's *belief* that there is no need to be concerned for women's feelings and to justify damaging women as though they are inanimate tools (Nussbaum, 1995). However, this belief may not directly transfer to everyday behavior as an overt increase in violent actions. Instead, the belief may make men feel it is their right to damage their property to satisfy their sexual desire but, they may only exhibit the most extreme behaviors when they feel it is necessary. In most cases, they prefer to utilize their property without damaging or losing it. On the other hand, animalistic dehumanization is more likely to support the belief that women are immoral and have uncontrollable sexual desire. Therefore, after internalizing the animalistic dehumanization perspective toward women, it might be easier for men to misperceive women as wild animals who enjoy sexual aggression and to punish women when they are not willing to fulfill men's sexual goals.

Although the current study suggests a strong relationship between pornography consumption and the two forms of dehumanizing women, this finding does not imply that pornography is unique as a dehumanizing or objectifying form of media. The positive correlation between general pornography consumption and dehumanization found in this study might owe to the fact

that objectification of women is a common component of mainstream pornography. After controlling for both types of dehumanization, however, the association between pornography exposure and aggression against women is severely attenuated or even disappears. Therefore, consumption of pornography in the abstract might not be problematic, but consumption of specifically dehumanizing or female objectifying pornography is. Moreover, female objectifying content is not limited in any way to pornographic media content. Although objectification may be more obviously present in pornography, it is common to at least some degree in nearly all types of media content. Consequently, results from the current study could be applied to the research of the effects of other female objectifying media content, pornographic or not.

## Limitations and future directions

As the present study is the first one considering the relationship between pornography use and two forms of dehumanization, there are some shortcomings. First, the current study has treated pornography as a homogeneous category in a manner consistent with previous studies. Previous studies show that sexual objectification is a common theme across different categories in the mainstream pornography. Therefore, it is reasonable to assume that, for most pornography viewers, the more pornography they consumed the more likely they are exposed to the depiction of sexual objectification of women. However, there are still some categories of pornography, like feminist pornography, which are less likely to depict women as sexual objects. Consumption of pornography that respects women characters as human beings and portrays women and men as equal counterpart in the sexual acts may not lead to sexual aggression or even may inhibit subsequent sexually aggressive behaviors. Future content analytic studies should more carefully examine the depiction of objectification of women in different types of pornography based on the theory of two forms of dehumanization. Future studies should also explore the effects of different types of pornography on their frequent users' aggressive attitudes and behaviors through the paths of mechanistic and animalistic dehumanization.

Second, the current study is only a cross-sectional survey which cannot explore the causal relationship among pornography use, dehumanization, and sexual aggression. The link between pornography use and sexual aggression might be bidirectional, or even reverse in direction such that aggressive men may intentionally watch more pornography, especially violent pornography. However, according to Wright (2021), accumulated evidence from previous longitudinal studies has shown that consumption of mainstream objectifying and degradation pornography might lead to sexual aggression. It is reasonable to assume that heavy consumption of objectifying pornography results in sexual aggression through the two forms of dehumanization. Future experimental and longitudinal studies are still desirable to confirm the causal relationship.

Third, a self-report survey might not be the most appropriate method to explore participants' consumption of specific genres of pornography. People either may not be willing to report details of their pornography consumption, especially consumption of aggressive, degrading, or objectifying pornographic content, or they may not be able to accurately recall the details of their pornography consumption habits. Furthermore, frequent pornography users in the current study dehumanize women both mechanistically and animalistically, which may reflect the fact that the mainstream pornography dehumanizes women characters both mechanistically and animalistically. Consequently, to examine the separate effects of different pornographic contents on the two forms of dehumanization, as well as aggressive attitudes and behaviors, experiments should be conducted to activate participants' two forms of dehumanization separately and examine the effects. Diary studies (e.g., Ecological Momentary Assessment) might be another more effective method to record participants' pornography consumption behaviors and subsequent psychological states and behaviors.

Fourth, the main goal of the current study is to explore the relationship between pornography consumption and aggressive behaviors through dehumanization. However, pornography is not the unique type of media which includes objectifying depiction of women. Pornography also does not only have negative effects on both individuals and the society (e.g., Kohut et al., 2016; Poulsen et al., 2013). Therefore, the current study should not reinforce the bias that pornography is purely harmful or more harmful to the society than other media content. Future studies should explore the relationship between other objectifying media content and aggression, through the path of dehumanization. Future studies should also pay more attention to the effects of pornography on viewers other than aggression.

## Practical implications

The present results have implications for parents, educators, and sex therapists to delink the relationship between pornography use and aggression, and control sexually aggressive behaviors such as sexual abuse, assault, and intimate partner violence.

Previous studies of objectifying media, including pornographic content focus on mechanistic dehumanization, which emphasizes treating women as inanimate sexual objects. The current study shows animalistic dehumanization might deserve additional attention as it is related to both aggressive attitudes and actual sexually coercive behaviors. To reduce the acceptance of aggressive behaviors against women among male pornography viewers, the key might be making men aware of women's feelings and desires as living creatures. To reduce the likelihood of actual aggressive behaviors against women, reducing the animalistic dehumanization may be another promising approach. In future sex education efforts, we should pay more attention to inculcating young heterosexual men with the basic notion that women are not only agentic and responsive creatures, but are also as civilized, sophisticated, logical, rational, and self-controlled as men. Clinicians may also consider asking clients about their use of objectifying media and measure clients' dehumanizing notions of their sexual partners to develop more effective interventions that can reduce sexually aggressive behaviors.

Pornography use is prevalent among heterosexual men across the world and sexual objectification remains a common theme in the mainstream pornography. Consequently, pornography literacy is necessary in the future sex education to guide young adults, especially young men, to critically analyze the pornographic content while building self-awareness about the influences of pornography on themselves.

## Ethics declarations

The authors declare that there are no conflicts of interests in this research, and that this study did not receive any funding. Furthermore, all data were collected following Institutional Review Board approval of the study.

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