On the Relationship Between Automatic Attitudes and Self-Reported Sexual Assault in Men

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Abstract

Research and theory suggest rape supportive attitudes are important predictors of sexual assault; yet, to date, rape supportive attitudes have been assessed exclusively through self-report measures that are methodologically and theoretically limited. To address these limitations, the objectives of the current project were to: (1) develop a novel implicit rape attitude assessment that captures automatic attitudes about rape and does not rely on self-reports, and (2) examine the association between automatic rape attitudes and sexual assault perpetration. We predicted that automatic rape attitudes would be a significant unique predictor of sexual assault even when self-reported rape attitudes (i.e., rape myth acceptance and hostility toward women) were controlled. We tested the generalizability of this prediction in two independent samples: a sample of undergraduate college men ($n = 75$, M age = 19.3 years) and a sample of men from the community ($n = 50$, M age = 35.9 years). We found the novel implicit rape attitude assessment was significantly associated with the frequency of sexual assault perpetration in both samples and contributed unique variance in explaining sexual assault beyond rape myth acceptance and hostility toward women. We discuss the ways in which future research on automatic rape attitudes may significantly advance measurement and theory aimed at understanding and preventing sexual assault.

Keywords

Rape Supportive Attitudes; Sexual Assault; Attitude-Behavior Relations; Implicit Social Cognition

INTRODUCTION

Sexual assault, defined as sexual activity that occurs through force, threat of force, coercion, or otherwise without the victim's consent (cf. Abbey, Zawacki, Buck, & McAuslan, 2004; Koss, Gidycz, & Wisniewski, 1987), occurs with alarming frequency. Nearly half of women in the United States have been sexually assaulted and one in four women have experienced an attempted or completed rape (Brener, McMahon, Warren, & Douglas, 1999; Humphrey & White, 2000; Koss et al., 1987; Tjaden & Thoennes, 2000). Further, approximately 25% of men report they have engaged in unwanted sexual contact or sexual coercion, and 5% of men report they have forced a woman into sexual activity that meets the legal definition of

rape (e.g., Abbey, McAuslan, & Ross, 1998; Koss et al., 1987; Loh, Gidycz, Lobo, & Luthra, 2005; Spitzberg, 1999). Given the frequency of sexual assault and the detrimental psychological and physical correlates of victimization (for review, see Campbell, 2002), it is critical to further understand factors associated with the perpetration of this harmful social behavior.

Rape supportive attitudes are likely one important predictor of sexual assault (for reviews, see Lonsway & Fitzgerald, 1994; Murnen, Wright, & Kaluzny, 2002; Suarez & Gadalla, 2010). Indeed, men who perpetrate sexual assault are more accepting of rape myths (e.g., Abbey & Jacques-Tiura, 2010; Burt, 1980; DeGue & DiLillo, 2004; Loh et al., 2005; Payne, Lonsway, & Fitzgerald, 1999), hold more adversarial sexual beliefs (e.g., Burt, 1980; Loh et al., 2005), and have more sexist and hostile attitudes toward women (e.g., Abbey & Jacques-Tiura, 2010; DeGue, DiLillo, & Scalora, 2010; Lonsway & Fitzgerald, 1995; Murnen et al., 2002). Given these empirical connections, it is not surprising that rape supportive attitudes are central to theories of sexual offending (Knight & Sims-Knight, 2003; Malamuth, 2003; White & Frabutt, 2006) and are the focus of many rape prevention efforts (Anderson & Whiston, 2005; Brecklin & Forde, 2001).

Limitations of Prior Rape Supportive Attitude Assessments

Although prior research demonstrates connections between rape supportive attitudes and behavior, this research is limited by an exclusive reliance on self-report measures. On the commonly used Rape Myth Acceptance Scale (Burt, 1980), for example, participants report their agreement with statements such as, "When women go around braless or wearing short skirts and tight tops, they are just asking for trouble." Because such questions are face-valid, they are susceptible to several methodological problems inherent in self-report instruments that limit accurate, unbiased attitude assessment. First, despite thorough revisions to rape supportive attitude scales (see Lonsway & Fitzgerald, 1995; Payne et al., 1999), these measures are still susceptible to socially desirable response biases. Because of self-presentational pressures to appear appropriate or sensitive, participants may be reluctant to admit the rape supportive attitudes that they perceive to be socially undesirable (cf. Nosek, 2005; Olson, 2009).

Additionally, self-reported rape attitudes may be highly susceptible to the demand characteristics present in an experiment when these reports are used to evaluate rape prevention programs. During many rape prevention programs, participants are explicitly told that sexual assault is wrong and rape myths are often criticized and debunked; then, participants are asked about their attitudes and beliefs about rape (for reviews, see Anderson & Whiston, 2005; Brecklin & Forde, 2001). Clearly, there is high demand for participants to report reduced rape supportive attitudes and behavior after these programs. Thus, when participants report improved attitudes, we cannot be certain if their attitudes have truly changed or if they are simply complying with the expectations of the program. The attitude rebound effect that is observed shortly after many prevention programs may suggest attitudes were never truly changed (Brecklin & Forde, 2001; Flores & Hartlaub, 1998).

Finally, self-report measures of rape supportive attitudes are also limited in that they do not capture key properties of attitudes, such as attitude accessibility. Specifically, attitude accessibility refers to the speed and ease with which an attitude (i.e., appraisal) about a particular object comes to mind and is a form of attitude strength with much predictive power (e.g., Fazio, 1995; Fazio, 2000). The inability of self-report measures to capture important attitude properties may explain why a notable group of studies has found no relationship between rape supportive attitudes and sexually aggressive behavior (Demare, Briere, & Lips, 1988; Forbes & Adams-Curtis, 2001; Forbes, Adams-Curtis, & White, 2004; Loh et al., 2005; Overholser & Beck, 1986).

New Direction: An Implicit Rape Attitude Assessment

One way to address these prior limitations is to utilize implicit measures to capture automatic attitudes about rape. Unlike self-reported attitude measures that require an explicit response on the part of a participant, implicit measures assess attitudes by measuring reaction times to attitude-relevant stimuli (Fazio & Olson, 2003). During an implicit evaluative priming procedure, for example, an attitude object appears briefly on a computer screen followed closely by either a positive or negative word (e.g., great, gross). The participant's task is simply to identify the valence of the word as quickly as possible. The assumption behind evaluative priming is that perceiving an attitude object about which one has a strong (i.e., "accessible") attitude can automatically activate a positive or negative evaluation, and this automatic activation will facilitate reaction times to congruent adjectives and impede reaction times to incongruent adjectives (Neely, 1977). In this way, implicit measures provide an index of the automaticity of attitudes while bypassing concerns with socially desirable responding, as participants are never directly asked about their attitudes.

As a theoretical framework for understanding attitude-behavior relations, the MODE model (motivation and opportunity as determinants of behavior) argues that an automatic evaluative response to an object is likely to guide judgments and behavior toward that object unless one has motivation and opportunity to act in opposition to one's attitude (Fazio, 1990; Olson & Fazio, 2009). Many attitudes are quite accessible and may become automatically activated given an appropriate cue (Fazio, Sanbonmatsu, Powell, & Kardes, 1986). Without impetus to do otherwise, a series of spontaneous processes can be set into motion as a person construes an object and processes information about it in an attitude-congruent fashion. This process can ultimately lead to attitude-congruent judgments and behaviors. Thus, the MODE model posits a spontaneous attitude-behavior pathway where one's attitudes can guide judgments and behaviors relatively automatically and passively or a more deliberate route where, given opportunity, motivational forces can steer judgments and behaviors in counter-attitudinal directions (for review, see Olson & Fazio, 2009).

In line with the MODE model, we argue that men's attitudes toward rape are likely to have both automatic and more motivated components. Yet, prior treatments of rape attitudes as they relate to sexual assault perpetration have overlooked automatic processes and have instead focused on the sorts of attitudes that are deliberately reported on explicit questionnaires, essentially implying a single-process approach.

Dual-process approaches to attitude-behavior relations require a means to assess both motivated and more automatic processes. Many implicit attitude measures have come to suit this purpose. Prior studies have examined automatic associations between children and sex among child molesters (e.g., Brown, Gray, & Snowden, 2009; Mihailides, Devilly, & Ward, 2004; Nunes, Firestones, & Baldwin, 2007) and automatic links between sex and power among sexually aggressive men (Kamphuis, de Ruiter, Janssen, & Spiering, 2005; Leibold & McConnell, 2004); however, none of these studies has directly examined automatic attitudes about rape. We argue that research in this area could benefit from the advances made in other socially sensitive attitude domains, such as racial prejudice (e.g., Dovidio, Kawakami, & Gaertner, 2002) and sexual harassment (e.g., Bargh, Raymond, Pryor, & Strack, 1995), by utilizing implicit attitude procedures that capture the automatic nature of attitudes and are less susceptible to social desirability pressures and experimental demands.

Purpose of the Current Project

The purpose of the current project was to develop a novel implicit rape attitude assessment and then document the association between automatic rape attitudes and sexually aggressive behavior. First, through systematic pilot research, our aim was to identify appropriate

stimulus material for the rape attitude evaluative priming procedure. Our second aim was to determine if automatic rape attitudes would explain unique variance in sexual assault perpetration above and beyond traditional self-reports of rape attitudes. We predicted that automatic rape attitudes would be a significant unique predictor of sexual assault perpetration even when self-reported rape attitudes were controlled. We tested the generalizability of this prediction by examining our hypothesis in two independent samples: a sample of undergraduate college men (Study 1) and a sample of men from the community (Study 2).

Study 1

The purpose of this study was to develop an evaluative priming procedure to capture automatic rape attitudes and then to examine the relationship between these attitudes, traditional self-reports, and sexual assault. We utilized a sample of undergraduate men, a population known to perpetrate sexual assault with alarming frequency (Koss et al., 1987). We predicted that automatic rape attitudes would be a significant predictor of sexual assault and explain unique variance in sexual assault perpetration above and beyond rape myth acceptance and hostility toward women, two of the most commonly used assessments of rape supportive attitudes (Lonsway & Fitzgerald, 1994; Payne et al., 1999).

We computed an automatic rape attitude score by utilizing an evaluative priming procedure (Fazio et al., 1986) and examining the difference in response latencies to positive versus negative words that were preceded by rape images. Men who hold a more positive, "pro-rape" attitude should more quickly identify the positive words than the negative words after seeing a rape image, since the rape image should prime positivity for these men. To account for general individual differences in reaction times, we controlled for response latencies to neutral images in all analyses involving the priming task.

METHOD

Selecting Stimulus Material—To select stimulus material for the rape attitude priming procedure, we first located 25 images on public domain internet sites that depicted a male perpetrated sexual assault or rape against a female.[1] We submitted these images along with 10 filler images to 34 undergraduate men recruited from psychology courses (M age = 18.7 years, 85.3% Caucasian). Participants were instructed to briefly describe what was happening in each image. These written responses were coded for rape content (0 = no mention of sexual assault/rape, 1 = some mention of sexual assault/rape) by two independent coders (kappa = .79). Of the 25 rape images, we selected the 10 images that the independent coders indicated had been described as sexually aggressive by the highest percentage of participants (between 68% and 100% of the 34 participants rated these images as sexually aggressive). Once the sexually aggressive images were identified, we then selected an additional set of 30 images depicting men and women interacting to use as comparison items, including: (1) sexual activity with no aggressive content ("sexual images"); (2) aggression with no sexual content ("violent images"); or (3) neutral interactions with no aggressive or sexual content ("neutral images").[2]

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[1]The most common forms of sexual assault occur between acquaintances and involve alcohol and/or verbal coercion (Koss et al., 1987); however, it was not possible to identify still-frame images that clearly depicted these forms of sexual assault. Instead, the images we located involved more overt forms of physical force. For the sake of simplicity, we will refer to these images as "rape images" for the remainder of the paper.

[2]Although many attitudes objects have a naturally contrasting comparison group where positivity toward one category implies negativity toward the other, rape has no obvious contrasting category (for a similar point, see Karpinski & Steinman, 2006). Thus, while we included filler images of related but distinct categories (i.e., sex and violence), we were primarily interested in responses latencies to the positive and negative words preceded by rape images.

Participants—Participants were 82 undergraduate males at a large southeastern university who participated in partial fulfillment of a psychology course requirement. We excluded seven participants with error rates on the priming procedure near chance (i.e., over 45%), as it was likely these participants did not take the task seriously or did not understand the instructions.[3] Thus, our final sample included 75 men (*M* age = 19.3; *SD* = 1.7). The sample was primarily Caucasian (87%), and also included African-American (4%), Hispanic/Latino (1%), Asian American (3%) and "other" races (5%).

Procedure—Participants signed an informed consent before the study began. Then, they completed the priming procedure followed by a series of computer-administered self-report surveys in groups of 8 or fewer. We completed all computer programming using MediaLab and DirectRT (Jarvis, 2006) and we collected all data anonymously to encourage honest responding. At the conclusion of the study, participants were fully debriefed and allowed to ask questions about the study. The University Institutional Review Board approved all procedures.

Rape Attitude Evaluative Priming: The automatic rape attitude measure was modeled after a well-validated priming measure of racial prejudice (Fazio, Jackson, Dunton, & Williams, 1995). Participants were told that the priming procedure was a test of word meaning identification. They were informed that they would view pictures of men and women interacting on a computer screen followed by either a good word (e.g., awesome, great) or bad word (e.g., gross, ugly). Their task was to decide if the word meant something good or bad as quickly as possible by pressing a button marked "good" or "bad" on the keyboard. They were also instructed to pay close attention to the pictures, as they would be quizzed about them later in the study. Participants were warned that the pictures contained sexual and aggressive content.

Participants first completed a practice block to become familiar with the target words (i.e., 10 positive adjectives; 10 adjectives negative adjectives). Each word remained on the screen until the participant responded. Participants were prompted to respond more quickly if 1500 ms elapsed without a response. Participants completed one practice block where each of the 20 adjectives was presented twice in random order (i.e., 40 total practice responses).

Next, the critical priming blocks began. On each trial, an image prime (i.e., a rape image or a filler image) was presented for 300 ms followed immediately by a target word. Participants' task was to respond to the target word as quickly and accurately as possible. Participants were prompted to respond more quickly after 1500 ms. The latency of reaction time (RT) from word onset to response was recorded to the nearest millisecond. Participants completed three priming blocks. In each block, each of the 40 images appeared twice, once with a good word and once with a bad word. This resulted in 80 image-word trials per block. Across the three blocks, there were 30 rape image-positive word pairings and 30 rape image-negative word pairings.

Measures

Self-Report Surveys

Demographics: We included questions about age and race for descriptive purposes.

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[3]We applied a more stringent inclusion criteria by excluding participants with error rates over 25% on the priming procedure (*n* = 20) and reran all analyses. The results were unchanged when the more stringent criteria was used; thus, we chose to retain the larger sample.

Rape Myth Acceptance: We used the 20-item Illinois Rape Myth Acceptance Scale, short form (IRMA-SF) (Payne et al., 1999) to assess acceptance of rape myths. Participants responded to items such as, "Many women secretly desire to be raped" and "It is usually only women who dress suggestively that are raped" on a scale from (1) Strongly Disagree to (7) Strongly Agree. A mean score was computed, with higher scores indicating greater rape myth acceptance ($\alpha = .81$).

Hostility Toward Women: The Revised Hostility toward Women Scale (RHTW) (Lonsway & Fitzgerald, 1995) was used to capture feelings of hostility and resentment toward women. Based on the Hostility toward Women Scale by Check, Malamuth, Elias, and Barton (1985), the RHTW scale contains 10 items such as, "I think that most women would lie just to get ahead," and "I am easily angered by women." Ratings were made on a scale from (1) Strongly Disagree to (7) Strongly Agree. Higher scores indicated more hostile attitudes toward women ($\alpha = .83$).

Sexual Assault Frequency and Severity: Sexual assault perpetration was assessed with an updated Sexual Experiences Survey (SES) (Abbey, Parkhill, & Koss, 2005) that captures sexual assault perpetrated by men against women since the age of 14 (Koss et al., 1987). In the current study, participants reported whether or not they had used six different tactics (i.e., arguments/ pressure, lies/promises, guilt/anger, giving alcohol or drugs, taking advantage of an intoxicated woman, and using physical force) to engage in five different types of sexually aggressive behavior (i.e., fondling/kissing, attempted sex, oral sex, sexual intercourse, and anal sex/insertion of objects). We summed the total number of items endorsed to create a continuous sexual assault frequency score (possible range = 0–30). Additionally, for descriptive purposes, we used the SES to calculate an index of sexual assault severity following the categories delineated by Koss et al. (1987). Specifically, participants were coded into one of four mutually exclusive categories: 1 = no sexual assault, 2 = sexual contact (i.e., verbally pressured or physically forced kissing or sexual touching, but not sexual penetration), 3 = sexual coercion (i.e., verbally pressured sexual penetration), and 4 = attempted or completed rape (i.e., sexual penetration that was either attempted or completed through use of physical force, giving drugs/alcohol, or taking advantage of a victim who was too intoxicated to consent).

RESULTS

Rape Attitude Estimates—Estimates of automatically activated rape attitudes were derived from participants' performance on the priming procedure. To compute such scores, first RTs faster than 100 ms or slower than 1500 ms were cut to reduce outliers as is standard practice (see Fazio, 1990), resulting in a loss of 1.4% of data. Then, mean RTs were calculated across blocks for the rape image-positive word parings and the rape image-negative word pairings (excluding error trials). Finally, rape attitude indices were computed by subtracting the rape-negative RTs from rape-positive RTs, where positive scores indicated faster response times to rape-positive pairings than rape-negative pairings and suggested more "pro-rape" attitudes.

Because we were examining between-subject differences in attitudes toward the same objects (i.e., rape images), we were aware that resulting RT scores could reflect either true attitude differences or individual differences in the processing speed of positive and negative words (Unkelbach, Fiedler, Bayer, Stegmuller, & Danner, 2008). Thus, in all regression analyses when the evaluative priming task was involved, we included both the automatic rape attitude scores, as well an analogous difference score for RTs to neutral primes. Including neutral attitude scores in all analyses allowed us to control for baseline differences in reaction speed to positive versus negative words.

Descriptive Statistics—Table 1 provides latency means to positive and negative words following each image category. Automatic rape attitudes demonstrated good variability, with raw scores ranging from −120.40 to 127.12 ($M = 23.87$, $SD = 50.46$). On average, men responded more quickly to the positive words following the sex images and more quickly to the negative words following the rape and violence images. However, 29% of men ($n = 18$) responded more quickly to the positive than negative words following rape images, suggesting more pro-rape automatic attitudes for these men. Error rates on the priming task were higher than anticipated (M error percent = 14.07, $SD = 11.76$), possibly due to the provocative nature of the images.

The range of rape myth acceptance (RMA) and hostility toward women (HTW) scores were somewhat restricted and negatively skewed. The mean RMA score was 2.58 ($SD = .72$) with a range from 1.18 to 4.29 (possible range = 1–7), and the mean HTW score was 3.39 ($SD = .96$) with a range from 1.50 to 5.0 (possible range = 1–7).

Responses to the Sexual Experiences Survey (Abbey et al., 2005) indicated that 36% of men ($n = 27$) had committed at least one act of sexual assault since the age of 14 (range = 0–12 acts). Further, 28% ($n = 21$) of men reported perpetrating more than one act of sexual assault and 8% ($n = 46$) reported perpetrating five or more acts. A breakdown by the severity of sexual assault indicated that 12% ($n = 9$) perpetrated sexual contact against a woman's will, 19% ($n = 14$) perpetrated sexual coercion, and 5% ($n = 4$) perpetrated attempted or completed rape.

Correlations between Rape Supportive Attitudes—Preliminary correlations were conducted to determine the interrelationships between implicit and explicit rape attitudes. Consistent with much research on the relations between implicit and explicit measures (Fazio & Olson, 2003), we found that automatic rape attitudes were not significantly associated with either RMA, $r(73) = .11$, or HTW, $r(73) = −.12$; however, RMA and HTW were strongly associated with each other, $r(73) = .45$, $p < .001$.

Do automatic rape attitudes explain unique variance in sexual assault above traditional self-report attitude assessments?—To examine if automatic rape attitudes would explain unique variance in sexual assault frequency and to determine the incremental validity of automatic rape attitudes above and beyond RMA and HTW, a series of negative binomial regressions was conducted. Negative binomial regressions were chosen because the sexual assault data were highly negatively skewed count data, and thus violated assumptions of normality (for a discussion of non-normal distributions and corrective statistical techniques, see Atkins & Gallop, 2007).

As shown in the Single Predictor Model of Table 2, automatic rape attitudes were significantly related to the frequency of sexual assault. To assess the unique predictive power of automatic attitudes above self-reported attitudes, automatic attitudes were entered into a simultaneous regression model with RMA (Simultaneous Model 1), HTW (Simultaneous Model 2), and RMA *and* HTW (Simultaneous Model 3). As shown in Table 2, when automatic rape attitudes were entered into multivariate models with RMA and with HTW, automatic rape attitudes emerged as a significant unique predictor of sexual assault perpetration. Notably, in the final multivariate model where automatic rape attitudes, RMA, and HTW were simultaneously entered as predictors, automatic rape attitudes and RMA remained significant predictors but HTW was no longer associated with sexual assault.

Although we did not have a priori predictions, several post-hoc analyses were included for exploratory purposes. First, to be certain that the relationships between automatic rape attitudes and sexual assault were not being driven exclusively by an attraction to sex or an

attraction to violence, we reran all analyses reported in Table 2 controlling for automatic sex attitudes and then again controlling for automatic violence attitudes. The results remained essentially unchanged when sex attitudes or violence attitudes were in the models, with automatic rape attitudes retaining predictive power ($ps < .08$) when sex and violence attitudes were controlled. Additionally, to determine if automatic and self-reported rape attitudes interacted to predict sexual assault. Neither the interaction between automatic attitudes and RMA nor the interaction with HTW accounted for significant variance in sexual assault frequency ($ps > .20$).

Study 2

The purpose of Study 2 was to determine if the results from Study 1 would replicate in a non-college population. Of note, although much is known about the prevalence and predictors of sexual assault among college men (Koss et al., 1987; Murnen & Kohlman, 2007; Spitzberg, 1999), much less is known about this behavior among men who are not in college. To date, only a few studies have examined sexual assault among men in community samples (e.g., Abbey, Parkhill, BeShears, Clinton-Sherrod, & Zawacki, 2006; Calhoun, Benat, Clum, & Fame, 1997; Lanier, 2001). Further research in community samples is necessary to determine if the correlates of sexual assault are similar across populations.

METHOD

Participants—Participants were 51 men recruited in the community as part as a larger study of sexual attitudes (Widman, 2010; Widman, Olson, & Bolen, 2012). Participants were recruited through the use of flyers posted throughout the community in locations targeting a low income sample. To be eligible for the study, participants had to be over the age of 18 years, able to read English, and willing to view sexually explicit material. We excluded one participant with an error rate on the rape attitude priming procedure that was near chance (48%). Thus, the final community sample included 50 men between the ages of 19 and 79 years ($M = 35.9$, $SD = 13.7$). The racial identification in this sample was primarily Caucasian (84%), and also included African-American (6%), Hispanic/Latino (2%), Asian American (2%) and "other" races (6%). The highest level of education completed by this sample included: high school graduate or less (38%), some college/technical degree (36%), Bachelors degree (22%), or graduate degree (4%).

Procedure—Similar to Study 1, participants completed the evaluative priming procedure followed by several anonymous, computer-based surveys in our university lab. All participants signed informed consent sheets before beginning the study. The duration of the study lasted approximately one hour and participants were compensated with $30 for their time. Participants were fully debriefed at the conclusion of the study. The University Institutional Review Board approved all procedures.

Rape Attitude Evaluative Priming: A priming procedure very similar to that reported in Study 1 was used in this study. The one exception was that we altered our instructions to emphasize the importance of fast but *accurate* responding in an effort to reduce error rates. Notably, the overall error rate dropped from 18% in Study 1 to 5% in Study 2, suggesting the altered instructions were effective. All other aspects of the priming procedure were the same as those described in Study 1.

Self-Report Surveys: Participant age and race were gathered for descriptive purposes. As described in Study 1, we used the IRMA-SF (Payne et al., 1999) to assess rape myth acceptance ($\alpha = .89$), and the RHTW scale (Lonsway & Fitzgerald, 1995) to assess hostility toward women ($\alpha = .84$). Further, we assessed sexual assault with the updated SES (Abbey

et al., 2005) and scored the survey in the same manner described in Study 1 to arrive at a sexual assault frequency score.

RESULTS

Rape Attitude Estimates—Estimates of automatic rape attitudes were derived from participants' performance on the priming procedure. RTs faster than 100 ms or slower than 1500 ms were cut, which resulted in a loss of 1.4% of data. Automatic rape attitudes were then calculated following the procedures outlined in Study 1, such that higher scores indicated more "pro-rape" attitudes, and an analogous neutral attitude score was computed to control for differences in response speed.

Descriptive Statistics—Table 3 provides latency means to positive and negative words following each image category along with attitude facilitation scores. As in Study 1, automatic rape attitudes assessed with the priming measure demonstrated good variability, ranging from −221.89 to 116.07 ($M = -8.54$, $SD = 62.22$). Also like Study 1, on average, men responded more quickly to the positive words following the sex images and more quickly to the negative words following the rape and violence images. However, a full 44% of community men ($n = 24$) responded more quickly to the positive words following rape images than they did to negative words following rape images, suggesting more pro-rape attitudes in these men. The range of RMA and HTW scores were somewhat restricted: the mean RMA score was 2.54 ($SD = .88$) with a range from 1.00 to 4.41 (possible range = 1– 7), and the mean HTW score was 3.13 ($SD = .94$) with a range from 1.00 to 5.60 (possible range = 1–7).

Responses to the Sexual Experiences Survey (Abbey et al., 2005) indicated that a full 60% of community men ($n = 30$) had committed at least one act of sexual assault since the age of 14 ($M = 3.12$, $SD = 4.15$, range = 0–15 acts). Further, 46% of men ($n = 23$) reported perpetrating more than one act of sexual assault and 26% ($n = 13$) reported perpetrating five or more acts. A breakdown by the severity of sexual assault indicated that 18% ($n = 9$) perpetrated sexual contact against a woman's will, 28% ($n = 14$) perpetrated sexual coercion, and 12% ($n = 6$) perpetrated attempted or completed rape.

Correlations between Rape Supportive Attitudes—We found that automatic rape attitudes were marginally associated with RMA, $r(48) = .25$, $p = .08$, but were not significantly associated with HTW, $r(48) = .16$. As in Study 1, RMA and HTW were strongly associated with each other, $r(48) = .54$, $p < .001$.

Do automatic rape attitudes explain unique variance in sexual assault above traditional self-report attitude assessments?—In line with the results of Study 1, negative binomial regression analyses showed that automatic rape attitudes were significantly related to the frequency of sexual assault (Table 4). Further, when automatic rape attitudes were entered into multivariate models with RMA and with HTW, automatic attitudes emerged as a unique predictor of sexual assault. Notably, in the final multivariate models where automatic rape attitudes, RMA, and HTW were simultaneously entered as predictors, automatic rape attitudes and HTW were significant predictors of sexual assault, but RMA was no longer associated with sexual assault. Although automatic attitudes were consistently associated with sexual assault in both Study 1 and Study 2, the self-reported attitudes varied across studies in the final models, with RMA significant in Study 1 and HTW significant in Study 2.

Finally, as in Study 1, post-hoc analyses were included for exploratory purposes. First, we reran all analyses reported in Table 4 controlling for automatic sex attitudes and then again

controlling for automatic violent attitudes. The results remained essentially unchanged when sexual attitudes were in the models, with automatic rape attitudes retaining significant predictive power in each model. However, when violent attitudes were entered into the models, rape attitudes were no longer significantly associated with self-reported sexual aggression. Next, we conducted analyses to determine if automatic and self-reported rape attitudes interacted to predict sexual assault. Like Study 1, neither the interaction between automatic attitudes and RMA nor the interaction with HTW accounted for significant variance in sexual assault frequency ($ps > .20$).

GENERAL DISCUSSION

Considering the problems evident in assessing rape-supportive attitudes through self-reports, the goal of the current studies was to advance sexual assault research by developing a novel implicit priming procedure to capture automatic rape attitudes without relying on self-reports and to investigate the link between these automatic attitudes and sexual assault. Toward this aim, we developed an implicit rape attitude priming procedure and then validated this new procedure against behavioral reports of sexual assault frequency in a sample of college men (Study 1) and community men (Study 2). We found that automatic rape attitudes were a robust indicator of sexual assault and contributed significance unique variance in explaining sexual assault perpetration beyond traditional self-reported rape attitudes (i.e., rape myth acceptance and hostility toward women) in both samples.

In line with prior research, our findings confirmed that sexual assault remains a very common social problem. In Study 1, we found over one third of the college sample had perpetrated an act of sexual assault and 8% of these men had attempted or completed a rape since the age of 14. Further, in Study 2, we found a full 60% of community men had perpetrated sexual assault and a quarter of these men had perpetrated more than five acts of sexual assault since their teenage years. Such findings highlight the need for continued research in this area as well as innovative methods for evaluation, treatment, and prevention of sexual aggression. The implicit rape attitude procedure described in the current studies may be one such innovative tool that can advance science in this domain in terms of both rape attitude measurement and sexual assault theory.

Implications for Rape Attitude Measurement—With respect to rape attitude measurement, prior sexual assault research has relied on participant self-reports; however, these reports may be easily biased by social desirability and experimental demand, thus obscuring the relationship between rape supportive attitudes and sexually aggressive behavior. In line with previous research that found inconsistent associations between explicit rape attitudes and sexual assault (e.g., Forbes et al., 2004; Loh et al., 2005), the pattern of relationships between rape myth acceptance, hostility toward women, and sexual assault varied across our two studies. Specifically, although automatic rape attitudes were consistently associated with sexual assault in both Study 1 and 2, in the final multivariate models, hostility toward women was not associated with sexual assault in Study 1 and rape myth acceptance was not associated with sexual assault in Study 2. These findings highlight the importance of capturing rape supportive attitudes with alternative procedures. Our novel automatic rape attitude procedure offers one such methodological advance toward understanding predictors of sexual assault and may be used to assess underlying attitude-behavior relationships in future sexual assault research.

Of note, we did not find a significant relationship between automatic rape attitudes and self-reported rape attitudes across studies. This finding was in line with prior research that has found minimal relationships between automatic attitudes and self-reports (for review, see Fazio & Olson, 2003). This attitude incongruity may be due to a lack of correspondence

between attitude objects. Specifically, the images used in the priming task depicted more overt forms of physical violence and were not completely congruent with the kinds of items on the self-report scales, which assessed aspects of sexual coercion and pressure (for discussions, see Fazio & Olson, 2003; Hofmann, Gawronski, Gschwendner, Le, & Schmitt, 2005). To address this possibility, future research could ask participants to explicitly evaluate the priming images to see if self-reported liking for rape images provides similar predictive validity as automatic rape attitudes. Thermometer ratings and attitude differential scales that specifically inquire about attitudes about rape may also be used in future studies to further validate the implicit rape attitude procedure described here.

Implications for Sexual Assault Theory—The current studies suggest another valuable avenue for future research is to incorporate implicit rape attitude procedures into sexual assault theory. Social cognitive theories such as the MODE model (Fazio, 1990; Olson & Fazio, 2009) suggest that automatic evaluative responses are likely to guide judgments and behavior, and that highly accessible, automatic attitudes are more stable over time and more predictive of future behavior than are less accessible attitudes (Fazio, 1995; Fazio et al., 1995; Olson & Fazio, 2009). An implicit rape attitude procedure could be used in future research to isolate the automatic components of rape supportive attitudes and be incorporated into expanded, dual-process models of sexual assault perpetration.

Implicit attitude measurement might also be used to tease out the aspects of sexual assault that are attributable to an attraction toward sex versus an attraction toward violence or dominance (for discussion of these issues, see Buss & Malamuth, 1996; Travis, 2003). Our results highlight that, on average, men responded more quickly to the positive words following the sex images and more quickly to the negative words following the rape and violence images[4]. This suggests a general trend toward more positive attitudes about sex and more negative attitudes toward rape and violence across our two samples. However, these patterns did not hold for all men. Nearly one third of college men (29%) and 44% of community men responded more quickly to the positive words following rape images, suggesting more "pro-rape" implicit attitudes for these men. In follow-up analyses, we generally found that rape attitudes remained associated with sexual assault when both sexual and violent attitudes were controlled; however, in the community sample, rape attitudes were no longer associated with sexual assault when we added attitudes about violence into the models. In addition to exploring automatic attitudes about rape, future studies might conduct more detailed analyses to determine the components of both rape attitudes and sexually aggressive behavior that are attributable to attraction toward either sex or violence using implicit attitude measurement. Particular emphasis should be paid to understanding the role of attraction toward violence in future studies with non-college samples.

Strengths and Limitations—Our confidence in the results reported here was enhanced by several strengths of the methodology and design of these studies. First, we demonstrated that automatic rape attitudes were associated with unique variance in sexual assault, and that these significant associations held even when self-reported rape attitudes were controlled. Further, we were able to replicate our findings across two independent samples, including a sample of college men and a sample of men from the community. Of importance, studies that describe sexual assault prevalence and test predictors of sexual assault perpetration

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[4]Research by Geer and colleagues (Geer & Melton, 1997; Geer & Bellard, 1996) indicates that respondents are generally slower to respond to erotic words in lexical decision tasks, a phenomenon which may be due to the taboo nature of sexual content. This "sexual content-induced delay" may have occurred in the present research, but would have had minimal impact on the attitude estimates we derive and relate to participant behavior. This is because differences between participants' response latencies to positive versus negative targets (which had no sexual content themselves) preceded by the same prime are used in computing the attitude estimates. Thus, any slowing effects in response to sexual content would be canceled out in these comparative analyses.

among community men are notably scarce, so this study fills an important gap in this area. Additionally, these studies were based on reputable indirect measurement methods (Fazio et al., 1986) and represent the first to develop and validate an implicit rape attitude assessment procedure. Such a procedure contributes to a growing body of research that demonstrates robust relationships between automatic attitudes and behavior in socially sensitive domains (e.g., Bargh et al., 1995; Dovidio et al., 2002).

Despite these strengths, a couple of limitations deserve mention. First, we assessed sexual assault perpetration with the SES (Abbey et al., 2005), a self-report measure. Although the SES has been well-validated and carefully developed to reduce social desirability bias (e.g., using behaviorally specific language, avoiding the terms "rape" or "sexual assault") (Koss & Gidycz, 1985; Koss et al., 1987; 2007), it remains possible that reports of sexual assault were biased. This bias is difficult to overcome in survey research where we must rely on participant reports because it is unethical to directly observe the behavior in question. However, there have been creative attempts to capture milder forms of sexual aggression in a laboratory setting (Hall & Hirschman, 1994; Mitchell, Angelone, Hirschman, Lilly, & Hall, 2002) and it may be worthwhile to pursue these observational methods in future studies that validate the implicit attitude procedure described here. A second limitation of the current project is that we collected all data cross-sectionally. This limits our ability to determine causal directions in our findings. Future research could examine causality through the use of a prospective design and explore the developmental trajectory of rape-supportive attitudes.

Although prior research and theory has suggested that rape supportive attitudes are important predictors of sexual assault, this research has relied on self-reported attitudes with methodological and theoretical limitations. The current studies advance research in this socially sensitive domain as they provide an alternative method for capturing rape supportive attitudes that does not rely on self-report and suggests that automatic rape attitudes have the potential to advance measurement and theory aimed at understanding and alleviating sexual assault.

Acknowledgments

References

Abbey A, Jacques-Tiura AJ. Sexual assault perpetrators' tactics: Associations with their personal characteristics and aspects of the incident. Journal of Interpersonal Violence. 2011; 26:2866–2889. [PubMed: 21156685]

Abbey A, McAuslan P, Ross LT. Sexual assault perpetration by college men: the role of alcohol, misperception of sexual intent, and sexual beliefs and experiences. Journal of Social and Clinical Psychology. 1998; 17:167–195.

Abbey A, Parkhill MR, BeShears R, Clinton-Sherrod AM, Zawacki T. Cross-sectional predictors of sexual assault perpetration in a community sample of single African American and Caucasian men. Aggressive Behavior. 2006; 32:54–67.

Abbey A, Parkhill MR, Koss MP. The effects of frame of reference on responses to questions about sexual assault victimization and perpetration. Psychology of Women Quarterly. 2005; 29:364–373.

Abbey A, Zawacki T, Buck PO, McAuslan P. Sexual assault and alcohol consumption: What do we know about their relationship and what types of research are still needed? Aggression and Violent Behavior. 2004; 9:271–303.

Anderson LA, Whiston SC. Sexual assault education programs: A meta-analytic examination of their effectiveness. Psychology of Women Quarterly. 2005; 29:374–388.

Atkins DC, Gallop RJ. Rethinking how family researchers model infrequent outcomes: A tutorial on count regression and zero-inflated models. Journal of Family Psychology. 2007; 21:726–735. [PubMed: 18179344]

Bargh JA, Raymond P, Pryor JB, Strack F. Attractiveness of the underling: an automatic power - sex association and its consequences for sexual harassment and aggression. Journal of Personality and Social Psychology. 1995; 68:768–181. [PubMed: 7776181]

Brecklin LR, Forde DR. A meta-analysis of rape education programs. Violence and Victims. 2001; 16:303–321. [PubMed: 11437119]

Brener ND, McMahon PW, Warren CW, Douglas KA. Forced sexual intercourse and associated health-risk behaviors among female college students in the United States. Journal of Consulting and Clinical Psychology. 1999; 67:252–259. [PubMed: 10224736]

Brown AS, Gray NS, Snowden RJ. Implicit measurement of sexual associations in child sex abusers. Sexual Abuse: A Journal of Research and Treatment. 2009; 21:166–180. [PubMed: 19439764]

Burt MR. Cultural myths and supports for rape. Journal of Personality and Social Psychology. 1980; 38:217–230. [PubMed: 7373511]

Buss, DM.; Malamuth, N. Sex, power, conflict: Evolutionary and feminist perspectives. New York, NY: Oxford University Press; 1996.

Calhoun KS, Bernat JA, Clum GA, Fame CL. Sexual coercion and attraction to sexual aggression in a community sample of young men. Journal of Interpersonal Violence. 1997; 12:392–406.

Campbell JC. Health consequences of intimate partner violence. Lancet. 2002; 359:1331–1336. [PubMed: 11965295]

Check JVP, Malamuth NM, Elias B, Barton S. On hostile ground. Psychology Today. 1985 Apr.:56– 61.

DeGue S, DiLillo D. Understanding perpetrators of nonphysical sexual coercion: Characteristics of those who cross the line. Violence and Victims. 2004; 19:673–688. [PubMed: 16004069]

DeGue S, DiLillo D, Scalora M. Are all perpetrators alike? Comparing risk factors for sexual coercion and aggression. Sexual Abuse: A Journal of Research and Treatment. 2010; 22:402–426. [PubMed: 20693517]

Demare D, Briere J, Lips HM. Violent pornography and self-reported likelihood of sexual aggression. Journal of Research in Personality. 1988; 22:140–153.

Dovidio JF, Kawakami K, Gaertner SL. Implicit and explicit prejudice in interracial interactions. Journal of Personality and Social Psychology. 2002; 82:62–68. [PubMed: 11811635]

Dunst KJ, Hamby DW, Trivette CM. Guidelines for calculating effect sizes for practice-based research synthesis. Centerscope. 2004; 3:1–10.

Fazio, RH. A practical guide to the use of response latency in social psychological research. In: Hendrick, C.; Clack, MS., editors. Research methods in personality and social psychology. Newbury Park, CA: Sage; 1990. p. 74-97.

Fazio, RH. Attitudes as object-evaluation associations: Determinants, consequences, and correlates of attitude accessibility. In: Petty, RE.; Krosnick, JA., editors. Attitude strength: Antecedents and consequences. Hillsdale, NJ: Erlbaum; 1995. p. 247-282.

Fazio, RH. Accessible attitudes as tools for object appraisal: Their costs and benefits. In: Maio, GR.; Olson, JM., editors. Why we evaluate: Functions of attitudes. Mahwah, NJ: Erlbaum; 2000. p. 1-36.

Fazio RH, Jackson JR, Dunton BC, Williams CJ. Variability in automatic activation as an unobtrusive measure of racial attitudes: a bona fide pipeline? Journal of Personality and Social Psychology. 1995; 69:1013–1027. [PubMed: 8531054]

Fazio RH, Olson MA. Implicit measures in social cognition research: Their meaning and uses. Annual Review of Psychology. 2003; 54:297–327.

Fazio RH, Sanbonmatsu DM, Powell MC, Kardes FR. On the automatic activation of attitudes. Journal of Personality and Social Psychology. 1986; 50:229–238. [PubMed: 3701576]

Flores SA, Hartlaub MG. Reducing rape-myth acceptance in male college students: A meta analysis of intervention studies. Journal of College Student Development. 1998; 39:438–448.

Forbes GB, Adams-Curtis LE. Experiences with sexual coercion in college males and females: Role of family conflict, sexist attitudes, acceptance of rape myths, self-esteem, and the big-five personality factors. Journal of Interpersonal Violence. 2001; 16:865–889.

Forbes GB, Adams-Curtis LE, White KB. First- and second-generation measures of sexism, rape myths and related beliefs, and hostility toward women: Their interrelationships and association with college students' experiences with dating aggression and sexual coercion. Violence Against Women. 2004; 10:236–261.

Geer JH, Bellard HS. Sexual content induced delays in lexical decisions: Gender and context effects. Archives of Sexual Behavior. 1996; 25:379–395. [PubMed: 8836471]

Geer JH, Melton JS. Sexual content induced delays with double-entendre words. Archives of Sexual Behavior. 1997; 26:295–316. [PubMed: 9146815]

Hall GCN, Hirschman R. The relationship between men's sexual aggression inside and outside the laboratory. Journal of Consulting and Clinical Psychology. 1994; 62:375–380. [PubMed: 8201076]

Hofmann W, Gawronski B, Gschwendner T, Le H, Schmitt M. A meta-analysis on the correlation between the Implicit Association Test and explicit self-report measures. Personality and Social Psychology Bulletin. 2005; 31:1369–1385. [PubMed: 16143669]

Humphrey JA, White JW. Women's vulnerability to sexual assault from adolescence to young adulthood. Journal of Adolescent Health. 2000; 27:419–424. [PubMed: 11090744]

Jarvis, BG. MediaLab Research Software, Version 2006 [computer program]. New York: Empirisoft; 2006.

Kamphuis JH, de Ruiter C, Janssen B, Spiering M. Preliminary evidence for an automatic link between sex and power among men who molest children. Journal of Interpersonal Violence. 2005; 20:1351–1365. [PubMed: 16210730]

Karpinski A, Steinman RB. The single category Implicit Association Test as a measure of implicit social cognition. Journal of Personality and Social Psychology. 2006; 91:16–32. [PubMed: 16834477]

Knight RA, Sims-Knight JE. The developmental antecedents of sexual coercion against women in adolescents: Testing alternative hypotheses with structural equation modeling. Annals of the New York Academy of Sciences. 2003; 989:72–85. [PubMed: 12839887]

Koss MP, Abbey A, Campbell R, Cook S, Norris J, Testa M, et al. Revising the SES: A collaborative process to improve assessment of sexual aggression and victimization. Psychology of Women Quarterly. 2007; 31:357–370.

Koss MP, Gidycz CA. Sexual Experiences Survey: Reliability and validity. Journal of Consulting and Clinical Psychology. 1985; 53:422–423. [PubMed: 3874219]

Koss MP, Gidycz CA, Wisniewski N. The scope of rape: Incidence and prevalence of sexual aggression and victimization in a national sample of higher education students. Journal of Consulting and Clinical Psychology. 1987; 55:162–170. [PubMed: 3494755]

Lanier CA. Rape-accepting attitudes: Precursors to or consequences of forced sex. Violence Against Women. 2001; 7:876–885.

Leibold JM, McConnell AR. Women, sex, hostility, power, and suspicion: Sexually aggressive men's cognitive associations. Journal of Experimental Social Psychology. 2004; 40:256–263.

Loh C, Gidycz CA, Lobo TR, Luthra R. A prospective analysis of sexual assault perpetration: Risk factors related to perpetrator characteristics. Journal of Interpersonal Violence. 2005; 20:1325–1348. [PubMed: 16162492]

Lonsway KA, Fitzgerald LF. Rape myths: In review. Psychology of Women Quarterly. 1994; 18:133–164.

Lonsway KA, Fitzgerald LF. Attitudinal antecedents of rape myth acceptance: A theoretical and empirical reexamination. Journal of Personality and Social Psychology. 1995; 68:704–711.

Malamuth NM. Criminal and noncriminal sexual aggressors: Integrating psychopathy in a hierarchical-mediational confluence model. Annals of the New York Academy of Sciences. 2003; 989:33–58. [PubMed: 12839885]

Mihailides S, Devilly GJ, Ward T. Implicit cognitive distortions and sexual offending. Sexual Abuse: A Journal of Research and Treatment. 2004; 16:333–350. [PubMed: 15560415]

Mitchell D, Angelone DJ, Hirschman R, Lilly RS, Hall GCN. Peer modeling and college men's sexually impositional behavior in the laboratory. Journal of Sex Research. 2004; 39:326–222. [PubMed: 12545416]

Murnen SK, Kohlman. Athletic participation, fraternity membership, and sexual aggression among college men: A meta-analytic review. Sex Roles. 2007; 57:145–157.

Murnen SK, Wright C, Kaluzny G. If "boys will be boys," then girls will be victims? A meta-analytic review of the research that relates masculine ideology to sexual aggression. Sex Roles. 2002; 46:359–375.

Neely JH. Semantic priming and retrieval from lexical memory: Roles of inhibitionless spreading activation and limited-capacity attention. Journal of Experimental Psychology: General. 1977; 106:225–254.

Nosek BA. Moderators of the relationship between implicit and explicit evaluation. Journal of Experimental Psychology: General. 2005; 134:565–584. [PubMed: 16316292]

Nunes KL, Firestones P, Baldwin MW. Indirect assessment of cognitions of child sexual abusers with the Implicit Association Test. Criminal Justice and Behavior. 2007; 34:454–475.

Olson, MA. Measures of prejudice. In: Nelson, T., editor. Handbook of prejudice. Hillsdale, NJ: Erlbaum; 2009. p. 367-386.

Olson, MA.; Fazio, RH. Implicit and explicit measures of attitudes: The perspective of the MODE model. In: Petty, RE.; Fazio, RH.; Briñol, P., editors. Attitudes: Insights from the new implicit measures. Mahwah, NJ: Erlbaum; 2009. p. 19-64.

Overholser JC, Beck SJ. The classification of rapists and child molesters. Journal of Offender Counseling, Services, and Rehabilitation. 1986; 14:169–179.

Payne DL, Lonsway KA, Fitzgerald LF. Rape myth acceptance: Exploration of its structure and its measurement using the Illinois Rape Myth Acceptance Scale. Journal of Research in Personality. 1999; 33:27–68.

Spitzberg BH. An analysis of empirical estimates of sexual aggression victimization and perpetration. Violence and Victims. 1999; 14:241–260. [PubMed: 10606432]

Suarez E, Gadalla TM. Stop blaming the victim: A meta-analysis on rape myths. Journal of Interpersonal Violence. 2010; 25:2010–2035. [PubMed: 20065313]

Tjaden, P.; Thoennes, N. Extent, nature, and consequences of intimate partner violence. Washington, DC: U.S. Department of Justice, NCJ 181867; 2000.

Travis, CB. Evolution, gender, and rape. Cambridge, MA: MIT Press; 2003.

Unkelbach C, Fiedler K, Bayer M, Stegmüller M, Danner D. Why positive information is processed faster: The density hypothesis. Journal of Personality and Social Psychology. 2008; 95:36–49. [PubMed: 18605850]

White, JW.; Frabutt, JM. Violence against girls and women: An integrative developmental perspective. In: Worell, J.; Goodheart, CD., editors. Handbook of girls' and women's psychological health. Oxford: Oxford University Press; 2006. p. 85-93.

Widman, L. Unpublished doctoral dissertation. University of Tennessee; Knoxville, TN: 2010. Inside the minds of sex offenders: Illuminating the role of implicit rape attitudes in sexual offending.

Widman L, Olson MA, Bolen R. Self-reported sexual assault in convicted sex offenders and community men. Journal of Interpersonal Violence. 2012 Accepted for publication.

Table 1

Raw Latency of Response Time by Image Category in the College Sample

	Positive Word RT	Negative Word RT	Attitude Score
	M (SD)	*M (SD)*	*M (SD)*
Rape Primes	667.68 (105.63)	628.80 (109.36)	−38.88 (73.36)
Sexual Primes	606.99 (88.17)	674.45 (119.83)	67.46 (91.23)
Violent Primes	655.32 (113.99)	615.75 (101.24)	−38.54 (92.14)
Neutral Primes	594.62 (84.71)	654.77 (91.84)	60.15 (71.83)

Note. RT = Reaction time in *ms*; Attitude Score = difference between RT to positive words and RT to negative words following each image category.

Table 2

Negative Binomial Regressions with Rape-Supportive Attitudes Predicting Sexual Assault Frequency in the College Sample

	Wald χ^2	Cohen's *d*
Single Predictor Models		
Automatic Rape Attitudes	6.13*	0.60
Rape Myth Acceptance	12.89***	0.91
Hostility Toward Women	3.75[+]	0.46
Simultaneous Model 1		
Automatic Rape Attitudes	4.03*	0.48
Rape Myth Acceptance	10.73**	0.82
Simultaneous Model 2		
Automatic Rape Attitudes	7.52**	0.67
Hostility Toward Women	5.42*	0.56
Simultaneous Model 3		
Automatic Rape Attitudes	4.47*	0.50
Rape Myth Acceptance	6.59*	0.62
Hostility Toward Women	0.62	0.18

Note. Automatic neutral attitudes were controlled in all analyses that included automatic rape attitudes. A Cohen's *d* statistic was calculated using the formula: $d = \sqrt{[(4\chi^2)/(N-\chi^2)]}$ (Dunst, Hamby, & Trivette, 2004).

Table 3

Raw Latency of Response Time by Image Category in the Community Sample

	Positive Word RT	Negative Word RT	Attitude Score
	M (SD)	*M (SD)*	*M (SD)*
Rape Primes	693.67 (130.75)	685.12 (123.00)	−8.54 (62.22)
Sexual Primes	634.95 (108.95)	686.93 (119.98)	51.98 (47.96)
Violent Primes	671.80 (127.06)	656.78 (113.23)	−15.02 (48.12)
Neutral Primes	641.57 (132.34)	676.56 (113.06)	34.99 (45.95)

Note. RT = Reaction time in *ms*; Attitude Score = difference between RT to positive words and RT to negative words following each image category.

Table 4

Negative Binomial Regressions with Rape-Supportive Attitudes Predicting Sexual Assault Frequency in the Community Sample

	Wald χ^2	Cohen's *d*
Single Predictor Models		
Automatic Rape Attitudes	5.37*	0.69
Rape Myth Acceptance	10.75**	1.05
Hostility Toward Women	11.20**	1.07
Simultaneous Model 1		
Automatic Rape Attitudes	2.99+	0.50
Rape Myth Acceptance	7.60**	0.85
Simultaneous Model 2		
Automatic Rape Attitudes	5.27*	0.69
Hostility Toward Women	10.52**	1.03
Simultaneous Model 3		
Automatic Rape Attitudes	3.86*	0.58
Rape Myth Acceptance	1.86	0.39
Hostility Toward Women	5.48*	0.70

Note. Automatic neutral attitudes were controlled in all analyses that included automatic rape attitudes. A Cohen's *d* statistic was calculated using the formula: $d = \sqrt{[(4\chi^2)/(N-\chi^2)]}$ (Dunst et al., 2004).