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Factors Influencing University Students' Explicit and Implicit Sexual Double Standards

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Quantitative research has resulted in inconsistent evidence for the existence of a sexual double standard, leading Crawford and Popp (2003) to issue a call for methodological innovation. The Implicit Association Test (IAT; Greenwald, McGhee, & Schwartz, 1998) is a measure that may provide a means to examine the double standard without the contamination of the demand characteristics and social desirability biases that plague self-report research (Marks & Fraley, 2005). The purpose of this study was to examine the factors influencing explicit and implicit double standards, and to examine the relationship between these explicit and implicit double standards, and levels of socially desirable responding. One hundred and three university students completed a sexual double standard IAT, an explicit measure of the double standard, and measures of socially desirable responding. Hierarchical regression analysis indicated that levels of socially desirable responding were not related to implicit or explicit double standards. Men endorsed a stronger explicit traditional double standard than women, whereas for implicit sexual standards, men demonstrated a relatively gender-neutral evaluation and women demonstrated a strong reverse double standard. These results suggest the existence of a complex double standard, and indicate that more research of sexual attitudes should include implicit measures.

The sexual double standard is a phenomenon in which men and women are evaluated differently for comparable sexual behavior (Crawford & Popp, 2003). Research

by Milhausen and Herold (2001) made a distinction between a traditional sexual double standard in which women are more harshly evaluated than men for comparable sexual behavior and a reverse sexual double standard in which men are evaluated more harshly than women.

The sexual double standard has been a topic of considerable research interest since it was introduced as a research topic (Reiss, 1964). The behaviors pertaining to the sexual double standard have expanded beyond premarital sexual involvement to include activities such as engaging in casual sex and having multiple sexual partners (Marks & Fraley, 2005; O'Sullivan, 1995; Sprecher, McKinney, & Orbuch, 1987). Additionally, a

critical operational distinction was established between perceptions of a societal double standard and the personal endorsement of the sexual double standard. Milhausen and Herold (1999, 2001) found that the vast majority of young adults believed in the existence of a sexual double standard. Despite support for a pervasive belief in the existence of a sexual double standard, research pertaining to personal endorsements of a sexual double standard has continued to yield varying results. Two different approaches—within-subjects and between-subject studies—have been used to measure the endorsement of a sexual double standard.

Within-Subjects Sexual Double Standard Research

Crawford and Popp (2003) stated that “within-subjects designs” (e.g., questionnaire methods) “provide the purest test of double standards, because the same participants respond to the same set of questions for each target” (p. 15). Additionally, according to Crawford and Popp, within-subjects designs have traditionally elicited the most consistent findings; both of the studies based on this design that the authors

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considered for their review (Sheeran, Spears, Abraham, & Abrams, 1996; Sprecher & Hatfield, 1996) found support for the double standard. Reiss (1964) began initial research on the sexual double standard using a questionnaire method, and found that a minority of his college student sample considered premarital sexual intercourse to be permissible for males, but not for females. In Sprecher and Hatfield's study, Russian students endorsed a much stronger sexual double standard than American or Japanese students, and American males were found to endorse a slight double standard for the first date stage of a relationship, whereas American females held an equal standard. Also, Sheeran and colleagues found support for the existence of the sexual double standard, as teenage participants rated fictional males with multiple sexual partners more positively than they rated fictional females with multiple partners.

Marks and Fraley (2005), however, expressed concerns with the within-subjects questionnaire approach to measuring the sexual double standard, suggesting that demand characteristics may dissuade participants from evaluating male and female targets differently. Milhausen & Herold (2001) also suspected that social desirability biases may affect participant responding. Notwithstanding these concerns, within-subjects sexual double research has offered more consistent findings with regards to the sexual double standard.

Between-Subject Sexual Double Standard Research

Between-subject designs (e.g., person-perception tasks) have yielded many more inconsistent findings than within-subjects designs with regards to the sexual double standard (Crawford & Popp, 2003). Between-subject approaches to studying the sexual double standard involve having a participant evaluate either a male target or a female target. Evaluations from the sample evaluating the male are then compared against the evaluations from the sample evaluating the female. For example, in their first study, Milhausen and Herold (1999) found evidence of a reverse sexual double standard, as female participants were more likely to discourage a female friend from dating a male with 10 previous sexual partners than they were to discourage a male friend from dating a female with 10 previous sexual partners. In their second study on the sexual double standard, Milhausen and Herold (2001) found that men were more likely to endorse a traditional sexual double standard, whereas women were more likely to endorse a reverse sexual double standard.

Jonason and Marks (2009) found some support for the existence of a traditional double standard. In their study of uncommon sexual acts, Jonason and Marks

measured derogatory and favorable evaluations separately, and found that female targets were evaluated more negatively than male targets, whereas there was no difference between how favorably male and female targets were evaluated. However, the effect size for the gender difference in negative evaluation was small. Upon further analysis, comparing monogamous to threesome sex situations, the authors found that a sexual double standard "was relatively absent for sex in monogamous relationships" (p. 362).

In contrast, many other person-perception task studies fail to find support of the sexual double standard. Whereas Mark and Miller (1986) found that females who engaged in casual sex were rated as less agreeable and more sexual than comparable men who had casual sex, no other support for a sexual double standard was found in their study, despite analyses incorporating eight other domains of evaluation (e.g., likeableness). The authors concluded that the results from the agreeable analysis must be interpreted with caution "given the absence of a double standard effect on all other empirically derived scales and no apparent explanation as to why an effect would occur only on this side" (p. 320). The low reliability found for the agreeable scale ($\alpha = .55$) further undermined this finding, leading the authors to acknowledge that their study did not strongly support the existence of a sexual double standard. O'Sullivan (1995) found that participants rated vignette characters with a higher number of sexual partners more negatively than characters with fewer numbers of sexual partners. However, there was no difference in evaluation of male or female vignette characters. Marks and Fraley (2005) conducted a large-scale Internet study, and also found little evidence of a sexual double standard.

In summary, studies using within- and between-subject designs, contradictory in their conclusions, do not strongly support the existence of a sexual double standard—at least not to the extent that it is believed to exist (Milhausen & Herold, 1999). Crawford and Popp (2003) also came to this conclusion in their review article on the sexual double standard literature; less than one half of the quantitative studies the authors examined found evidence for an endorsed sexual double standard. They suggested that between-subject designs have been particularly ineffective for examining the existence of the sexual double standard, and concluded by issuing a call for methodological innovation in future research. The Implicit Association Test (IAT; Greenwald, McGhee, & Schwartz, 1998) is a measure that has only recently been applied in sexuality research (Geer & Robertson, 2005). When used to assess the sexual double standard, an IAT approach could inject new life into an area of research that has become stagnant in its overreliance on self-report and person-perception measures (Crawford & Popp, 2003).

The IAT and Implicit Sexual Attitudes

The IAT is a latency-based measure of associative strength between concepts (Greenwald et al., 1998). On a computer, participants are asked to rapidly classify stimuli into one of four appropriate concept groups that share two response keys (e.g., “e” and “i”); faster classification of stimuli by participants is indicative of a stronger associative relationship between concepts sharing a response key (Lane, Banaji, Nosek, & Greenwald, 2007). Nosek, Greenwald, and Banaji (2007) suggested that the IAT method facilitates the examination of three types of implicit attitudes: associations of which a participant is consciously unaware, associations of which a participant is aware but rejects as not conforming with their actual beliefs, and associations of which a participant is aware and endorses but wants shielded from public awareness. Whereas explicit attitudes—examined using self-report measures—require deliberative introspective thought processes, implicit attitudes—examined using the IAT—are described as being spontaneous, requiring little or no conscious effort to elicit them (Petty, Fazio, & Briñol, 2009). Since its inception, the IAT has been used in over 400 studies (Greenwald et al., 1998; Nosek et al., 2007). However, despite its evident popularity and considerable methodological strengths, investigators have been slow to adopt the IAT for applications within human sexuality research (Geer & Robertson, 2005).

To date, only a handful of sexuality studies have employed the IAT, some of which have dealt with implicit attitudes toward gender and sexuality, implicit attitudes toward gay men and lesbians, and implicit attitudes toward condom use (Czopp, Monteith, Zimmerman, & Lynam, 2004; Geer & Robertson, 2005; Steffens, 2005). During their study of attitudes toward condom use, Czopp et al. found that implicit attitudes predicted actual condom use in situations where situational cues for condom use were not present, whereas explicit attitudes toward condom use only predicted actual condom use in situations where cues for condom use were abundant. Czopp et al.’s study demonstrated that the IAT can uniquely predict important behaviors related to sexual health beyond what is possible with self-report measures alone. Therefore, the use of the IAT provides a unique opportunity to reexamine the existence of the sexual double standard and the factors that are related to this pervasively perceived, yet inconsistently endorsed, phenomenon.

Rationale and Purpose of the Proposed Research

The IAT method remedies several concerns of previous self-reported sexual double standard research with its unique methodological strengths. Self-reported sexual double standard research has been criticized for

being plagued by demand characteristics and social desirability biases (Marks & Fraley, 2005; Milhausen & Herold, 2001). The IAT largely eliminates this concern, as its requirement for rapid stimuli classification results in a procedure that is much less prone to faking than self-report (Nosek et al., 2007). Consequently, the IAT can facilitate participants revealing associations they would normally attempt to conceal in a self-reporting context.

Additionally, Marks (2008) criticized traditional self-report studies for not accurately simulating the conditions in which sexual evaluations take place and that real-life sexual evaluations do not permit the use of a person’s full, deliberate attention as self-reporting procedures do. Marks subsequently demonstrated that participants exhibit a sexual double standard when they evaluate men and women under divided attention. Nonetheless, Marks’s divided attention procedure itself could be improved, as participants rated male and female targets while rehearsing an eight-digit number. The IAT provides a more ecologically valid solution to the issue of evaluation under full attention, as participants are required to make rapid classifications that do not permit the use of deliberate consideration (Nosek et al., 2007), and would more closely simulate natural sexual evaluation.

The IAT offers some final methodological strengths that make it particularly well suited for application in assessing the sexual double standard. First, the IAT is a relative measure of associative strength, and the sexual double standard is a relative phenomenon (Marks & Fraley, 2005; Nosek, Greenwald, & Banaji, 2005). This allows for an easy adaptation of the IAT procedure to assess the sexual double standard in a within-subjects fashion. The within-subjects design of the IAT is absolutely critical to its application in sexual double standard research; within-subjects designs can assess *double* standards, and between-subject designs can only assess *differing* standards. Many studies, using between-subject designs, inaccurately purport to assess the existence of the sexual double standard. However, these studies actually assess different attitudes about men and women’s sexual behavior at the sample level; a true sexual double standard operates on an individual level, making within-subjects designs a necessity (Crawford & Popp, 2003; Marks & Fraley, 2005; O’Sullivan, 1995; Sprecher et al., 1987). The IAT has also been praised for its unusually high level of reliability ($\alpha = .70-.90$; Nosek et al., 2007), especially when compared to other latency-based measures, such as priming and Stroop tasks ($\alpha = -0.05$ to 2.80; Nosek et al., 2007). Finally, the application of the IAT procedure would answer the call for methodological innovation for examining the sexual double standard (Crawford & Popp, 2003; Milhausen & Herold, 1999), as the IAT has seen little application in sex research (Geer & Robertson, 2005), and no application pertaining to the sexual double standard.

Previous research on the sexual double standard has indicated that a number of participant characteristics may play an important role in determining their attitudes regarding the phenomena. As previously noted, the relationship between gender and sexual double standard has been inconsistent. Milhausen and Herold (2001) found that men were more likely to endorse a traditional sexual double standard, and women more likely to endorse a reverse sexual double standard. Alternatively, Kelly and Bazzini (2001) found male participants evaluated female targets more positively than female participants. Similarly, Jonason and Marks (2009) found that men provided more favorable evaluations than women of scenario-based targets, whereas women provided more derogatory evaluations. Alternatively, Mark and Miller (1986) found little support of a gender difference in sexual double standard endorsement. Thus, future double standard studies should take into account this important demographic variable.

Additionally, Kelly and Bazzini (2001) found support for a relationship between level of sexual experience and sexual double standard endorsement, as more sexually experienced participants evaluated condom carrying female targets more positively than less sexually experienced participants. However, an interaction between participant gender and sexual experience for sexual double standard endorsement was not tested. Oliver and Hyde (1993) noted that gender differences for number of sexual partners has decreased over time, whereas gender differences for endorsement of the sexual double standard has increased over time, making it important to continue to examine the relationship among gender, sexual experiences, and attitudes toward the sexual double standard.

Therefore, the purpose of the proposed study was to examine explicit and implicit sexual double standards, using both a questionnaire-based measure to assess an explicit sexual double standard and a sexual double standard IAT to assess an implicit sexual double standard. The role of participant gender and sexual experience was also examined, as these have been shown to relate—albeit inconsistently—to the sexual double standard in previous research (Kelly & Bazzini, 2001; Mark & Miller, 1986; Milhausen & Herold, 2001). The following research questions pertaining to these factors were investigated:

- RQ1: Do participant gender and number of lifetime sexual partners predict explicit sexual double standards?
- RQ2: Does the number of lifetime sexual partners moderate the relationship between participant gender and explicit sexual double standards?
- RQ3: Do participant gender and number of lifetime sexual partners predict implicit sexual double standards?
- RQ4: Does the number of lifetime sexual partners moderate the relationship between participant gender and implicit sexual double standards?

Furthermore, given the concerns regarding social desirability biases in sexual double standard research (e.g., Milhausen & Herold, 2001), the following research questions were investigated regarding the relationship between social desirability and the sexual double standard:

- RQ5: What is the relationship between implicit and explicit sexual double standards and levels of socially desirable responding?
- RQ6: Is the relationship between implicit and explicit sexual double standards moderated by levels of socially desirable responding?

In cases where participants tailor their explicit attitudes—responding in a socially desirable way—a weaker relationship between explicit and implicit sexual double standard attitudes would be expected. Conversely, if participants respond to explicit sexual double standard measures in an honest manner, their implicit and explicit attitudes should be much more strongly related.

Method

Participants

A piloting of the sexual double standard IAT was conducted prior to the full study of interest. Participants for the pilot study were 22 female students ($M_{\text{age}} = 18.5$) and 5 male students ($M_{\text{age}} = 20.2$). IAT data for three female participants were not useable because of technical difficulties, reducing the final pilot sample to 24 participants. All participants for both the pilot and full study were recruited from first-year psychology courses. One hundred and forty-four participants were recruited for the full study. However, given the novel application of the IAT in sexual double standard research, a more homogenous sample was desired; after removing data from non-heterosexual participants and all incomplete data entries in the study, the final sample consisted of 103 participants. Fifteen male students ($M_{\text{age}} = 19.13$, $SD = 1.06$) and 88 female students ($M_{\text{age}} = 19.08$, $SD = 1.44$) from a diverse range of academic programs at a southern Ontario university participated.

Measures

Sexual double standard IAT. Implicit attitudes toward the sexual double standard were measured using D scores from a sexual double standard IAT (Greenwald, Nosek, & Banaji, 2003). The D score is an effect size-like score, similar to Cohen's d , which was developed as an improved indicator of associative strength, compared to the use of simple response latency. Greenwald et al. (2003) explained that D scores differ from Cohen's d in that “the standard deviation in

the denominator of D is computed from the scores in both conditions, ignoring the condition membership of each score. By contrast, the standard deviation used in computing the effect size d is a pooled within-treatment standard deviation" (p. 201). There are several variants to D score calculation, which are calculated very similarly and interpreted in the same way, but one of the main differences between D score variants is how participant stimuli sorting errors are dealt with. This study used D scores with a built-in penalty, which meant participants were penalized response latency equal to the time it took them to correct their stimuli sorting mistakes. For this study, positive D scores are indicative of an implicit traditional double standard, negative D scores are indicative of an implicit reverse double standard, and D scores of zero indicate identical implicit sexual evaluation of men and women.

During an IAT, participants using a computer are asked to rapidly sort stimuli, appearing in the middle of their screen, into the correct concept on either the left or right side of their screen (Lane et al., 2007). Concepts included in the IAT are of two distinct kinds, with pairs of "categories" acting as the evaluative targets (e.g., *male* and *female*) and pairs of "attributes" functioning as the evaluative quality (e.g., *positive* and *negative*; Lane et al., 2007). Participants proceed through the seven trial blocks of an IAT, with Blocks 3, 4, 6, and 7 being of particular interest. In the first block of trials, participants practice sorting category stimuli (e.g., male or female), whereas in the second block of trials, participants practice sorting attribute stimuli (e.g., positive or negative). In the third and fourth "combined-task" blocks, participants must sort stimuli from both category and attribute groups simultaneously; each category shares a side of the screen, as well as a response key with an attribute (*Male/Positive* or *Female/Negative*). In the fifth block, participants practice sorting category stimuli again; however, the category labels switch to the alternate side of the screen (e.g., female or male). Categories are paired again with attributes in the sixth and seventh "combined-task" blocks, however, in an arrangement opposite of the third and fourth block arrangement (e.g., *Female/Positive* or *Male/Negative*). Response latency and accuracy is measured to examine whether one arrangement was more easily sorted than the other. Nosek et al. (2007) stated that in these combined tasks, a stronger cognitive association between paired categories and attributes should facilitate a speedier response than if category and attribute were not strongly associated. The IAT is a procedure that is much easier to understand when one has participated in an IAT or seen an IAT completed; readers unfamiliar with the IAT may visit Harvard University's Project Implicit Web site (IAT Corp., 2008), which contains a variety of IATs that are available for completion online.

The sexual double standard IAT measured the associative strength between a category of gender (*male*,

female) and an attribute of sexual evaluation (*sexually positive*, *sexually negative*). A traditional implicit sexual double standard was present when a participant more easily associated *female* with *sexually negative* and *male* with *sexually positive*, than *female* with *sexually positive* and *male* with *sexually negative*. A reverse implicit sexual double standard was present when a participant more easily associated *female* with *sexually positive* and *male* with *sexually negative*, than *female* with *sexually negative* and *male* with *sexually positive*. Nosek et al. (2005) demonstrated that as few as two stimuli for each of the four concepts is sufficient, and does not detract from reliability of the IAT or the magnitude of IAT effects; nor does it reduce IAT relations with self-report measures. A limited number of sexually evaluative words (seven sexually positive and seven sexually negative) were selected because of the difficulty of generating non-gender-based sexual evaluations. Sexually positive words included *desirable*, *clean*, *attractive*, *acceptable*, *healthy*, *intelligent*, and *virtuous*; sexually negative words included *dirty*, *sleazy*, *nasty*, *unacceptable*, *diseased*, *stupid*, and *immoral*. Additionally, a small number of gender word stimuli (four male and four female) were selected, as many previously established gender words related to family members (e.g., father or grandmother), were inappropriate for sexual evaluation by participants (Nosek et al., 2005). Male words included *man*, *guy*, *boy*, and *dude*; female words included *woman*, *girl*, *chick*, and *lady*. Finally, because of their novel inception, sexually positive and sexually negative word stimuli were piloted on a small sample of first-year psychology students to ensure a legitimate association with their respective attributes before application in the main study.

Sexual Double Standard Scale. The Sexual Double Standard Scale is a 26-item measure of endorsement of the sexual double standard (Muehlenhard & Quackenbush, 1998). It includes six individual items (e.g., "It's worse for a woman to sleep around than it is for a man"), as well as 10 item-pairs (i.e., identical items for male and female targets; e.g., "I kind of admire a guy/girl who has had sex with a lot of girls/guys"), which are rated on a four-point scale ranging from 0 (*disagree strongly*) to 3 (*agree strongly*). Sexual Double Standard Scale scores are calculated by summing the six individual item scores with the difference in scores from the 10 item-pairs. Participants receive scores ranging from 48 (*strong acceptance of sexual double standard*), to 0 (*equal standards*), and -30 (*strong acceptance of reverse sexual double standard*). Internal consistency for the Sexual Double Standard Scale in this sample was found to be acceptable ($\alpha = .70$).

Marlowe-Crowne Social Desirability Scale (MCSDS). The MCSDS was included to provide a non-pathological measure of socially desirable responding,

as it was designed for use in general populations and has been widely used in subsequent student-based research (Crowne & Marlowe, 1960; Seol, 2007). The MCSDS contains 33 items of personal attitudes and traits, which participants rated as being true or false of themselves (Crowne & Marlowe, 1960). Of the 33 items, Crowne and Marlowe considered 18 items as having a socially desirable response of “true” (e.g., “I have never intensely disliked anyone”), and the remaining 15 as having a socially desirable response of “false” (e.g., “I like to gossip at times”). In accordance with these item classifications, socially desirable responses were summed for each participant to provide a score of socially desirable responding ranging from 0 to 33. Internal consistency for the MCSDS was found to be acceptable ($\alpha = .70$).

Balanced Inventory of Desirable Responding (BIDR). The BIDR was also used to provide an additional and more detailed measure of socially desirable responding (Paulhus, 1984). The BIDR contains 40 items, 20 of which form an impression management subscale (e.g., “I never cover up my mistakes”) and 20 of which form a self-deception subscale (e.g., “I am fully in control of my own fate”; Paulhus, 1991). Participants rated statements to the extent that they were true of themselves on a seven-point scale ranging from 1 (*not true*) to 7 (*very true*), with ratings of six or seven constituting a socially desirable response. Overall, the BIDR demonstrated acceptable levels of internal consistency as a complete measure ($\alpha = .73$), with the self-deception subscale ($\alpha = .71$) demonstrating slightly higher internal consistency than the impression management subscale ($\alpha = .65$).

Demographic and sexuality-related items. Finally, a brief questionnaire for general demographic and sexuality information was included. This questionnaire included items for participant gender, age, academic program of study, number of lifetime sexual partners, and sexual orientation.

Procedure

Data were collected between January 2010 and April 2010, after receiving human subject approval from the southern Ontario university’s research ethics board. Upon arrival at the data collection location on campus, informed consent was obtained, participants were briefed on the tasks they were to complete, and they were assigned a random three-digit identification number. Participants completed all measures in a classroom, with a maximum of six students participating at a time. They were spaced apart throughout the room so that no other participant could see their computer screen during IAT and questionnaire completion. Participants first

examined a list of the IAT stimuli and their respective concept grouping for approximately one minute and then completed the sexual double standard IAT, using the FreeIAT program (Meade, 2009). To control for ordering effects, participants were randomly assigned to one of two sexual double standard IATs that were identical, with the exception of the ordering of the combined tasks. In one ordering, participants first sorted *female* or *sexually negative* words and *male* or *sexually positive* words in Blocks 3 and 4, and then *male* or *sexually negative* words and *female* or *sexually positive* words in Blocks 6 and 7; in the alternative ordering, participants first sorted the arrangement in Blocks 6 or 7 and then Blocks 3 or 4. Participants in the pilot study only completed the sexual double standard IAT and a brief demographic questionnaire. Individuals in the full study always completed the IAT first, and self-report measures second, to avoid potential priming effects that would occur after completing the Sexual Double Standard Scale (Nosek et al., 2005). Upon completion of the IAT, participants proceeded to complete the social desirability scales, the Sexual Double Standard Scale, and the demographic and sexuality-related items. Self-report measures were collected using an online survey program; following completion of these measures, participants were debriefed.

Analysis Strategy

A pilot test was used to assess the appropriateness of the sexually positive and negative words selected for use in the sexual double standard IAT. While participants in the pilot completed the full sexual double standard IAT, only the latencies from the second block of the IAT—where participants sorted sexually positive and sexually negative words—were used for analysis. Words selected for use in the IAT were evaluated based on how accurately participants sorted the words into their appropriate categories and the response time participants required to sort the positive or negative words. Chi-square analyses were used to determine if positive and negative words were accurately sorted to the same extent. One-way analyses of variance were used to determine if there was a significant difference in response time for sorting positive or negative words.

Three hierarchical regressions were conducted; two were used to identify significant predictors for explicit and implicit sexual double standards, and one was used to examine the relationship between levels of socially desirable responding and explicit and implicit sexual double standards. The Shapiro–Wilk test indicated that the normality assumption was violated for number of vaginal sex partners ($p < .001$), number of anal sex partners ($p < .001$), self-deception scores ($p < .001$), impression management scores ($p < .05$), and Sexual Double Standard Scale scores ($p < .01$). The outcome of analyses, however, was not affected by the use of

raw or standardized scores for these variables. Therefore, analyses using raw scores are reported. For the gender comparisons in the first two hierarchical regression analyses, effect size for differences, reported as Cohen's d (Cohen, 1988), are included in addition to t test values from the regression tables.

Results

Pilot Analysis

Positive words did not differ with regard to how accurately they were sorted, $\chi^2(6, N=245)=5.61$, ns , as all positive words were sorted with a high degree of accuracy (96.7%). Negative words also did not differ with regard to how accurately they were sorted, $\chi^2(6, N=233)=5.83$, ns , as negative words were also sorted with a high degree of accuracy (94.4%). Response times for positive words, $F(6, 238)=1.07$, ns and negative words, $F(6, 226)=.61$, ns , were not significantly different. Together, these analyses assessing participant response accuracy and speed of sorting sexually positive and negative words indicate that the selected word stimuli sufficiently represented the attributes of "sexually positive" and "sexually negative."

Descriptive Findings

Descriptive statistics for all participants, grouped by gender, are presented in Table 1. Men and women did not differ with regard to number of lifetime sexual

Table 1. Descriptive Statistics of Participant Sexual Standards, Number of Lifetime Sexual Partners, and Levels of Socially Desirable Responding

Characteristic	Male ($n=15$)		Female ($n=88$)	
	M	SD	M	SD
SDSS*	12.40	7.96	6.69	4.48
D^{**}	0.09	0.20	-0.31	0.28
Manual	6.07	5.26	4.14	4.42
Oral	4.87	4.98	2.75	2.71
Vaginal	3.07	3.69	2.58	3.51
Anal	0.07	0.26	0.24	0.66
SD	6.47	4.39	4.64	3.04
IM	4.53	3.29	5.18	2.88
MCSDS	15.40	5.04	15.50	4.52

Note. SDSS = Sexual Double Standard Scale scores; D = D scores from the sexual double standard Implicit Association Test; Manual = number of lifetime manual stimulation partners; Oral = number of lifetime oral sex partners; Vaginal = number of lifetime vaginal sex partners; Anal = number of lifetime anal sex partners; SD = self-deception subscale scores from the Balanced Inventory of Desirable Responding (BIDR); IM = impression management subscale scores from the BIDR; MCSDS = Marlowe-Crowne Social Desirability Scale scores.

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

partners. Likewise, male and female participants did not significantly differ with regard to levels of socially desirable responding. Gender differences for scores on the Sexual Double Standard Scale and IAT D scores are discussed in their respective hierarchical regression sections.

Table 2 contains Pearson correlation coefficients for participant levels of social desirability, number of lifetime sexual partners, and implicit and explicit sexual double standards. Because of the high level of relatedness between number of lifetime manual stimulation, oral sex, and vaginal sex partners, only number of lifetime vaginal sex and anal sex partners were used in subsequent multivariate analyses. Additionally, in the multivariate analyses, participant impression management and self-deception subscale scores are used instead of total BIDR scores to facilitate a more detailed examination of the nature of socially desirable responding and the sexual double standard. Notably, the correlations between the two measures of social desirability are moderate (.34 and .48), suggesting a minimal amount of shared variance and, thus, little cause for concern regarding multicollinearity in the multivariate analyses.

Multivariate Analyses

Analysis of factors influencing explicit sexual double standards. These analyses assessed the main effects and interaction effects for participant gender, number of lifetime vaginal and anal sex partners, and explicit sexual double standards. The first step of the analysis (see Table 3) was significant ($\Delta R^2 = .14$, $p < .01$). This step consisted of participant gender and number of lifetime vaginal and anal sex partners; only participant gender was a significant predictor ($\beta = -.37$, $p < .001$). Both men and women held explicit traditional double standards. However, there was a large gender difference in explicit sexual double standard endorsement, as male double standards were found to be more traditional: $t = -3.91$, $p < .001$ ($d = 0.86$). Interaction effects for participant gender and number of vaginal and anal sex partners did not significantly add to the predictive power of the model ($\Delta R^2 = .04$, ns).

Analysis of factors influencing implicit sexual double standards. These analyses assessed the main effects and interaction effects for participant gender, number of lifetime vaginal and anal sex partners, and implicit sexual double standards after controlling for IAT combined-task order. The first step of the analysis (see Table 4) consisted solely of a control variable for the ordering of the IAT combined-task blocks, and was significant ($\Delta R^2 = .05$, $p < .05$; $\beta = .23$, $p < .05$). After controlling for IAT order, participant gender and number of lifetime vaginal and anal sex partners significantly

IMPLICIT SEXUAL DOUBLE STANDARD

Table 2. Summary of Correlations for Levels of Socially Desirable Responding, Number of Lifetime Sexual Partners, and Sexual Double Standards

Measure	1	2	3	4	5	6	7	8	9
1. IM	—								
2. SD	.23*	—							
3. MCSDS	.48***	.34***	—						
4. Manual	-.28**	.09	-.18	—					
5. Oral	-.22*	.17	-.10	.81***	—				
6. Vaginal	-.15	.11	-.11	.81***	.76***	—			
7. Anal	-.12	-.14	-.19	.30**	.33**	.37***	—		
8. <i>D</i>	.01	.00	.03	.15	.20*	.14	-.04	—	
9. SDSS	-.05	.00	-.10	.00	.06	-.03	.05	.29**	—

Note. IM = impression management subscale scores from the Balanced Inventory of Desirable Responding (BIDR); SD = self-deception subscale scores from the BIDR; MCSDS = Marlowe–Crowne Social Desirability Scale scores; Manual = number of lifetime manual stimulation partners; Oral = number of lifetime oral sex partners; Vaginal = number of lifetime vaginal sex partners; Anal = number of lifetime anal sex partners; *D* = *D* scores from the sexual double standard Implicit Association Test; SDSS = Sexual Double Standard Scale scores. **p* < .05. ***p* < .01. ****p* < .001.

increased the predictive power of the model ($\Delta R^2 = .22, p < .001$). However, participant gender was the only significant predictor ($\beta = -.44, p < .001$). There was a large difference in the degree to which men and women held implicit sexual double standards: $t = -5.08, p < .001$ ($d = 1.64$). Male implicit sexual standards were almost completely neutral, and female participants held a considerable implicit reverse sexual double standard. Specifically, female participants more quickly associated male words with sexual negativity and female words with sexual positivity. Interaction effects for gender and number of lifetime vaginal and anal sex partners did not significantly increase the predictive power of the model ($\Delta R^2 = .01, ns$).

Relationship among explicit attitudes, social desirability, and implicit attitudes. These analyses assessed the main effects and interaction effects for explicit and implicit sexual double standards and levels of socially desirable responding, after controlling for IAT

Table 3. Hierarchical Regression Analysis Predicting Explicit Sexual Double Standards

Predictor	Total <i>R</i> ²	ΔR^2	<i>B</i>	<i>SE</i>	β
Step 1	.14	.14**			
Gender			-5.98	1.53	-.37***
Vaginal			-.16	.17	-.10
Anal			1.11	.94	.12
Step 2	.18	.04			
Gender			-3.01	2.03	-.19
Vaginal			1.39	.81	.85
Anal			13.16	11.26	1.42
Gender × Vaginal			-.84	.43	-.97
Gender × Anal			-5.93	5.69	-1.27

Note. Criterion variable used was Sexual Double Standard Scale scores. Vaginal = number of lifetime vaginal sex partners; Anal = number of lifetime anal sex partners. **p* < .05. ***p* < .01. ****p* < .001.

combined-task order. As with the previous analysis, the first step of the analysis (see Table 5) consisted solely of a variable for the ordering of the IAT combined-task blocks, and was significant ($\Delta R^2 = .05, p < .05; \beta = .23, p < .05$). After controlling for IAT order, scores from the Sexual Double Standard Scale, MCSDS, and impression management and self-deception subscale scores from the BIDR significantly increased the predictive power of the model ($\Delta R^2 = .10, p < .05$), although only Sexual Double Standard Scale scores ($\beta = .32, p < .01$) acted as a significant predictor. Interaction effects for explicit sexual double standards with the three different measures of socially desirable responding did not significantly increase the predictive power of the model ($\Delta R^2 = .03, ns$), and were not explored any further.

Table 4. Hierarchical Regression Analysis Predicting Implicit Sexual Double Standards

Predictor	Total <i>R</i> ²	ΔR^2	<i>B</i>	<i>SE</i>	β
Step 1	.05	.05*			
Control			.14	.06	.23*
Step 2	.27	.22**			
Control			.13	.05	.21*
Gender			-.38	.08	-.44**
Vaginal			.01	.01	.12
Anal			-.01	.05	-.03
Step 3	.27	.01			
Control			.12	.05	.20*
Gender			-.37	.10	-.43**
Vaginal			.01	.04	.08
Anal			.46	.56	.94
Gender × Vaginal			.00	.02	.05
Gender × Anal			-.24	.29	-.98

Note. Criterion variable used was Sexual Double Standard Implicit Association Test (IAT) *D* scores. Control = ordering of the IAT combined tasks; Vaginal = number of lifetime vaginal sex partners; Anal = number of lifetime anal sex partners. **p* < .05. ***p* < .001.

Table 5. Hierarchical Regression Analysis Predicting Implicit Sexual Double Standards with Explicit Double Standards and Levels of Socially Desirable Responding

Predictor	Total R^2	ΔR^2	B	SE	β
Step 1	.05	.05*			
Control			.14	.06	.23*
Step 2	.15	.10*			
Control			.16	.06	.23**
SDSS			.02	.01	.31**
SD			.00	.01	.02
IM			.00	.01	.00
MCSDS			.01	.01	.09
Step 3	.18	.03			
Control			.16	.06	.27**
SDSS			.03	.02	.51
SD			-.02	.02	-.20
IM			-.01	.02	-.06
MCSDS			.02	.01	.32
SDSS \times SD			.00	.00	.37
SDSS \times IM			.00	.00	.11
SDSS \times MCSDS			.00	.00	-.59

Note. Criterion variable used was Sexual Double Standard Implicit Association Test (IAT) D scores. Control = ordering of the IAT combined tasks; SDSS = Sexual Double Standard Scale scores. SD = self-deception subscale scores from the Balanced Inventory of Desirable Responding (BIDR); IM = impression management subscale scores from the BIDR; MCSDS = Marlowe-Crowne Social Desirability Scale scores.

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

Discussion

The purpose of this study was to examine explicit and implicit sexual double standards and to determine the relationship between participant gender, sexual experience, levels of socially desirable responding, and explicit and implicit double standards. One hundred three undergraduate students were recruited from first-year psychology courses, and these participants completed implicit and explicit measures of the sexual double standard, as well as two measures of socially desirable responding and several sexuality and demographic items. In summary, gender was the only variable significantly related to both implicit and explicit double standards. Both men and women endorsed an explicit traditional sexual double standard, although men endorsed a stronger explicit traditional double standard than women. The relationship between gender and implicit sexual double standards was not consistent with the explicit double standard findings. Specifically, men held a relatively equal implicit standard for men and women, and women demonstrated an implicit reverse double standard—more easily associating sexually negative words with male than with female words. Neither the number of lifetime vaginal sex partners, nor the number of lifetime anal sex partners, were predictive of implicit or explicit double standards. Additionally, the number of lifetime vaginal and anal sex partners

did not moderate the relationship between gender and implicit or explicit sexual double standards. Finally, levels of socially desirable responding were not related to implicit or explicit sexual double standards, and did not moderate the relationship between implicit and explicit sexual standards.

Results from this study support some of the findings from existing sexual double standard research. For example, Milhausen and Herold (2001) found that a small proportion of the men in their sample endorsed a traditional sexual double standard, whereas a minority of women endorsed a reverse sexual double standard. Similarly, in this study, while both men and women endorsed an explicit traditional sexual double standard, men endorsed a stronger explicit traditional double standard than women. Conversely, women exhibited an implicit reverse double standard, whereas men implicitly evaluated male and female stimuli similarly. The reverse sexual double standard is a relatively new phenomenon in sexuality research. Female participants in Milhausen and Herold (1999) were also more likely to endorse a reverse double standard than a traditional sexual double standard. Most women in this study believed men with many past sexual partners held more casual attitudes toward sex (63%) and were more at risk of having a sexually transmitted infection (55%), and some women believed these men were likely to be sexual predators (15%) who lie and manipulate to get sex. It may be that women are drawing on these associated qualities during implicit sexual evaluation of males.

While some sexual double standard research has produced similar results to this study, other studies have reported contrary findings. For example, a multitude of studies (e.g., Mark & Miller, 1986; Marks & Fraley, 2005; O'Sullivan, 1995; Sprecher, 1989) have found very limited or no support for the existence of a traditional sexual double standard, whereas both male and female participants consistently endorsed a traditional double standard at the explicit level of processing in this study. Marks (2008) speculated that inconsistencies in results from studies on the sexual double standard might result from previous explicit attitude research participants having been allowed to direct their full attention to evaluating male and female targets. Marks suggested that when participants are allowed to employ their full attention to evaluate others, it facilitates individuation as opposed to stereotyping via group membership. When Marks had participants evaluate male and female targets under full and divided attention, he found that participants in the divided attention condition demonstrated a traditional sexual double standard, whereas participants in the full attention condition did not. While both the current study methods and those adopted by Marks do not allow participants to evaluate based on individuation, Marks's use of a divided attention task lacks ecological validity. Specifically, the participants were asked to rehearse an eight-digit number when completing the study questionnaires. This

might explain the difference in findings between this investigation and Marks's, as evaluations made under divided attention may result in participants drawing on cultural beliefs, such as the pervasive belief in the sexual double standard, as opposed to evaluating based on their own implicit attitudes.

Findings from this investigation also contradict results from other studies which have used gender as a predictor of sexual double standards. For example, Kelly and Bazzini (2001) found male participants evaluated female targets more favorably than female participants; in this study, men endorsed a stronger explicit double standard than did women. Also in contrast to these findings, Mark and Miller (1986) found scarce support for a relationship between gender and endorsement of the sexual double standard. In the current study, gender was the only significant predictor of explicit attitudes toward the double standard. Similar to the explicit findings from this study, but not the implicit findings, Sprecher and Hatfield (1996) found that their male American participants endorsed a stronger double standard than female participants.

Additionally, our study findings are in contrast to previous research in that level of sexual experience was not a significant predictor of either implicit or explicit double standards. For example, Kelly and Bazzini (2001) found that participants who were more sexually experienced evaluated condom carrying females more positively than participants who were less sexually experienced. Results from this study, indicating that participants' levels of sexual experience were not related to their endorsement of the sexual double standard, suggest that level of sexual experience may no longer be a meaningful predictor in sexual double standard research.

One possible explanation for this shift is that previously established relationships between levels of sexual experience and the sexual double standard (e.g., Kelly & Bazzini, 2001) may have been a result of a gender by sexual experience interaction. In the study by Kelly and Bazzini, the main effects for participant gender and sexual experience were tested, but the interaction of the two was not examined. Whereas the number of lifetime sexual partners has differed for male and females in the past, this difference has shrunk considerably over time (Oliver & Hyde, 1993). Gender differences in level of sexual experience were absent in Milhausen and Herold's (2001) study, and in this study of the sexual double standard. It is possible that the gap between men and women's levels of sexual experience has narrowed such that the interaction between gender and sexual experience, the driving force behind the relationship between level of sexual experience and double standard attitudes, is no longer significant.

Previous sexual double standard research has yielded every possible result regarding the existence of a sexual double standard (e.g., existing traditional double stan-

dard, reverse double standard, and no double standard), making inconsistencies and contradictions between previous research and the findings of this study inevitable. Some of the variability in findings from previous sexual double standard research is likely attributable to methodological inconsistencies in assessing the existence of the sexual double standard. Specifically, the apparent rise in popularity of between-subject studies of the sexual double standard may be to blame; as Crawford and Popp (2003) suggested, between-subject approaches have provide less consistent results. As previously stated, between-subject approaches do not truly assess the existence of a sexual double standard, but rather differing sexual standards held by different groups of people. Differing standards and double standards are likely to both be important in the understanding of sexual attitudes, but it is important for future research to consider this distinction and to ensure the implementation of appropriate research designs associated with both differing sexual standards (i.e., between-subject) and sexual double standards (i.e., within-subjects).

Results from this study provide evidence for the value of distinguishing between implicit and explicit evaluative processes. The significant correlation between participants' implicit and explicitly held sexual double standards ($r = .29$) in this study suggested that they are related, but distinct constructs. A similar degree of association has been found in other studies assessing implicit and explicit attitudes toward sexuality (Geer & Robertson, 2005), condom use (Czopp et al., 2004), and lesbians and gay men (Steffans, 2005), suggesting implicit attitudes are unique attitudinal constructs. This allows the IAT to capture implicit attitudes that are sometimes in direct contradiction to their explicit counterparts (e.g., Steffans, 2005). This was found in this study; explicit measures indicated the existence of a traditional sexual double standard, whereas implicit measures indicated the existence of a reverse sexual double standard among women.

Conclusion

The results from this study make several important contributions to the existing literature on sexual double standard research and sexual attitudes. Most importantly, this study clearly demonstrated the existence of a sexual double standard operating at both the implicit and the explicit level of social cognition, albeit the nature of this double standard was different for men and women at the explicit and implicit level. Echoing the comments of Milhausen and Herold (2001), this indicates the nature of the sexual double standard is more complex than has been previously suggested, with the extent of the sexual double standard not only differing with regards to gender, but also with the level of social cognition at which it is evaluated (i.e., explicit or

implicit). In answering Crawford and Popp's (2003) call for methodological innovation, this research has demonstrated the considerable value of using implicit measures of social cognition within sexual double standard and sexuality-related attitude research at large. Without the inclusion of the IAT, the existence of a considerable implicit reverse double standard would not have been detected, and the sole existence of an explicit traditional double standard would have been supported. Instead, a much more comprehensive—and complicated—sexual double standard has been revealed.

This study also calls into question the concerns regarding the contamination of self-report-based sexual double standard research by demand characteristics and social desirability biases. The Sexual Double Standard Scale (Muehlenhard & Quackenbush, 1998) is a self-report measure that would likely have problems with demand characteristics and social desirability biases because of its within-participant structure, according to Marks and Fraley (2005) and Milhausen and Herold (2001). However, this was not found to be the case in this study. The Sexual Double Standard Scale was able to capture the presence of an explicit traditional double standard and was unrelated to two different measures of socially desirable responding; these findings would not be present if demand characteristics or social desirability biases were in effect. Therefore, this study supports the validity of the Sexual Double Standard Scale, and its performance in this study suggests that it is possible to design self-report measures that assess attitudes toward both males and females without inadvertently inviting the problems presented by demand characteristics and social desirability biases.

Limitations and Future Research

There are notable limitations to this study that warrant discussion. The most significant limitation was the absence of a substantial contingency of male participants. This was a shortcoming of recruiting from first-year undergraduate psychology courses, as the lack of male students in this major made it unlikely that a comparable number of males and females would be recruited. Researchers conducting subsequent studies of the sexual double standard should be vigilant in recruiting sufficient numbers of male partners, especially when undergraduate student samples are being used. With regard to sample characteristics like age, ethnicity, and level of education, while the reliance on this largely homogenous sample of undergraduate students was a shortcoming of this study, the aim of the study was to examine heterosexual attitudes. The sexual double standard is a phenomenon that has strong roots in traditional heterosexual sexual scripts (Wiederman, 2005). Therefore, it would be inappropriate to incorporate attitudes from gay and lesbian participants who subscribe to a different set of cultural scripts, during an initial

exploratory study of implicit attitudes toward the sexual double standard. However, future research should consider the use of more ethnically and sexually diverse samples, as well as non-university based samples.

There may also be legitimate concerns regarding the construct validity of the IAT in assessing sexual double standards at the implicit level. Sexual double standard research has typically included descriptions of sexual behaviors for which male and female targets are evaluated by participants, and the IAT lacks this descriptive feature. While this has been standard methodological practice for sexual double standard researchers in the past, it may be that this feature is not entirely necessary; in a natural social setting, people frequently make sexual evaluations of individuals without having evidence of their target's previous sexual conduct. Therefore, the IAT may be a more appropriate way of assessing sexual double standard endorsement, as it parallels evaluations made in naturalistic settings where sexual evaluation may occur without detailed contextual information.

While the lack of a relationship between the Sexual Double Standard Scale (Muehlenhard & Quackenbush, 1998) and measures of socially desirable responding attests to the validity of the scale, the design of the Sexual Double Standard Scale may have limited the expression of an explicit reverse sexual double standard. The sexual double standard is a phenomenon that has strong roots in feminist critiques of patriarchy within North American society (Tolman, 2001), and evidence for the existence of a possible reverse sexual double standard has only recently begun to appear in the literature (Milhausen & Herold, 1999, 2001). Therefore, it is highly unlikely that measures like the Sexual Double Standard Scale were designed with a substantial level of concern regarding their ability to capture the existence of a reverse sexual double standard. Future self-report sexual double standard research should consider evaluating existing measures like the Sexual Double Standard Scale with regard to their ability to capture both traditional and reverse sexual double standards, and possibly create new measures if necessary.

Finally, measurement error was a concern for the impression management subscale of the BIDR, as it demonstrated less than desirable internal consistency. During the hierarchical regression analyses, this may have resulted in coefficients for this subscale being inflated or attenuated. The interaction effect tested in the third step of the third regression analysis, using impression management scores, may have also had its coefficients attenuated because of this measurement error.

Future research of sexuality-related attitudes should consider the testing of theoretical models that include both implicit and explicit evaluative constructs, like the Associative-Propositional Evaluation Model (APE Model; Gawronski & Bodenhausen, 2007). The APE Model adopts a dual-process approach, suggesting that there are two different types of mental processes that

drive attitude formation: associative processes and propositional processes. For associative processes, the authors argue that stimuli can elicit “immediate affective reactions” (p. 690) through activated associations of those stimuli. Immediate affective reactions occur regardless of whether a person believes these associations to be true, leading Gawronski and Bodenhausen to suggest that these associative processes are more closely aligned with implicit measures like the IAT and affective priming tasks. Alternatively, propositional processes occur when a person considers the consistency of their evaluation with other information regarding the attitude target. These propositional processes are argued to act as the foundation for “endorsed evaluative judgments” (p. 690) and, unlike associative processes, are concerned with whether or not an association is believed to be true. Thus, propositional processes, explicit in nature, are best assessed using traditional questionnaires. The APE Model also offers a means for examining a multitude of attitudinal elements, including attitude formation, stability, change, automaticity, and context-sensitivity, for both implicit and explicit components. Finally, the APE Model makes specific predictions regarding the relationship between implicit and explicit attitudes, which warrant further study.

Results from this study have demonstrated that for the sexual double standard, and likely for other sexual attitudes of interest, explicit and implicit attitude measures hold the potential to yield very different findings. Since most sexual attitude research has relied almost solely on explicit measures of attitudes (Geer & Robertson, 2005), it is entirely possible that previous research has unintentionally omitted a vital component—implicit attitudes—in the search for a comprehensive understanding of sexual attitudes. Much like studies that employ both qualitative and quantitative methods, future studies employing both implicit and explicit measures of social cognition, as in the APE Model (Gawronski & Bodenhausen, 2007), will ensure a higher standard of sexual attitude research.

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