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Sexual Submissiveness in Women: Costs for Sexual Autonomy and Arousal

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Women are bombarded with images of women's sexual submission and subservience to male partners. The authors argue that women internalize this submissive role, namely, they associate sex implicitly with submission. The authors propose that this association leads to submissive sexual behavior, thereby reducing sexual autonomy and arousal. Study 1 found that women implicitly associated sex with submission. Study 2 showed that women's implicit association of sex with submission predicted greater personal adoption of a submissive sexual role. Study 3 found that men did not implicitly associate sex with submission. Study 4 demonstrated that women's adoption of a submissive sexual role predicted lower reported arousal and greater reported difficulty becoming sexually aroused; sexual autonomy mediated these effects.

Keywords: gender roles; sexual arousal; autonomy; implicit; power; submission

In professional, academic, and interpersonal contexts, gender stereotypes prescribe distinct behavioral norms for men and women. For example, women are expected to be communal and catering (Diekmann & Eagly, 2000; Eagly & Mladinic, 1989; Rudman & Glick, 2001), whereas men are expected to be agentic and independent (Rudman, 1998; Rudman & Glick, 1999, 2001; Wood, Christensen, Hebl, & Rothgerber, 1997). Violation of gender norms often meets with interpersonal and professional reprisals (i.e., the backlash effect; Faludi, 1991; Fiske, 1993; Rudman & Kilianski, 2000). Backlash may be especially pronounced against women who engage in nontraditional, high-power roles (Diekmann, Goodfriend, & Goodwin, 2004; Goodwin & Fiske, 2001) as women who refuse to adhere to subservient scripts are seen as subversive and threatening. The backlash effect thus maintains power inequalities

between men and women by encouraging women's subservience to men (Miller, 1986).

Although adherence to gender norms has the benefit of avoiding backlash, we, like many others, believe that adherence to gender norms is costly (e.g., Amaro, Raj, & Reed, 2001; Impett & Peplau, 2003; Sanchez & Crocker, 2005; Sanchez, Crocker, & Boike, 2005; Tevlin & Leiblum, 1983). Adherence may be particularly costly for gender norms that prescribe submissiveness. In this article, we examine whether women associate sex with submission. The sexual context has been described as one in which people feel compelled to enact gender roles (Coward, 1985; Rohlinger, 2002). We believe that women learn to associate sex with female submission, an association that induces submissive sexual behavior. Moreover, we believe that submissive sexual behavior affords women less autonomy in the sexual context, thereby impairing sexual arousal.

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Little research has investigated these effects. Therefore, the present research has several aims, including (a) to demonstrate that women automatically associate sex with submission, (b) to show that the implicit association of sex with submission promotes submissive behavior, and (c) to explore the effects of submissive behavior on sexual autonomy and arousal.

Sexual Submission: A Learned Behavior?

Prominent social norms for women promote deference to men. In the workplace, women who do not defer to others but express agency are seen as insufficiently nice (Rudman, 1998; Rudman & Glick, 2001). Gender norms prescribing female deference extend to men and women's behavior in intimate relationships. For example, the media depict gender-based sexual roles that promulgate female sexual submissiveness. Magazines, television shows, and movies commonly display male sexual dominance over women and female sexual submission to men (Dworkin, 1987; Jeffreys, 1990; Jhally, 1995; Kilbourne, 2000a, 2000b; Kitlinger, 1984; MacKinnon, 1987). Magazines for adolescent girls promote sexual submissiveness as a way to please male partners (Kilbourne, 2000a, 2000b; Kim & Ward, 2004). Based on these findings, theorists have argued that heterosexual men are socialized to take on a more agentic role than women, to act as the initiators and directors of sexual activities as well as the teachers and experts of sex (Blumstein & Schwarz, 1983; Lips, 1981; Schwartz & Rutter, 2000; Sprecher & McKinney, 1993). In contrast, heterosexual women are socialized to take on a submissive or passive role during sexual activity (Gagnon & Simon, 1973; Schwartz & Rutter, 2000; Tevlin & Leiblum, 1983). Thus, women may learn to associate the female sexual role with submission.

To assess women's associations, we measured both women's mental representations of sex with submissive behavior (implicit association) and their self-reported engagement in submissive sexual behavior. We measured women's implicit associations as well as their behavior because we believe that these concepts are related theoretically. Moreover, assessing implicit associations addresses some methodological concerns that arise with self-reports of sexual behavior. Women's reports of certain sexual behaviors and attitudes are influenced by socially desirable responding (e.g., Alexander & Fisher, 2003). The examination of implicit associations, which assesses less controllable responses, minimizes socially desirable responding (Fazio & Towles-Schwen, 1999; Liebold & McConnell, 2004; Wilson & Dunn, 2004). Furthermore, sexual behavior often occurs under heightened arousal. During heightened arousal, implicit associations and knowledge accessibility may have a greater

influence over behavior than explicit beliefs (Fazio & Towles-Schwen, 1999). Thus, implicit sex associations may be especially important for predicting sexual behavior.

Cognitive Sex Associations

Previous research has demonstrated that individuals associate sex with power and aggression at an unconscious level (Bargh, Raymond, Pryor, & Strack, 1995; Mussweiler & Förster, 2000; Zurbriggen, 2000). For men, implicit associations of sex with power and of women with sex predict aggression toward women (Bargh et al., 1995; Liebold & McConnell, 2004; Mussweiler & Förster, 2000). For women, sex-aggression associations predict heightened perceptions of male aggressiveness (Mussweiler & Förster, 2000). However, previous research has examined neither women's association of sex with submission nor the effects of this association on sexual behavior.

Cognitive Sex-Submission Associations and Submissive Behavior

Pressure to conform to gender norms may lead women to engage in submissive sexual behaviors (Muehlenhard & McCoy, 1991; Schwartz & Rutter, 2000; Sprecher & McKinney, 1993; Tevlin & Leiblum, 1983). Research suggests that women enact more submissive sexual behaviors than men. For example, many adolescent girls report assuming a submissive role during their first sexual experiences (Martin, 1996). A recent survey found that many adult women consent to unwanted sexual activities: 50% reported this type of sexual compliance (O'Sullivan & Allgeier, 1998). Thus, current knowledge of heterosexual sexual relationships suggests that as early as their first sexual experience, women enact more submissive and fewer agentic sexual behaviors than their male partners. Furthermore, the frequency with which female sexuality is linked with submission suggests that women may learn this role without conscious intent or awareness. Therefore, we hypothesized that women would associate sex implicitly with submission and that this implicit association would predict submissive sexual behavior.

Sexual Autonomy

Pressure to conform to gender norms, especially those that dictate powerlessness, can diminish autonomy (Sanchez et al., 2005; Tevlin & Leiblum, 1983). Self-determination theorists contend that autonomy is a fundamental human need (Deci & Ryan, 1985, 1995). The benefits of autonomy include heightened vitality, improved performance, and greater psychological well-being (for a review, see Deci & Ryan, 2000), suggesting

that autonomy increases the range of behavioral options available as well as the feeling that one's behaviors are volitional and freely chosen (Deci & Ryan, 1987; Ryan & Deci, 2000). In the sexual context, autonomy refers to having a sense of control and feeling unburdened by external pressures.

Sexual autonomy is thought to be critical for women's sexual enjoyment and ability to orgasm (for a review, see Weinberg, Swensson, & Hammersmith, 1983). Since the 1970s, sexual manuals have suggested that sexual autonomy is crucial for the development of satisfying sexual relationships (Weinberg et al., 1983). Many researchers believe that sexual assertiveness and perceived control are necessary for healthy sexual relationships (Haavio-Mannila & Kontula, 1997; Hurlbert, 1991; Hurlbert, Apt, & Rabehl, 1993; Morokoff et al., 1997; Tolman, 2002). For example, Masters and Johnson (1979) proposed that "spectatoring," or the loss of sexual agency through viewing oneself as a sexual object, impedes sexual functioning because it distracts women from their own pleasure (see also Barlow, 1986; Faith & Schare, 1993; Fredrickson & Roberts, 1997). In sum, popular culture, the field of sex therapy, and empirical research suggest that enacting a submissive sexual role undermines women's sexual autonomy and consequently, their sexual arousal.

To assess whether women associate their sexual role with submission and to examine the effects of adopting a submissive role on sexual outcomes, we conducted four studies. In Study 1, we examined whether heterosexual women implicitly associate sex with submission. In Study 2, we examined whether heterosexual women's association of sex with submission predicted adoption of a submissive sexual role. In Study 3, we tested whether these findings extended to men's sexual associations and behaviors. In Study 4, we examined the effects of adopting a submissive sexual role on sexual autonomy, subjective arousal, and difficulty with arousal for women.

The present research focused exclusively on heterosexuals. Women are socialized to be submissive to heterosexual men (Dworkin, 1987; Jeffreys, 1990; Kitinger, 1984; MacKinnon, 1987). Correspondingly, heterosexual men are socialized to adopt a sexually agentic role (Blumstein & Schwarz, 1983; Lips, 1981; Schwartz & Rutter, 2000; Sprecher & McKinney, 1993). In the absence of gender-based norms, lesbians and gay men must negotiate their sexual roles differently with their partners (e.g., Klinkenberg & Rose, 1994). For example, lesbians report levels of overall sexual initiation behavior similar to gay men (Beres, Herold, & Maitland, 2004). We therefore expected norms of male agency and female submission to be most pronounced within a heterosexual context.

STUDY 1

We hypothesized that women would associate sex with submission at an implicit level. To test this hypothesis, we used a subliminal priming technique previously used to examine implicit associations of sex with power (Bargh et al., 1995; Zurbriggen, 2000), aggression (Mussweiler & Förster, 2000), and women (Liebold & McConnell, 2004). We predicted that because of widespread societal stereotypes prescribing women's sexual submission to men, women would associate sex with submission. As an additional way to validate our implicit measure of sex-submission association, we also assessed women's associations of sex with dominance. We predicted that women's implicit associations of sex with submission would negatively correlate with their associations of sex with dominance, as many theories of the inverse relationship between dominance and submission would suggest (McCreary & Rhodes, 2001).

Method

PARTICIPANTS

In Study 1, 36 female University of Michigan undergraduates participated in the experimental session for course credit.¹

MATERIALS

Lexical decision task. To assess participants' sex submission associations, we developed five sets of stimulus words that were used as primes and targets in a lexical decision task: neutral words, sex-related words, submission-related words, dominance-related words, and nonwords. During a pretest, a separate set of participants ($N = 20$) rated how associated each word was with sex using a 5-point scale anchored at (0) *not at all associated with sex* and (4) *highly associated with sex*. These words were also rated on their associations with submissiveness and dominance using a bipolar scale anchored at (-4) *strongly associated with submission* and (4) *strongly associated with dominance*.

Following Mussweiler and Förster (2000), sex primes were selected to be strongly associated with sex but weakly associated with submission, whereas submissive (or dominant) target words were selected to be strongly associated with submission (or dominance) but weakly associated with sex. This selection ensured that we were testing associations between distinct concepts. We selected the following six sex prime words that were strongly associated with sex ($M = 2.73$; $SD = 0.88$) but relatively unassociated with submission or dominance ($M = -0.16$; $SD = 0.34$): *sex*, *climax*, *oral*, *naked*, *caress*, and *bed*. For submissive target words, we selected the following six words that were weakly associated with sex ($M = 0.33$; $SD = 0.20$) but associated with submission ($M = -2.09$; $SD = 1.24$): *comply*, *submit*, *slave*, *yield*, *concede*, and *weaken*. For dominant target words, we selected the following

words that were weakly associated with sex ($M = 0.57$; $SD = 0.42$) but associated with dominance ($M = 2.25$; $SD = 0.55$): *coerce, assert, power, fierce, strong, and challenge*. For neutral stimuli, we used the following neutral words selected by Bargh et al. (1995) and Mussweiler and Förster (2000): *oven, brick, chalk, clock, table, and house*. These words had similar frequencies of written usage to standardize across trials.

Procedure. The procedure was modeled after that used by Bargh and colleagues (1995). Up to 5 participants took part in each experimental session. Participants were greeted by a female experimenter and seated at computer terminals in separate cubicles. Participants were told that they would complete a simple word categorization task. Participants then completed the lexical decision task administered via Psycscope software. The participants were instructed to classify nonwords and words by pressing keys marked *nonword* or *word* on the keyboard as quickly as possible. Participants were instructed to focus on the asterisks in the middle of the screen where the word or nonword would eventually appear. After a 10-millisecond delay, a prime word appeared in one of four quadrants: 2 centimeters above to the left, 2 centimeters above to the right, 2 centimeters below to the left, or 2 centimeters below to the right (Bargh & Chartrand, 2000). Prime words appeared in random order. Subliminal parafoveal priming presentation times range from 60 milliseconds to 125 milliseconds (Bargh & Chartrand, 2000); our primes remained on the screen for 83 milliseconds, followed by a masking string of "XXXXXXXX" presented for 14 milliseconds. Participants were seated approximately 70 centimeters from the fixation point on the computer monitor; this placed the priming stimuli between 2° and 6° of visual angle in the parafoveal field (Bargh, Bond, Lombardi, & Tota, 1986; Bargh & Chartrand, 2000; Rayner, 1978).

Following the prime, the target word was presented in the center of the screen. It remained there until the participant pressed the nonword or word key, at which point the computer recorded the reaction time. There was a 3-second pause between each trial. During the instructions, participants received two examples of nonwords and words with instructions regarding how to respond to each type of stimulus. Participants then completed two short practice trials with a nonword and neutral word target, followed by the 64 actual trials. There were eight different types of prime-target combinations (four critical: sex-submission, neutral-dominance, sex-dominance, neutral-dominance and four non-critical: sex-neutral, neutral-neutral, sex-nonword, neutral-nonword). The four critical prime-target combinations (sex-submission, sex-dominance, neutral-dominance, and neutral-submissive) each contained six different prime-target

word pairs. Noncritical prime-target combinations each contained eight different prime-target word pairs. The presentation of target words with primes was random.

PRELIMINARY ANALYSES

Participants reported no awareness of the prime words or the purpose of the study. The average error rates were 3.79% ($SD = 3.75\%$) for the lexical decision task. One participant was eliminated for having an error rate above 20% on the lexical decision task. To prevent the undue influence of outliers, response latencies less than 300 milliseconds or greater than 3,000 milliseconds were recorded as 300 and 3000 milliseconds, respectively (see Bargh & Chartrand, 2000). Because reaction time data are often positively skewed (see Greenwald, Schwarz, & McGhee, 1998; Karpinski & Hilton, 2001), we also log-transformed the reaction time data.^{2,3}

Results

To examine the links between sex-submission and sex-dominance, we conducted a 2 (prime type: sex vs. neutral) \times 2 (target type: dominance vs. submissive) repeated measures ANOVA. The ANOVA revealed a significant main effect for prime: response to sex-primed words ($M = 701.48$ milliseconds; $SD = 174.08$) were faster than neutral-primed words ($M = 745.18$ milliseconds; $SD = 239.59$), $MSE = .068$, $F(1, 32) = 9.40$, $p = .004$. No effect was found for target, $F(1, 32) = 1.41$, $MSE = .001$, $p > .2$, *ns*. The main effect of prime was qualified by a significant interaction of prime by target, $F(1, 32) = 6.18$, $MSE = .054$, $p = .02$.

To decompose the interaction, we compared response latencies of sex-primed submissive words to the neutral-primed submissive words (e.g., bed-comply vs. chalk-comply). As predicted, women's responses to sex-primed submissive words ($M = 687.73$ milliseconds, $SD = 164.90$) were significantly faster than their responses to neutral-primed submissive words ($M = 771.58$ milliseconds, $SD = 246.04$), $F(1, 32) = 12.02$, $MSE = .122$, $p = .002$. Thus, sex-related primes facilitated responses to submissive target words. There were no significant differences between response latencies for sex-primed ($M = 712.77$ milliseconds, $SD = 206.11$) and neutral-primed dominance words ($M = 723.26$ milliseconds, $SD = 263.19$), $F(1, 32) = .074$, $MSE = .000$, $p > .78$, *ns*.

To assess the correlation between sex-submission and sex-dominance associations, we created individual difference scores indexing the extent to which sex primes facilitated responses to submissive target words (i.e., sex-submission association score) and the extent to which sex primes facilitated responses to dominant target words (sex-dominance association score). The sex-submission (sex-dominance) score was calculated as the mean response latency for sex-primed submissive (domi-

nant) target words subtracted from the mean response latency for neutral-primed submissive (dominant) target words. Thus, higher scores indicate greater facilitation. Contrary to predictions, the sex-submission and dominance facilitation scores were not significantly correlated, $r(33) = -.093$, $p = .61$, *ns*.⁴ As predicted, women's sex-submission facilitation score ($M = .0859$ milliseconds; $SD = .1423$) was significantly greater than zero, $t(32) = 3.47$, $p = .002$; whereas women's dominance facilitation score ($M = .0051$ milliseconds; $SD = .1082$) was not significantly different from zero, $t(32) = 0.27$, $p = .79$, *ns*.

Discussion

As hypothesized, we found that women implicitly associated sex with submission under parafoveal priming conditions. These findings suggest that women implicitly associate sex with submission.

STUDY 2

The sex-submission association is of interest because it may lead women to engage in submissive sexual behavior. Women may internalize their gender-specific sexual roles, thereby affecting their personal sexual behavior. We tested the relationship between implicit associations of sex with submission and reports of submissive sexual behavior.

An additional purpose of Study 2 was to test the validity of women's self-reports of submissive sexual behavior. Demonstrating consistent relationships between implicit and explicit measures implies construct validity (e.g., Rudman, Greenwald, Mellott, & Schwartz, 1999; but see also Karpinski & Hilton, 2001; Wilson, Lindsey, & Schooler, 2000). To enhance confidence in the findings of Study 1, Study 2 assessed automatic sex-submission associations using a different computer program and priming procedure. Women were again predicted to implicitly associate sex with submission, and this association was expected to correlate with self-reported engagement in submissive sexual behavior.

Method

PARTICIPANTS

In Study 2, 42 female University of Michigan undergraduates participated in the experimental session for course credit (32 Caucasians, 6 African Americans, 2 Latinas, 1 Asian American, and 1 participant of mixed background). Because sexually inexperienced participants might be reluctant or unable to answer sexually related questions, only heterosexual participants who indicated that they had previously experienced sexual intercourse on a prescreening questionnaire were contacted to participate. Participants' average age was 18.90 years.

MATERIALS

Lexical decision task. The priming and target stimuli were identical to those of Study 1.

Submissive sexual behaviors. Participants rated the following statements on a scale from 1 (*strongly disagree*) to 7 (*strongly agree*): "I tend to take on the passive role during sexual activity," "I tend to take on the submissive role during sexual activities," "I prefer to take on the passive role during sexual activities," and "I prefer to take on the more agentic or active role during sexual activity" (reverse coded). The average of these items comprised our measure of submissive sexual behavior (Cronbach's $\alpha = .85$).

Procedure. The procedure was again modeled after that used by Bargh and colleagues (1995). Up to 10 participants took part in each experimental session. Participants were greeted by a female experimenter and seated at computer terminals separated by barriers. Participants first completed a lexical decision task administered with E-prime software while seated approximately 70 centimeters from their computer screen. Participants were instructed to classify words as either actual words or nonsense letter strings using different keys on the keyboard as quickly as possible.

At the beginning of each trial, a fixation point was presented in the middle of the computer screen. A sex or neutral word prime was next presented foveally for 55 milliseconds, an exposure too brief for conscious processing (Perdue, Dovidio, Gurtman, & Tyler, 1990; Perdue & Gurtman, 1990).⁵ The prime was then masked for 10 milliseconds. Next, a target word was presented in the center of the computer screen and remained in view until a designated response key was pressed. The task contained a total of 66 trials, 10 practice and 56 actual. Participants experienced six cycles of each critical prime-target pair (sex-submission, neutral-dominance, sex-dominance, neutral-dominance) and eight cycles of each noncritical prime-target pair (sex-neutral, neutral-neutral, sex-nonword, neutral-nonword), which were presented in a predetermined randomized order.

Following the lexical decision task, participants completed the sexual behavior items, demographic questions, and a suspicion probe. Next, participants were asked about their awareness of the presence of primes during the lexical decision task and the purpose of the study. Finally, participants were thoroughly debriefed, thanked, and given course credit for their participation.

Results

PRELIMINARY ANALYSES

No participants reported awareness of the primes during the lexical decision task or of the purpose of the

study. Participants with error rates ($M = 3.53\%$; $SD = 3.47\%$) greater than 20% on the lexical decision task were excluded from the analyses ($n = 4$). Consistent with Study 1, we also log-transformed the reaction time data (see Notes 2 and 3).

RESULTS

To examine implicit sex associations, we conducted a 2 (prime type: sex vs. neutral) \times 2 (target type: dominance vs. submissive) repeated measures ANOVA. The ANOVA revealed significant main effects for prime, $F(1, 41) = 7.63$, $MSE = .009$, $p = .009$, and target, $F(1, 41) = 44.92$, $MSE = .108$, $p < .001$. Participants were overall slower to respond to sex-primed words ($M = 889.66$ milliseconds; $SD = 345.30$) than neutral-primed words ($M = 842.31$ milliseconds; $SD = 311.21$). Participants were also faster to respond to submissive target words ($M = 812.89$ milliseconds; $SD = 334.34$) than to dominant target words ($M = 919.07$ milliseconds; $SD = 332.63$). These main effects were qualified by the expected significant interaction of prime by target, $F(1, 41) = 16.66$, $MSE = .059$, $p < .001$.

To decompose the interaction, we compared response latencies of sex-primed submissive words to the neutral-primed submissive words (e.g., bed-comply vs. chalk-comply) in a repeated measures ANOVA. Responses to the sex-primed submissive words ($M = 805.54$ milliseconds; $SD = 379.32$) were significantly faster than responses to neutral-primed submissive words ($M = 820.24$ milliseconds; $SD = 315.34$), $F(1, 41) = 5.06$, $MSE = .011$, $p = .03$. Thus, replicating Study 1, sex primes facilitated responses to submissive target words. In contrast, responses to the dominant words primed with sex ($M = 973.77$ milliseconds; $SD = 368.77$) were significantly slower than responses to dominant words primed with neutral words ($M = 864.37$ milliseconds; $SD = 320.82$), $F(1, 41) = 23.03$, $MSE = .056$, $p < .001$. Thus, sex primes inhibited responses to dominant target words.

INDIVIDUAL DIFFERENCE FACILITATION SCORES

We again created individual difference scores indexing the extent to which sex primes facilitated responses to submissive target words (sex-submission association score) and responses to dominant target words (sex-dominance association score) following the procedure used in Study 1. Replicating Study 1, women's submissive facilitation score ($M = 0.023$; $SD = 0.067$) was significantly greater than zero, $t(41) = 2.25$, $p = .03$. Women's dominance facilitation score ($M = -0.052$; $SD = 0.070$) was significantly less than zero, $t(41) = -4.80$, $p < .001$. As predicted, the sex-submission and sex-dominance scores were negatively correlated, $r(42) = -.517$, $p < .001$.

SUBMISSIVE SEXUAL BEHAVIOR

On average, participants did not report engaging in submissive sexual behavior ($M = 3.90$; $SD = 1.21$). As expected, the sex-submissive facilitation score correlated positively with reports of submissive sexual behaviors, $r(42) = .315$, $p < .05$, indicating that the more women implicitly associated sex with submission, the more they reported engaging in submissive sexual behaviors. Correspondingly, the dominance facilitation score (i.e., the extent to which sex primes facilitated responses to dominant words) correlated negatively with reports of submissive sexual behaviors, $r(42) = -.369$, $p < .05$.

Discussion

In Studies 1 and 2, women associated sex with submission at an automatic level. Moreover, women did not associate sex with dominance; rather, in Study 2, sex primes appeared to inhibit responses to dominant words. These findings support our contention that women associate the sexual context with their gender-specific role of submission.

Women with this association were expected to report more submissive sexual behavior. Supporting this hypothesis, women's association of sex with submission predicted greater reported engagement in submissive sexual behavior, whereas women's association of sex with dominance predicted less engagement in submissive sexual behavior.

However, these studies did not test whether the sex-submission association is unique to women. Men may also associate sex with submission. If the sex-submission link is driven by gender stereotypes for women, we would not expect men to associate sex with submission or for this association to predict men's submissive sexual behavior. On the other hand, men may associate sex with female submission and thus also possess a sex-submission link. To determine whether men associate sex with submission and whether this association predicts their sexual behavior, Study 3 examined men's associations of sex with submission and their self-reported engagement in sexually submissive behaviors.

STUDY 3

Method

PARTICIPANTS

For Study 3, 26 male University of Michigan undergraduates participated in the experimental session for course credit (18 Caucasians, 5 Asian Americans, 1 Latino, 1 African American, and 1 participant of mixed background). Because sexually inexperienced participants might be uncomfortable or unable to answer sex-

related questions, only heterosexual participants who indicated that they had previously experienced sexual intercourse on a prescreening questionnaire were invited to participate. The average age was 19.24.

MATERIALS

Lexical decision task. The stimuli for this task were identical to those used in Study 2.

Submissive sexual behaviors. The measure of submissive sexual behavior was identical to that used in Study 2. This measure was again reliable (Cronbach's $\alpha = .79$).

Procedure. The procedure was identical to Study 2 with one exception. Following the lexical decision task, participants were first given a multiple-choice word recognition task that contained the subliminal primes from the lexical decision task (see Note 5). Participants then completed the sexual behavior items and demographic questions. Finally, participants were debriefed, thanked, and given course credit for their participation.

Results

PRELIMINARY ANALYSES

Participants reported no awareness of the prime words or the purpose of the study. No participants had error rates ($M = 5.98\%$; $SD = 4.07\%$) greater than 20% on the lexical decision task. Response latencies were transformed following the procedure used in Study 2 (see Note 2).

SEX-SUBMISSION AND SEX-DOMINANCE ASSOCIATIONS

To examine the links between sex-submission and sex-dominance, we performed a 2 (prime: sex vs. neutral) \times 2 (target: dominance vs. submissive) repeated measures ANOVA. Overall, participants were faster to respond to neutral-primed words ($M = 766.73$ milliseconds; $SD = 248.14$) than sex-primed words ($M = 810.46$ milliseconds; $SD = 291.61$), $F(1, 25) = 8.86$, $MSE = .010$, $p = .006$. Participants were also faster to respond to submissive targets ($M = 709.80$ milliseconds; $SD = 169.71$) than dominant targets ($M = 867.39$ milliseconds; $SD = 394.99$), $F(1, 25) = 9.44$, $MSE = .079$, $p = .004$. These main effects were qualified by a significant prime by target interaction, $F(1, 25) = 13.86$, $MSE = .034$, $p = .001$.

To decompose the interaction, we compared response latencies of sex-primed submissive words to neutral-primed submissive words (e.g., bed-comply vs. chalk-comply) in a repeated measures ANOVA. Responses to the sex-primed submissive words ($M = 766.70$ milliseconds; $SD = 207.46$) were not significantly different from responses to neutral-primed submissive words ($M = 762.41$ milliseconds; $SD = 204.96$), $F(1, 25) = 1.81$, $MSE = .004$, $p = .19$. Thus, sex-related primes did not facilitate men's responses to submissive target words relative to neutral primes.

Responses to the dominant words primed with sex ($M = 966.48$ milliseconds; $SD = 340.19$) were significantly slower than responses to dominant words primed with neutral words ($M = 782.11$ milliseconds; $SD = 262.85$), $F(1, 25) = 25.81$, $MSE = .040$, $p < .001$. Thus, sex primes appeared to inhibit responses to dominant target words.

INDIVIDUAL DIFFERENCE SCORES

The sex-submission and sex-dominance facilitation scores were created following the procedure used in Studies 1 and 2. Men's submissive facilitation score ($M = .0166$; $SD = .0637$) was not significantly different from zero, $t(25) = 1.34$, $p = .19$, *ns*, whereas men's dominance facilitation ($M = -.0554$; $SD = .0635$) was significantly less than zero, $t(25) = -5.081$, $p < .001$. Their sex-submission and sex-dominance facilitation scores were negatively correlated, $r(26) = -.379$, $p = .06$.

SUBMISSIVE SEXUAL BEHAVIOR

Men's sex-submission facilitation score did not significantly correlate with submissive behaviors, $r(26) = .138$, $p = .51$, *ns*, indicating that men's associations of sex with submission did not predict submissive sexual behavior. The sex-dominance link also did not predict submissive behavior, $r(26) = -.113$, $p = .59$, *ns*.

Discussion

Study 3 showed that men, unlike women, do not associate sex with submission at the automatic level. This association therefore appears to be gender specific.

Men also did not associate sex with dominance; rather, sex primes seemed to inhibit responses to dominant words. The failure of men to show a sex-dominance association is consistent with previous research on sex-power associations: Bargh et al. (1995) only found a sex-power link among men who reported engaging in sexually coercive and aggressive behaviors. However, the inhibition of men's responses to dominant targets by sex primes was unexpected and warrants future research.

Overall, Studies 1, 2, and 3 support our hypothesis that women associate the sexual context with their gender-specific role of submission. Importantly, women's engagement in submissive sexual behavior may have costs for their intimate relationships. Submissive behavior may reduce women's sexual autonomy: Women who engage in submissive behaviors may operate under feelings of pressure and external constraints as opposed to their own volition.

Because autonomy is thought to be crucial for sexual fulfillment (see Weinberg et al., 1983), the loss of sexual autonomy may impair women's sexual arousal. Adherence to submissive norms is believed to undermine women's sense of sexual control, autonomy, and agency (Amaro et al., 2001; Tevlin & Leiblum, 1983). The loss of autonomy may have negative repercussions for sexual

arousability, satisfaction, and health promotion behaviors (see Sanchez et al., 2005; Turner, Irwin, Tschann, & Millstein, 1993; Weinberg et al., 1983).

On the other hand, some theorists have proposed that enactment of a submissive role enhances women's sexual arousal. For example, MacKinnon (1987) argued that women who are sexually passive may experience enhanced arousal because they eroticize male dominance and their own sexual submission. Research supporting this perspective has found that women fantasize about sexual submission to their male partners (Leitenberg & Henning, 1995; Pelletier & Herold, 1988) with few ill effects for their sexual experiences (Zurbriggen & Yost, 2004).

In Study 4 we sought to test between these two theoretical perspectives. Favoring the view that sexual autonomy is an essential component of sexual arousal, we hypothesized that submissive sexual behavior would predict a loss of sexual autonomy, which in turn would predict reduced subjective arousability and increased difficulty with becoming sexually aroused.

STUDY 4

Method

PARTICIPANTS

In Study 4, 96 female University of Michigan undergraduates participated for course credit (81 Caucasians, 3 African Americans, 4 Latinas, 2 Asian Americans, and 6 participants of mixed background). We again selected heterosexual participants who reported having experienced sexual intercourse. The average age was 18.53.

MATERIALS

Submissive sexual behavior. The measure of submissive sexual behavior was identical to that used in Studies 2 and 3 (Cronbach's alpha = .88).

Self-reported sexual arousability. The Sexual Arousability Index (SAI) developed by Andersen, Broffitt, Karlsson, and Turnquist (1989) was used to assess sexual arousability. Survey items described specific sexual situations (e.g., when your partner undresses you) that were rated on a 7-point scale anchored at 1 (adverse effect) and 7 (always causes sexual arousal). The measure contained five subscales that assessed arousability from seductive activities (e.g., when your partner undresses you), body caressing (e.g., when your partner fondles your breasts or chest with his or her hands), oral-genital and genital stimulation (e.g., when your partner stimulates your genitals with his or her hands/fingers), intercourse (e.g., when you have intercourse with your partner), and erotica/masturbation (e.g., when you watch a pornographic movie). To assess overall arousability, responses on these items were averaged without the erotica

subscale.⁶ Arousability ratings across different types of behaviors (excluding arousal from erotica) were reliable (overall Cronbach's alpha = .83).⁷

Self-reported arousal difficulty. Using a 5-point scale anchored at (1) *never, 0% of the time* and (5) *always, nearly 100% of the time*, participants rated the following question: "How often do you have difficulty getting physically aroused with your partner?"

Sexual autonomy. The measure of sexual autonomy was created by adapting the autonomy scale used in self-determination research (e.g., LaGuardia, Ryan, Couchman, & Deci, 2000) to the sexual context. Participants were asked to indicate their agreement with three statements on a scale from 1 (*not at all true*) to 7 (*very true*): "When I am having sex or engaging in sexual activities with someone, I feel free to be who I am"; "When I am having sex or engaging in sexual activities with someone, I have a say in what happens and I can voice my opinion"; "When I am having sex or engaging in sexual activities with someone, I feel controlled and pressured to be certain ways" (reverse coded). This scale was reliable (Cronbach's alpha = .70).

Procedure. Participants were given a written questionnaire containing the measures in the following order: the sexual arousability index, the sexual autonomy items, the submissive sexual behaviors index, the difficulty becoming sexually aroused item, and demographic items. The participants were encouraged to skip items they deemed too personal or intrusive. After the questionnaire, participants were thoroughly debriefed, thanked, and given course credit for their participation.

Results

Table 1 shows the means and standard deviations for the measured variables and the zero-order correlations among these variables.

SUBMISSIVE SEXUAL BEHAVIOR AND SEXUAL AROUSAL

To test whether engaging in submissive sexual behaviors predicted sexual arousability, we regressed sexual arousability on the submissive sexual behavior index. As predicted, the more women reported engaging in submissive sexual behaviors, the less arousability they reported from various sexual activities, $\beta = -.251, p < .05$.

To test whether engaging in submissive sexual behaviors predicted difficulty becoming physically aroused, we regressed women's reported difficulty with arousal on the submissive sexual behavior index. As predicted, the more women reported engaging in submissive sexual behaviors, the more they reported difficulty becoming aroused, $\beta = .201, p = .05$.

TABLE 1: Means, Standard Deviations, and Zero-Order Correlations for Measured Variables

	1	2	3	4
1. Sexual submissive behaviors	1.00			
2. Subjective arousal	-.253*	1.00		
3. Difficulty with arousal	.201*	-.319**	1.00	
4. Sexual autonomy	-.384***	.329**	-.350***	1.00
Mean	3.74	5.56	1.39	6.04
Standard deviation	1.14	0.60	0.59	0.79

* $p < .05$. ** $p < .01$. *** $p < .001$.

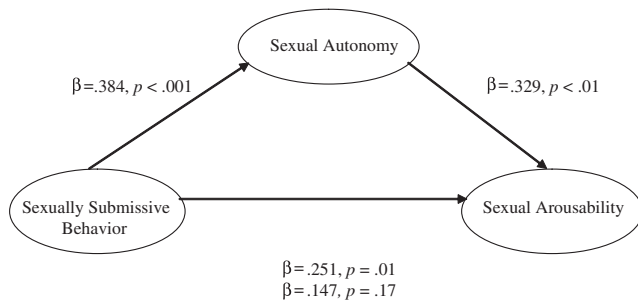


Figure 1 Regression analyses testing for mediation by sexual autonomy of submissive sexual behavior on self-reported arousability.

TESTS OF MEDIATION

To test for mediation of these effects by sexual autonomy, we followed the procedure outlined by Baron and Kenny (1986). Satisfying the first condition of mediation, we found that submissive sexual behavior correlated with less self-reported sexual arousability and greater reported difficulty with arousal.

Self-reported sexual arousability. Submissive sexual behavior was a significant predictor of reduced sexual autonomy, $\beta = -.384, p < .001$. Sexual autonomy predicted greater sexual arousability, $\beta = .329, p < .01$. Finally, when sexual autonomy was included in the regression model, the effect of submissive behaviors on self-reported arousability was no longer significant, $\beta = -.147, p > .1$ (see Figure 1). Sobel’s (1982) test of mediation was significant, $z(95) = -2.19, p < .05$.

Self-reported difficulty with arousal. Submissive sexual behavior was a significant predictor of reduced sexual autonomy, $\beta = -.384, p < .001$. Sexual autonomy predicted less difficulty becoming aroused, $\beta = -.350, p < .001$. Moreover, when sexual autonomy was included in the regression model, the effect of submissive sexual behavior on difficulty becoming aroused was no longer significant, $\beta = .077, p > .4$ (see Figure 2). Sobel’s (1982) test was significant, $z(95) = -2.44, p < .05$.⁸

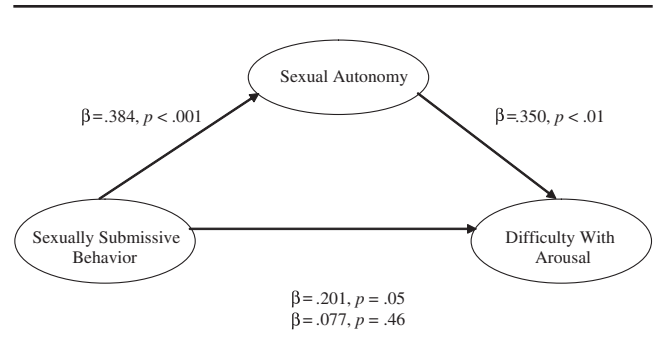


Figure 2 Regression analyses testing for mediation by sexual autonomy of submissive sexual behavior on self-reported difficulty with becoming aroused.

Discussion

The results of Study 4 suggest that women’s engagement in submissive behaviors predicted lowered arousability and more difficulty becoming aroused in the sexual situation. Our mediation analyses imply that the link between submissive sexual behavior and difficulty with arousal is mainly driven by the facts that submissive people are less autonomous and less autonomous people have greater difficulty becoming aroused. Thus, women who engage in submissive behavior may experience an inability to express their inner desires, perhaps acting instead from perceived pressure and obligation. These results notably run counter to MacKinnon’s (1987) assertion that women’s arousal is enhanced by submission.

GENERAL DISCUSSION

The results of four studies supported our contention that women associate their sexual role with submission and that this role undermines sexual arousal. In Studies 1 and 2, two different priming techniques showed that women automatically associated sex with submission. Moreover, in Study 2, women who strongly associated sex with submission reported more submissive sexual behavior. Study 3 showed that this association is gender specific: Men did not associate sex with submission, and neither did this association predict submissive behavior. In Study 4, women’s submissive sexual behavior predicted less reported sexual arousability and greater difficulty becoming physically aroused. These effects were mediated by sexual autonomy. Collectively, these findings support the proposition that women learn to associate sex with their personal submission and that this association undermines sexual autonomy, thereby reducing sexual arousal (Crawford & Unger, 2000; Fredrickson & Roberts, 1997; Jeffreys, 1990; Kitzinger, 1984; Lips, 1991, 2002; Tevlin & Leiblum, 1983).

Sexually Submissive Stereotypes

Heterosexual sexual roles are gender specific: Women are expected to be submissive sexual partners, whereas men are expected to be dominant sexual partners (Bernard, 1966; Blumstein & Schwarz, 1983; Gagnon & Simon, 1973; Lips, 1981; Sprecher & McKinney, 1993; Tevlin & Leiblum, 1983). Messages about women's submissive sexual relations with men are communicated from multiple sources—parents, peers, communities, and the media. Our results imply that women internalize these messages at an implicit level. Men's failure to associate sex with submission suggests that women's association derives from these societal norms prescribing gender-appropriate sexual behavior.

Although we believe this association derives from gender norms, our results are also consistent with the idea that women's sex-submission link develops from biological influences. For example, Baumeister, Cantanese, and Vohs (2001) contended that women's sex drive is weaker than men's, resulting in less sexual agency. These authors argued that women are less interested in sex because the costs of promiscuity are higher for women (e.g., pregnancy). However, some theorists contend that there were evolutionary advantages of promiscuity for women (e.g., confusing paternity to avoid infanticide; Hrdy, 1999). Despite debate over innate differences in sexual drive and behavior, it seems safe to assert that gender differences are magnified by gender norms. Nevertheless, as our findings do not speak directly to the etiology of the sex-submission link, this question warrants future research.

Behavioral Consequences

The automatic nature of women's sex-submission link has two important implications. First, it suggests that women may fail to recognize the influence of this association on their behavior. The effects of automatic associations on behavior frequently occur without conscious intention or awareness (Bargh et al., 1995). Women may therefore be unaware of how gender norms constrain their sexuality. Second, the correlation of women's automatic association with self-reports of sexual behavior enhances our confidence in the self-reported data. Past human sexuality research has relied almost exclusively on self-reports and responses to hypothetical scenarios (Baumeister, 2001). This reliance is troubling as self-reports are often inaccurate and influenced by socially desirable responding (Banaji & Greenwald, 1995; Nisbett & Wilson, 1977).

Costs for Women's Sexual Arousal

The results of Study 4 suggest that engaging in a submissive sexual role hampers women's sexual arousal. These results support Tevlin and Leiblum's (1983) the-

ory that women's sexual function is impaired by cultural scripts dictating female sexual submission. Tevlin and Leiblum contended that women who follow the submissive sexual script are fearful of being too sexually assertive, are unable to ask for what they desire, or believe that sexual activity is tied to their partner's arousal and orgasm, not their own.

These findings are inconsistent with the proposition that women eroticize their own sexual submission (MacKinnon, 1987). However, we believe that some women—and some men—derive pleasure from sexual submission. Future research should therefore take care to distinguish conformity to gender norms dictating submission from personal beliefs that sexual submission is erotic. We believe that the motivations underlying submissive behavior determine whether submission undermines autonomy: It is not the behavior that matters but whether the behavior is perceived as self-chosen and authentic.

The effects of the sex-submission association may extend to other aspects of sexual behavior such as difficulty communicating with sexual partners, an inability to insist on contraception, susceptibility to sexual coercion, and women's greater experience of sexual dysfunction. For example, a recent survey found that 43% of women reported some form of sexual dysfunction (Laumann, Paik, & Rosen, 1999), whereas 31% of men reported sexual dysfunction. Future research should explore these possibilities.

Limitations of the Study

The main limitation of this research is its correlational nature. The present research did not test whether the sex-submission association caused women to engage in more submissive sexual behaviors or whether the adoption of a submissive sexual role caused reduced arousability. Other explanations for these relationships cannot be ruled out. For instance, it is plausible that women who experience little sexual arousal would come to associate sex with submission. These women might agree to have sex primarily to please their partners and thus learn to associate sex with submission. Some evidence however argues against this interpretation, as many young women report adopting a submissive role during their initial sexual experiences (Martin, 1996). We therefore believe that women learn to associate sex with their own submission through exposure to cultural stereotypes.

In addition, we did not assess women's physiological arousal. Women's physiological arousal rarely, if ever, predicts their subjective sexual arousal (Both, Spiering, Everaerd, & Laan, 2004; Heiman, 1977; Steinman, Wincze, Sakheim, Barlow, & Mavissakalian, 1981; Wincze, Venditti, Barlow, & Mavissakalian, 1980). More-

over, attempts to increase women's physiological arousal often fail to enhance self-reported sexual desire and satisfaction (Harris, 2004).⁹ Thus, women's subjective sexual experiences appear crucial for their sexual satisfaction.

As future direction for research, we propose that women's sex-submission association contributes to the dissociation between their subjective and physiological arousal. Supporting this idea, recent findings show that women experience less disconnection from their physiological arousal when exposed to sexually agentic women in erotic films (Laan, Everaerd, van Bellen, & Hanewald, 1994). These findings imply that sexual autonomy may reduce this dissociation.

Finally, the present research leaves open the question of whether submissive scripts are specific to the heterosexual intimate context or generalize to the homosexual context. Masters and Johnson (1979) argued that sexual roles are context specific. For example, they found that bisexual women were more likely to adopt a sexually proactive role (e.g., initiating sex, directing activities) during sex with women but were more likely to adopt a submissive sexual role (e.g., letting their partner initiate, letting their partner direct activities) during sex with men.

Conclusion

Women seem to internalize the female sexual role of submission. In the process of fitting their sexual behavior and desires into this cultural mold, women may unwittingly undermine their sexual arousal. Elucidating the ways in which the adoption of a submissive sexual role affects sexual autonomy therefore has the potential to enhance our understanding of women's sexual dysfunction and to provide ways of improving women's sexual satisfaction, function, and overall well-being.

NOTES

1. Computer problems resulted in the loss of data on ethnic backgrounds.

2. We report unlogged response times for readability for the first three studies using reaction times when reporting means and standard deviations. However, all tests of significance were performed on the logged reaction times. Results are unchanged when using unlogged reaction times in the tests of significance.

3. Inclusion of participants with error rates higher than 20% does not significantly change the results.

4. We suggest two possibilities for why submission and dominance were not negatively correlated in this study: (a) The sample size was small, or (b) a possible moderator that is not assessed in the present studies accounts for the relationship between submission and dominance. Although these results are surprising, Study 2 demonstrated and Study 3 replicated the negative correlation between sex-submission and sex-dominance. Forthcoming work on the sex-submission links also replicates this negative correlation (Kiefer, Sanchez, Kalinka, & Ybarra, 2005).

5. To check whether participants consciously perceived the primes, we performed an awareness check. A subset of participants completed a recognition task. Specifically, 19 participants were given 12 sets of five

words per item with one actual prime word in the set. Participants were asked to select a word for each item and not to skip any item. The mean recognition rate was 24.6% (95% confidence interval: 20% to 29%), which was not significantly different from chance. Use of a recognition task is more conservative than a recall task because selections in the recognition task may reflect normal priming effects as well as conscious perception (Bargh & Chartrand, 2000). Thus, participants' inability to perceive words on this recognition task strongly suggests the primes were presented without participants' awareness.

6. To minimize missing data, we calculated averages based on at least 50% of the items in the subscale. The reduction of missing data does not change the results.

7. Our interest in sexual arousability was limited to arousal with partners; therefore, we excluded arousal from erotica and pornography. Results are unchanged by the inclusion of arousal from erotica. However, the erotica subscale by itself was unrelated to submissive sexual behaviors.

8. All participants except 2 indicated either no difficulty or some difficulty with arousal. Thus, the dependent variable in these analyses was essentially binary. The reported results however are not significantly different from results using logistic regressions.

9. Pfizer, a pharmaceutical company, tested Viagra on more than 3,000 women. Although the drug successfully increased physiological arousal, women reported no changes in subjective sexual desire or satisfaction (Harris, 2004).

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