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Reducing sexual aggression with a story: Narrating the self

A dissertation submitted in partial satisfaction of the
requirements for the degree Doctor of Philosophy
in Psychological and Brain Sciences

by

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June 2016

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May 2016

Reducing sexual aggression with a story: Narrating the self

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by

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Scroggins, W. A., Mackie, D. M., Allen, T. J., & Sherman, J. W. (2016). Reducing prejudice with labels: Shared group memberships attenuate implicit bias and expand implicit group boundaries. *Personality and Social Psychology Bulletin*, 42(2), 219-229.

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Oral Presentation

Scroggins, W. A., Mackie, D.M. (2012). *It's not you, it's your label: Shared group memberships attenuate implicit bias.* Presented at the annual meeting of Society of Experimental and Social Psychology, Groups Preconference. Austin, TX.

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ABSTRACT

Reducing sexual aggression with a story: Narrating the self

by

William Anthony Scroggins

In four studies I developed a novel measure of sexual aggression which operationalizes sexual aggression by the number and content of photos that males “select” for female participants to view, validated the new measure of sexual aggression, identified ingroup norms highly associated with sexual aggression within the UCSB and Mechanical Turk male college students populations, utilized the ingroup norms found to be associated with sexual aggression to develop a sexual aggression reduction intervention based on the psychological process of character identification, tested the effectiveness of the character identification intervention against the standard group identification intervention, and investigated the mechanisms by which character identification and group identification change behavior. Study 1 identified two norms closely associated with sexual aggression among male UCSB and Mechanical Turk college students. Pilot Study 1 demonstrated that the stimuli selection task developed for this dissertation is a valid measure of sexual aggression. Pilot Study 2 integrated the norms identified in Study 1 into a series of narratives and had male UCSB and Mechanical Turk students evaluate them to ensure that they were equivalent. Study 2 compared the effectiveness of a character identification based sexual aggression reduction intervention to a group norm based sexual aggression reduction intervention. The processes by which these interventions are theorized to work were also examined.

“America as a nation has for too long failed to grasp either the scope or the seriousness of violence against women...If the leading newspapers were to announce tomorrow a new disease that, over the past year, had afflicted from 3 to 4 million citizens, few would fail to appreciate the seriousness of the illness. Yet, when it comes to the 3 to 4 million women who are victimized by violence each year, the alarms ring softly”

-Former Vice President Joseph Biden, (1993, pg. 1059)

I. Introduction

Sexual aggression is prevalent in the United States across contexts, with devastating consequences. Apart from early childhood abuse, personal attitudes (hostile beliefs) and complicit social norms (supportive norms) have been found to contribute to sexual aggression. In an attempt to craft an effective interventional deterrent to sexual aggression, this research investigates a new approach to changing personal attitudes through character identification (Study 2). Character identification is a phenomenon in which people become immersed in a narrative and adopt the beliefs, emotions, and goals of the protagonist (Cohen 2001; Kaufman & Libby, 2012). The effectiveness of a character identification attitude-driven intervention to reduce sexual aggression was compared with the effectiveness of a standard group identification norm-driven intervention to reduce sexual aggression. The research was also designed to show whether any behavior change brought about by character identification or norm manipulations occurred via changes in perceptions of social norms versus changes in personal attitudes. To test these ideas I developed a new measure of sexual aggression and demonstrated both the norms that are associated with it (Study 1) and that it was indeed seen as sexual aggression by female targets (Pilot 1).

A. Sexual Aggression: Definition, Prevalence, and Consequences

Sexual aggression (also referred to as sexual assault) is defined as any sexual act (or attempted sexual act) perpetrated without that individual's consent (Basile & Saltzman, 2002). Examples of sexual acts include: unwanted sexual contact, unwanted sexually explicit

comments, and unwanted exposure to pornography (Black, Basile, Breiding, Smith, Walters, Merrick, Chen, & Stevens, 2011). Using this definition, nearly half of the women living in the United States have been targets of sexual aggression, with nearly one-in-four being a victim of either rape or an attempted rape (Brecklin & Ullman, 2002; Brener, McMahon, Warren, & Douglas, 1999; Humphrey & White, 2000). In a community sample survey, nearly a quarter (24.5%) of men admitted to having sex (or attempting to have sex) with a woman who either had not consented or was unable to consent (Abbey, Parkhill, BeShears, Clinton-Sherrod, & Zawacki, 2006). An additional 39% of men in that same sample admitted to some other form of sexual assault (e.g., coercion or forced sexual contact).

Sexual aggression is especially prevalent on college campuses. One in five women report being sexually assaulted while in college (Krebs, Lindquist, Warner, Fisher, & Martin, 2009). Many of these sexual assaults occur while the female students are drunk, under the influence of drugs, or passed out, making these events “incapacitated assault.” In another survey, 61% of male college students reported engaging in some form of sexually aggressive behavior (Wheeler, George, & Dahl, 2002). Despite the high rates of sexual assault on college campuses, on average only 12% of students who are victims of sexual assault report the crime to campus security or law enforcement officers (Kilpatrick, Resnick, Ruggiero, Conoscenti, & McCauley, 2007).

The consequences of sexual aggression towards women are hard to overstate. The physical, psychological, and economic consequences of sexual aggression are dramatic: Compared to women who have not experienced sexual assault, sexual assault survivors in the general population are more likely to smoke, be obese, and to have hypertension (Cloutier, Martin, & Poole, 2002). Further, compared to college students who have not experienced

sexual assault, college sexual assault survivors suffer significantly higher rates of post-traumatic stress disorder, drug abuse, depression, anxiety, and obsessive-compulsive disorder (Carlson, McNutt, & Choi, 2003; Foa & Rothbaum, 1998; Goodman, Koss, & Russo, 1993; Kilpatrick et al., 2007). Nonconsensual sex has also been associated with stroke and heart disease (Smith & Breiding, 2011).

Findings are similar for sexual assault victims in the armed forces. In a survey of female veterans who had deployed to Iraqi or Afghanistan as part of Operation Enduring Freedom (OEF)/Operation Iraqi Freedom (OIF), 15.7% reported being sexually assaulted while on deployment (Calhoun, Schry, Dennis, Wagner, Kimbrel, Bastian, Beckham, Kudler, & Straits-Tröster, 2016). The same study found that more than half (52%) of female OEF/OIF veterans who had been sexually assaulted while deployed had not sought treatment (for either physical or mental health) at a Veterans Affairs (VA) clinic. This reluctance to utilize mental health services offered by the VA is especially worrisome considering that another study found that nearly 44% of female veterans who were sexually assaulted while serving in the military reported engaging in suicide idealization (Surís, Link-Malcolm, & North, 2011).

In addition to the physical and psychological costs, the economic costs associated with sexual assault are also sobering. It is estimated that adolescent victims of sexual assault earn \$241,000 less over their lifetime as a result of their abuse (MacMillan, 2000). Additionally, it is estimated that the financial cost of rape on the economy (due to mental health care, medical treatment, and time lost from work) is roughly \$127 billion annually (Miller, Cohen, & Wiersema, 1996).

B. Factors Associated with Sexual Aggression: Early Abuse, Hostile Attitudes, and Complicit Ingroup Norms

Given the widespread prevalence and damaging effects of sexual aggression, it is no surprise that researchers have long tried to identify factors predictive of sexual aggression. Although research in this area hasn't identified single factors that are always predictive of who will sexually aggress against women, it has identified multiple factors that are repeatedly associated with sexual aggression.

In a 5-year longitudinal study, White and Smith (2004) found that experiencing victimization as a child, such as being sexually abused or witnessing domestic violence, was strongly associated with committing an act of sexual assault as an adolescent in high school. Further, committing an act of sexual assault in high school was associated with the perpetration of sexual assault in college. Other work has found that hostile home environments are associated with increased delinquency, which is associated with increased hostility towards women and sexual assault (Malamuth, Sockloskie, Koss, & Tanaka, 1991).

Hostile attitudes towards women have repeatedly been shown to be associated with acts of sexual aggression (Malamuth, 1998; Parkhill & Abbey, 2008). Hostile attitudes towards women have also been associated with rape myth acceptance beliefs (Payne, Lonsway, & Fitzgerald, 1999), which are also associated with sexual aggression. In a systematic qualitative review of risk factors for sexual violence, Tharp, DeGue, Valle, Brookmeyer, Massetti, and Matjasko (2013) found that 63 of the 78 studies investigating the influence between attitudes (hostile attitudes towards women and rape myth acceptance) and sexual violence found a significant relationship between the two.

Multiple studies have found that perceived peer support is associated with acts of sexual violence (Abbey, Parkhill, Clinton-Sherrod, & Zawacki, 2007; DeKeseredy & Kelly, 1995; Humphrey & Kahn, 2000). Additionally, believing that one's peers hold attitudes associated with sexual aggression (e.g., rape myths; Payne, Lonsway, & Fitzgerald, 1999) is strongly associated with a stated willingness to sexually assault women (Eyssel, Bohner, Siebler, 2006). Further, Bohner, Siebler, and Schmelcher (2006) found that manipulating perceptions of ingroup norms about rape myths influenced male college participants' self-reported rape proclivity. Specifically, participants who were exposed to "data" suggesting that most men support rape myths (e.g., "If a girl goes to a room alone with a guy at a party, it is her own fault if she is raped") were more likely to report higher levels of rape proclivity than participants who were exposed to "data" suggesting that most men do not support rape myths. Tharp and colleagues' (2013) review reports that 13 of 14 studies investigating the influence between ingroup norms and sexual aggression found a significant relationship between the two.

II. Reducing Sexual Aggression: Social Psychological Approaches

In addition to childhood abuse, both ingroup norms and personal attitudes have been shown to have a powerful association with sexual aggression. Since these factors are most feasibly and effectively addressed by a social psychological intervention, the current research investigated a new approach to changing personal hostile attitudes through character identification. Character identification is a phenomenon in which people become immersed in a narrative and adopt the beliefs, emotions, and goals of the protagonist (Cohen 2001; Libby and Kaufman, 2012). Character identification is proposed as a psychological vehicle

for attitude change that differs in significant ways from more standard attitude-based social psychological approaches to behavior change.

A. Attitude-based Approaches to Behavior Change

Attitudes are “a mental and neural state of readiness, organized through experience, exerting a directive or dynamic influence upon the individual’s response to all objects and situations with which it is related” (Allport, 1935, p. 810). Attitudes are fairly strong predictors of behavior (e.g., Greenwald, Poehlman, Uhlmann, & Banaji, 2009). This is especially true for attitudes that are accessible, stable, and based on direct experience (Kraus, 1995). In fact, a meta-analysis of 797 studies investigating 287 behaviors involving 316,085 participants found an average attitude-behavior correlation of .41 (Wallace, Paulson, Lord, & Bond, 2005). Within the domain of sexual aggression, hostile attitudes towards women have repeatedly been shown to be associated with acts of sexual aggression (Malamuth, 1998; Parkhill & Abbey, 2008). Attitudes that place the blame for a sexual assault on the victim of the assault have been associated with sexual aggression in male college samples (Scott & Straus, 2007) and among samples of male community sexual offenders (Garlick, Marshall, & Thornton, 1996). Two general approaches for attitude change are: information processing, as exemplified by the elaboration likelihood model (ELM; Petty & Cacioppo, 1986), and motivational resolution of tension, as exemplified by cognitive dissonance (Festinger, 1957).

1. The Elaboration Likelihood Model of Persuasion

The elaboration likelihood model (ELM; Petty & Cacioppo, 1986) is typical of many theories that assume that: a) beliefs underlie attitudes and that b) changing people’s information will, under the right conditions, change beliefs, attitudes, and behaviors. The ELM posits that attitudes can change via two routes depending on how motivated and able

people are to attend to the persuasive appeal. The two routes, the central route and the peripheral route, differ in the amount of cognitive effort they require. The central route (high elaboration condition) is more cognitively demanding because the individual evaluates (elaborates) all relevant information. When individuals engage in the high elaboration typical of the central route they are more influenced by the quality of the arguments. In contrast, the peripheral route (low elaboration) is less cognitively demanding because individuals do not attend deeply to the persuasive argument. Instead, cognitive shortcuts, like the status of the persuader, are typically used as the basis for attitude change in the peripheral route. Although both routes can be the source of attitude change, they do not result in attitudes of equal strength. Attitudes that result from the central route are stronger and more predictive of behavior than attitudes that result from the peripheral route (Petty, Haugtvedt, & Smith, 1995; Petty, Rucker, Bizer, & Cacioppo, 2004). In addition to available cognitive resources, individual differences can also play a role in determining how a persuasive appeal is processed. For instance, need for cognition (or the degree to which a person is likely to engage in effortful processing of information) can influence whether central or peripheral processing occurs. Specifically, individuals high in need for cognition are more likely than individuals low in need for cognition to elaborate (engage in central route processing) when evaluating a persuasive message. Thus, the best way to facilitate lasting attitude change from this perspective entails crafting persuasive appeals based on strong logical arguments in a domain important to the individual (making it more likely that they will be motivated to engage in central route processing).

2. *Cognitive Dissonance*

In contrast to information processing approaches to attitude change, cognitive dissonance posits that attitude and behavior change is more directly the result of motivational forces. Cognitive dissonance (Festinger, 1957) posits that behaving in a way that contradicts held beliefs or creates an aversive state of dissonance. According to the theory, when a state of dissonance exists, people are motivated to resolve the dissonance. This can be achieved by modifying beliefs to be consistent with actions. In the most famous demonstration of cognitive dissonance, Festinger and Carlsmith (1954) had participants complete an excruciatingly boring task (turning wooden pegs on a board). They then asked participants to tell the next participant waiting in the hall that the task was interesting. Participants were given either \$1 or \$20 for their deception. Later, when asked how interesting they found the task to be, the participants who were given \$1 for their deception were more likely to claim that they had found the task to be interesting. It was hypothesized that participants who were given \$20 could easily justify their deception as being the result of the large payment. On the other hand, participants who were paid only \$1 did not have that option. They had lied to another participant for next to nothing, an action consistent with unflattering qualities such as dishonesty, and presumably inconsistent with their prior self-concepts. Consistent with the theory, in order to resolve this dissonance, participants modified their belief about how interesting they found the task to be. Cognitive dissonance has been implicated in changing attitudes related to behaviors from impulse buying (George & Yaoyuneyong, 2010) to helping (Ruiz & Tanaka, 2001; Wood, 2000 for review).

Unfortunately, attitudes are notoriously resistant to change through either of these standard approaches (e.g., Allport 1954; Rothbart & John, 1993). What makes a strong

argument, especially for a large number of people, in a particular domain is often difficult to discern. Additionally, central route processing requires both motivation and ability, and often recipients do not have the cognitive resources or interest in exerting the effort necessary to change their attitude and establish a new, strong belief (Petty & Wegener, 1998). Further, even when ability and motivation exists, allegiance to a prior position or viewpoint often results in biased information processing which typically results in confirmation rather than change of well-established attitudes (Johnson & Eagly, 1989; Lord & Lepper, 1979). On the other hand, cognitive dissonance can change attitudes by having people act in ways inconsistent with their current beliefs, but while this method can work in specialized cases, it would be difficult to implement as the basis for a large-scale attitude modification intervention. Additionally, large percentages of people do not show a preference for consistency and therefore, are not likely to experience cognitive dissonance (Cialdini, Trost, & Newsome, 1995; Petty & Wegener, 1998). Further, even when people do experience dissonance there are many strategies people can implement to reduce dissonance without changing their attitude (e.g., minimizing the attitude-behavior inconsistency or trivializing the behavior; see Wood, 2000).

Recently a psychological process known as character identification has been touted as a potential means of facilitating attitude change while avoiding some of the barriers encountered by these more traditional means.

3. *Character Identification*

Character identification (also known as *experience-taking*) is a spontaneous process in which individuals adopt a character's attitudes, goals, and traits (Cohen, 2001; Livingstone, 1998; Oatley, 1999). Character identification has primary been researched

within the field of communication. According to Cohen (2001), “(character) identification is defined not as an attitude, an emotion, or perception but, rather, as a process that consists of increasing loss of self-awareness and its temporary replacement with heightened emotional and cognitive connections with a character” (p. 251). In addition to defining character identification, communication scholars have also distinguished character identification from similar media effects. For instance, character identification has been shown to be theoretically distinct from parasocial interaction. Unlike character identification, which is a cognitive and affective process whereby an individual is absorbed into a narrative and adopts the identity of the protagonist (Cole & Leets, 1999), parasocial interaction is an interactional process where an individual maintains their unique identity and simply “interacts” with the protagonist via the narrative (Dibble, Hartmann, & Rosaen, 2016; Horton & Wohl, 1956). In the case of parasocial interaction, the individual acts as a spectator to the events in the story rather than experiencing them as if they were experiencing them first-hand. Parasocial interaction has been associated with attitude change. For instance, people who frequently watch the television show *Will & Grace* (which features two gay male protagonists) and engaged in parasocial interaction were more likely to have report lower levels of hostile attitudes towards gay men and lesbians (Schiappa, Gregg, & Hewes, 2008). The effect was especially strong for people who did not have regular contact with gay men and lesbians. Despite this ability for parasocial interaction to change attitudes, I will focus on character identification to change attitudes because character identification involves “losing” self-awareness and adopting the protagonist’s identity (including their attitudes, goals, and perspective), it is able to change people’s beliefs about themselves. Parasocial interaction

influences people through their “interactions” with protagonists and doesn’t readily lend itself to changing beliefs about the self (Cohen, 2001).

In research central to the research described in this dissertation, Kaufman and Libby (2012) utilized the process of character identification to change people’s attitudes about various groups (African Americans and gay men) and to change voting behavior. In their studies participants read narratives in which an individual exhibits a trait (e.g., introverted) or performs a behavior (e.g., votes in an election). Participants then complete a scale that assesses the degree to which they engaged in character identification (also called experience-taking). Finally, the target attitude (e.g., self-reported introversion) or behavior (i.e., voting) is assessed. Participants in the control conditions are exposed to environmental conditions (e.g., mirrors placed in cubicle) or narrative features (e.g., the protagonist is identified as an outgroup member early in the narrative) that inhibit the character identification process. Using this approach Kaufman and Libby (2012) found that participants who engaged in character identification with an introverted (versus extroverted) protagonist later reported that they themselves were more introverted (or extroverted). That is, character identification produced changes as fundamental as modifications of participants’ self-concepts, at least short term. In Study 5 of the same paper, Kaufman and Libby found that participants’ attitudes towards homosexuals became more positive after they read a passage about, and identified with, a gay protagonist. In Study 6 Kaufman and Libby found that participants who engaged in character identification with a Black protagonist later reported lower Modern Racism scores than participants who did not engage in character identification with a Black protagonist. Thus, character identification appeared very effective for changing well-established and often resistant attitudes, in this case, prejudice against other social groups.

Character identification has also been shown to increase the likelihood that people will adopt the attitudes that are explicitly stated in a narrative. De Graaf, Hoeken, Sanders, and Beentjes (2012) had participants read one of two narratives describing two sisters discussing options available for their mother, who is in an irreversible coma. In both narratives the sisters want to do what they feel is in their mother's best interest, but disagree as to what the best course of action is. One sister thinks it is best to consider euthanasia, whereas the other sister thinks it is best to place their mother in a nursing home. The two narratives differ in terms of the perspective in which they were written: one is a first-person account of the discussion from the point-of-view of the sister who wants to consider euthanasia, whereas the other is a first-person account of the discussion from the point-of-view of the sister who wants to consider the nursing home. Results showed that participants' attitudes fell in line with those of the protagonist whose perspective they had been given: Compared to participants who read the narrative from the point-of view of the sister who wanted to consider the nursing home, participants who read the passage from the point-of-view of the sister who wanted to consider euthanasia later reported more positive attitudes for considering euthanasia for a parent in a coma, and more negative attitudes for considering a nursing home for a parent in a coma. These results were reversed for participants who read the narrative from the point-of-view of the sister who preferred the nursing home option. In both conditions the effects of the narrative on narrative-consistent attitudes was mediated by character identification. Character identification has also been found to increase the adoption of health messages. Specifically, participants who identified with celebrities who were promoting health messages were more likely to adopt those messages, than participants who did not identify with the celebrities (Basil, 1996).

Kaufman and Libby (2012) also identified several key psychological processes crucial for character identification. First, they demonstrated that a central component of character identification is that the individuals “lose” themselves in the character and their own self-concept becomes less accessible, or deactivated. First, similarity between participants and protagonists facilitates character identification. In Kaufman and Libby’s Study 5 and Study 6, heterosexual and non-Black participants were significantly more likely to engage in character identification (and later report more positive attitudes towards gay men and African Americans) if they learned of the protagonist’s outgroup membership late, rather than early, in the story. More direct manipulations of “losing the self” tell a similar story. For instance, participants placed in a room with a mirror reflecting their image were less likely to engage in character identification while reading a narrative than were participants who read the same passage in a room that did not contain a mirror. The mirror condition was included in this study since reflecting of their image in a mirror has been shown to activate participants’ self-concept (Carver & Scheier, 1975) and thus inhibited the character identification process. Additionally, character identification is facilitated by characteristics of the narrative that reduce psychological distance by avoiding drawing attention to the individual’s place outside the story. An example of this is narrative voice. Narratives written in first person facilitate self-concept deactivation and character identification by minimizing third person nouns that increase psychological distance by reminding the reader that they are not part of the story (Kaufman & Libby, 2012). For example, participants who read a narrative about an ingroup member overcoming multiple obstacles on their way to the voting booth written in first person were significantly more

likely to report that they had voted when polled a week later than participants who read the same narrative written in the third person (65% vs. 25%; Kaufman & Libby, 2012).

4. Characteristics of Character Identification Account of Attitude Change

Distilling the research to date, it appears that the process of character identification has the following features: people become absorbed in a narrative, they “lose” themselves in the character, their self-concept is no longer salient (becomes “deactivated”), they adopt the character’s attitudes (as well as goals, emotions, and perspective), and behavior change is believed to be due to changes in these personal attitudes (and other mental states (Cohen, 2001; Kaufman and Libby, 2012; see Figure 1a for model of character identification approach).

Although this initial evidence of the attitude–changing ability of character identification is compelling, the limited body of research on the topic has not been applied to the domain of sexual aggressiveness, nor has it attempted to gauge the effectiveness of this process relative to other social psychological processes capable of changing behavior. In the current research, I attempt to replicate the effect of character identification in the sexual aggression domain and compare the effectiveness of character identification in changing sexual aggressiveness with the well-established ability of standard norms approaches to behavior change.

B. Standard Norms Theory Approach to Behavior Change

Social norms can be defined as shared cognitive representations of generally accepted ways of thinking, feeling, and behaving that people in a group agree on and endorse as right and proper (Hogg & Reid, 2006). Research has shown that people’s perceptions of social norms can dramatically influence their behavior (Aarts & Dijksterhuis, 2003; Asch, 1955;

Cialdini & Goldstein, 2004; Sherif, 1936; Terry & Hogg, 2001). This has been demonstrated in multiple domains, including: littering (Cialdini, Kallgren, & Reno, 1991; Kallgren, Reno, & Cialdini, 2000), energy conservation (Goldstein, Cialdini, & Griskevicius, 2008), recycling (Schultz, 1999), alcohol use (Borsari & Carey, 2003), and gambling (Larimer & Neighbors, 2003). Within the domain of sexual aggression prevention, ingroup norms regarding other men's willingness to intervene when witnessing behavior that could lead to a sexual assault (e.g., see a woman being taken advantage of) are associated with self-reported willingness to intervene when witnessing sexual aggression (Fabiano, Perkins, Berkowitz, Linkenbach, & Stark, 2003).

The standard social norms theory approach refers to multiple theories and phenomena that share several important characteristics. Central to this approach are standard theories of conformity, which spell out motives for the adoption of other people's behavior; theories that specify whose behaviors are influential; and theories that specify when social norms will be particularly influential.

1. Conformity

Conformity is the convergence of individuals' thoughts, feelings, or behavior toward a social norm (Asch, 1951; Crutchfield, 1955; Sherif, 1936), a process typically attributed to the twin motivations to make accurate judgments about the world or to attain or retain a desired social identity (Deutsch & Gerard, 1955; Kiesler & Kiesler, 1969). Conformity theorists distinguish between descriptive norms, which refer to what is commonly done, and injunctive norms, which refer to what is generally approved of or disapproved of in a given context (Reno, Cialdini, & Kallgren, 1993). Arguably the most famous experimental demonstration of conformity was conducted by Solomon Asch in 1951. During the

experiment single participants sat in a room with a group of confederates and completed a line-matching task. Participants had to state out loud which of three lines was the same length as a separate reference line. Participants were always the last to give their answer. On twelve of the eighteen trials every one of the confederates gave the same incorrect answer. The results showed that the majority of participants conformed at least once changing their initial perceptions of the situation to match what they saw as the group's superior response or to avoid ridicule by going along with the group (Turner, 1991).

2. Group Norms

Subsequent research has established that it is the shared behavior of other ingroup members that produces the most conformity (Goethals & Nelson, 1973; Turner, 1982; 1991). The strongest theoretical framework explaining such effects is the self categorization/social identity/referent informational theory of influence approach (Turner, 1982), which argues that once categorized as a member of group, individual group members adopt group-defining characteristics (beliefs, emotions, attitudes and so forth) and behaviors as part of self categorization into a social identity. For example, one study found that participants found jokes funnier when the jokes were accompanied by a "laugh track" reflecting others' responses, but only when those others were described as coming from students at the participants' own university and not from a rival university (Platow et al, 2005).

3. Activation of norms

Finally, the focus theory of normative conduct (Cialdini, Reno, & Kallgren, 1990) posits that norms are most likely to influence people's behavior when they are salient in a situation. Activated descriptive norms have been shown to be especially effective at modifying people's behavior. An intervention aimed getting hotel guests to reuse their towels

found that displaying a sign stating that 75% of hotel guests saved water by reusing towels (activating the descriptive norm) resulted in higher towel reuse rates compared to when the sign stated that reusing towels helps save the environment (44% vs. 35%: Goldstein, Cialdini, & Griskevicius, 2008).

Interventions to change social behavior that rely on activating social norms to change behavior (social norm campaigns, Berkowitz, 2010) sometimes find that people hold incorrect views of prevailing social norms. Pluralistic ignorance refers to a situation in which people mistakenly believe that others in the group share norms that in fact no one in the group holds (Katz & Allport, 1931). For instance, Prentice and Miller (1993) found that Princeton undergraduates reported that they were less comfortable with the drinking habits at their university than they thought other students were. Despite that, eight weeks later male participants (but not female participants) had increased their consumption of alcohol to match the perceived norm. Social norms campaigns are based on the idea that providing participants accurate information about norms (activating accurate descriptive norms) successfully changes behavior (Berkowitz, 2008). Within the domain of sexual aggression, Bruce (2002) found that a media campaign aimed at correcting misperceptions about sexual assault (e.g., “three out of four James Madison University (JMU) men think it’s NOT okay to pressure a date to drink alcohol in order to increase the chances of getting their date to have sex”) led to a significant decrease in the number of male JMU students who reported that they would engage in sexually aggressive behavior.

4. Characteristics of Standard Social Norms Theory Account of Behavioral Change

The theories and phenomena that make up the standard social norms theory share the following empirically well-established features: people categorize themselves as group

members, their self-concept is no longer salient (becomes “deactivated”), they receive information about real (or imagined) group norms, and behavior change occurs because of acceptance or adoption of the new perceived group norm as an appropriate guide for behavior (see Figure 1b for model of social norms approach).

Overview of Research

The goals of this research are as follows: 1) Integrate contributions from social psychological and communication theorizing about character identification and group norms to craft a maximally compelling intervention to reduce sexually aggressive behavior; 2) Provide experimental evidence for the effect of identification processes in changing sexually aggressive behavior; 3) Validate a novel measure of sexual aggression; 4) Assess whether group norms and character identification change behavior via changes to perceived group norms or changes to personal attitudes.

In this research, I attempted to evaluate a narrative-based intervention aimed at reducing sexual aggression. Specifically, I examined whether character identification or group norms are a more effective psychological process for changing sexual aggression among college-aged males. I also investigated the mechanisms by which either character identification or group norms influence behavior, whether through attitude change (as expected from the character identification process) or perceived norm change. To do so, I first identified norms and beliefs associated with acts of sexual aggression among college-aged males, developed and validated a novel behavioral measure of sexual aggression usable with college age males, and then created and evaluated narratives aimed at comparing character identification and group identification as ways of modifying perceptions of group norms and personal attitudes to change behavior.

Study 1 identified the ingroup norms most associated with sexual aggression within the male UCSB student and male Mechanical Turk college student populations. Questionnaires were used to assess participants' perceptions of male UCSB student norms in domains found in previous research to be significantly predictive of sexual aggression: sexual dominance, rape victim blaming, and hostile gender relations (e.g., Loh, Gidycz, Lobo, & Luthra, 2005; Malamuth, 1986; Tharp et al., 2013). Sexual dominance was measured using the Sexual Dominance subscale of the Sexual Functions Inventory (SDS; Nelson, 1979; Appendix A). Rape victim blaming was measured using the Updated Illinois Rape Myth Acceptance Scale (UIRMA; Payne, Lonsway, & Fitzgerald, 1999; see Appendix B). Hostile gender relations were measured with the Adversarial Heterosexual Beliefs Scale (AHBS; Lonsway & Fitzgerald, 1995; see Appendix C).

Sexual aggression was measured using a stimuli selection task (modified from Maass, Cadinu, Guarnieri, & Grasselli, 2003; Widman & Olsen, 2013; see Appendix D). During the computerized stimuli selection task, participants were shown ten sets of photos each containing four photos (a neutral photograph, a violent photograph, a sexually aggressive photograph, and a sexual photograph). Participants selected one photo from each of the ten sets of photos to be shown to a female student at UCSB. This novel measure of sexual aggression was further validated by ensuring that women viewed the basis of the measure, being exposed to a photo depicting an act of sexual aggression, as an act of sexual aggression. Female UCSB students and female Mechanical Turk college students viewed the photographs used in Study 1 and were asked to interpret the intention of a male student who might select that photo for them to view during an experiment. Their responses confirmed that they considered being exposed to a photo depicting an act of sexual violence to be in and

of itself an act of sexual aggression. This was critically important for establishing the construct validity of the new sexual aggression measure.

Study 2 constituted an intervention contrasting the power of character identification versus group identification to effectively reduce male sexually aggressive behavior. Further, it attempted to identify the mechanisms (changed perceptions of norms; changed personal attitudes) by which the character identification manipulation versus the group identification manipulation influenced behavior. Perceptions of group norms and character identification were manipulated with written narratives. Each participant read a one-page narrative. Narratives were constructed using the two group-endorsed items from the rape blaming, sexual dominance, and hostile relations scales most associated with, and predictive of, sexual aggression (i.e., selecting sexually aggressive photos) in Study 1.

Participants in the *sexual aggression* conditions read a passage in which the protagonist (or typical male college students) denounced the specific norms found to be associated with sexual aggression in Study 1. Participants in the *international students* conditions read a passage in which the protagonist (or typical male college students) denounced the specific norms associated with negative attitudes toward international students. Participants in the group identification conditions read narratives describing a weekend in the life of typical male college students. Participants in the character identification conditions read narratives that described a day in the life of an individual male college student. Participants then completed both an experience-taking scale to measure the degree to which character identification with the protagonist (or group) occurred and male college student group identification measures focusing on importance and commitment subscales to measure group identification. The order of these two scales was randomized.

Sexual aggression was then measured using the stimuli selection task. Finally, to measure personal attitudes and perceptions of ingroup norms, participants answered questions relating to the beliefs expressed in the narratives (e.g., rape accusations are often used as a way of getting back at guys) twice: Once as they would personally respond (personal attitudes), and once as they believe that a typical male college student would respond (group norms). The order of the two questionnaires was randomized.

III. Study 1: Identifying Norms Associated with Acts of Sexual Aggression

The purpose of Study 1 was to assess what individual or related clusters of group norms college males who engaged in sexual aggression thought were prevalent among other college males. Responses from UCSB-based and MTurk-recruited college males were compared with the aim of understanding whether these two groups differed in either norms perception and/or sexual aggression, and with the aim of targeting the intervention to the most representative group from the population. A second goal was to develop a new measure of sexual aggression which operationalized sexual aggression by the number and content of photos that males “select” for female participants to view. A third goal was to ascertain which social norms were most closely associated with sexual violence in this population, so that those norms could be used in the intervention manipulations in Study 2.

I hypothesize that higher endorsement of items in each of the scales will be associated with greater levels of sexual aggression. Additionally, I hypothesize that there will be no differences by survey site (UCSB or Mechanical Turk) or ethnicity.

A. Method

1. *Participants and Design*

254 American male college students (140 UCSB students; 114 MTurk workers) participated in exchange for partial course credit (UCSB students) or \$2.00 (MTurk workers). The MTurk participants identified as male college students in a prior screening questionnaire on MTurk. 47 participants were removed from analyses for failing to correctly identify the gender of the partner for whom they were selecting photos. Of the 207 participants (109 UCSB students; 98 MTurk workers) included in the final sample 55% were Caucasian, 24% Asian American, 15% Hispanic, 3% African American, 2% Pacific Islander, and 2% “Other”; 24% Freshman, 21% Sophomore, 23% Junior, 19% Senior, 13% Did not indicate. Mean age was 23 years old ($SD = 5.8$). This sample was larger than the minimum sample of 160 estimated by G*Power for correlation analyses (Bivariate normal model; two tails; correlation $\rho H_1 = .28^1$; α err prob = .05; Power = .95; correlation $\rho H_0 = 0$) and the minimum sample of 66 for analyses of variance (ANOVA; Repeated measures; effect size = .28; α err prob = .05; Power = .95; number of groups = 3; number of measurements = 45).

2. *Procedure*

Participants were told that they were taking part in three unrelated studies: a series of questionnaires that would be used to create baselines for future studies; a math task; and third, a stimuli selection task. Participants were also informed that while completing the studies they would be exposed to violent and sexually aggressive images and informed of their right to withdraw from the study at any time without penalty. After consenting, participants moved on to the questionnaire task.

¹ $\rho H_1 = .28$ was used based on previous research that found the correlation between sexual aggression and sexual dominance, rape victim blaming, and hostile gender relations to be .37, .57, and .28, respectively (Loh et al., 2005; Malamuth, 1986; Tharp et al., 2013)

Assessment of ingroup norms in sexual aggression-related domains. To assess male college student norms, male UCSB participants were instructed to complete the three computerized questionnaires “as you think the typical male UCSB student would complete the questionnaire”. Male MTurk participants were instructed to complete the three computerized questionnaires “as you think the typical male college student would complete the questionnaire”. The questionnaires assessed participants’ perception of male UCSB (or typical) college student norms in the following domains: *sexual dominance, rape victim blaming, and hostile gender relations.*

Sexual dominance was measured using the Sexual Dominance subscale of the Sexual Functions Inventory (Nelson, 1979; see Appendix A). The Sexual Dominance subscale comprises 8 items responded to on Likert scales with values ranging from 1 (strongly disagree) to 5 (strongly agree). Sample items include: “I have sex because it makes me feel powerful” and “I have sex because I like the feeling of having another person submit to me.”

Rape victim blaming was measured using the Updated Illinois Rape Myth Acceptance Scale (Payne, Lonsway, & Fitzgerald, 1999; see Appendix B). The Updated Illinois Rape Myth Acceptance has 22 items answered on Likert scales with values ranging from 1 (strongly agree) to 5 (strongly disagree). Sample items include: “If a girl is raped while she is drunk, she is at least somewhat responsible for letting things get out of hand” and “Rape happens when a guy’s sex drive goes out of control.”

Hostile gender relations were measured with the Adversarial Heterosexual Beliefs Scale (Lonsway & Fitzgerald, 1995; see Appendix C). The Adversarial Heterosexual Beliefs Scale has 15 items answered on Likert scales with values ranging from 1 (strongly agree) to 6 (strongly disagree). Sample items include: “Men and women are generally out to use each

other” and “Most people are pretty devious and manipulative when they are trying to attract someone of the opposite sex.” Once participants finished the questionnaires they were informed that the first study was complete and that they were moving on to the “next” experiment.

Filler task: Math and color perception. Participants completed a series of six relatively simple multiple-choice math problems. The numbers in all six equations were highlighted in various colors (to make it appear to be more than just a filler math task). Participants were told to ignore the colors and just focus on the equations. The purpose of the filler task was to temporally separate the questionnaires and the stimuli selection task, and to add to the believability that the studies were unrelated. After solving the six math problems, participants moved on to the “next” experiment (see Appendix E for math equations).

Sexual aggression behavioral dependent measure: Stimuli selection task. Participants were told that they were selecting photos to be used in a study called “Women’s Perceptions of People Interacting.” Both UCSB students and MTurk workers were also told that a female UCSB student would be repeatedly exposed to the photos that they selected. In reality, the stimuli selection task was a behavioral measure of sexual aggression (modified from Maass, Cadinu, Guarnieri, & Grasselli, 2003; Widman & Olsen, 2013).

During the computerized stimuli selection task, participants were shown ten sets of photos each containing four photos. Participants selected one photo from each of the ten sets of photos to be shown to a female student at UCSB. Each set of photos included four photographs (a neutral photograph, a violent photograph, a sexually aggressive photograph, and a sexual photograph; see Appendix D). Each of the four photographs within a set was

numbered one to four and for each set, participants responded by typing the number of the photograph they selected to be shown to the female UCSB student.

Sexual aggression was operationalized as choosing to expose the female student to a photo depicting an act of sexual aggression. Sexual aggression was coded in two ways: as a dichotomous variable (with participants selecting at least one photo of sexual aggression from the ten sets for the female student to see being assigned a 1; and those who never chose a sexually aggressive photo were coded as 0) and as an aggregate (the number of sexually aggressive photo that the participants selected while completing the ten sets).

As an attention check, participants were asked to indicate the sex of the partner for whom they were selecting photos. They answered using a response option that offered “male” and “female” as the two options.

Finally, participants were given unlimited time to describe in writing why they selected the photos they did in a text entry block. After completing the sexual aggression measure, participants answered demographic questions regarding their age, academic standing, gender, and ethnicity (see Appendix F). They were then debriefed and thanked for their participation.

B. Results

1. Perceived Norms

Perceived norm responses were analyzed to gather as much information about the participants’ normative beliefs as possible. First, responses to each sexual aggression-related scales were factor analyzed to see if responses from this study reflected these scales’ well-established construct validity. Second, individual composite scores were computed for each of the three scales. Two additional composite scores were created from the items comprising

the factors accounting for the largest portion of shared variance from the Updated Illinois Rape Myth Acceptance Scale and the Adversarial Heterosexual Beliefs Scale. An additional composite score was not computed for the Sexual Dominance subscale because all eight items of the scale loaded on a single factor. The resulting five composite scores were subjected to ANOVAs to identify any influence of survey site or participant ethnicity on the composite scores.

2. Factor Analysis: Sexual Dominance Subscale of the Sexual Functions Inventory

A confirmatory factor analysis was conducted on the 8-item Sexual Dominance subscale of the Sexual Functions Inventory. The results indicated that all eight items loaded on a single factor (see Appendix G for factor loadings).

3. Factor Analysis: Updated Illinois Rape Myth Acceptance Scale

A confirmatory factor analysis was conducted on the 22-item Updated Illinois Rape Myth Acceptance Scale. The results indicated that the 22 items loaded on four factors. These four factors mapped onto the four theoretical subscales that make up the scale (see Appendix H for factor loadings). The results showed that one factor accounted for 38% of the overall variance and that none of the other three factors accounted for more than 10% of the overall variance.

4. Factor Analysis: Adversarial Heterosexual Beliefs Scale

A confirmatory factor analysis was conducted on the 15-item Adversarial Heterosexual Beliefs Scale. The results indicated that the 15 items loaded on three factors (see Appendix I for factor loadings). The results showed that one factor accounted for 31% of the overall variance and that no other factor accounted for more than 9% of the overall variance.

5. Individual Composite Scores

Individual composite scores for each scale were calculated by averaging each participant's response on each item of a scale. In this way three scale composite scores were created for each individual: a Sexual Dominance subscale (SDS) composite score, a Updated Illinois Rape Myth Acceptance Scale (UIRMA) composite score, and an Adversarial Heterosexual Beliefs Scale (AHBS) composite score. Two additional composite scores were created from the items included in the factors found to account for the largest portion of shared variance from the Updated Illinois Rape Myth Acceptance Scale and the Adversarial Heterosexual Beliefs Scale. These two composites will be referred to as scale factor composites.

6. Scale Composites, Survey Site, and Ethnicity

Scale composite scores were subjected to a 2 (survey site: *UCSB* or *MTurk*) x 2 (ethnicity: *Caucasian* or *minority*) x 3 (scale composite: *SDS* and *UIRMA* and *AHBS*) mixed design with repeated measures on the last factor to investigate whether the scale composite scores were influenced by survey site or the ethnicity of the participants. To counteract the unequal distribution within the ethnicity factor, all non-Caucasian participants were considered as minorities. The results revealed a significant main effect for scale composite, $F(2, 202) = 23.18, p < .001$, partial $\eta^2 = .187$, no main effect of survey site, $F(1, 203) = .53, p = .466$, partial $\eta^2 = .003$, no main effect of ethnicity, $F(1, 203) = 3.41, p = .066$, partial $\eta^2 = .017$, no significant scale composite by survey site interaction, $F(2, 202) = .53, p = .588$, partial $\eta^2 = .005$, no significant scale composite by ethnicity interaction, $F(2, 202) = .98, p = .378$, partial $\eta^2 = .010$, and no significant scale composite by survey site by ethnicity three-way interaction, $F(2, 202) = .14, p = .870$, partial $\eta^2 = .001$. Pairwise comparisons

investigating the scale composite main effect revealed that the SDS composite scores ($M = 3.03, SE = .056$) were significantly greater than both the UIRMA composite scores ($M = 2.67, SE = .046, p < .001$) and the AHBS composite scores ($M = 2.62, SE = .058, p < .001$). The UIRMA composite scores and the AHBS composite scores did not significantly differ ($p = .230$). Participants' perceived ingroup endorsement of the norms in the Sexual Dominance Subscale to be greater than they did the norms that make up both the Updated Illinois Rape Myth Acceptance Scale and the Adversarial Heterosexual Beliefs Scale. The three theoretically based composite scores did not differ by survey site or participants' ethnicity.

7. Scale Factor Composites, Survey Site, and Ethnicity

Scale factor composite scores were subjected to a 2 (survey site: *UCSB* or *MTurk*) x 2 (ethnicity: *Caucasian* or *minority*) x 3 (scale factor composite: *SDS* and *UIRMA factor* and *AHBS factor*) mixed design with repeated measures on the last factor to investigate whether they were influenced by survey site or the ethnicity of the participants. Again, to counteract the unequal distribution within the ethnicity factor, all non-Caucasian participants were considered as minorities. The results revealed a significant main effect of scale factor composite, $F(2, 202) = 50.26, p < .001, \text{partial } \eta^2 = .332$, no main effect of survey site, $F(1, 203) = .18, p = .676, \text{partial } \eta^2 = .001$, no main effect of ethnicity, $F(1, 203) = 2.31, p = .130, \text{partial } \eta^2 = .011$, no significant scale factor composite by survey site interaction, $F(2, 202) = 2.03, p = .135, \text{partial } \eta^2 = .020$, no significant scale factor composite by ethnicity interaction, $F(2, 202) = .91, p = .406, \text{partial } \eta^2 = .009$, and no significant scale factor composite by survey site by ethnicity three-way interaction, $F(2, 202) = .24, p = .784, \text{partial } \eta^2 = .002$. Pairwise comparisons investigating the scale composite main effect revealed that the AHBS factor composite scores ($M = 2.58, SE = .058$) were significantly lower than both

the SDS factor composite scores ($M = 3.03$, $SE = .056$, $p < .001$) and the UIRMA factor composite scores ($M = 3.09$, $SE = .059$, $p < .001$). The SDS factor composite scores and the UIRMA factor composite scores did not differ significantly ($p = .405$). Participants' perceived ingroup endorsement norms that comprised the primary factor of the Adversarial Heterosexual Beliefs Scale to a lesser extent than they did the norms that comprised the primary factors of both the Sexual Dominance Subscale and the Updated Illinois Rape Myth Acceptance Scale. The three factor based composite scores did not differ by survey site or participants' ethnicity.

8. *Sexual Aggression (Dichotomous)*

Photo selection as a measure of sexual aggression was first assessed as a dichotomous variable: Participants were coded as to whether they did or did not choose to expose a female to a sexually violent photo. Selection of the sexually aggressive photos was compared to selection of the other category of photos by survey site and ethnicity (see Table 1 and Table 2).

Table 1. Raw count of dichotomous photo selection by photo category and survey site, Study 1, (percentages are percent of participants who chose at least one photo in the category).

	UCSB N=109	MTurk N=98
Neutral	99 (91%)	88 (90%)
Sexual	101 (93%)	85 (87%)
Violent	46 (42%)	31 (32%)
Sexually aggressive	45 (41%)	45 (46%)

Table 2. Raw count of dichotomous photo selection by photo category and ethnicity, Study 1, (percentages are percent of participants who chose at least one photo in the category).

Photo category	Caucasian N=113	Asian Am. N=49	Hispanic N=30	African Am. N=6	Other N=5	Native Pacific Islander N = 4
Neutral	105 (93%)	42 (86%)	25 (83%)	6 (100%)	5 (100%)	4 (100%)
Sexual	102 (90%)	43 (88%)	28 (93%)	6 (100%)	3 (60%)	4 (100%)
Violent	36 (32%)	20 (41%)	16 (53%)	4 (67%)	0 (0%)	1 (25%)
Sexually aggressive	44 (39%)	24 (49%)	16 (53%)	5 (83%)	1 (20%)	0 (0%)

Ten percent of participants never selected photos depicting neutral interactions between a male and a female, whereas 90% of participants selected at least one neutral photo (no difference by survey site, $\chi^2(1) = .06, p = .802$, or ethnicity, $\chi^2(5) = 5.35, p = .374$). Ten percent of participants did not select any photos depicting sexual interactions between a male and a female, 90% of participants selected at least one sexual photo (no difference by survey site, $\chi^2(1) = 1.99, p = .159$, or ethnicity, $\chi^2(5) = 6.67, p = .246$). Sixty-three percent of participants did not select any photos depicting violent interactions between a male and a female, whereas 37% of participants selected at least one violent photo (no difference by survey site, $\chi^2(1) = 2.47, p = .116$, or ethnicity, $\chi^2(5) = 10.44, p = .064$). Finally, 56% of participants never selected a photo depicting sexual aggression, whereas 44% of participants selected at least one photo depicting sexual aggression (this did not differ by survey site, $\chi^2(1) = .45, p = .502$, or ethnicity, $\chi^2(5) = 10.81, p = .055$). The results show that participants selected neutral photos and sexual photos more often than they selected photos depicting acts of violence or acts of sexual aggression. Further, none of the photo categories significantly differed by survey site or ethnicity.

9. Association between Scale Composites and Sexual Aggression (Dichotomous)

To provide evidence of the validity of the stimuli selection task as a measure of sexual aggression, a point-biserial correlation was run between the SDS scale composite, the UIRMA scale composite, the AHBS scale composite, and the dichotomous measure of sexual aggression (i.e., selecting at least one photo depicting an act of sexual aggression for the female UCSB student to view). The results revealed a significant correlation of the dichotomous sexual aggression measure with the SDS scale composite, $r_{pb}(205) = .160, p = .021$; the UIRMA scale composite, $r_{pb}(205) = .218, p = .002$; and the AHBS scale composite, $r_{pb}(205) = .227, p = .001$ (see Table 3 for correlation coefficients). Thus, the same three scales that have been found to correlate with the actual perpetration of sexual assault (Loh et al., 2005; Malamuth, 1986; Tharp et al., 2013) also correlated with the stimuli selection measure of sexual aggression. However, it should be noted that the correlations between the dichotomous measure of sexual aggression and the SDS scale composite and the UIRMA scale composite were not as strong as has been found between sexual aggression and the three scales in previous work (.37 and .57, respectively; Loh et al., 2005; Malamuth, 1986; Tharp et al., 2013).

Table 3. Point-biserial correlation coefficients for Sexual Dominance subscale composite, Updated Illinois Rape Myth Acceptance Scale composite, Adversarial Heterosexual Beliefs Scale composite, and sexual aggression (dichotomous), Study 1

Composite	$r_{pb}(205)$	p
Sexual Dominance subscale	.160*	.021
Updated Illinois Rape Myth Acceptance Scale	.218**	.002
Adversarial Heterosexual Beliefs Scale	.227**	.001

10. Association between Scale Factor Composites and Sexual Aggression (Dichotomous)

To determine if the scale factor composites were associated with the dichotomous measure of sexual aggression, a point-biserial correlation was conducted on the UIRMA scale factor composite, the AHBS scale factor composite, and the dichotomous measure of sexual aggression. The results revealed a significant correlation between the dichotomous sexual aggression measure with the UIRMA scale factor composite, $r_{pb}(205) = .189, p = .006$; and the AHBS scale factor composite, $r_{pb}(205) = .228, p = .001$ (see Table 4 for correlation coefficients). Thus, the factor composites also correlated with the stimuli selection measure of sexual aggression. As was the case with the scale composites, the correlations between the dichotomous measure of sexual aggression and the UIRMA scale factor composite were not as strong as has been found between sexual aggression and the scales in previous work (.57; Loh et al., 2005; Tharp et al., 2013).

Table 4. Point-biserial correlation coefficients for Updated Illinois Rape Myth Acceptance Scale factor composite, Adversarial Heterosexual Beliefs Scale factor composite, and sexual aggression (dichotomous), Study 1

Composite	$r_{pb}(205)$	p
Updated Illinois Rape Myth Acceptance Scale factor	.189**	.006
Adversarial Heterosexual Beliefs Scale factor	.228**	.001

Both the theoretically based scale composites and the scale composites created from the primary factor from each of the scales are significantly associated with committing acts of sexual aggression (as measured by the stimuli selection task). The strength of association between the dichotomous measure of sexual aggression and the UIRMA scale composite was slightly stronger than the strength of association between the dichotomous measure of sexual aggression and the UIRMA scale factor composite (.218 and .189, respectively). The strength

of association between the dichotomous measure of sexual aggression and the AHBS scale composite was nearly identical to the strength of association between the dichotomous measure of sexual aggression and the AHBS scale factor composite (.227 and .228, respectively).

11. Sexual Aggression (Aggregate)

In addition to the dichotomous measure of sexual aggression, an aggregate measure of sexual aggression was also computed by counting the number of sexually aggressive photos that were selected and compared to the aggregate number of other categories of photos chosen (see Table 5 for the frequency distribution for sexually aggressive photo selection; see Table 6 for aggregate scores by photo category). The aggregate sexual aggression measure captures more of the information provided by the stimuli selection task than the dichotomous measure of sexual aggression.

Table 5. Frequency distribution for (aggregate) sexual aggression, Study 1

Number of sexually aggressive photos selected	Frequency (207)	Percent
0	117	56.5
1	32	15.5
2	21	10.1
3	12	5.8
4	9	4.3
5	7	3.4
6	4	1.9
7	2	1.0
8	1	.5
9	0	0
10	2	1

Table 6. Aggregate photo selection by photo category and survey site, Study 1 (percentages are percent of 10 choices made from each photo category)

Photo category	UCSB N=109	MTurk N=98
Neutral	462 (42%)	428 (44%)
Sexual	430 (40%)	348 (35%)
Violent	87 (08%)	68 (07%)
Sexually aggressive	111 (10%)	136 (14%)

12. *Effects of Survey Site and Ethnicity on Photo Selection*

To examine the effects of survey site and ethnicity on photo selection, a 2 (survey site: *UCSB* or *MTurk*) x 2 (ethnicity: *Caucasian* or *minority*) x 4 (photo selection: *sexual aggression [aggregate]* or *neutral [aggregate]* or *sexual [aggregate]* or *violent [aggregate]*) mixed model ANOVA with repeated measures on the last factor was conducted. Again, to counteract the unequal distribution within the ethnicity factor, all non-Caucasian participants were considered as minorities. The results revealed a significant main effect of photo selection, $F(3, 201) = 128.94, p < .001$, partial $\eta^2 = .658$, no main effect of survey site, $F(1, 203) = .26, p = .608$, partial $\eta^2 = .001$, and no main effect of ethnicity, $F(1, 203) = 0.00, p = 1.00$, partial $\eta^2 = .000$. Pairwise comparisons investigating the photo selection main effect revealed that violent photos ($M = .80, SE = .089$) were selected fewer times than neutral photos ($M = 4.20, SE = .220, p < .001$), sexual photos ($M = 3.70, SE = .181, p < .001$), and sexual aggression photos ($M = 1.30, SE = .140, p = .001$). Sexual aggression photos were selected fewer times than neutral photos ($p < .001$) and sexual photos ($p < .001$). The selection rates of neutral photos and sexual photos did not differ ($p = .170$). Photo selection did not differ by survey site or participants' ethnicity.

13. *Predicting sexual aggression (aggregate) by survey site, ethnicity, and scale composites*

A linear regression was conducted to predict the aggregate measure of sexual aggression (i.e., the total number of photos depicting an act of sexual aggression selected for the female UCSB student to view) from survey site (coded as: UCSB = 0 and MTurk = 1), ethnicity (only the three ethnicities with sizable N were included: Caucasians, Asian Americans, and Hispanics), SDS composite scores, UIRMA composite scores, and AHBS composite scores. The overall regression model predicted sexual aggression, $F(6, 200) = 2.78, p = .013$. Ethnicity significantly predicted greater levels of sexual aggression (see Table 7 for regression coefficients and standard errors). Controlling for all other variables Asian American participants selected .895 more sexually aggressive photos than did Caucasians. There was also a significant effect of survey site. Controlling for all other variables MTurk participants selected .575 more sexually aggressive photos than did UCSB participants. None of the three scale composites predicted the aggregate measure of sexual aggression.

Table 7. Regression coefficients, standard errors, standardized coefficients, and *t* statistics for SDS composite scores, UIRMA composite scores, AHBS composite scores, survey site, and sexual aggression (aggregate), Study 1

Variable	<i>b</i>	SE	<i>B</i>	<i>t</i>	<i>p</i>
(Constant)	-.367	.716		-.513	.609
Mechanical Turk	.575*	.275	.150	2.093	.038
Asian	.895*	.327	.199	2.735	.007
Hispanic	.213	.396	.039	.539	.590
SDS composite	-.097	.191	-.038	-.507	.613
UIRMA composite scores	.393	.291	.128	1.352	.178
AHBS composite scores	.113	.241	.046	.469	.639

Reference group: Caucasian, UCSB participant

14. *Predicting Sexual Aggression (Aggregate) by Survey Site, Ethnicity, and Scale Factor Composites*

A linear regression was conducted to predict the aggregate measure of sexual aggression from survey site (coded as: UCSB = 0 and MTurk = 1), ethnicity (again, only the three ethnicities with sizable N were included: Caucasians, Asian Americans, and Hispanics), SDS composite scores (which are also SDS factor composite scores because SDS is made up of only one factor), UIRMA factor composite scores, and AHBS factor composite factor scores. SDS composite scores were included because they also represent the primary factor of the SDS scale and so should be accounted for in the regression model. The overall regression model significantly predicted sexual aggression, $F(6, 200) = 2.60, p = .019$. Ethnicity significantly predicted greater levels of sexual aggression (see Table 8 for regression coefficients and standard errors). Controlling for all other variables Asian American participants selected .951 more sexually aggressive photos than did Caucasians. There was also a significant effect of survey site. Controlling for all other variables MTurk participants selected .554 more sexually aggressive photos than did UCSB participants. None of the three scale factor composites predicted the aggregate measure of sexual aggression.

Table 8. Regression coefficients, standard errors, standardized coefficients, and *t* statistics for SDS composite scores, UIRMA factor composite scores, AHBS factor composite scores, survey site, and sexual aggression (aggregate), Study 1

Variable	<i>b</i>	SE	<i>B</i>	<i>t</i>	<i>p</i>
(Constant)	-.210	.696		-.302	.763
Mechanical Turk	.554*	.277	.145	2.001	.047
Asian	.951*	.326	.212	2.916	.004
Hispanic	.246	.396	.0045	.622	.535
SDS composite	-.083	.189	-.033	-.439	.661
UIRMA factor composite scores	.214	.195	.089	1.098	.274
AHBS composite scores	.184	.208	.075	.882	.379

Reference group: Caucasian, UCSB participant

15. Association between Norm Perception and Sexual Aggression (Dichotomous)

In order to identify specific norms associated with the dichotomous measure of sexual aggression, a point-biserial correlation was run between the items of the Sexual Dominance subscale of the Sexual Functions Inventory ($\alpha = .86$) and the dichotomous measure of sexual aggression (i.e., selecting at least one photo depicting an act of sexual aggression for the female UCSB student to view). Of the eight items, the following three were significantly associated with the dichotomous measure of sexual aggression (see Table 9 for the complete correlation table): “The typical male UCSB student (“college student” for MTurk participants) has sex because they like the feeling of having another person submit to them” and sexual aggression, $r_{pb}(205) = .185, p = .008$. There was a significant correlation between agreement with the item “The typical male UCSB student (“college student” for MTurk participants) has sex because they like it when their partner is really open and weak to them” and sexual aggression, $r_{pb}(205) = .154, p = .027$. There was a significant correlation between agreement with the item “The typical male UCSB student (“college student” for MTurk participants) has sex because, like many people, they enjoy the challenge” and sexual aggression, $r_{pb}(205) = .147, p = .034$.

Table 9. Point-biserial correlation coefficients for Sexual Dominance subscale of the Sexual Functions Inventory and sexual aggression (dichotomous), Study 1

	$r_{pb(205)}$	p
1. Because they like the feeling that they have someone in their control.	.063	.369
2. Because, like many people, they enjoy the challenge.	.147*	.034
3. Because it makes them feel powerful.	.094	.176
4. Because they like the feeling of having another person submit to them.	.185**	.008
5. Because they like teaching less experienced people how to get off.	.044	.524
6. Because in the act of sex more than at any other time they get the feeling that they can really control how someone feels and behaves.	.128	.065
7. Because they like it when their partner is really open and weak to them.	.154*	.027
8. Because when their partner finally gives in to them they get this really satisfying feeling.	.100	.153

A point-biserial correlation was also run between the 22 items of the Updated Illinois Rape Myth Acceptance Scale ($\alpha = .92$) and the dichotomous sexual aggression variable. Of the 22 items, the following 12 items were significantly associated with the dichotomous measure of sexual aggression (see Table 10 for the complete correlation table): “Rape accusations are often used as a way of getting back at guys,” $r_{pb(205)} = .261, p < .001$; “If a girl goes to a room alone with a guy at a party, it is her own fault if she is raped,” $r_{pb(205)} = .220, p = .001$; “When girls go to parties wearing slutty clothes, they are asking for trouble,” $r_{pb(205)} = .195, p = .005$; “A lot of times, girls who say they were raped often led the guy on and then had regrets,” $r_{pb(205)} = .179, p = .010$; “If a girl is raped while she is drunk, she is at least somewhat responsible for letting things get out of hand,” $r_{pb(205)} = .177, p = .011$; “When girls get raped, it’s often because the way they said “no” was unclear,” $r_{pb(205)} = .157, p = .024$; “Girls who are caught cheating on their boyfriends sometimes claim it was rape,” $r_{pb(205)} = .154, p = .027$; “If a guy is drunk, he might rape someone unintentionally,” $r_{pb(205)} = .148, p = .033$; “If the accused “rapist” doesn’t have a weapon, you really can’t

call it rape," $r_{pb}(205) = .140, p = .044$; "A lot of times, girls who claim they were raped have emotional problems," $r_{pb}(205) = .140, p = .044$; "A lot of times, girls who say they were raped agreed to have sex and then regret it," $r_{pb}(205) = .140, p = .045$; and "It shouldn't be considered rape if a guy is drunk and didn't realize what he was doing," $r_{pb}(205) = .138, p = .048$.

Table 10. Point-biserial correlation coefficients for Updated Illinois Rape Myth Acceptance Scale and sexual aggression (dichotomous), Study 1

	<i>r</i> _{pb(205)}	<i>p</i>
1. If a girl is raped while she is drunk, she is at least somewhat responsible for letting things get out of hand.	.177	.011
2. When girls go to parties wearing slutty clothes, they are asking for trouble.	.195**	.005
3. If a girl goes to a room alone with a guy at a party, it is her own fault if she is raped.	.220**	.001
4. If a girl acts like a slut, eventually she is going to get into trouble.	.136	.051
5. When girls get raped, it's often because the way they said "no" was unclear.	.157*	0.02
6. If a girl initiates kissing or hooking up, she should not be surprised if a guy assumes she wants to have sex.	.129	.064
7. When guys rape, it is usually because of their strong desire for sex.	.133	.057
8. Guys don't usually intend to force sex on a girl, but sometimes they get too sexually carried away.	.093	.183
9. Rape happens when a guy's sex drive goes out of control.	.086	.217
10. If a guy is drunk, he might rape someone unintentionally.	.148*	.033
11. It shouldn't be considered rape if a guy is drunk and didn't realize what he was doing.	.138*	.048
12. If both people are drunk, it can't be rape.	.079	.257
13. If a girl doesn't physically resist sex—even if protesting verbally—it can't be considered rape.	.022	.754
14. If a girl doesn't physically fight back, you can't really say it was rape.	.094	.177
15. A rape probably doesn't happen if a girl doesn't have any bruises or marks.	.062	.378
16. If the accused "rapist" doesn't have a weapon, you really can't call it rape.	.140*	.044
17. If a girl doesn't say "no" she can't claim rape.	.028	.692
18. A lot of times, girls who say they were raped agreed to have sex and then regret it.	.140*	.045
19. Rape accusations are often used as a way of getting back at guys.	.261**	.000
20. A lot of times, girls who say they were raped often led the guy on and then had regrets.	.179**	.010
21. A lot of times, girls who claim they were raped have emotional problems.	.140*	.044
22. Girls who are caught cheating on their boyfriends sometimes claim it was rape.	.154*	.027

A point-biserial correlation was also run between the 15 items of the Adversarial Heterosexual Beliefs Scale ($\alpha = .90$) and the dichotomous sexual aggression variable. Of the

15 items, the following 12 items were significantly associated with the dichotomous measure of sexual aggression (see Table 11 for the complete correlation table): “It’s natural for one spouse to be in control of the other,” $r_{pb}(205) = .295, p < .001$; “Men and women are generally out to use each other,” $r_{pb}(205) = .283, p < .001$; “When women enter the workforce, they are taking jobs away from men,” $r_{pb}(205) = .209, p = .002$; “Most people are pretty devious and manipulative when they are trying to attract someone of the opposite sex,” $r_{pb}(205) = .187, p = .007$; “When it comes to sex, most people are just trying to use the other person,” $r_{pb}(205) = .177, p = .011$; “In the work force, any gain by one sex necessitates a loss for the other,” $r_{pb}(205) = .169, p = .015$; “Sex is like a game where one person ‘wins’ and the other ‘loses,’” $r_{pb}(205) = .165, p = .017$; and “In all societies, it is inevitable that one sex is dominant” $r_{pb}(205) = .145, p = .037$. Support for the item “Men and women share more similarities than differences” was negatively associated with sexual aggression, $r_{pb}(205) = -.167, p = .016$.

Table 11. Point-biserial correlation coefficients for Adversarial Heterosexual Beliefs Scale and sexual aggression (dichotomous), Study 1

	$r_{pb} (205)$	p
1. In dating relationships, people are mostly out to take advantage of each other.	.117	.095
2. If you don't show who's boss in the beginning of a relationship, you will be taken advantage of later.	.113	.106
3. Most people are pretty devious and manipulative when they are trying to attract someone of the opposite sex.	.187**	.007
4. Men and women are generally out to use each other.	.283**	.000
5. It impossible for men and women to truly understand each other.	.031	.658
6. In the work force, any gain by one sex necessitates a loss for the other.	.169*	.015
7. When women enter the workforce, they are taking jobs away from men.	.209**	.002
8. Men and women cannot really be friends.	.040	.570
9. Sex is like a game where one person "wins" and the other "loses".	.165*	.017
10. In all societies, it is inevitable that one sex is dominant.	.145*	.037
11. It's natural for one spouse to be in control of the other.	.295**	.000
12. When it comes to sex, most people are just trying to use the other person.	.177*	.011
13. It is possible for the sexes to be equal in society.	-.104	.137
14. Men and women share more similarities than differences.	-.167*	.016
15. It is possible for a man and woman to be "just friends".	-.025	.724

16. Norm Perception and Sexual Aggression (Aggregate)

In order to identify specific items associated with the aggregate measure of sexual aggression, a correlation was run between the items of the Sexual Dominance subscale of the Sexual Functions Inventory and the aggregate measure of sexual aggression (i.e., the total number of photos depicting an act of sexual aggression selected for the female UCSB student to view). None of the items were significantly correlated with the aggregate measure of sexual aggression (see Table 12 for the complete correlation table).

Table 12. Correlation coefficients for Sexual Dominance subscale of the Sexual Functions Inventory and sexual aggression (aggregate), Study 1

	<i>r</i> (205)	<i>p</i>
1. Because they like the feeling that they have someone in their control.	.049	.480
2. Because, like many people, they enjoy the challenge.	.017	.808
3. Because it makes them feel powerful.	-.016	.816
4. Because they like the feeling of having another person submit to them.	.061	.381
5. Because they like teaching less experienced people how to get off.	-.046	.509
6. Because in the act of sex more than at any other time they get the feeling that they can really control how someone feels and behaves.	.025	.726
7. Because they like it when their partner is really open and weak to them.	.055	.428
8. Because when their partner finally gives in to them they get this really satisfying feeling.	-.031	.662

A correlation was also run between the items of the Updated Illinois Rape Myth Acceptance Scale and the aggregate measure of sexual aggression. Of the 22 items, the following six items were significantly associated with the aggregate measure of sexual aggression (see Table 13 for the complete correlation table): “If a girl is raped while she is drunk, she is at least somewhat responsible for letting things get out of hand,” $r(205) = .241$, $p < .001$; “If a girl goes to a room alone with a guy at a party, it is her own fault if she is raped,” $r(205) = .226$, $p = .001$; “Rape accusations are often used as a way of getting back at guys,” $r(205) = .215$, $p = .002$; “A lot of times, girls who say they were raped often led the guy on and then had regrets,” $r(205) = .171$, $p = .014$; “When girls go to parties wearing slutty clothes, they are asking for trouble,” $r(205) = .137$, $p = .048$; and “If the accused “rapist” doesn’t have a weapon, you really can’t call it rape,” $r(205) = .137$, $p = .048$.

Table 13. Correlation coefficients for Updated Illinois Rape Myth Acceptance Scale and sexual aggression (aggregate), Study 1

	<i>r</i> (205)	<i>p</i>
1. If a girl is raped while she is drunk, she is at least somewhat responsible for letting things get out of hand.	.241**	.000
2. When girls go to parties wearing slutty clothes, they are asking for trouble.	.137*	.048
3. If a girl goes to a room alone with a guy at a party, it is her own fault if she is raped.	.226**	.001
4. If a girl acts like a slut, eventually she is going to get into trouble.	.097	.164
5. When girls get raped, it's often because the way they said "no" was unclear.	.116	.097
6. If a girl initiates kissing or hooking up, she should not be surprised if a guy assumes she wants to have sex.	.104	.138
7. When guys rape, it is usually because of their strong desire for sex.	.091	.190
8. Guys don't usually intend to force sex on a girl, but sometimes they get too sexually carried away.	.034	.623
9. Rape happens when a guy's sex drive goes out of control.	.075	.285
10. If a guy is drunk, he might rape someone unintentionally.	.058	.409
11. It shouldn't be considered rape if a guy is drunk and didn't realize what he was doing.	.070	.318
12. If both people are drunk, it can't be rape.	.079	.259
13. If a girl doesn't physically resist sex—even if protesting verbally—it can't be considered rape.	-.025	.722
14. If a girl doesn't physically fight back, you can't really say it was rape.	.077	.267
15. A rape probably doesn't happen if a girl doesn't have any bruises or marks.	.104	.138
16. If the accused "rapist" doesn't have a weapon, you really can't call it rape.	.137*	.048
17. If a girl doesn't say "no" she can't claim rape.	-.014	.839
18. A lot of times, girls who say they were raped agreed to have sex and then regret it.	.091	.193
19. Rape accusations are often used as a way of getting back at guys.	.215**	.002
20. A lot of times, girls who say they were raped often led the guy on and then had regrets.	.171*	.014
21. A lot of times, girls who claim they were raped have emotional problems.	.108	.122
22. Girls who are caught cheating on their boyfriends sometimes claim it was rape.	.084	.230

A correlation was also run between the items of the Adversarial Heterosexual Beliefs Scale and the aggregate measure of sexual aggression. Of the 15 items, the following five items were significantly associated with the aggregate measure of sexual aggression (see Table 14 for the complete correlation table): There was a significant correlation between sexual aggression and agreement with the following items: “Men and women are generally out to use each other,” $r(205) = .187, p = .007$; “In dating relationships, people are mostly out to take advantage of each other,” $r(205) = .172, p = .013$; “It’s natural for one spouse to be in control of the other,” $r(205) = .157, p = .024$; “When women enter the workforce, they are taking jobs away from men,” $r(205) = .146, p = .036$; and “Sex is like a game where one person ‘wins’ and the other ‘loses,’” $r(205) = .138, p = .047$.

Table 14. Correlation coefficients for Adversarial Heterosexual Beliefs Scale and sexual aggression (aggregate), Study 1

	<i>r</i> (205)	<i>p</i>
1. In dating relationships, people are mostly out to take advantage of each other.	.172*	.013
2. If you don’t show who’s boss in the beginning of a relationship, you will be taken advantage of later.	.080	.251
3. Most people are pretty devious and manipulative when they are trying to attract someone of the opposite sex.	.085	.221
4. Men and women are generally out to use each other.	.187*	.007
5. It impossible for men and women to truly understand each other.	-.007	.921
6. In the work force, any gain by one sex necessitates a loss for the other.	.121	.082
7. When women enter the workforce, they are taking jobs away from men.	.146*	.036
8. Men and women cannot really be friends.	.029	.680
9. Sex is like a game where one person “wins” and the other “loses”.	.138*	.047
10. In all societies, it is inevitable that one sex is dominant.	.072	.302
11. It’s natural for one spouse to be in control of the other.	.157*	.024
12. When it comes to sex, most people are just trying to use the other person.	.084	.229
13. It is possible for the sexes to be equal in society.	-.062	.374
14. Men and women share more similarities than differences.	-.014	.844
15. It is possible for a man and woman to be “just friends”.	-.003	.970

17. Association between Scale Composites and Violent Photo Selection (Aggregate)

To determine whether the scale composites are associated with general aggression towards women in addition to sexual aggression, a point-biserial correlation was run between the SDS scale composite, the UIRMA scale composite, the AHBS scale composite, and the dichotomous measure of violent photo selection (i.e., selecting at least one photo depicting an act of violence for the female UCSB student to view). The results revealed a significant correlation of the dichotomous measure of violent photo selection with the AHBS scale composite, $r(205) = .157, p = .024$. The dichotomous measure of violent photo selection was not significantly associated with either the SDS scale composite, $r(205) = -.022, p = .749$; or the UIRMA scale composite, $r(205) = .102, p = .144$ (see Table 15 for correlation coefficients). This indicates that the AHBS scale composite is tapping a general aggression towards women in addition to sexual aggression.

Table 15. Point-biserial correlation coefficients for Sexual Dominance subscale composite, Updated Illinois Rape Myth Acceptance Scale composite, Adversarial Heterosexual Beliefs Scale factor composite, and violent photo selection (aggregate), Study 1

Composite	$r_{pb(205)}$	p
Sexual Dominance subscale	-.022	.749
Updated Illinois Rape Myth Acceptance Scale	.102	.144
Adversarial Heterosexual Beliefs Scale	.157*	.024

18. Association between Scale Factor Composites and Violent Photo Selection (Aggregate)

To determine whether the scale factor composites are associated with general aggression towards women in addition to sexual aggression, a point-biserial correlation was run between the SDS scale composite, the UIRMA scale factor composite, the AHBS scale factor composite, and the dichotomous measure of violent photo selection. The results revealed a significant correlation of the dichotomous measure of violent photo selection with

the AHBS scale composite, $r(205) = .172, p = .013$. The dichotomous measure of violent photo selection was not significantly associated with the UIRMA scale composite, $r(205) = .023, p = .745$ (see Table 16 for correlation coefficients). Like the AHBS scale composite, the AHBS scale factor composite is also significantly associated with generalized aggression towards women (i.e., selecting violent photos during the stimuli selection task).

Table 16. Point-biserial correlation coefficients for Updated Illinois Rape Myth Acceptance Scale factor composite, Adversarial Heterosexual Beliefs Scale factor composite, and violent photo selection (aggregate), Study 1

Composite	$r_{pb(205)}$	p
Updated Illinois Rape Myth Acceptance Scale factor	.023	.745
Adversarial Heterosexual Beliefs Scale factor	.172*	.013

19. Norm Perception and Selecting Violent Photos (Dichotomous)

In order to identify specific norms associated with the selection of violent photo, a point-biserial correlation was run between the items of the Sexual Dominance subscale of the Sexual Functions Inventory ($\alpha = .86$) and the dichotomous measure of violent photo selection (i.e., selecting at least one photo depicting an act of violence for the female UCSB student to view). The selection of violent photos is informative because, although not an act of sexual aggression, it represents another form of aggression towards women. Because of this, many people avoided selecting violent photos (unlike the neutral photos and the sexual photos, which most people were comfortable with selecting). Of the eight items, one item was negatively associated with the dichotomous measure of violent photo selection (see Table 17 for correlation coefficients): “Because they like teaching less experienced people how to get off,” $r_{pb(205)} = -.170, p = .014$.

Table 17. Point-biserial correlation coefficients for Sexual Dominance subscale of the Sexual Functions Inventory violent photo selection (dichotomous), Study 1

	$r_{pb(205)}$	p
1. Because they like the feeling that they have someone in their control.	-.029	.680
2. Because, like many people, they enjoy the challenge.	.085	.222
3. Because it makes them feel powerful.	.044	.531
4. Because they like the feeling of having another person submit to them.	-.031	.662
5. Because they like teaching less experienced people how to get off.	-.170*	.014
6. Because in the act of sex more than at any other time they get the feeling that they can really control how someone feels and behaves.	.010	.881
7. Because they like it when their partner is really open and weak to them.	.054	.440
8. Because when their partner finally gives in to them they get this really satisfying feeling.	-.092	.190

A point-biserial correlation was also run between the Updated Illinois Rape Myth Acceptance Scale ($\alpha = .92$) and the dichotomous measure of violent photo selection. Of the 22 items, the following four items were significantly associated with the dichotomous measure of violent photo selection (see Table 18 for correlation coefficients): “When girls go to parties wearing slutty clothes, they are asking for trouble,” $r_{pb(205)} = .175, p = .012$; “When guys rape, it is usually because of their strong desire for sex,” $r_{pb(205)} = .151, p = .030$; “If a girl goes to a room alone with a guy at a party, it is her own fault if she is raped,” $r_{pb(205)} = .147, p = .034$; “When girls get raped, it’s often because the way they said “no” was unclear,” $r_{pb(205)} = .145, p = .038$.

Table 18. Point-biserial correlation coefficients for Updated Illinois Rape Myth Acceptance Scale and violent photo selection (dichotomous), Study 1

	$r_{pb(205)}$	p
1. If a girl is raped while she is drunk, she is at least somewhat responsible for letting things get out of hand.	.095	.174
2. When girls go to parties wearing slutty clothes, they are asking for trouble.	.175*	.012
3. If a girl goes to a room alone with a guy at a party, it is her own fault if she is raped.	.147*	.034
4. If a girl acts like a slut, eventually she is going to get into trouble.	.108	.120
5. When girls get raped, it's often because the way they said "no" was unclear.	.145*	.038
6. If a girl initiates kissing or hooking up, she should not be surprised if a guy assumes she wants to have sex.	.136	.051
7. When guys rape, it is usually because of their strong desire for sex.	.151*	.030
8. Guys don't usually intend to force sex on a girl, but sometimes they get too sexually carried away.	.039	.573
9. Rape happens when a guy's sex drive goes out of control.	.077	.271
10. If a guy is drunk, he might rape someone unintentionally.	.029	.675
11. It shouldn't be considered rape if a guy is drunk and didn't realize what he was doing.	.004	.955
12. If both people are drunk, it can't be rape.	.019	.786
13. If a girl doesn't physically resist sex—even if protesting verbally—it can't be considered rape.	-.005	.938
14. If a girl doesn't physically fight back, you can't really say it was rape.	.028	.692
15. A rape probably doesn't happen if a girl doesn't have any bruises or marks.	.003	.961
16. If the accused "rapist" doesn't have a weapon, you really can't call it rape.	.036	.604
17. If a girl doesn't say "no" she can't claim rape.	-.052	.458
18. A lot of times, girls who say they were raped agreed to have sex and then regret it.	-.056	.420
19. Rape accusations are often used as a way of getting back at guys.	.096	.168
20. A lot of times, girls who say they were raped often led the guy on and then had regrets.	.016	.815
21. A lot of times, girls who claim they were raped have emotional problems.	.072	.304
22. Girls who are caught cheating on their boyfriends sometimes claim it was rape.	.040	.569

A point-biserial correlation was also run between the 15 items of the Adversarial Heterosexual Beliefs Scale ($\alpha = .90$) and the dichotomous measure of violent photo selection. Of the 15 items, the following two items were significantly associated with the dichotomous

measure of violent photo selection (see Table 19 for correlation coefficients): “In the workforce, any gain by one sex necessitates a loss for the other,” $r_{pb}(205) = .176, p < .011$; “It’s natural for one spouse to be in control of the other,” $r_{pb}(205) = .161, p < .021$.

Table 19. Point-biserial correlation coefficients for Adversarial Heterosexual Beliefs Scale and violent photo selection (dichotomous), Study 1

	$r_{pb}(205)$	p
1. In dating relationships, people are mostly out to take advantage of each other.	.023	.095
2. If you don’t show who’s boss in the beginning of a relationship, you will be taken advantage of later.	.135	.052
3. Most people are pretty devious and manipulative when they are trying to attract someone of the opposite sex.	.116	.095
4. Men and women are generally out to use each other.	.111	.110
5. It impossible for men and women to truly understand each other.	.081	.243
6. In the work force, any gain by one sex necessitates a loss for the other.	.176*	.011
7. When women enter the workforce, they are taking jobs away from men.	.080	.254
8. Men and women cannot really be friends.	.049	.485
9. Sex is like a game where one person “wins” and the other “loses”.	.083	.234
10. In all societies, it is inevitable that one sex is dominant.	.127	.069
11. It’s natural for one spouse to be in control of the other.	.161*	.021
12. When it comes to sex, most people are just trying to use the other person.	.126	.070
13. It is possible for the sexes to be equal in society.	-.100	.152
14. Men and women share more similarities than differences.	-.075	.285
15. It is possible for a man and woman to be “just friends”.	-.061	.380

20. Norm Perception and Selecting Violent Photos (Aggregate).

A correlation was run between the items of the Sexual Dominance subscale of the Sexual Functions Inventory and the aggregate measure of violent photo selection (i.e., the total number of photos depicting an act of violence selected for the female UCSB student to view). None of the items were significantly correlated with the aggregate measure of violent photo selection (see Table 20 for correlation coefficients).

Table 20. Correlation coefficients for Sexual Dominance subscale of the Sexual Functions Inventory and violent photo selection (aggregate), Study 1

	<i>r</i> (205)	<i>p</i>
1. Because they like the feeling that they have someone in their control.	-.078	.265
2. Because, like many people, they enjoy the challenge.	.072	.300
3. Because it makes them feel powerful.	-.016	.816
4. Because they like the feeling of having another person submit to them.	-.044	.530
5. Because they like teaching less experienced people how to get off.	-.111	.113
6. Because in the act of sex more than at any other time they get the feeling that they can really control how someone feels and behaves.	.013	.856
7. Because they like it when their partner is really open and weak to them.	.022	.752
8. Because when their partner finally gives in to them they get this really satisfying feeling.	-.047	.506

A correlation was also run between the items of the Updated Illinois Rape Myth Acceptance Scale and the aggregate measure of violent photo selection. Of the 22 items, the following five items were significantly associated with the aggregate measure of violent photo selection (see Table 21 for correlation coefficients): “When girls go to parties wearing slutty clothes, they are asking for trouble,” $r(205) = .198, p < .004$; “If a girl acts like a slut, eventually she is going to get into trouble,” $r(205) = .166, p = .017$; “When girls get raped, it’s often because the way they said “no” was unclear,” $r(205) = .163, p = .019$; “When guys rape, it is usually because of their strong desire for sex,” $r(205) = .157, p = .024$; and “If a girl initiates kissing or hooking up, she should not be surprised if a guy assumes she wants to have sex,” $r(205) = .152, p = .029$.

Table 21. Correlation coefficients for Updated Illinois Rape Myth Acceptance Scale and violent photo selection (aggregate), Study 1

	<i>r</i> (205)	<i>p</i>
1. If a girl is raped while she is drunk, she is at least somewhat responsible for letting things get out of hand.	.097	.163
2. When girls go to parties wearing slutty clothes, they are asking for trouble.	.198**	.004
3. If a girl goes to a room alone with a guy at a party, it is her own fault if she is raped.	.121	.083
4. If a girl acts like a slut, eventually she is going to get into trouble.	.166*	.017
5. When girls get raped, it's often because the way they said "no" was unclear.	.163*	.019
6. If a girl initiates kissing or hooking up, she should not be surprised if a guy assumes she wants to have sex.	.152*	.029
7. When guys rape, it is usually because of their strong desire for sex.	.157*	.024
8. Guys don't usually intend to force sex on a girl, but sometimes they get too sexually carried away.	.043	.540
9. Rape happens when a guy's sex drive goes out of control.	.091	.194
10. If a guy is drunk, he might rape someone unintentionally.	.060	.393
11. It shouldn't be considered rape if a guy is drunk and didn't realize what he was doing.	.042	.548
12. If both people are drunk, it can't be rape.	.044	.527
13. If a girl doesn't physically resist sex—even if protesting verbally—it can't be considered rape.	.075	.286
14. If a girl doesn't physically fight back, you can't really say it was rape.	.107	.124
15. A rape probably doesn't happen if a girl doesn't have any bruises or marks.	.102	.144
16. If the accused "rapist" doesn't have a weapon, you really can't call it rape.	.088	.205
17. If a girl doesn't say "no" she can't claim rape.	-.005	.944
18. A lot of times, girls who say they were raped agreed to have sex and then regret it.	-.039	.575
19. Rape accusations are often used as a way of getting back at guys.	.126	.070
20. A lot of times, girls who say they were raped often led the guy on and then had regrets.	.063	.364
21. A lot of times, girls who claim they were raped have emotional problems.	.108	.123
22. Girls who are caught cheating on their boyfriends sometimes claim it was rape.	.023	.741

A correlation was also run between the items of the Adversarial Heterosexual Beliefs Scale and the aggregate measure of violent photo selection. Of the 15 items, the following five items were significantly associated with the dichotomous measure of violent photo selection (see Table 22 for correlation coefficients): “In the work force, any gain by one sex necessitates a loss for the other,” $r(205) = .213, p = .002$; “It’s natural for one spouse to be in control of the other” $r(205) = .211, p = .002$; “If you don’t show who’s boss in the beginning of a relationship, you will be taken advantage of later,” $r(205) = .175, p = .012$; “Most people are pretty devious and manipulative when they are trying to attract someone of the opposite sex,” $r(205) = .144, p = .039$; and “In all societies, it is inevitable that one sex is dominant,” $r(205) = .142, p = .041$.

Table 22. Correlation coefficients for Adversarial Heterosexual Beliefs Scale and violent photo selection (aggregate), Study 1

	<i>r</i> (205)	<i>p</i>
1. In dating relationships, people are mostly out to take advantage of each other.	.018	.799
2. If you don’t show who’s boss in the beginning of a relationship, you will be taken advantage of later.	.175*	.012
3. Most people are pretty devious and manipulative when they are trying to attract someone of the opposite sex.	.144*	.039
4. Men and women are generally out to use each other.	.132	.057
5. It impossible for men and women to truly understand each other.	.119	.087
6. In the work force, any gain by one sex necessitates a loss for the other.	.213**	.002
7. When women enter the workforce, they are taking jobs away from men.	.113	.106
8. Men and women cannot really be friends.	.107	.126
9. Sex is like a game where one person “wins” and the other “loses”.	.110	.114
10. In all societies, it is inevitable that one sex is dominant.	.142*	.041
11. It’s natural for one spouse to be in control of the other.	.211**	.002
12. When it comes to sex, most people are just trying to use the other person.	.135	.053
13. It is possible for the sexes to be equal in society.	-.067	.358
14. Men and women share more similarities than differences.	-.058	.407
15. It is possible for a man and woman to be “just friends”.	-.013	.856

21. *Predicting Violent Photo Selection (Aggregate) by Survey Site, Ethnicity, and Scale Composites*

A linear regression was conducted to predict the aggregate measure of violent photo selection from survey site (coded as: UCSB = 0 and MTurk = 1), ethnicity (only the three ethnicities with sizable N were included: Caucasians, Asian Americans, and Hispanics), SDS composite scores, UIRMA composite scores, and AHBS composite scores. This analysis will help determine if the scale composites are tapping into a broader aggression against women in addition to sexual aggression. The overall regression model marginally predicted sexual aggression, $F(6, 200) = 2.64, p = .017$. Ethnicity significantly predicted greater levels of sexual aggression (see Table 23 for regression coefficients and standard errors). Controlling for all other variables Hispanic participants selected .556 more violent photos than did Caucasians. There was also a marginal effect of AHBS composite. Controlling for all other variables for every one-point increase in AHBS composite score, participants selected .268 more violent photos. Survey site and the other two scale composites did not predict the aggregate measure of violent photo selection.

Table 23. Regression coefficients, standard errors, standardized coefficients, and *t* statistics for SDS composite scores, UIRMA composite scores, AHBS composite scores, survey site, and violent photo selection (aggregate), Study 1

Variable	<i>b</i>	SE	<i>B</i>	<i>t</i>	<i>p</i>
(Constant)	.279	.444		.629	.530
Mechanical Turk	-.003	.170	-.001	-.016	.988
Asian	.132	.203	.047	.651	.516
Hispanic	.556*	.246	.166	2.265	.025
SDS composite	-.183	.118	-.116	-1.551	.122
UIRMA composite scores	.082	.180	.043	.455	.650
AHBS composite scores	.268	.150	.177	1.795	.074

Reference group: Caucasian, UCSB participant

22. *Predicting violent photo selection (aggregate) by survey site, ethnicity, and scale factor composites*

A linear regression was conducted to predict the aggregate measure of violent photo selection from survey site (coded as: UCSB = 0 and MTurk = 1), ethnicity (again, only the three ethnicities with sizable N were included: Caucasians, Asian Americans, and Hispanics), SDS composite scores, UIRMA factor composite scores, and AHBS factor composite scores. The overall regression model marginally predicted violent photo selection, $F(6, 200) = 3.03$, $p = .007$. Ethnicity significantly predicted greater levels of sexual aggression (see Table 24 for regression coefficients and standard errors). Controlling for all other variables Hispanic participants selected .565 more violent photos than did Caucasians. There was also a significant effect of AHBS composite. Controlling for all other variables for every one-point increase in AHBS composite score, participants selected .388 more violent photos. Survey site and the other two scale factor composites did not predict the aggregate measure of violent photo selection.

Table 24. Regression coefficients, standard errors, standardized coefficients, and t statistics for SDS composite scores, UIRMA factor composite scores, AHBS factor composite scores, survey site, and violent photo selection (aggregate), Study 1

Variable	b	SE	B	t	p
(Constant)	.437	.428		1.021	.308
Mechanical Turk	.035	.170	.015	.204	.839
Asian	.136	.201	.049	.677	.499
Hispanic	.565*	.243	.168	2.319	.021
SDS composite	-.178	.116	-.113	-1.531	.127
UIRMA composite scores	-.089	.120	-.060	-.743	.459
AHBS composite scores	.388**	.128	.257	3.030	.003

Reference group: Caucasian, UCSB participant

C. Discussion

The purpose of Study 1 was to assess the group norms college males who engaged in sexual aggression thought were prevalent among other college males. Across the 42 items of the three surveys, 32 hostile group norms were associated with the dichotomous sexual aggression measure. Eleven hostile group norms were associated with the aggregate sexual aggression measure. These results show that the perception that hostile norms towards women are endorsed by the ingroup is associated with greater sexual aggressiveness. To the extent that males believe that other males think that women often use rape accusations to get back at guys, for instance, the more willing they are to sexually aggress. This result is consistent with standard social norms theories: perception that others harbor or endorse such beliefs and attitudes encourages sexual aggressiveness. These results are also consistent with idea that norms influence sexual aggression and therefore that interventions aimed at changing ingroup norm perception are a viable way of changing sexual aggression. This idea is taken up in Study 2.

A second goal was to develop a new measure of sexual aggression that operationalizes sexual aggression by the number and content of photos that males “select” for female participants to view. The results reveal that 43.5% of participants chose to have the female participant view at least one photo depicting an act of sexual aggression. To ensure that the stimuli selection task is an accurate measure of sexual aggression, I ran a pilot study investigating how female UCSB students and female MTurk students would interpret being assigned each of the 40 photos in the stimuli selection task. The pilot study results clearly showed that women interpreted being shown a photo depicting an act of sexual aggression as an act of sexual aggression. In fact, exposure to every one of the 10 photographs depicting

acts of sexual aggression was itself considered to be sexually aggressive by no fewer than 63% of female participants. In contrast, never more than 34% percent of participants found any of the violent, sexual, or neutral photos to be sexually aggressive (see Appendix J for full description and results).

The validity of the stimuli selection task as a measure of sexual aggression is further bolstered by the fact that it correlates with the scale composites of three scales (the Sexual Dominance subscale of the Sexual Functions Inventory, the Updated Illinois Rape Myth Acceptance Scale, and the Adversarial Heterosexual Beliefs Scale) that have been shown in previous work to be associated with sexual aggression (Loh et al., 2005; Malamuth, 1986; Tharp et al., 2013). This finding suggests that the photo selection measure is a valid behavioral measure of sexual violence.

Regarding the differences between the dichotomous measure of sexual aggression and the aggregate measure of sexual aggression, it appears that the dichotomous measure of sexual aggression more closely maps onto committing an act of sexual aggression. The dichotomous measure of sexual aggression correlated with both the three theoretically based scale composites (SDS scale composite, UIRMA scale composite, and the AHBS scale composite) and the two scale factor composites (UIRMA scale factor composite and the AHBS scale factor composite). The aggregate measure of sexual aggression was not predicted by any of the five scale composites.

A third goal was to ascertain which two social norms were closely associated with sexual violence in this population, so that those norms could be used in the intervention manipulations in Study 2. The results revealed that the three perceived social norms that were most associated with both dichotomous and aggregate measures of sexual aggression were:

“It’s natural for one spouse to be in control of the other” (.295, dichotomous, .157, aggregate), “Men and women are generally out to use each other” (.283, dichotomous; .187, aggregate), and “Rape accusations are often used as a way of getting back at guys” (.261, dichotomous; .215, aggregate). Two of the most strongly associated items came from the Adversarial Heterosexual Beliefs Scale and the third came from Updated Illinois Rape Myth Acceptance Scale. As expected, the two items from the Adversarial Heterosexual Beliefs Scale are highly correlated, $r(205) = .450$. To avoid tapping the same psychological construct twice, and because “control” has repeatedly been shown to be a factor in sexual aggression (Coker, Smith, McKeown, & King, 2000; Maass, et al., 2003), I selected “It’s natural for one spouse to be in control of the other” and “Rape accusations are often used as a way of getting back at guys” to be the two items integrated into the narrative-based sexual aggression reduction intervention in Study 2.

Additionally, the results indicate that, compared to UCSB participants, MTurk participants were more likely to select sexually aggressive photos (and therefore, would be best served by a sexual aggression reduction intervention). Because of this, the Study 2 sample was comprised entirely of MTurk participants.

IV. Study 2: Sexual Aggression Reduction Intervention

The purpose of Study 2 was to assess the effectiveness of character identification as a mechanism underlying a narrative-based sexual aggression reduction intervention. As described in the introduction, character identification is a spontaneous process in which individuals adopt a character’s attitudes, goals, and traits. According to research by Kaufman and Libby (2012) a shared group membership between reader and protagonist facilitates character identification. Narratives written in such a way as to reduce the psychological

distance between reader and protagonist further facilitate character identification. An example of this is narrative voice. Narratives written in the first-person elicit character identification to a greater degree than narratives written in the third-person. In the intervention described below, participants read a narrative that depicted the daily activities of an individual ingroup protagonist who also espoused views opposite to those represented in two of the norms that were positively associated with sexual aggression in Study 1 (and thus were intended to reduce sexual aggression). In the character identification condition, male MTurk college students read a first-person account about the typical weekend in the life of Daniel, a male college student like themselves. Toward the end of the narrative, Daniel described events and expressed views that rejected the ideas that it's natural for one spouse to be in control of the other and that rape accusations are often used as a way of getting back at guys.

The effectiveness of the character identification mechanism was assessed against a standard group norm conformity manipulation in which the typical weekend activities of ingroup members (male college students) were described, and typical ingroup members were also described as rejecting the ideas that it's natural for one spouse to be in control of the other and that rape accusations are often used as a way of getting back at guys. This type of mechanism has been found to change views on rape myths (Bohner, Siebler, and Schmelcher, 2006). It was expected therefore that this manipulation would successfully reduce sexual aggression, and the character identification condition could be compared to it to see whether that process was less, as, or more effective than standard group norm conformity processes at reducing sexual aggression.

Study 2 was also designed to provide evidence about the mechanism by which character identification might bring about behavior change. According to Kaufman and Libby (2012), character identification changes behavior because it changes individual (personal) characteristics and attitudes: The reader accepts and adopts the qualities of the protagonist as part of the character identification process. According to this view, any reduction in sexual aggression that occurs via character identification should be reflected in changed individual attitudes and beliefs about sexual aggression (compared to other conditions), which then guide behavior (see Figure 1a). In contrast, standard group identification norm conformity manipulations are understood to change behavior because new or different ingroup norms are perceived, and behavior conforms to the norms (see Figure 1b). To assess whether the narratives changed individual attitudes, participants were also asked to report the degree to which they endorsed attitudes that ran counter to the attitudes expressed in the narrative. To assess whether the narrative resulted in changed perceptions of ingroup norms participants were asked to report the degree to which typical male college students endorsed attitudes that ran counter to the attitudes expressed in the narrative. The order in which these measures were completed was randomized. These measures thus assessed whether any change in behavior from either character identification or group identification was mediated by attitude change or norm change.

Both conditions designed to reduce sexual behavior were compared to parallel control conditions in which either an ingroup protagonist (character identification condition) or typical ingroup members (group identification condition) rejected two detrimental views about international students (as a parallel to views associated with sexual aggression). Thus both processes of interest, character identification and group identification, were activated in

these conditions, but the beliefs associated with those activations were not relevant to sexual aggression.

I hypothesized the following: 1) Participants will engage in character identification (experience-taking) to a greater degree in the character identification conditions compared to the group norm conditions; 2) Participants will engage in ingroup identification to a greater degree in the group norm conditions compared to the character identification conditions; 3) Both the character identification intervention (*character identification/sexual aggression*) and the group identification intervention (*group identification/sexual aggression*) will reduce sexual aggression compared to their respective control conditions (*character identification/international students* and *group identification/international students*, respectively); 4) The character identification intervention will be more effective at reducing sexual aggression than group identification intervention. Specifically, sexual aggression in the character identification intervention condition (*character identification/sexual aggression*) will be significantly reduced compared to the group identification intervention (*group identification/sexual aggression*); 5) The reduction in sexual aggression in the character identification intervention condition will be the result of an internalization of the personal beliefs espoused in the narrative. Specifically, the sexual aggression attitude change in the character identification intervention condition (*character identification/sexual aggression*) will be greater than in the character identification control condition (*character identification/international students*), the group identification intervention condition (*group identification/sexual aggression*), and the group identification control condition (*group identification/international students*); and 6) The reduction in sexual aggression in the group identification intervention condition will be the result of a changed perception that ingroup

norms are in line with the norms espoused in the narrative. Specifically, the change in perceived ingroup norms in the group identification intervention condition (*group identification/sexual aggression*) will be greater than in the group identification control condition (*group identification/international students*), the character identification intervention condition (*character identification/sexual aggression*), and the character identification control condition (*character identification/international students*).

A. Method

1. Participants and Design

207 MTurk workers who self identified as American male college students participated in exchange for \$1.75. The participants were randomly assigned to one of four conditions in a 2 (intervention method: *character identification* or *group norm*) x 2 (domain: sexual aggression or international students) between-subjects design. An additional 57 non-college males participated but were excluded for not meeting the eligibility requirements. 24 participants were removed from analysis for failing to correctly identify the gender of the partner for whom they were selecting photos. The 183 participants included in the final sample were 74% Caucasian, 10% Asian American, 8% Hispanic, 7% African American, 1% “Other”. Mean age was 25 years old ($SD = 5.5$). The final sample of 183 was larger than the minimum sample of 162 estimated by G*Power (ANOVA: Fixed effects, special, main effects, and interactions; Effect size = $.33^2$ α err prob = .05; Power = .95; Numerator df = 3; Number of groups = 4).

² An effect size of .33 was used based on a meta-analysis of group norm effects (Richard, Bond, & Stokes-Zoota, 2003).

2. Procedure

Participants were told that they would be completing three separate studies—a reading comprehension study, a stimuli selection task, and a series of questionnaires to create a baseline for future studies. Participants were also informed that they would be exposed to violent and sexually aggressive images. They were also informed of their right to withdraw from the study at any time without penalty. After consenting, participants moved on to the “first” experiment.

Character identification versus group norm manipulation. First, participants read one of four one-page narratives (see Appendix K). The narratives described the typical weekend activities of either an individual male college student, Daniel, (character identification conditions) or of “typical male college students” (group identification conditions)³.

About two-thirds of the way through the narrative, the individual protagonist (or typical ingroup members) rejects the ideas that it’s natural for one spouse to be control of the other and that rape accusations are often used as a way of getting back at guys (sexual aggression conditions) or the narratives suggested that the individual protagonist (or typical ingroup members) reject the ideas that international students take more than their fair share of college resources and that American universities should stop accepting international students (international students conditions). The two beliefs rejected in the intervention conditions (the ideas that it’s natural for one spouse to be control of the other and that rape accusations are often used as a way of getting back at guys) were those identified in Study 1 as being strongly associated with the perpetration of sexual aggression (as measured by the stimuli selection task).

³ The narratives were pilot tested to ensure that they were equally believable, enjoyable, engaging, and emotionally arousing (full description in Appendix L).

Participants then completed two manipulation check items to see whether character identification or ingroup identification had been activated. The order of the two items was randomized.

Character identification. Character identification was measured using the experience-taking scale (Kaufman & Libby, 2012; see Appendix M). The experience-taking scale was used to measure the degree to which participants identified with the protagonist (or group) in the narrative. The experience-taking scale is a 7-item Likert scale with values ranging from 1 (strongly disagree) to 9 (strongly agree). Sample items include: “I understood the events of the story as though I were the character in the story” and “I found myself thinking what the character in the story was thinking”.

Group identification. The Importance and Commitment subscales of the group identification scale (Roccas, Sagiv, Schwartz, Halevy, & Eidelson, 2008; see Appendix N) were used to measure the degree to which participants identified with the group: male college student. The Importance subscale is a four-item Likert scale with values ranging from 1 (strongly disagree) to 7 (strongly agree). Sample items include: “Belonging to this group is an important part of my identity” and “It is important to me that I view myself as a member of this group. The Commitment subscale is a four-item Likert scale with values ranging from 1 (strongly disagree) to 7 (strongly agree). Sample items include: “I feel strongly affiliated with this group.” and “I am strongly committed to this group.”

After completing these measures, participants began the “next” study.

Sexual aggression behavioral dependent measure: Stimuli selection task. The stimuli selection task was identical to the stimuli selection task in Study 1. Participants were told that they were selecting photos to be used in a study called “Women’s Perceptions of People

Interacting”. They were told that a female UCSB student would be repeatedly exposed to the photos that they selected. They were presented with a series of ten sets of photos each containing four photos (one each from the following image categories: sexually aggressive, sexual, aggressive, and neutral; see Appendix D) and selected one photo from each set to show to the female student.

Lastly, as an attention check, participants were asked to indicate the sex of the partner for whom they were selecting photos. They answered using a question that offered “male” and “female” as the two options. Participants then moved on to the “next study”.

Assessment of individual attitudes. Individual attitudes relevant to the views mentioned in the narratives were measured with six computerized questions. Two of the six items were filler items. Two of the items pertained to the sexual aggression related views mentioned in the intervention narratives (“Rape accusations are often used as a way of getting back at guys” and “It’s natural for one spouse to be in control of the other”) and two of the items pertained to the views about international students mentioned in the control narratives (“American universities should continue to admit international students (reverse scored)” and “International students take more than their fair share of college resources”). Participants were instructed to indicate their personal beliefs while completing the questionnaire. The Likert scales ranged from 1 (strongly disagree) to 7 (strongly agree) (see Appendix O for all items).

Perceptions of ingroup norms. As assess participants’ perceptions of ingroup norms, participants answered the same six questions as just described but this time they were instructed to complete the questionnaire as they “believe the typical male college student would answer” (see Appendix P for all items).

Assessment of attitude and group norms was randomized.

Finally, participants answered demographic questions regarding their age, academic standing, gender, and ethnicity (Appendix F). They were then debriefed and thanked for their participation.

C. Results

1. Checks on the Effectiveness of the Identification Manipulation

Character identification. To examine the effects of the four narratives on character identification a 2 (intervention method: *character identification* or *group norm*) x 2 (domain: sexual aggression or international students) ANOVA was conducted. The dependent variable for this analysis, *character identification*, was created by calculating the mean of the 7-item experience-taking scale. The analysis revealed a statistically significant main effect for intervention method, $F(1, 178) = 3.93, p = .049$, partial $\eta^2 = .022$. The main effect means for the character identification conditions ($M = 6.94$) were significantly different from the mean effect means for the group norm conditions ($M = 6.44$). As intended, participants in the character identification conditions engaged in character identification to a greater degree than did the participants in the group norm conditions. There was no main effect for domain, $F(1, 178) = 0.58, p = .448$, partial $\eta^2 = .003$, and no significant interaction between intervention method and domain, $F(1, 178) = 0.14, p = .714$, partial $\eta^2 = .001$ (see Table 25 for cell means and standard deviations).

Table 25. Character identification by intervention method by domain cell means and standard deviations, Study 2

Int. Method	Domain	Mean	Std. Dev	N
Character ID	Sexual aggression	7.08	1.47	46
	International students	6.80	1.82	47
Group ID	Sexual aggression	6.49	1.61	45
	International students	6.39	1.88	45

Consistent with hypothesis 1, it appears that the individual ingroup protagonist narrative conditions engaged character identification more than the group norm narrative.

Group identification. To examine the effects of the four narratives on group identification a 2 (intervention method: *character identification* or *group identification*) x 2 (domain: *sexual aggression* or *international students*) ANOVA was conducted. The dependent variable for this analysis, *group identification*, was created by calculating the mean of the 8-item group identification scale. The analysis revealed no main effect for intervention method, $F(1, 179) = 1.19, p = .276$, partial $\eta^2 = .007$. There was no main effect for domain, $F(1, 179) = 0.36, p = .547$, partial $\eta^2 = .002$, and no significant interaction between intervention method and domain, $F(1, 179) = 1.60, p = .207$, partial $\eta^2 = .009$ (see Table 26 for cell means and standard deviations).

Table 26. Group identification by intervention method by domain cell means and standard deviations, Study 2

Int. Method	Domain	Mean	Std. Dev	N
Character ID	Sexual aggression	4.30	1.62	46
	International students	4.15	1.73	47
Group ID	Sexual aggression	4.26	1.42	45
	International students	4.69	1.33	45

Unexpectedly, and inconsistent with hypothesis 2, being exposed to ingroup normative information (as opposed to individual protagonist information) did not appear to differentially engage group identification processes. Although slightly higher in the group norms conditions, identification with the ingroup was at or above the midpoint of the scale in all conditions.

2. Photo Selection Measure of Sexual Aggression

Photo selection as a measure of sexual aggression was first assessed as a dichotomous variable: participants either did or did not choose to expose a female to the sexually aggressive photo. Selection of the sexually violent photos was also compared to selection of the other kinds of photos (see Table 27), by ethnicity (see Table 28), and by condition (see Table 29).

Thirteen percent of participants never selected any photos depicting neutral interactions between a male and a female, whereas 87% of participants selected at least one neutral photo (no difference by ethnicity, $\chi^2(4) = 9.16, p = .057$). Twenty percent of participants did not select any photos depicting sexual interactions between a male and a female, with 80% of participants selecting at least one sexual photo (no difference by ethnicity, $\chi^2(4) = 9.17, p = .057$). Eighty-five percent of participants did not select any photos

depicting violent interactions between a male and a female, whereas 15% of participants selected at least one violent photo (no difference by ethnicity, $\chi^2(4) = 2.25, p = .690$).

Finally, 74% of participants never selected a photo depicting sexual aggression, whereas 26% of participants selected at least one photo depicting sexual aggression (no difference by ethnicity, $\chi^2(1) = 1.41, p = .842$).

Table 27. Raw count of dichotomous photo selection by photo category, Study 2 (percentages are percent of participants who chose at least one photo in the category).

	N=183
Neutral	159 (87%)
Sexual	147 (80%)
Violent	27 (15%)
Sexually aggressive	47 (26%)

Table 28. Raw count of dichotomous photo selection by photo category and ethnicity, Study 2, (percentages are percent of participants who chose at least one photo in the category).

Photo category	Caucasian N=135	Asian Am. N=19	Hispanic N=14	African Am. N=12	Other N=3
Neutral	117 (87%)	18 (95%)	13 (93%)	10 (83%)	1 (33%)
Sexual	109 (81%)	11 (58%)	13 (93%)	11 (92%)	3 (100%)
Violent	18 (13%)	3 (16%)	3 (21%)	3 (25%)	0 (0%)
Sexually aggressive	37 (27%)	3 (16%)	3 (21%)	3 (25%)	1 (20%)

Table 29. Raw count of dichotomous photo selection by photo category and condition, Study 2, (percentages are percent of participants who chose at least one photo in the category).

Photo category	CID/SA N=46	CID/IS N=47	GID/SA N=45	GID/IS N=45
Neutral	39 (85%)	40 (85%)	41 (91%)	39 (87%)
Sexual	36 (78%)	38 (81%)	37 (82%)	36 (80%)
Violent	6 (13%)	10 (21%)	4 (9%)	7 (16%)
Sexually aggressive	12 (26%)	14 (30%)	12 (27%)	9 (20%)

The results reveal a significant drop in participants selecting sexually aggressive photos, compared to Study 1 rates (41% in Study 1 versus 26% in Study 2). Due to this reduction in the percentage of participants selecting sexually aggressive photos, the aggregate measure of sexual aggression will be utilized in order to take advantage of all available sources of variance.

As in Study 1, an aggregate score for photo selection was computed by counting the number of sexually violent photos that were selected (see Table 30 for the frequency distribution for sexually aggressive photo selection; see Table 31 for aggregate scores by photo category) and compared to the number of other categories of photos chosen. As noted above, this measure captures more of the variability in the stimuli selection task responses.

Table 30. Frequency distribution for (aggregate) sexual aggression, Study 2

Number of sexually aggressive photos selected	Frequency (183)	Percent
0	136	74.3
1	17	9.3
2	6	3.3
3	6	3.3
4	2	1.1
5	5	2.7
6	3	1.6
7	3	1.6
8	1	.5
9	2	1.1
10	2	1.1

Table 31. Aggregate photo selection by photo category, Study 2
(percentages are percent of 10 choices made from each photo category)

	N=183
Neutral	985 (54%)
Sexual	624 (34%)
Violent	56 (03%)
Sexually aggressive	165 (09%)

Sexual Aggression. To examine the effects of character identification and group norms on rates of sexual aggression a 2 (intervention method: *character identification* or *group identification*) x 2 (domain: *sexual aggression* or *international students*) ANOVA was conducted. The dependent variable for this analysis, *sexual aggression (SA)*, was computed by adding the instances in which participants chose the sexually aggressive photo from the set. This resulted in a SA score ranging from 0 (for participants who never chose any of the sexually aggressive photos) to 10 (for participants who chose the sexually aggressive photo in all 10 photo sets). To deal with the severe positive skew in the sexual aggression aggregate data I added a constant (1) to each value and computed a log transformation.

The analysis revealed no main effect for method of intervention, $F(1, 179) = 1.43, p = .234$, partial $\eta^2 = .008$, no main effect for domain, $F(1, 179) = 0.00, p = .994$, partial $\eta^2 = .000$, and no significant interaction between method of intervention and domain, $F(1, 179) = 0.34, p = .561$, partial $\eta^2 = .002$ (see Table 32 for cell means and standard deviations). In order to determine if the character identification intervention was more effective at reducing sexual aggression than the group identification intervention (hypothesis 4), a planned comparison between the character identification intervention (*character identification/sexual aggression*) and the group identification intervention (*group identification/sexual aggression*) was conducted. The results reveal no significant difference between the two conditions,

$t(179) = -.432, p = .666$. Hypothesis 4 was not supported; the character identification intervention was not more effective at reducing sexual aggression than was the group identification intervention.

Table 32. Sexual aggression (aggregate) by intervention method by domain untransformed cell means and standard deviations, Study 2

Int. Method	Domain	Mean	Std. Dev	N
Character ID	Sexual aggression	1.00	2.20	46
	International students	1.21	2.55	47
Group ID	Sexual aggression	.69	1.46	45
	International students	.69	1.93	45

Neutral Photo Selection. To investigate the effects of character identification and group norms on rates of neutral photos selected 2 (intervention method: *character identification* or *group identification*) x 2 (domain: *sexual aggression* or *international students*) ANOVA was conducted. The dependent variable for this analysis, *neutral*, was computed by adding the instances in which participants chose the neutral photo from the set. This resulted in a score ranging from 0 (for participants who never chose any of the neutral photos) to 10 (for participants who chose the neutral photo in all 10 photo sets). The analysis revealed no main effect for method of intervention, $F(1, 179) = 0.00, p = .953$, partial $\eta^2 = .000$, no main effect for domain, $F(1, 179) = 0.08, p = .778$, partial $\eta^2 = .000$, and no significant interaction between method of intervention and domain, $F(1, 179) = 1.10, p = .297$, partial $\eta^2 = .006$ (see Table 33 for cell means and standard deviations).

Table 33. Neutral photo selection (aggregate) by intervention method by domain untransformed cell means and standard deviations, Study 2

Int. Method	Domain	Mean	Std. Dev	N
Character ID	Sexual aggression	5.72	3.64	46
	International students	5.02	3.44	47
Group ID	Sexual aggression	5.20	3.33	45
	International students	5.60	3.74	45

Sexual Photo Selection. To examine the effects of character identification and group norms on rates of sexual photos selected a 2 (intervention method: *character identification* or *group identification*) x 2 (domain: *sexual aggression* or *international students*) ANOVA was conducted. The dependent variable for this analysis was computed by adding the instances in which participants chose the sexual photo from the set. This resulted in a score ranging from 0 (for participants who never chose any of the sexual photos) to 10 (for participants who chose the sexual photo in all 10 photo sets). The analysis revealed no main effect for method of intervention, $F(1, 179) = 1.00, p = .319$, partial $\eta^2 = .006$, no main effect for domain, $F(1, 179) = 0.21, p = .885$, partial $\eta^2 = .000$, and no significant interaction between method of intervention and domain, $F(1, 179) = 1.02, p = .314$, partial $\eta^2 = .006$ (see Table 34 for cell means and standard deviations).

Table 34. Sexual photo selection (aggregate) by intervention method by domain untransformed cell means and standard deviations, Study 2

Int. Method	Domain	Mean	Std. Dev	N
Character ID	Sexual aggression	3.00	2.89	46
	International students	3.38	2.98	47
Group ID	Sexual aggression	3.89	2.99	45
	International students	3.38	3.10	45

Violent Photo Selection. To investigate the effects of character identification and group norms on rates of violent photos selected a 2 (intervention method: *character identification* or *group identification*) x 2 (domain: *sexual aggression* or *international students*) ANOVA was conducted. The dependent variable for this analysis was computed by adding the instances in which participants chose the violent photo from the set. This resulted in a score ranging from 0 (for participants who never chose any of the violent photos) to 10 (for participants who chose the violent photo in all 10 photo sets). To deal with the severe positive skew in the sexual violence aggregate data I added a constant (1) to each value and computed a log transformation. The analysis revealed no main effect for method of intervention, $F(1, 179) = .46, p = .500, \text{partial } \eta^2 = .003$, no main effect for domain, $F(1, 179) = 1.15, p = .285, \text{partial } \eta^2 = .006$, and no significant interaction between method of intervention and domain, $F(1, 179) = 0.02, p = .888, \text{partial } \eta^2 = .000$ (see Table 35 for cell means and standard deviations).

Table 35. Violent photo selection (aggregate) by intervention method by domain untransformed cell means and standard deviations, Study 2

Int. Method	Domain	Mean	Std. Dev	N
Character ID	Sexual aggression	.28	.91	46
	International students	.38	.85	47
Group ID	Sexual aggression	.22	.80	45
	International students	.33	1.00	45

3. *Effect of Intervention on Individual Attitudes*

To examine the effects of the narratives on individual attitudes a 2 (intervention method: *character identification* or *group norm*) x 2 (domain: *sexual aggression* or *international students*) x 2 (attitudes: *sexual aggression* or *international students*) mixed model ANOVA with repeated measures on the last factor was conducted. The dependent variables for this analysis were created by computing the mean of the two sexual aggression related items featured in the narrative (“Rape accusations are often used as a way of getting back at guys” and “It’s natural for one spouse to be in control of the other”) and the two international student related items (“American universities should continue to admit international students” [reverse scored]) and “International students take more than their fair share of college resources”) when participants were reporting their personal attitudes.

The analysis revealed no main effect for attitudes, $F(1, 179) = 2.02, p = .157$, partial $\eta^2 = .011$, no significant interaction between attitudes and intervention method, $F(1, 179) = 1.06, p = .305$, partial $\eta^2 = .006$, no significant interaction between attitudes and domain, $F(1, 179) = .63, p = .429$, partial $\eta^2 = .003$, and no significant three-way interaction between attitude, intervention method, and domain, $F(1, 179) = 0.79, p = .375$, partial $\eta^2 = .004$ (see Table 36 for cell means and standard deviations). In order to determine if the sexual

Table 36. Attitude by intervention method by domain cell means and standard deviations, Study 2

Int. Method	Domain	Attitudes	Mean	Std. Dev	N
Character identification	Sexual aggression	Sexual aggression	2.24	1.49	46
		International students	2.15	1.36	46
	International students	Sexual aggression	2.52	1.40	47
		International students	2.05	1.29	47
Group identification	Sexual aggression	Sexual aggression	2.48	1.40	45
		International students	2.42	1.31	45
	International students	Sexual aggression	2.42	1.32	45
		International students	2.39	1.48	45

aggression attitude change in the character identification intervention condition (*character identification/sexual aggression*) was greater than in the character identification control condition (*character identification/international students*), the group identification intervention condition (*group identification/sexual aggression*), and the group identification control condition (*group identification/international students*) (hypothesis 5), a planned comparison between the character identification intervention and the character identification control condition, the group identification intervention condition, and the group identification control condition was conducted. The results revealed no significant difference between the character identification intervention condition and the other three conditions, $t(179) = .980, p = .328$. Hypothesis 5 was not supported; the character identification intervention was not more effective at changing personal attitudes about sexual aggression than was the character identification control condition, the group identification intervention, or the group identification control condition.

4. *Effect of Intervention on Perceptions of Ingroup Norms*

To examine the effects of the narratives on perceived group norms a 2 (intervention method: *character identification* or *group norm*) x 2 (domain: *sexual aggression* or *international students*) x 2 (norms: sexual aggression and international students) mixed model ANOVA with repeated measures on the last factor was conducted. The dependent variables for this analysis were created by computing the mean of the two sexual aggression related items featured in the narrative (“Rape accusations are often used as a way of getting back at guys” and “It’s natural for one spouse to be in control of the other”) and the two international student related items (“American universities should continue to admit international students” [reverse scored]) and “International students take more than their fair share of college resources”) when participants were reporting group norms.

The analysis revealed no main effect for norms, $F(1, 179) = 2.02, p = .157$, partial $\eta^2 = .011$, no significant interaction between norms and intervention method, $F(1, 179) = 1.06, p = .305$, partial $\eta^2 = .006$, no significant interaction between norms and domain, $F(1, 179) = .63, p = .429$, partial $\eta^2 = .003$, and no significant three-way interaction between norms, intervention method, and domain, $F(1, 179) = 0.79, p = .375$, partial $\eta^2 = .004$ (see Table 37 for cell means and standard deviations). To investigate whether the change in perceived sexual aggression ingroup norm in the group identification intervention condition (*group identification/sexual aggression*) was greater than in the group identification control condition (*group identification/international students*), the character identification intervention condition (*character identification/sexual aggression*), and the character identification control condition (*character identification/international students*) (hypothesis 6), a planned comparison between the group identification intervention and the character

identification control condition, the group identification intervention condition, and the group identification control condition was conducted. The results revealed no significant difference between the character identification intervention condition and the other three conditions, $t(179) = -.777, p = .438$. Hypothesis 6 was not supported; the group identification intervention was not more effective at changing perceived ingroup norms about sexual aggression than was the group identification control condition, the character identification intervention, or the character identification control condition.

Table 37. Perceived group norms by intervention method by domain cell means and standard deviations, Study 2

Int. Method	Domain	Attitudes	Mean	Std. Dev	N
Character identification	Sexual aggression	Sexual aggression	2.98	1.49	45
		International students	2.60	1.28	45
	International students	Sexual aggression	3.62	1.59	47
		International students	3.09	1.37	47
Group identification	Sexual aggression	Sexual aggression	3.39	1.47	45
		International students	3.00	1.49	45
	International students	Sexual aggression	2.98	1.38	45
		International students	2.72	1.28	45

5. *Sexual Aggression Attitudes, Sexual Aggression Group Norms, and Sexual Aggression*

To investigate the relation between sexually aggressive attitudes and sexual aggression, a correlation was run between participants' post-intervention sexual aggression attitudes (created by computing the mean of the two sexual aggression related items featured in the narrative when participants were reporting their personal attitudes: "Rape accusations are often used as a way of getting back at guys" and "It's natural for one spouse to be in

control of the other”) and the aggregate measure of sexual aggression (i.e., the total number of photos depicting an act of sexual aggression selected for the female UCSB student to view). The analysis revealed a significant relation, $r(181) = .154, p = .037$.

To examine the relation between sexually aggressive group norms and sexual aggression, a correlation was run between post-intervention perception of sexual aggression group norms (created by computing the mean of the two sexual aggression related items featured in the narrative when participants were reporting group norms: “Rape accusations are often used as a way of getting back at guys” and “It’s natural for one spouse to be in control of the other”) and the aggregate measure of sexual aggression (i.e., the total number of photos depicting an act of sexual aggression selected for the female UCSB student to view). The analysis revealed a significant relation, $r(180) = .183, p = .013$.

However, when these correlations are examined into the four conditions separately, only in the *group identification/international students* condition does the significant relationship between sexual aggression and attitudes, $r(43) = .410, p = .005$; and sexual aggression and group norms, $r(43) = .334, p = .025$ persist. There was a marginally significant relationship between sexual aggression and attitudes, $r(43) = .275, p = .067$; and sexual aggression and group norms, $r(43) = .271, p = .072$, in the *group identification/sexual aggression* condition. There was not a significant relationship between sexual aggression and attitudes, $r(45) = .105, p = .483$; and sexual aggression and group norms, $r(45) = .165, p = .268$, in the *character identification/international students* condition. There was also no significant relationship between sexual aggression and attitudes, $r(44) = -.044, p = .772$; and sexual aggression and group norms, $r(43) = .017, p = .910$, in the *character identification/sexual aggression* condition. These findings indicate that in three of the four

conditions, neither participants' personal endorsement of sexual aggression-related items nor their perception that fellow ingroup members endorse those same items was associated with committing acts of sexual aggression.

D. Discussion

Study 2 represents an attempt to test the effectiveness of a character identification based intervention against the effectiveness of a group norms based intervention in the sexual aggression domain. Further, the mechanisms by which both the character identification intervention and the group norms intervention influenced behavior were also studied.

As hypothesized, the results indicate a main effect of intervention method on character identification (hypothesis 1). Specifically, participants who read a first-person narrative about an individual were significantly more likely to engage in character identification than participants who read a narrative about typical male college students. However, counter to my hypothesis (based on an extensive literature), participants in the group norms conditions did not engage in ingroup identification to a greater degree than did participants in the character identification conditions (hypothesis 2).

Further, both the character identification intervention and the group norms intervention failed to reduce sexual aggression rates compared to their control conditions, *character identification/international students* and *group identification/international students*, respectively (hypothesis 3). That is to say, compared to participants who read narratives about international students, participants who read narratives in which an individual (or typical ingroup members) who challenged the two beliefs found in Study 1 to be associated with the perpetration of sexual aggression, were no less likely to select a sexually aggressive photo for a female UCSB student to view. Because neither intervention

significantly reduced sexual aggression, comparing the impact of the two interventions is not possible. However, it is clear that the character identification intervention did not reduce sexual aggression to a greater degree than did the group identification intervention (hypothesis 4).

It also appears that neither character identification nor group norms influenced personal attitudes or perceptions of group norms (hypotheses 5 and 6). Paradoxically, the data show that in three of the four conditions participants' attitudes and perceptions of ingroup endorsement of hostile beliefs about women were not significantly associated with their own willingness to sexually aggress. Attitudes and ingroup endorsement of hostile beliefs about women predicted sexual aggression only when participants read a narrative about typical ingroup members rejecting hostile ideas about international students (the *group identification/international students* condition). This finding is especially puzzling because the two items integrated into both the character identification intervention and the group norms intervention were selected based on the fact that perceived ingroup endorsement of those items was significantly associated with committing an act of sexual aggression (as measured by the stimuli selection task).

Unfortunately, I was forced to use the suboptimal aggregate measure of sexual aggression when analyzing the data from Study 2 because the dichotomous rates of sexual aggression dropped significantly from Study 1 to Study 2 (44% in Study 1 to 26% in Study 2). This drop occurred despite the fact that I sampled only MTurk participants in Study 2 after the results of Study 1 revealed that MTurk participants sexually aggressed at significantly greater rates than did UCSB students (when controlling for composite score and ethnicity).

V. General Discussion

In four studies I developed a novel measure of sexual aggression which operationalizes sexual aggression by the number and content of photos that males “select” for female participants to view, validated the new measure of sexual aggression to ensure that female students perceive being exposed to photos depicting sexual aggression as an act of sexual aggression in itself, identified ingroup norms highly associated with sexual aggression within the UCSB and Mechanical Turk male college students populations, utilized the ingroup norms found to be associated with sexual aggression to develop a sexual aggression reduction intervention based on the psychological process of character identification, tested the effectiveness of the character identification intervention against the standard group identification intervention, and investigated the mechanisms by which character identification and group identification change behavior.

Study 1 identified group norms that are highly associated with sexual aggression within the male UCSB student and Mechanical Turk populations. These studies were then used to develop narratives for two sexual aggression reduction interventions (a character identification intervention and a group identification intervention). To ensure that the novel measure of sexual aggression was in fact measuring sexual aggression the stimuli selection task was pilot tested with female college students. The results were clear, being exposed to a photo depicting an act of sexual aggression is viewed as an act of sexual aggression.

Study 2 tested the character identification intervention’s ability to effectively reduce male sexually aggressive behavior against that of the group identification intervention. Further, Study 2 attempted to identify the mechanisms (changed perceptions of group norms; changed personal attitudes) by which group norm manipulation and character identification

manipulation influence behavior. Perceptions of group norms and character identification were manipulated with written narratives. Each participant read a one-page narrative. Participants in the sexual aggression domain conditions read a passage in which the protagonist (or typical male college students) denounced the specific norms found to be associated with sexual aggression in Study 1. Participants in the international students domain conditions read a passage in which the protagonist (or typical male college students) denounced negative attitudes toward international students. Unfortunately, the character identification intervention and the group norms intervention both failed to reduce sexual aggression in Study 2.

A. Limitations and Future Directions

The current research investigates a novel paradigm that could eventually be used to develop interventions aimed at combating sexual aggression. Nonetheless, this research has several limitations. First, the very nature of investigating sexual aggression in the lab (or on the computer for MTurk participants) presents challenges to external validity. The measure of sexual aggression developed in these studies was selected to minimize this inherent issue. The stimuli selection task is a direct measure of sexual aggression, and showed promising predictive and discriminant validity in Study 1 and Pilot Study 1. However, there are a number of possible problems with this paradigm, the most problematic being the lack of variance. That is, regardless of condition, the number of people willing to expose a female student to a photo depicting sexual aggression can be relatively small, depending on the sample. This was particularly problematic in Study 2, where the frequency of sexual aggression in the photo selection task dropped off precipitously. In both studies I tried to increase variance within the measure by having participants select multiple photos for the

female participant to view. However, whether or not participants chose to sexually aggress (by choosing even one such photo) or not appeared to be a better measure of sexual aggression (was better predicted by known associates of sexual aggression) than the aggregate measure. Thus, dealing with low frequency dependent measures (and in this case, dichotomous data) remains a problem for this paradigm. However, this problem is inherent to most measures in this research domain (i.e., sexual aggression research).

1. Group Identification Effects

Two of the most surprising findings from Study 2 were null effects. First, participants who read a narrative describing a weekend in the life of a typical ingroup members (male college students) later reported being no more highly identified with the ingroup than were participants who read a narrative describing a weekend in the life an individual ingroup (a male college student). This runs counter to against decades of group identification findings (e.g., Platow et al, 2005; Turner, 1982). However, based on the group identification scores it is possible that the group identification narratives did have the intended effect, but the group identification scores did not significantly differ from the character identification conditions because those narratives also unintentionally activated the group identity. Mean group identification scores in the group identification conditions were 4.47 on a 7 point scale. Mean group identification scores in the character identification conditions were 4.22 on the same scale. This could explain why the mean group identification scores for participants in both the group identification conditions and the character identification conditions were well above the scale midpoint.

Given that group identification was high across conditions, however, the second null effect is even more surprising: the group identification intervention was as ineffective as the

character identification measure. Also counter to decades of research cited in the introduction, being exposed to information about what typical group members thought either about sexual aggression or international students produced no discernable effects on participants' attitudes about either of these issues. Theoretically, this null effect could be explained because the group identification manipulations also had absolutely no effect on perceptions of ingroup norms – that is, being exposed to information about what typical ingroup members thought about sexual aggression and international students did not affect what participants thought other members of the ingroup thought about them. It does not seem likely that presenting such information in narrative form interferes with its reception, so it is not clear why this well established effect did not occur in Study 2. Perhaps the MTurk participants simply did not pay that much attention to the narratives. However, the significant manipulation check for character identification suggests that they did pay at least some attention. Regardless of cause, the lack of interpretable results in the intervention control conditions (the group identification conditions) however makes it even more difficult to diagnose what occurred in the character identification conditions.

2. Norm Selection for Intervention

The most disappointing result from this research was that the character identification intervention did not reduce sexual aggression. It could be argued that one possible reason for this outcome was that the one of the two norm items most strongly associated with sexual aggression across both measures of sexual aggression (dichotomous and aggregate) from Study 1 was not selected to be integrated into sexual aggression reduction interventions. Specifically, the item “Men and women are generally out to use each other” from the Adversarial Heterosexual Beliefs Scale was not selected despite having the second highest

combined correlation coefficient across the two measures of sexual aggression (.283, dichotomous; .187, aggregate). This item also refers more generally to relationships between men and women than does the chosen item, “It’s natural for one spouse to be in control of the other” (.295, dichotomous, .157, aggregate), also from the Adversarial Heterosexual Beliefs Scale, especially considering that the college male participants in this sample may not have been “spouses” was selected instead.

The decision to select this item was made in part because the item specifically deals with the issue of control, which has repeatedly been shown to be a factor in sexual aggression (e.g., Coker, Smith, McKeown, & King, 2000; Maass, et al., 2003). Another reason for passing over the seemingly superior item was that “It’s natural for one spouse to be in control of the other” loaded onto the primary factor of the Adversarial Heterosexual Beliefs Scale. That factor accounted for 41% of the overall scale variance. “Men and women are generally out to use each other” loaded onto a factor that only accounted for 6% of the overall scale variance. For these reasons “It’s natural for one spouse to be in control of the other” was selected along with the norm item most associated with sexual aggression across the two measures “Rape accusations are often used as a way of getting back at guys” (.261, dichotomous; .215, aggregate). This norm item also loaded onto the primary of the Updated Illinois Rape Myth Acceptance Scale, which accounted for 38% of the overall scale variance. Further research is necessary to see if using other specific items, especially items that might resonant more strongly with the target population, as the basis for a narrative intervention would be more effective.

3. Norm Items as Ingroup Behavior Primes

Another possible explanation for the inability of the character identification intervention to reduce sexual aggression is that completing the three scales about sexual aggression beforehand skewed the stimuli selection task responses. Perhaps completing the series of sexual aggression surveys (in which, most of the hostile items were written in the affirmative) as they believed the typical male college student would had the dual effect of making participants' male college student identity salient and implying normative support for hostility towards women. If they believed that ingroup members support the hostile beliefs about women espoused in many of the scale items, participants may have been more likely to engage in sexually aggressive behavior (i.e., selecting photos depicting acts of sexual aggression for a female participant to view). This would also explain the higher rates of sexual aggression in Study 1 (44%) compared to Study 2 (26%).

4. Social Desirability

Another explanation for the significantly lower sexual aggression rates in Study 2 is a combination of social desirability concerns. In the absence of being exposed to multiple hostile beliefs about women (as was the case in Study 1), male participants are probably reluctant to expose a female participant to a photo depicting an act of sexual aggression, if for no other reason than out of fear of looking bad. There is suggestive evidence from Study 2 that this may be the case. As I mentioned earlier, there is strong evidence that both attitude and ingroup norms influence people's behavior (e.g., Greenwald, Poehlman, Uhlmann, & Banaji, 2009; Sherif, 1936). Yet, in three of the four conditions participants' attitudes and perceptions of ingroup endorsement of hostile beliefs about women were not significantly associated with their own willingness to sexually aggress. Self-reported attitudes and ingroup

endorsement of hostile beliefs about women predicted sexual aggression only when participants read a narrative about typical ingroup members rejecting hostile ideas about international students (the *group identification/international students* condition). This suggests that the evaluative nature of participating in a study may have influenced people's willingness to select the sexually aggressive photographs. Participants in the *group identification/international students* condition may not have been influenced by the testing environment for two reasons: 1) The narratives they read were about international students so the concept of sexual aggression was not mentioned (as it was in the *character identification/sexual aggression* condition and the *group identification/sexual aggression* condition); and 2) participants in the *group identification/international students* condition read about typical ingroup members which may have made their group identity salient and given them the ability to act in line with their attitudes and perceptions of ingroup norms.

5. *Character Identification Narrative*

It is also possible that the failure to reduce sexual aggression could be due to some characteristic of the narratives. For instance, perhaps the directness with which the protagonist (or typical group member) addressed the issue of sexual assault, combined with the short length of the narrative, drew people's attention to the manipulation and interfered with the absorption in the story that is necessary for significant character identification. Future research would be well served to create more engaging narratives that subtly introduce the attitude or norm manipulation. It could also be valuable to investigate the extent to which other forms of media (e.g., films and music) are best able to facilitate character identification, influence attitudes, and subsequently change people's behavior. Additionally, research focused on better understanding the conditions in which people's

attitudes are influenced by narratives would be valuable. When character identification effects do occur, future research should attempt to document how long the effects persist. Work by Kaufman & Libby (2012) suggests that, at least in the domain of voting behavior, the effects persist for at least a week. Finally, future research could also examine the impact of character identification on implicit attitudes. These are just a few questions that the current research raises.

6. Men's Perceptions of the Stimuli Selection Task

An important issue to investigate as researchers begin to use the stimuli selection task pertains to the definition and intent of sexual aggression. In order to validate the stimuli selection task as a measure of sexual aggression I had female participants view the forty stimuli photos and asked them to report how they would interpret the actions of a male participant who selected each photo for them to view. Female participants overwhelmingly reported that being exposed to any of the ten photos depicting an act of sexual aggression was itself an act of sexual aggression, validating the measure from the intended target's point of view. In the future it will be important to determine how men interpret their actions in terms of assigning a particular photograph. Since men may have a broader definition of what constitutes acceptable sexual acts than do women, it is possible that they do not consider exposure to the sexually aggressive photos as sexual aggression (although it is clear that they selected sexually violent photos at rates vastly lower than they selected sexual photos). It is also possible that men interpret selecting one of the photos depicting an act of violence against a woman as an act of sexual aggression. If the stimuli selection task is validated only in reference to female participants' perceptions of men's behavior, we may lose valuable information about the measure. Women may not report being made to view a photo depicting

violence against a woman as an act of sexual aggression, but if males intend it as an act of sexual aggression when they select the photo, is it not an act of sexual aggression? Answers to these questions will increase the insights gained from the stimuli selection task as a measure of sexual aggression.

B. Conclusion

Collectively, the goals of these studies were to integrate research from the fields of communication and social psychology to develop both, a novel measure of sexual aggression and a maximally compelling intervention to reduce sexually aggressive behavior. Unfortunately, both the character identification intervention and the group norms intervention failed to reduce sexual aggression. However, there is suggestive evidence that character identification could ultimately be utilized to create successful interventions. Participants did engage in character identification to a greater degree in the character identification conditions, compared to the group identification conditions. Previous research has repeatedly demonstrated that character identification can lead to behavior change. Another strength of using an intervention utilizing narratives that elicits character identification is that, once fine-tuned, it can be scaled-up and disseminated to broad populations via the Internet or other media. It is estimated that roughly 1.1 billion, or one-third of women living today, will be sexually assaulted during their lifetime (Jacobs, 2003). This research thus holds the promise of reducing that number by applying scientific theorizing to this pressing social issue.

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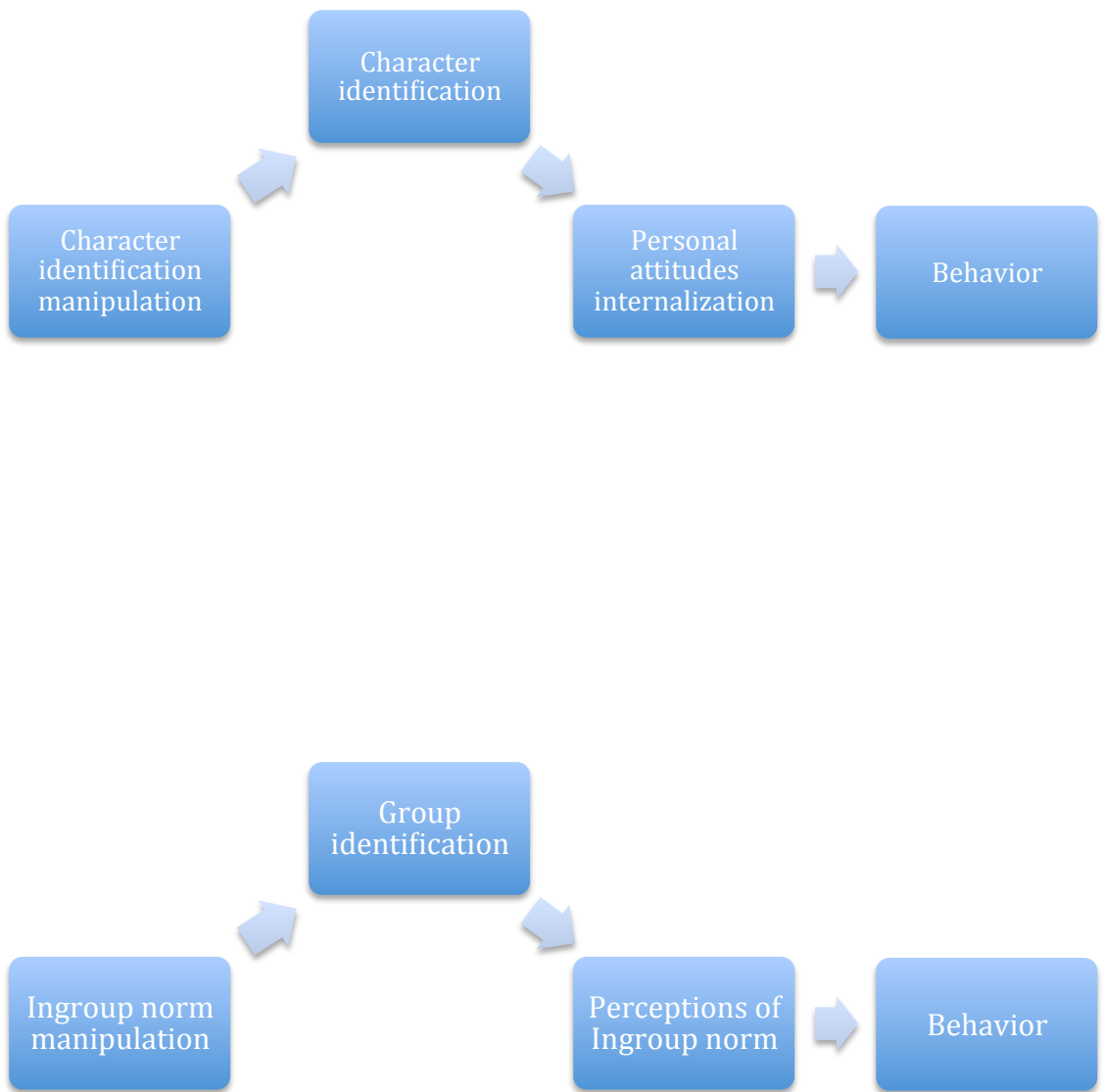
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Figure 1. Top panel: Character identification process of behavior change
Bottom panel: Ingroup norms process of behavior change



Appendix A

Sexual Dominance subscale of the Sexual Functions Inventory (Nelson, 1979)

[Scale from 1 (Strongly disagree) to 5 (Strongly agree)]

INSTRUCTIONS: Please answer the following series of questions not as you would, but as you think the typical male UCSB (college) student would answer. Your responses will be used to develop future studies.

THE TYPICAL MALE COLLEGE STUDENT HAS SEX...

1. Because they like the feeling that they have someone in their control.
2. Because, like many people, they enjoy the challenge.
3. Because it makes them feel powerful.
4. Because they like the feeling of having another person submit to them.
5. Because they like teaching less experienced people how to get off.
6. Because in the act of sex more than at any other time they get the feeling that they can really control how someone feels and behaves.
7. Because they like it when their partner is really open and weak to them.
8. Because when their partner finally gives in to them they get this really satisfying feeling.

Appendix B

Updated Illinois Rape Myth Acceptance Scale (Payne, Lonsway, & Fitzgerald, 1999)

[Scale from 1 (Strongly disagree) to 5 (Strongly agree)]

INSTRUCTIONS: Please answer the following series of questions not as you would, but as you think the typical male UCSB (college) student would answer.

1. If a girl is raped while she is drunk, she is at least somewhat responsible for letting things get out of hand.
2. When girls go to parties wearing slutty clothes, they are asking for trouble.
3. If a girl goes to a room alone with a guy at a party, it is her own fault if she is raped.
4. If a girl acts like a slut, eventually she is going to get into trouble.
5. When girls get raped, it's often because the way they said "no" was unclear.
6. If a girl initiates kissing or hooking up, she should not be surprised if a guy assumes she wants to have sex.
7. When guys rape, it is usually because of their strong desire for sex.
8. Guys don't usually intend to force sex on a girl, but sometimes they get too sexually carried away.
9. Rape happens when a guy's sex drive goes out of control.
10. If a guy is drunk, he might rape someone unintentionally.
11. It shouldn't be considered rape if a guy is drunk and didn't realize what he was doing.
12. If both people are drunk, it can't be rape.
13. If a girl doesn't physically resist sex—even if protesting verbally—it can't be considered rape.
14. If a girl doesn't physically fight back, you can't really say it was rape.
15. A rape probably doesn't happen if a girl doesn't have any bruises or marks.
16. If the accused "rapist" doesn't have a weapon, you really can't call it rape.

Appendix B (continued)

17. If a girl doesn't say "no" she can't claim rape.
18. A lot of times, girls who say they were raped agreed to have sex and then regret it.
19. Rape accusations are often used as a way of getting back at guys.
20. A lot of times, girls who say they were raped often led the guy on and then had regrets.
21. A lot of times, girls who claim they were raped have emotional problems.
22. Girls who are caught cheating on their boyfriends sometimes claim it was rape.

Appendix C

Adversarial Heterosexual Beliefs Scale (Lonsway & Fitzgerald, 1995)

[Scale from 1 (Strongly disagree) to 5 (Strongly agree)]

INSTRUCTIONS: Please answer the following series of questions not as you would, but as you think the typical male UCSB (college) student would answer. Your responses will be used to develop future studies.

1. In dating relationships, people are mostly out to take advantage of each other.
2. If you don't show who's boss in the beginning of a relationship, you will be taken advantage of later.
3. Most people are pretty devious and manipulative when they are trying to attract someone of the opposite sex.
4. Men and women are generally out to use each other.
5. It impossible for men and women to truly understand each other.
6. In the work force, any gain by one sex necessitates a loss for the other.
7. When women enter the workforce, they are taking jobs away from men.
8. Men and women cannot really be friends.
9. Sex is like a game where one person "wins" and the other "loses".
10. In all societies, it is inevitable that one sex is dominant.
11. It's natural for one spouse to be in control of the other.
12. When it comes to sex, most people are just trying to use the other person.
13. It is possible for the sexes to be equal in society.
14. Men and women share more similarities than differences.
15. It is possible for a man and woman to be "just friends".

Appendix D

Stimuli Selection Task (modified from Maass et al., 2003; Widman & Olsen, 2013)

INSTRUCTIONS: In this study you will be selecting stimuli that a randomly paired female participant will view repeatedly during a future social perception study. Your task is to select one photo from each set to be shown to the paired female participant.

Photo Set 1

Neutral (#1)



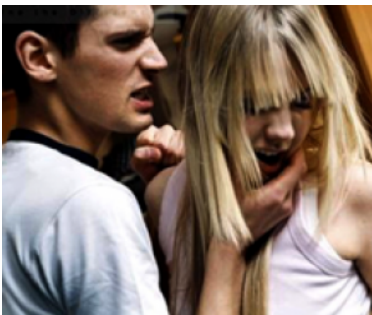
Sexually Aggressive (#2)



Sexual (#3)



Violent (#4)



Appendix D (continued)

Photo Set 2

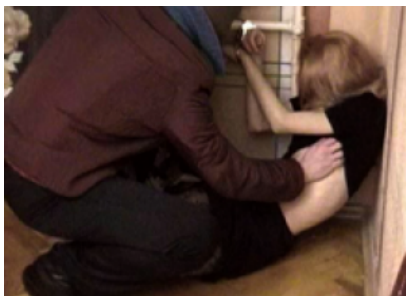
Sexual (#1)



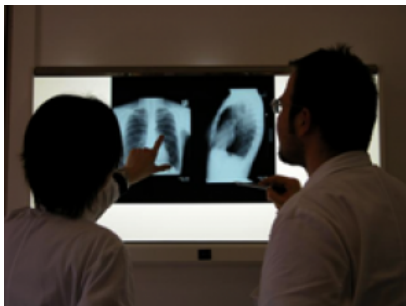
Violent (#2)



Sexual Aggression (#3)



Neutral (#4)



Appendix D (continued)

Photo Set 3

Sexually Aggressive (#1)



Neutral (#2)



Violent (#3)



Sexual (#4)



Appendix D (continued)

Photo Set 4

Sexual (#1)



Sexually Aggressive (#2)



Violent (#3)



Neutral (#4)



Appendix D (continued)

Photo Set 5

Violent (#1)



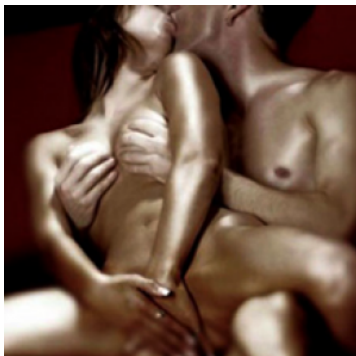
Neutral (#2)



Sexually Aggressive (#3)



Sexual (#4)



Appendix D (continued)

Photo Set 6

Neutral (#1)



Sexually Aggressive (#2)



Sexual (#3)



Violent (#4)



Appendix D (continued)

Photo Set 7

Sexually Aggressive (#1)



Violent (#2)



Neutral (#3)



Sexual (#4)



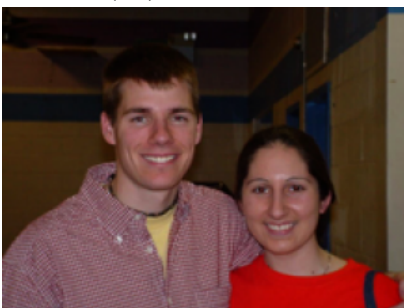
Appendix D (continued)

Photo Set 8

Sexual (#1)



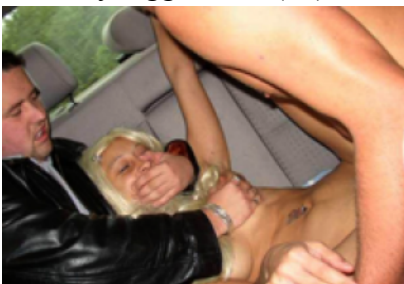
Neutral (#2)



Violent (#3)



Sexually Aggressive (#4)



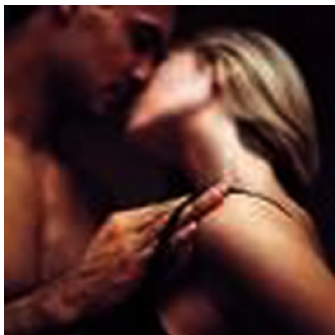
Appendix D (continued)

Photo Set 9

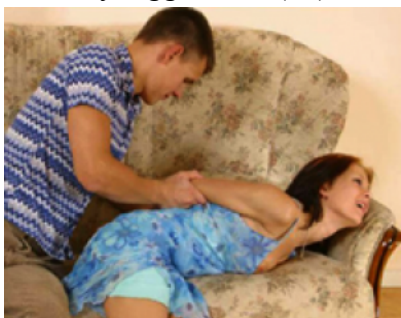
Violent (#1)



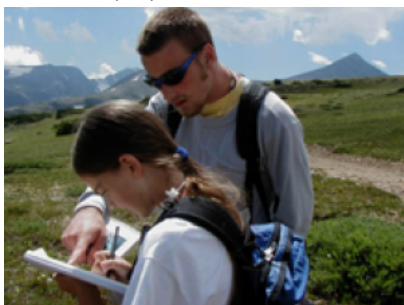
Sexual (#2)



Sexually Aggressive (#3)



Neutral (#4)



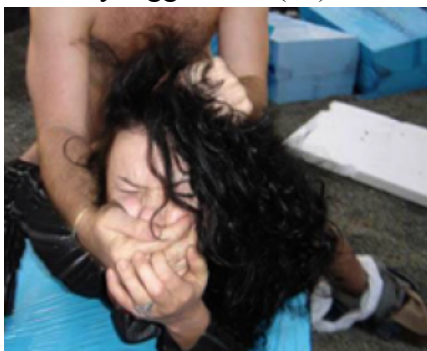
Appendix D (continued)

Photo Set 10

Sexual (#1)



Sexually Aggressive (#2)



Neutral (#3)



Violent (#4)



Appendix E

Filler task: Math and color perception

INSTRUCTIONS: Please complete the following math problems. Try to ignore the color of the text.

1. $10 \times 12 =$

- A. 145
- B. 220
- C. 120
- D. 112

2. $225 \div 5 =$

- A. 45
- B. 57
- C. 35
- D. 65

3. $4 + 12$

- A. 18
- B. 22
- C. 16
- D. 15

4. $1357 - 3 - 2 =$

- A. 1245
- B. 456
- C. 1005
- D. 558

5. $455 + 225 =$

- A. 680
- B. 1234
- C. 760
- D. 534

6. $5 \times 9 =$

- A. 55
- B. 45
- C. 62
- D. 34

Appendix F

Demographics

INSTRUCTIONS: Please answer the following demographic questions about yourself.

1. How old are you?
2. What is your gender?
3. Are you currently a college student?
4. What university do you attend?
5. What is your academic standing (e.g., freshmen, sophomore, etc.)?
6. What is your ethnicity?

Appendix G

Factor analysis of the Sexual Dominance subscale of the Sexual Functions Inventory

	Factor
Because they like the feeling of having another person submit to them.	.844
Because it makes them feel powerful.	.774
Because they like the feeling that they have someone in their control.	.757
Because in the act of sex more than at any other time they get the feeling that they can really control how someone feels and behaves.	.717
Because when their partner finally gives in to them they get this really satisfying feeling.	.659
Because they like it when their partner is really open and weak to them.	.615
Because, like many people, they enjoy the challenge.	.537
Because they like teaching less experienced people how to get off.	.423

Extraction Method: Principal Axis Factoring

Total Variance Explained						
Factor	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	4.165	52.061	52.061	3.677	45.956	45.956
2	.872	10.901	62.962			
3	.842	10.528	73.489			
4	.649	8.114	81.603			
5	.496	6.205	87.808			
6	.407	5.090	92.897			
7	.305	3.812	96.710			
8	.263	3.290	100.000			

Extraction Method: Principal Axis Factoring.

Appendix H

Factor analysis of the Updated Illinois Rape Myth Acceptance Scale

Pattern matrix

	Factor 1	Factor 2	Factor 3	Factor 4
A lot of times, girls who say they were raped agreed to have sex and then regret it.	.970			
Rape accusations are often used as a way of getting back at guys.	.866			
A lot of times, girls who say they were raped often led the guy on and then had regrets.	.849			
A lot of times, girls who claim they were raped have emotional problems.	.597			
Girls who are caught cheating on their boyfriends sometimes claim it was rape.	.579			
If a girl doesn't say "no" she can't claim rape.	.409			
When girls get raped, it's often because the way they said "no" was unclear.				
If a girl initiates kissing or hooking up, she should not be surprised if a guy assumes she wants to have sex.				
If the accused "rapist" doesn't have a weapon, you really can't call it rape.		.908		
If a girl doesn't physically fight back, you can't really say it was rape.		.814		
A rape probably doesn't happen if a girl doesn't have any bruises or marks.		.765		
If a girl doesn't physically resist sex—even if protesting verbally—it can't be considered rape.		.601		
It shouldn't be considered rape if a guy is drunk and didn't realize what he was doing.		.567		
If both people are drunk, it can't be rape.		.429		
If a girl goes to a room alone with a guy at a party, it is her own fault if she is raped.		.411		
Guys don't usually intend to force sex on a girl, but sometimes they get too sexually carried away.			.707	
If a guy is drunk, he might rape someone unintentionally.			.677	
Rape happens when a guy's sex drive goes out of control.			.649	
When guys rape, it is usually because of their strong desire for sex.			.645	
When girls go to parties wearing slutty clothes, they are asking for trouble.				-.566
If a girl acts like a slut, eventually she is going to get into trouble.				-.455
If a girl is raped while she is drunk, she is at least somewhat responsible for letting things get out of hand.				

Extraction Method: Principal Axis Factoring

Rotation Method: Oblimin with Kaiser Normalization

Factor loading below .4 were not displayed

Appendix H (continued)

Total Variance Explained							
Factor	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total
1	8.272	37.599	37.599	7.818	35.537	35.537	6.088
2	2.105	9.569	47.168	1.724	7.837	43.374	5.476
3	1.776	8.073	55.241	1.312	5.962	49.335	4.428
4	1.269	5.767	61.007	.796	3.619	52.954	2.132
5	.951	4.324	65.331				
6	.874	3.974	69.305				
7	.699	3.176	72.481				
8	.686	3.117	75.598				
9	.595	2.705	78.303				
10	.558	2.536	80.840				
11	.531	2.412	83.251				
12	.508	2.311	85.563				
13	.465	2.114	87.677				
14	.443	2.016	89.693				
15	.395	1.795	91.488				
16	.373	1.695	93.183				
17	.340	1.545	94.727				
18	.302	1.373	96.101				
19	.252	1.148	97.249				
20	.228	1.037	98.286				
21	.212	.963	99.249				
22	.165	.751	100.000				

Extraction Method: Principal Axis Factoring.

Appendix I

Factor analysis of Adversarial Heterosexual Beliefs Scale

Pattern matrix

	Factor 1	Factor 2	Factor 3
In all societies, it is inevitable that one sex is dominant.	.672		
In the work force, any gain by one sex necessitates a loss for the other.	.611		
It is possible for the sexes to be equal in society.	-.581		
It's natural for one spouse to be in control of the other.	.556		
Men and women share more similarities than differences.	-.542		
When women enter the workforce, they are taking jobs away from men.	.512		
It impossible for men and women to truly understand each other.	.469		
If you don't show who's boss in the beginning of a relationship, you will be taken advantage of later.	.447		
Sex is like a game where one person "wins" and the other "loses".	.444		
Men and women cannot really be friends.		-.884	
It is possible for a man and woman to be "just friends".		.682	
Men and women are generally out to use each other.			.915
Most people are pretty devious and manipulative when they are trying to attract someone of the opposite sex.			.650
When it comes to sex, most people are just trying to use the other person.			.568
In dating relationships, people are mostly out to take advantage of each other.			.542

Extraction Method: Principal Axis Factoring

Rotation Method: Oblimin with Kaiser Normalization

Factor loading below .4 were not displayed

Appendix I (continued)

Total Variance Explained

Factor	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total
1	6.558	40.990	40.990	6.055	37.845	37.845	5.318
2	1.367	8.547	49.537	.972	6.077	43.922	3.157
3	1.023	6.392	55.928	.559	3.493	47.414	4.453
4	.972	6.073	62.001				
5	.808	5.053	67.054				
6	.737	4.605	71.660				
7	.656	4.098	75.758				
8	.645	4.030	79.788				
9	.610	3.813	83.601				
10	.537	3.358	86.959				
11	.473	2.957	89.916				
12	.423	2.641	92.556				
13	.392	2.453	95.009				
14	.304	1.901	96.910				
15	.277	1.729	98.639				
16	.218	1.361	100.000				

Extraction Method: Principal Axis Factoring.

Appendix J

Pilot Study 1: Validating a new measure of sexual aggression

The purpose of this pilot study is to further validate a new measure of sexual aggression. Specifically, the purpose was to determine how female college students interpreted having a male student expose them to photos depicting acts of sexual aggression as an act of sexual aggression itself. Additionally, this pilot study will investigate the role that duration of exposure plays in determining whether or not a photo depicting acts of sexual aggression are themselves acts of sexual aggression. Another purpose of this pilot study is to determine whether or not UCSB participants and MTurk participants differ in their interpretation of being exposed to photos depicting sexually aggressive acts by a male student.

Method

Participants and design. 79 American female college students (54 University of California, Santa Barbara [UCSB] students; 25 Mechanical Turk [MTurk] workers) participated in exchange for partial course credit (UCSB students) or \$1.25 (MTurk workers). The demographic breakdown for the sample was as follows: 42% Caucasian, 29% Asian American, 23% Hispanic, 3% African American, 2% “Other”, 1% Native Pacific Islander, 37% Freshman, 24% Sophomore, 15% Junior, 23% Senior. Mean age 22.1 (*SD* 6.4).

Procedure. Participants were informed that they were participating in a study investigating people’s responses to viewing photographs selected by another student. They were also informed that during the study they would be exposed to graphic photos depicting emotionally arousing scenes (such as sex, violent acts, and sexual aggression) and informed of their right to withdraw from the study at any time without penalty. After consenting, participants started the online Qualtrics study.

Participants were randomly presented with 40 photographs depicting male/female interactions (10 neutral interactions, 10 violent interactions, 10 sexual interactions, and 10 acts of sexual violence; see Appendix D). After each of the 40 photos, participants were asked, “If a male student selected this photo for you to view during an experiment, how would you interpret his behavior?” Participants were presented with the following options: Playful, sexually aggressive, sweet, aggressive, erotic, and other, and told to select all options that applied. If they selected “other,” they were able to type in the response they wanted to add. They were then asked, “Would the duration of time that the male student determined that you should view the photo change the way you interpreted his behavior?” Participants responded to the question by selecting either “yes” or “no”. If participants selected “no” they were presented with the next photo. If participants selected “yes” they were asked three additional questions: “How would you interpret the behavior of a male student if they wanted you to view the photo for 1 second?” “How would you interpret the behavior of a male student if they wanted you to view the photo for 10 seconds?” “How would you interpret the behavior of a male student if they wanted you to view the photo for 30 seconds?” Following each of the three questions participants were presented with the same options as the previous question: Playful, sexually aggressive, sweet, aggressive, erotic, and other. When participants completed the three additional questions they moved on to the next photo. After completing the forty trials, participants answered demographics questions regarding their age, gender, academic standing, gender, and ethnicity (see Appendix F). They were then debriefed and thanked for their participation.

Results

To determine whether female college students considered being exposed to sexually aggressive photos an act of sexual aggression, the rates at which each of the ten photos depicting sexual aggression (photos SA1- SA10, see Appendix D) was deemed to be sexually aggressive was calculated.

Eighty-six percent of participants indicated that they considered being exposed to SA1 an act of sexual aggression. A chi-square test for association was conducted between survey site (UCSB and MTurk) and perceptions that SA1 was sexually aggressive. There was no statistically significant association between survey site and perceptions that SA1 was sexually aggressive, $\chi^2(1) = 1.13, p = .289$. Fifty-seven percent of participants reported that the duration of time a male student exposed them to SA1 would not influence their perception of the act. A chi-square test for association was conducted between survey site (UCSB and MTurk) and being influenced by the duration of time that they were exposed to SA1. There was no statistically significant association between survey site and being influenced by the duration of time that they were exposed to SA1, $\chi^2(1) = 0.37, p = .544$.

Seventy-nine percent of participants indicated that they considered being exposed to SA2 an act of sexual aggression. A chi-square test for association was conducted between survey site (UCSB and MTurk) and perceptions that SA2 was sexually aggressive. There was no statistically significant association between survey site and perceptions that SA2 was sexually aggressive, $\chi^2(1) = 0.05, p = .823$. Eighty-five percent of participants reported that the duration of time a male student exposed them to SA2 would not influence their perception of the act. A chi-square test for association was conducted between survey site (UCSB and MTurk) and being influenced by the duration of time that they were exposed to

SA2. There was no statistically significant association between survey site and being influenced by the duration of time that they were exposed to SA2, $\chi^2(1) = 1.47, p = .226$.

Ninety-one percent of participants indicated that they considered being exposed to SA3 an act of sexual aggression. A chi-square test for association was conducted between survey site (UCSB and MTurk) and perceptions that SA3 was sexually aggressive. There was no statistically significant association between survey site and perceptions that SA3 was sexually aggressive, $\chi^2(1) = 0.03, p = .855$. Eighty-seven percent of participants reported that the duration of time a male student exposed them to SA3 would not influence their perception of the act. A chi-square test for association was conducted between survey site (UCSB and MTurk) and being influenced by the duration of time that they were exposed to SA3. There was no statistically significant association between survey site and being influenced by the duration of time that they were exposed to SA3, $\chi^2(1) = 0.37, p = .543$.

Eighty-two percent of participants indicated that they considered being exposed to SA4 an act of sexual aggression. A chi-square test for association was conducted between survey site (UCSB and MTurk) and perceptions that SA4 was sexually aggressive. There was no statistically significant association between survey site and perceptions that SA4 was sexually aggressive, $\chi^2(1) = 0.07, p = .785$. Eighty-six percent of participants reported that the duration of time a male student exposed them to SA4 would not influence their perception of the act. A chi-square test for association was conducted between survey site (UCSB and MTurk) and being influenced by the duration of time that they were exposed to SA4. There was no statistically significant association between survey site and being influenced by the duration of time that they were exposed to SA4, $\chi^2(1) = 0.11, p = .737$.

Ninety percent of participants indicated that they considered being exposed to SA5 an act of sexual aggression. A chi-square test for association was conducted between survey site (UCSB and MTurk) and perceptions that SA5 was sexually aggressive. There was no statistically significant association between survey site and perceptions that SA5 was sexually aggressive, $\chi^2(1) = 0.18, p = .670$. Eighty-six percent of participants reported that the duration of time a male student exposed them to SA5 would not influence their perception of the act. A chi-square test for association was conducted between survey site (UCSB and MTurk) and being influenced by the duration of time that they were exposed to SA5. There was no statistically significant association between survey site and being influenced by the duration of time that they were exposed to SA5, $\chi^2(1) = 0.13, p = .717$.

Eighty-seven percent of participants indicated that they considered being exposed to SA6 an act of sexual aggression. A chi-square test for association was conducted between survey site (UCSB and MTurk) and perceptions that SA6 was sexually aggressive. There was no statistically significant association between survey site and perceptions that SA6 was sexually aggressive, $\chi^2(1) = 0.01, p = .905$. Eighty-nine percent of participants reported that the duration of time a male student exposed them to SA6 would not influence their perception of the act. A chi-square test for association was conducted between survey site (UCSB and MTurk) and being influenced by the duration of time that they were exposed to SA6. There was no statistically significant association between survey site and being influenced by the duration of time that they were exposed to SA6, $\chi^2(1) = 1.98, p = .159$.

Sixty-three percent of participants indicated that they considered being exposed to SA7 an act of sexual aggression. A chi-square test for association was conducted between survey site (UCSB and MTurk) and perceptions that SA7 was sexually aggressive. There was

no statistically significant association between survey site and perceptions that SA7 was sexually aggressive, $\chi^2(1) = 0.35, p = .555$. Ninety-one percent of participants reported that the duration of time a male student exposed them to SA7 would not influence their perception of the act. A chi-square test for association was conducted between survey site (UCSB and MTurk) and being influenced by the duration of time that they were exposed to SA7. There was no statistically significant association between survey site and being influenced by the duration of time that they were exposed to SA7, $\chi^2(1) = 1.07, p = .301$.

Ninety percent of participants indicated that they considered being exposed to SA8 an act of sexual aggression. A chi-square test for association was conducted between survey site (UCSB and MTurk) and perceptions that SA8 was sexually aggressive. There was no statistically significant association between survey site and perceptions that SA8 was sexually aggressive, $\chi^2(1) = 0.18, p = .670$. Ninety percent of participants reported that the duration of time a male student exposed them to SA8 would not influence their perception of the act. A chi-square test for association was conducted between survey site (UCSB and MTurk) and being influenced by the duration of time that they were exposed to SA8. There was no statistically significant association between survey site and being influenced by the duration of time that they were exposed to SA8, $\chi^2(1) = 0.14, p = .707$.

Sixty-eight percent of participants indicated that they considered being exposed to SA9 an act of sexual aggression. A chi-square test for association was conducted between survey site (UCSB and MTurk) and perceptions that SA9 was sexually aggressive. There was no statistically significant association between survey site and perceptions that SA9 was sexually aggressive, $\chi^2(1) = 2.30, p = .130$. Eighty-nine percent of participants reported that the duration of time a male student exposed them to SA9 would not influence their

perception of the act. A chi-square test for association was conducted between survey site (UCSB and MTurk) and being influenced by the duration of time that they were exposed to SA9. There was no statistically significant association between survey site and being influenced by the duration of time that they were exposed to SA9, $\chi^2(1) = 0.77, p = .380$.

Seventy-two percent of participants indicated that they considered being exposed to SA10 an act of sexual aggression. A chi-square test for association was conducted between survey site (UCSB and MTurk) and perceptions that SA10 was sexually aggressive. There was no statistically significant association between survey site and perceptions that SA10 was sexually aggressive, $\chi^2(1) = 0.27, p = .604$. Ninety percent of participants reported that the duration of time a male student exposed them to SA10 would not influence their perception of the act. A chi-square test for association was conducted between survey site (UCSB and MTurk) and being influenced by the duration of time that they were exposed to SA10. There was no statistically significant association between survey site and being influenced by the duration of time that they were exposed to SA10, $\chi^2(1) = 0.18, p = .670$.

In contrast, never more than thirty-four percent of participants found any of the Violent photos to be sexually aggressive. Never more than thirty-two percent of participants found any of the Sexual photos to be sexually aggressive. Never more than one percent of participants found any of the Neutral photos to be sexually aggressive.

None of the demographic traits (academic standing, ethnicity) were found to be differentially associated with participants' interpretation of the photos.

Discussion

These results make clear that women college students (both at UCSB and sampled more broadly from MTurk) did consider being exposed to photos that depict acts of sexual

aggression to be an act of sexual aggression. Exposure to every one of the 10 photographs depicting acts of sexual aggression was itself considered to be sexually aggressive by no fewer than 63% of female participants. Additionally, it appears that duration of exposure to photos depicting acts of sexual aggression did not influence whether or not exposing female participants to such photos was considered an act of sexual aggression. In other words, the vast majority of female participants reported that exposure to photos depicting acts of sexual aggression for *any* length of time was an act of sexual aggression. These evaluations provide converging evidence that our behavioral measure of sexual aggression was seen as sexually aggressive by women.

Appendix K

Narratives

Character identification/sexual aggression

My name is Daniel. I'm an American college student. I spend Saturday morning relaxing before showering and making breakfast. After breakfast, I clean up my place a bit before heading out to run errands. I usually meet up with friends during the afternoon. While hanging out, my friends and I rarely talk about abstract philosophical subjects—we get enough of that in class. Instead, we talk about what's going on in each other's lives. After chatting about classes and people we're interested in, I bring out the Xbox One or the PlayStation 4. Around 5:00 PM, I start to get ready to go out for the evening. I usually make a simple meal before leaving the house. If I'm in a rush, I grab a quick bite at a fast food joint before meeting up with friends at a pub or bar. I don't just go to bars to find people to hook up with, I go to hang out and have a good time with my friends.

I don't hold hostile beliefs about women. In fact, I respect women and have set other guys straight if they disrespect them. For instance, I once called out a guy who claimed that rape accusations are often used as a way of getting back at guys. I also reject the idea that it's natural for one spouse to be in control of the other. But overall, I am less about conflict and more about having a good time with my friends. Rather than driving drunk after a night of fun and drinking, my friends and I pour ourselves into an Uber or a taxi.

Sunday morning is typically spent recovering from Saturday night. After a late start, I shower and work on any homework that I might have. The afternoon is spent watching movies. Dinner is usually something quick. Before going to bed, I check Facebook and then fall asleep watching TV.

Appendix K (continued)

Character identification/international students

My name is Daniel. I'm an American college student. I spend Saturday morning relaxing before showering and making breakfast. After breakfast, I clean up my place a bit before heading out to run errands. I usually meet up with friends during the afternoon. While hanging out, my friends and I rarely talk about abstract philosophical subjects—we get enough of that in class. Instead, we talk about what's going on in each other's lives. After chatting about classes and people we're interested in, I bring out the Xbox One or the PlayStation 4. Around 5:00 PM, I start to get ready to go out for the evening. I usually make a simple meal before leaving the house. If I'm in a rush, I grab a quick bite at a fast food joint before meeting up with friends at a pub or bar. I don't just go to bars to find people to hook up with, I go to hang out and have a good time with my friends.

I don't hold hostile beliefs about international students. In fact, I respect international students and have set other guys straight if they disrespect them. For instance, I once called out a guy who claimed that international students take more than their fair share of college resources. I also reject the idea that American universities shouldn't admit international students. But overall, I am less about conflict and more about having a good time with my friends. Rather than driving drunk after a night of fun and drinking, my friends and I pour ourselves into an Uber or a taxi.

Sunday morning is typically spent recovering from Saturday night. After a late start, I shower and work on any homework that I might have. The afternoon is spent watching movies. Dinner is usually something quick. Before going to bed, I check Facebook and then fall asleep watching TV.

Appendix K (continued)

Group identification/sexual aggression

Typical American male college students spend Saturday morning relaxing before showering and making breakfast. After breakfast, they clean up their place a bit before heading out to run errands. They usually meet up with friends during the afternoon. While hanging out, typical American male college students rarely talk about abstract philosophical subjects—they get enough of that in class. Instead, they talk about what’s going on in each other’s lives. After chatting about classes and people they’re interested in, they bring out the Xbox One or the PlayStation 4. Around 5:00 PM, they start to get ready to go out for the evening. They usually make a simple meal before leaving the house. If they’re in a rush, they grab a quick bite at a fast food joint before meeting up with friends at a pub or bar. Typical American male college students don’t just go to bars to find people to hook up with, they go to hang out and have a good time with their friends.

American male college students don’t hold hostile beliefs about women. In fact, they respect women and will set other guys straight if they disrespect them. For instance, they will call out a guy who claims that rape accusations are often used as a way of getting back at guys. They also reject the idea that it’s natural for one spouse to be in control of the other. But overall, American male college students are less about conflict and more about having a good time with his friends. Rather than driving drunk after a night of fun and drinking, they pour themselves into an Uber or a taxi.

Sunday morning is typically spent recovering from Saturday night. After a late start, typical American male college students shower and work on any homework that they might have. The afternoon is spent watching movies. Dinner is usually something quick. Before going to bed, they check Facebook and then fall asleep watching TV.

Appendix K (continued)

Group identification/international students

Typical American male college students spend Saturday morning relaxing before showering and making breakfast. After breakfast, they clean up their place a bit before heading out to run errands. They usually meet up with friends during the afternoon. While hanging out, typical American male college students rarely talk about abstract philosophical subjects—they get enough of that in class. Instead, they talk about what’s going on in each other’s lives. After chatting about classes and people they’re interested in, they bring out the Xbox One or the PlayStation 4. Around 5:00 PM, they start to get ready to go out for the evening. They usually make a simple meal before leaving the house. If they’re in a rush, they grab a quick bite at a fast food joint before meeting up with friends at a pub or bar. Typical American male college students don’t just go to bars to find people to hook up with, they go to hang out and have a good time with their friends.

American male college students don’t hold hostile beliefs about international students. In fact, they respect international students and will set other guys straight if they disrespect them. For instance, they will call out a guy who claims that international students take more than their fair share of college resources. They also reject the idea that American universities shouldn’t admit international students. But overall, American male college students are less about conflict and more about having a good time with his friends. Rather than driving drunk after a night of fun and drinking, they pour themselves into an Uber or a taxi.

Sunday morning is typically spent recovering from Saturday night. After a late start, typical American male college students shower and work on any homework that they might have. The afternoon is spent watching movies. Dinner is usually something quick. Before going to bed, they check Facebook and then fall asleep watching TV.

Appendix L

Pilot Study 2: Evaluating narratives

The goal of Pilot Study 2 is to ensure that the four narratives to be used in Study 2 did not differ in believability, enjoyability, engagement, emotional arousal, and likeability of the main protagonist (or group).

Method

Participants and design. 116 MTurk workers who self identified as American male college students participated in exchange for \$0.75. The participants were randomly assigned to read one of four narratives in a 2 (intervention method: *character identification* or *group identification*) x 2 (domain: *sexual aggression* or *international students*) between-subjects design. One participant did not authorize the use of their data and his data were not included in the data analysis. This resulted in a final sample of 115 (Mean results in Table 7). The demographic breakdown for the sample was as follows: 69% Caucasian, 10% Asian American, 9% Hispanic, 9% African American, 1% Native American, 1% Native Pacific Islander, 1% “Other”, 6% Freshman, 23% Sophomore, 29% Junior, 42% Senior. Mean age was 24 (*SD* 4.3).

Procedure. Participants were told that they would be completing two tasks: a short reading task and a series of questionnaires. After consenting, participants started the online Qualtrics study.

Narratives. First, participants read one of four one-page narratives (see Appendix K). The four narratives were created with the help of an author using data from a pilot study in which UCSB students and MTurk participants who self identified as male college students detailed the events of a typical weekend in their lives. The narratives described the typical

weekend of either an individual male college student (*character identification* conditions) or of “typical male college students” (*group identification* conditions). Additionally, the narratives either suggested that the protagonist (or group) reject the ideas that it is natural for one spouse to be control of the other and that rape accusations are often used as a way of getting back at guys (*sexual aggression* conditions) or the narratives suggested that the protagonist (or group) reject the ideas that international students take more than their fair share of college resources and that American universities should stop accepting international students (*international students* conditions). The two beliefs rejected in the intervention conditions (that ideas that it is natural for one spouse to be control of the other and that rape accusations are often used as a way of getting back at guys) were those identified in Pilot Study 1 as being associated with the perpetration of sexual aggression (as measured by the stimuli selection task).

Character identification. Character identification was measured using the experience-taking scale (Kaufman & Libby, 2012). The experience-taking scale was used to measure the degree to which participants identified with the protagonist (or group) in the narrative. The experience-taking scale is a 7-item Likert scale with values ranging from 1 (strongly disagree) to 9 (strongly agree). Sample items include: “I understood the events of the story as though I were the character in the story” and “I found myself thinking what the character in the story was thinking” (see Appendix M).

After completing the experience-taking scale, participants completed a series of questions asking about the believability of the narrative, the degree to which the participants enjoyed reading the narrative, how engaging the participants found the narrative, and how emotionally arousing the participants found the narrative (see Appendix Q for items), and the

likeability of the main protagonist (or group). Finally, participants answered demographic questions regarding their age, academic standing, gender, and ethnicity (see Appendix F).

They were then debriefed and thanked for their participation.

Results

One participant did not authorize the use of their data and his data were not included in the data analysis. This resulted in a final sample of 115.

To examine the effects of intervention method and domain on the believability of the narratives a 2 (intervention method: *character identification* or *group identification*) x 2 (domain: *sexual aggression* or *international students*) ANOVA was conducted. The analysis revealed no main effect for intervention method, $F(1, 110) = 0.97, p = .328$, partial $\eta^2 = .009$, no main effect for domain, $F(1, 110) = 3.65, p = .059$, partial $\eta^2 = .032$, and no significant interaction between intervention method and domain, $F(1, 110) = .13, p = .715$, partial $\eta^2 = .001$.

To examine the effects of intervention method and domain on the enjoyability of the narratives a 2 (intervention method: *character identification* or *group identification*) x 2 (domain: *sexual aggression* or *international students*) ANOVA was conducted. The analysis revealed no main effect for intervention method, $F(1, 110) = 3.23, p = .075$, partial $\eta^2 = .029$, no main effect for domain, $F(1, 110) = 1.12, p = .293$, partial $\eta^2 = .010$, and no significant interaction between intervention method and domain, $F(1, 110) = .34, p = .561$, partial $\eta^2 = .003$.

To examine the effects of intervention method and domain on how engaging the narratives were perceived, 2 (intervention method: *character identification* or *group identification*) x 2 (domain: *sexual aggression* or *international students*) ANOVA was

conducted. The analysis revealed no main effect for intervention method, $F(1, 109) = 1.84, p = .178$, partial $\eta^2 = .017$, no main effect for domain, $F(1, 109) = 1.68, p = .198$, partial $\eta^2 = .015$, and no significant interaction between intervention method and domain, $F(1, 109) = .48, p = .489$, partial $\eta^2 = .004$.

Further, to examine the effects of intervention method and domain on how emotionally arousing the narratives were perceived to be, a 2 (intervention method: *character identification* or *group norms*) x 2 (domain: *sexual aggression* or *international students*) ANOVA was conducted. The analysis revealed no main effect for intervention method, $F(1, 108) = 0.12, p = .913$, partial $\eta^2 = .000$, no main effect for domain, $F(1, 108) = 2.52, p = .115$, partial $\eta^2 = .023$, and no significant interaction between intervention method and domain, $F(1, 108) = .63, p = .429$, partial $\eta^2 = .006$.

Finally, to examine the effects of intervention method and domain on the likeability of the main protagonist (or group), a 2 (intervention method: *character identification* or *group norms*) x 2 (domain: *sexual aggression* or *international students*) ANOVA was conducted. The analysis revealed no main effect for intervention method, $F(1, 108) = 0.16, p = .689$, partial $\eta^2 = .001$, no main effect for domain, $F(1, 108) = 0.10, p = .750$, partial $\eta^2 = .001$, and no significant interaction between intervention method and domain, $F(1, 108) = 0.20, p = .658$, partial $\eta^2 = .002$.

Discussion

The results revealed that there were no significant differences among the four narratives in regards to the believability of the narratives, the degree to which the participants enjoyed reading the narratives, the likeability of the main protagonist (or group), how engaging the participants found the narratives, and how emotionally arousing the participants

found the narratives. These results suggest that any differences found in the intervention study will not be due to unaccounted for differences in the narratives.

Appendix M

Experience-taking Scale

[Scale from 1 (strongly disagree) to 9 (strongly agree)]

INSTRUCTIONS: Please answer the following questions.

1. I felt like I could put myself in the shoes of the character in the story.
2. I found myself thinking what the character in the story was thinking.
3. I found myself feeling what the character in the story was feeling.
4. I could empathize with the situation of the character in the story.
5. I understood the events of the story as though I were the character in the story.
6. I was able to get inside the character's head.
7. At key moments in the story, I felt I knew what the character was going through.

Appendix N

Group Identification Scale

[Scale from 1 (*strongly disagree*) to 7 (*strongly agree*)]

INSTRUCTIONS: Answer the following questions about being a male college student.

Subscale 1: Importance

1. Belonging to this group is an important part of my identity.
2. It is important to me that I view myself as a member of this group.
3. It is important to me that others see me as a member of this group.
4. When I talk about the group members, I usually say “we” rather than “they.”

Subscale 1: Commitment

5. I feel strongly affiliated with this group.
6. I am glad to contribute to this group.
7. I am strongly committed to this group.
8. I like to help this group.

Appendix O

Personal attitudes about sexual aggression and international students

[Scale from 1 (*strongly disagree*) to 7 (*strongly agree*)]

INSTRUCTIONS: Answer the following questions with **your personal beliefs.**

1. American universities should continue to admit international students.
2. Rape accusations are often used as a way of getting back at guys.
3. It's never ok to drinking and drive. (Filler)
4. Sports are a critical part of the college experience. (Filler)
5. It's natural for one spouse to be in control of the other.
6. International students take more than their fair share of college resources.

Appendix P

Group norms about sexual aggression and international students

[Scale from 1 (*strongly disagree*) to 7 (*strongly agree*)]

INSTRUCTIONS: Answer the following questions as you believe the typical male college student would answer.

1. American universities should continue to admit international students.
2. Rape accusations are often used as a way of getting back at guys.
3. It's never ok to drinking and drive. (Filler)
4. Sports are a critical part of the college experience. (Filler)
5. It's natural for one spouse to be in control of the other.
6. International students take more than their fair share of college resources.

Appendix Q

Narrative Questionnaire

[Scale from 1 (Not at all) to 5 (Very much)]

INSTRUCTIONS: Please read the following story and answer the questions carefully.

1. How much did you enjoy the story?
2. How believable was the story?
3. How likeable was the main character(s) in the story?
4. How engaging was the story?
5. How emotionally arousing was the story?