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Truth and Consequences: Using the Bogus Pipeline to Examine Sex Differences in Self-Reported Sexuality

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Men report more permissive sexual attitudes and behavior than do women. This experiment tested whether these differences might result from false accommodation to gender norms (distorted reporting consistent with gender stereotypes). Participants completed questionnaires under three conditions. Sex differences in self-reported sexual behavior were negligible in a bogus pipeline condition in which participants believed lying could be detected, moderate in an anonymous condition, and greatest in an exposure threat condition in which the experimenter could potentially view participants' responses. This pattern was clearest for behaviors considered less acceptable for women than men (e.g., masturbation, exposure to hardcore & softcore erotica). Results suggest that some sex differences in self-reported sexual behavior reflect responses influenced by normative expectations for men and women.

Research on self-reported sexual attitudes and behavior consistently indicates that men are more inclined than women to engage in sexual behavior outside of committed relationships and are less discriminating with regard to quality and quantity of sexual partners (Baumeister, Catanese, & Vohs, 2001; Clark & Hatfield, 1989; Hendrick, Hendrick, Slapion-Foote, & Foote, 1985; Laumann, Gagnon, Michael, & Michaels, 1994; Okami & Shackelford, 2001; Oliver & Hyde, 1993). Recent reviews confirm that men, compared with women, are more approving of casual sex and report more frequent and explicit sexual fantasies (Hyde & Oliver, 2000; Jones & Barlow, 1990; Leitenberg & Henning, 1995; Okami & Shackelford, 2001). Additionally, men report an earlier age of first intercourse, a greater number of sexual partners (Smith, 1992), and a higher incidence of intercourse and masturbation (Oliver & Hyde, 1993). Women, on the other hand, report more sexual caution than do men (Hyde & Oliver, 2000). Furthermore, sex stereotypes exist such that men are expected to be more sexually permissive than are women (Cohen & Shotland, 1996; Masters, Johnson, & Kolodny, 1995; Oliver & Hyde, 1993).

Several of these well-established sex differences in sexual behavior are somewhat bewildering. Researchers have questioned the statistical improbability of men having more heterosexual intercourse partners than women, as these numbers should be equivalent for the sexes (Brown & Sinclair, 1999; Pedersen, Miller, Putcha-Bhagavatula, & Yang, 2002; Wiederman, 1997). Similar paradoxes exist with regard to men reporting more frequent intercourse than women. Because a partner is required, it is impossible for men to engage in heterosexual intercourse more often than their female counterparts. Furthermore, males typically report an earlier age of first intercourse than do females (Oliver & Hyde, 1993). Although it is plausible that males have their first sexual experiences with older females, it seems unlikely, given that adolescent females prefer older sexual partners (Elo, King, & Furstenberg, 1999; Kenrick, Gabrielidis, Keefe, & Cornelius, 1996). In light of these illogicalities, it is reasonable to speculate that some of the sex differences in self-reports of sexuality are not due to actual sex differences in behavior, but rather to differences in reporting as a function of differential normative expectations for men and women.

GENDER ROLES, NORMS, AND SEXUALITY

Gender roles and gender-typed expectations may have direct implications for men's and women's sexual attitudes and behavior. In general, men are expected to take agentic roles, being assertive, independent, and dominant, and women are expected to serve communal roles, being relationship oriented, selfless, and submissive (Cejka & Eagly, 1999; Glick, 1991). Such expectations encourage and foster role-consistent behavior by men and women both privately (Wood, Christensen, Hebl, & Rothgerber, 1997) and publicly (Eagly, Wood, & Diekmann, 2000). If women are expected to be relationship oriented, they may also be

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expected to disapprove of and avoid sexual behaviors that are perceived as being threatening to relationships or self-serving, such as casual sex, masturbation, and use of hardcore or softcore erotica. In contrast, frequent and early recreational sex as well as autoerotic sexual behaviors are more socially approved of and encouraged for men than for women. These behaviors are considered more agentic and independent than sexual behavior associated with long-term commitment, and men can enhance their dominance and power by participating in a greater number of short-term rather than close, long-term relationships (Baumeister & Sommer, 1997; Gabriel & Gardner, 1999). Consistent with this gender role perspective of sexuality, the only large sex differences reported in Oliver and Hyde's (1993) meta-analysis of various sexual domains were for attitudes toward casual sex and reported incidence of masturbation.

The potential effects of these broad gender expectations on sexuality are currently evident in the sexual scripts that regulate men's and women's sexual behavior. In sexual encounters, men are expected to initiate and women are expected to react and comply (Rose & Frieze, 1993; Shotland & Hunter, 1995). Some researchers have suggested that differences in sexual desire between men and women could be attributed to the social pressures that are placed on women to stifle their sexuality, as dictated by sexual scripts (Leiblum, 2002). Furthermore, many people still accept some version of the sexual double standard, in which men are afforded more sexual freedom than women, and women are expected to be more reluctant than men to acknowledge their desire for sex (Gentry, 1998). Women and men can anticipate different consequences when deviating from their prescribed behavior: Men are likely to find their sexual orientation or potency questioned, while women risk being labeled "sluts" or "whores." Indeed, societal judgments of sexually permissive women continue to be harsher than those of sexually permissive men in certain circumstances (Milhausen & Herold, 2001; Sprecher, McKinney, & Orbuch, 1987).

Given the connection between gender roles and sexuality, sex differences based on self-reports may partly reflect *false accommodation* to gender role norms, that is, self-presentation strategies used by men and women to appear consistent with gender role expectations and to avoid the negative consequences associated with deviating from these expectations. False accommodation might result in answers distorted in opposite directions for men and women such that men may be motivated to report approving of sexual behavior and to exaggerate the frequency and variability of their sexual encounters, whereas women may be motivated to understate theirs. These distorted self-presentations could occur intentionally through biased reporting or unintentionally through selective recall. Recent discussions of the susceptible nature of self-reports of sexuality to social desirability responding (Meston, Heiman, Trapnell, & Paulhus, 1998) indicate that it is not clear how closely self-reports of sexuality resemble true attitudes and

behavior. The differences reported in previous sex research could reflect actual sex differences, or they could merely be a result of self-presentation strategies on the parts of men and women. To the extent that sex differences in self-reported sexuality result from false accommodation to gender role norms, research contexts that encourage gender-typed self-presentation strategies, such as an *exposure threat* situation in which anonymity is not guaranteed, may yield larger self-reported sex differences than contexts in which such self-presentation strategies are discouraged, as with the *bogus pipeline method*.

BOGUS PIPELINE METHODOLOGY

The bogus pipeline procedure may be useful for identifying or controlling false accommodation to gender role norms on self-reports of sexual attitudes and behavior. With this procedure, participants are attached to a non-functioning polygraph and are led to believe that dishonest answers given during an interview or on a survey can be detected by the machine (Jones & Sigall, 1971). Their responses are typically compared with a control group not attached to the device; those in the bogus pipeline condition tend to report higher frequency of socially sensitive or socially undesirable behaviors (Tourangeau, Smith, & Rasinski, 1997). A meta-analysis of 31 studies using the bogus pipeline method across several opinion domains indicated that the technique is an effective means of reducing biased responding and shifting self-reports toward veracity (Roese & Jamieson, 1993). Apparently the procedure eliminates positive self-presentation by evoking a motivational shift from self-enhancement to self-protection (Roese & Jamieson, 1993). If a self-enhancing presentation (e.g., conformity to gender role norms) is inconsistent with one's true attitudes and behavior (e.g., deviance from gender role norms), an individual who gives self-enhancing responses risks being detected as lying or as lacking self-awareness. The bogus pipeline method motivates individuals to eschew self-enhancement in favor of honest and accurate answers to avoid embarrassment (Sabini, Siepmann, & Stein, 2001).

To our knowledge, there is only one published study in which a measure of self-reported sexual behavior was assessed using the bogus pipeline procedure. Tourangeau et al. (1997) examined men's and women's reports of several sensitive behaviors, including number of sexual partners, using the bogus pipeline technique. Both men and women reported more sexual partners in the bogus pipeline than in the control condition. This finding is difficult to interpret, however, because the authors administered the questions in a face-to-face interview, thus combining a condition likely to discourage false accommodation (the bogus pipeline condition) with a condition likely to encourage false accommodation (a nonanonymous interview). The full impact of the pipeline condition on participants' responses in this experiment may have been obscured by the threat of exposing their true responses to the interviewer, thus limiting the study's usefulness for

drawing clear conclusions regarding sex differences in reports of sexual behavior.

THE PRESENT RESEARCH

We designed a laboratory experiment to assess the effects of false accommodation on sex differences in self-reported sexual behaviors and attitudes. To manipulate the likelihood of false accommodation, we had male and female college students complete a sexual attitudes and behavior questionnaire under three testing conditions. In the exposure threat condition, participants were led to believe that their responses might be seen by a peer (i.e., a research assistant). We expected participants in this condition to be influenced by gender role norms, rendering sex differences. In the anonymous condition, in which participants were given strong assurances of anonymity, we expected the lack of identifiability to reduce the magnitude of sex differences by relaxing the pressure to adhere to gender role norms. Finally, in the bogus pipeline condition, we expected that participants would use an honesty self-presentation strategy, thus reducing false accommodation to gender role norms resulting in few if any sex differences. Altogether, we expected the magnitudes of sex differences in reports of erotophilia and erotophobia (i.e., positive and negative emotional orientation toward sexuality), sexual attitudes, and sexual experience to vary as a function of testing condition. We expected this pattern of responses especially on specific sexual behaviors for which gender role expectations diverge for men and women (e.g., number of sexual partners, age at first intercourse, masturbation, exposure to hardcore & softcore erotica).

A differential impact of testing context on men's and women's reported sexuality, evidenced by an interaction between participant sex and testing condition, would suggest that normative expectations for men and women play a role in reporting sexual activity. Such results would provide support for the idea that sex differences in reports of sexual behavior and attitudes are at least in part due to differences in social expectations.

METHOD

Participants

An initial sample of 248 male and female undergraduates at a regional campus of a Midwestern university participated as partial fulfillment of a research requirement in their Introductory Psychology course. To keep the sample somewhat homogenous, we used only data from unmarried, heterosexual, 18- to 25-year-old participants. The 47 participants who did not fit this description were dropped, leaving a final sample of 201 participants (96 men and 105 women), 189 of whom were White, 7 of whom were African American, and 5 of whom were of other ethnic backgrounds.

Measures

Manipulation checks. To assess the effectiveness of the

bogus pipeline procedure for reducing social desirability responding, we included a brief (19-item) version of the Marlowe-Crowne Social Desirability Scale (Strahan & Gerbasi, 1972) at the end of the survey packet. Questions on this scale are answered in a true-false format, and possible scores range from 0 to 19, with higher scores indicating a tendency to deny having basic human foibles ($\alpha = .64$ in the present study).

We also gave 50 participants who were attached to the polygraph (see procedures below) three items asking how accurate they thought the machine was in measuring their true attitudes and behavior, how much influence they thought the machine had on their responses, and how much pressure they felt from the lie detector to answer questions honestly. They responded using a 5-point Likert scale (1 = *not at all* to 5 = *a great deal*).

Sexual attitudes. The 21-item Sexual Opinion Survey (Fisher, Byrne, & White, 1983) was used to measure erotophobia-erotophilia. Sample items include "I think it would be very entertaining to look at hardcore pornography" and "If people thought I was interested in oral sex, I would be embarrassed." Participants responded using a 7-point Likert scale (1 = *strongly agree*, 7 = *strongly disagree*). Possible scores range from 0 to 126, with lower scores indicating negative emotional responses to sexual matters (erotophobia) and higher scores indicating positive emotional responses to sexual matters (erotophilia). In the current study, the Cronbach alpha reliability coefficient for this scale was .79.

We measured sexual attitudes with the Attitudes Toward Sexuality Scale (Fisher & Hall, 1988). This 13-item instrument assesses general sexual attitudes on a 5-point Likert scale (1 = *strongly disagree* to 5 = *strongly agree*). Sample items include "Petting (a stimulating caress of any or all parts of the body) is immoral behavior unless the couple is married" and "A person's sexual behavior is his/her own business and nobody should make value judgments about it." Potential scores on this instrument range from 13 to 65, with lower scores indicating greater sexual conservatism and higher scores reflecting more permissiveness ($\alpha = .81$ for this sample).

Sexual experience and behavior. Sexual behavior was measured using the Cowart Pollack scale of sexual experience (Cowart-Steckler & Pollack, 1988), which is a pair of Guttman scales that assesses the breadth of men's and women's sexual experience. Using a yes-no response format, respondents indicate in which of 30 sexual activities they have engaged (e.g., oral stimulation of partner's genitals). Scores range from 0 to 30, with higher scores indicating a broader range of sexual experience ($\alpha = .95$ for the present study). Because we were especially interested in examining responses to three items highly relevant to gender role norms (masturbation, exposure to softcore erotica, and exposure to hardcore erotica), we created a subscale using these three items ($\alpha = .73$).

We also asked participants to indicate the age at which they had first engaged in consensual sexual intercourse

and the number of partners with whom they had engaged in sexual intercourse (referred to hereafter as *sexual partners*). One participant reported having engaged in consensual sexual intercourse at age 10. To enhance homogeneity of the variance, we excluded this participant from analyses involving this variable.

Procedure

Overview. All participants signed up for a study on sexual attitudes and behavior. Upon arriving at the laboratory, participants were greeted by the experimenter, a student research assistant, who took them to a small, private testing room where they were tested individually. We examined participants' self-reported sexual attitudes and behavior in three testing conditions. Two testing conditions entailed connecting participants to a bogus pipeline apparatus at some point, either while completing the sex questionnaire (bogus pipeline condition) or while completing a filler task (anonymous condition). Participants in the bogus pipeline condition were attached to the pipeline apparatus while completing the sex questionnaires and were unattached during the filler task. Participants in the anonymous condition were attached to the apparatus during the filler task and unattached while completing the sex questionnaires. We attached participants to the bogus pipeline apparatus in both testing conditions to ensure that they were treated similarly in the two testing conditions, controlling for potential confounds produced by the invasive procedure of the bogus pipeline (i.e., contact or physical proximity with experimenter; see Ostrom, 1973). The third condition (exposure threat) did not involve the bogus pipeline or the filler task.

Participants were randomly assigned to one of the three testing conditions. For the bogus pipeline and anonymous conditions, participant sex, experimenter sex, and task order were counterbalanced using all possible combinations of these variables. For the exposure threat condition, participant sex and experimenter sex were counterbalanced. Upon finishing the experiment, participants who had been attached to the polygraph completed the manipulation check and were debriefed and questioned for suspicion. No participants reported being suspicious of the bogus recording device.

Bogus pipeline condition. The experimenter informed participants in this condition that they would be completing a questionnaire about their sexual attitudes and behaviors and would view and rate a brief videotape. They were told that during a portion of the experiment they would be connected to a physiological monitor similar to a polygraph or "lie detector" to maximize honesty in responding. The polygraph was a Lafayette Instruments Minigraph chart recorder reconstructed to resemble a polygraph machine. It consisted of an electrode input box attached by a 6-foot cable to a power supply cabinet equipped with a chart recorder and four ink recording pins. Four inert lead wires and disposable silver/silver-chloride electrodes were used to ostensibly assess participants' physiological signals.

As the experimenter placed electrodes on participants' hands, forearms, and neck, he or she told participants that the polygraph could assess truthfulness by measuring vital signs such as heart rate and galvanic skin response. To "calibrate the machine to ensure that it worked correctly," and to enhance the believability of the bogus pipeline, the experimenter asked participants to respond "yes" to two questions, one of which evoked a false response ("Is your name Bart Simpson?"), and one of which evoked a true response ("Is your name [participant's actual name?]"). As participants responded to these questions, the paper rollers and pens on the polygraph were activated. The experimenter showed everyone the same bogus printout, which clearly differentiated the false response from the truthful response. Reminding them that the machine was sensitive enough to detect dishonesty even in written responses, the experimenter urged participants to respond accurately, handed them the sex questionnaire, and exited the room, closing the door to provide privacy. When finished, participants placed their completed surveys in a locked box in the room.

Anonymous condition. Participants in the anonymous condition were attached to the polygraph during the filler task (viewing a videotape depicting a student asking a professor about a class assignment and then rating the degree of sexual interest each had displayed), but not while completing the sexuality questionnaires. They were told that their answers would be completely anonymous and they were left alone in the small room with the door fully closed. They placed their completed surveys in a locked box before exiting the room.

Exposure threat condition. In this condition, we did not use the polygraph. Participants were led to believe that the experimenter, a college student peer, might view their responses because they were instructed to directly hand the completed questionnaire to the experimenter when finished. They completed the questionnaires in the small room with the door open and the experimenter sitting just outside in full view as a reminder of the impending possibility of exposure. In actuality, when participants attempted to give their completed survey to the experimenter, they were instead told to place the questionnaire in the locked box in the testing room.

RESULTS

Manipulation Checks

Responses on the Marlowe-Crowne Social Desirability scale for all three conditions were compared with a 2 (Participant Sex) X 3 (Testing Condition) analysis of variance (ANOVA), which indicated a significant main effect for testing condition among the three groups, $F(2, 197) = 14.1, p < .001, \eta^2 = .127$.¹ A Fisher's LSD post-hoc test

¹ According to Cohen (1988), an η^2 of .01 indicates a small effect corresponding to .2 of a standard deviation, an η^2 of .059 indicates a moderate effect corresponding to .5 of a standard deviation, and an η^2 of .138 reflects a large effect corresponding to .8 of a standard deviation.

indicated that, as predicted, social desirability scores were lowest in the bogus pipeline condition ($M = 5.6$, $SD = 2.9$), intermediate in the anonymous condition ($M = 7.0$, $SD = 2.9$), and highest in the exposure threat condition ($M = 8.3$, $SD = 3.0$).

On average, the 50 participants who responded to questions about the bogus pipeline rated it as fairly accurate in measuring true attitudes and feelings ($M = 3.7$, $SD = 0.9$) and as somewhat likely to influence their responses ($M = 2.4$, $SD = 1.4$) and to pressure them to be honest ($M = 2.6$, $SD = 1.4$). A multivariate analysis of variance (MANOVA) done with these three items revealed no significant effects for condition or participant sex and no significant interactions, $F_s < 1$. Taken together, these manipulation checks indicate that the bogus pipeline encouraged honest responding by participants.

Sexual Attitudes and Behaviors

To ensure that the counterbalancing procedure controlled for potential effects of experimenter sex and task order, we first analyzed participants' responses using a series of 2 (Participant Sex) X 3 (Testing Condition) X 2 (Experimenter Sex) X 2 (Order of Survey/Video Presentation) between-subjects ANOVAs. Experimenter sex and task order did not affect responses; thus further discussion of the results are restricted to 2 (Participant Sex) X 3 (Testing Condition) ANOVAs. The response means for sexual attitudes and experiences are presented in Table 1.

Sexual attitudes. For the Sexual Opinion Survey, the ANOVA yielded a significant main effect for participant sex with a moderate effect size, $F(1, 194) = 10.69$, $p = .001$, $\eta^2 = .052$, with men ($M = 71.7$, $SD = 21.1$) reporting greater erotophilia than women ($M = 60.0$, $SD = 23.8$). There was also a main effect for testing condition, $F(2, 194) = 3.37$, $p = .036$, $\eta^2 = .034$, with participants in the bogus pipeline condition ($M = 71.2$, $SD = 22.6$) reporting more erotophilic attitudes than participants in the exposure threat condition ($M = 60.9$, $SD = 21.8$). No significant interaction between participant sex and testing condition emerged ($F < 1$). The 2 X 3 ANOVA for scores on the Attitudes Toward Sexuality Scale revealed no significant effects ($F_s < 2$).

Sexual experience and behavior. The 2 X 3 ANOVA on the overall score of the sexual experiences scale yielded no significant effects, $F_s < 2$. Results on the composite score of gender-role-relevant sexual behaviors (i.e., masturbation, exposure to hardcore and softcore erotica) yielded a significant interaction between participant sex and testing condition, $F(2, 192) = 3.2$, $p = .04$, $\eta^2 = .032$. Planned comparisons revealed that although there were significant sex differences (with men scoring higher) in all three conditions, the differences were much larger in the exposure threat condition, $F(1, 86) = 49.33$, $p < .001$, $\eta^2 = .365$, than in the anonymous condition, $F(1, 58) = 13.46$, $p = .001$, $\eta^2 = .188$, or the pipeline condition, $F(1, 49) = 4.96$, $p = .03$, $\eta^2 = .094$. An analysis of simple effects further indicated no significant differences among the men as a function of testing condition, $F_s < 2$. Among the women, however, those in the pipeline condition, $F(1, 68) = 21.16$, $p < .01$, and in the anonymous condition, $F(1, 78) = 8.23$, $p < .01$, reported engaging in significantly more of these behaviors than did those in the exposure threat condition (see Figure 1).

Number of sexual partners. The two-way ANOVA on self-reports of the number of sexual partners yielded no significant effects, $F < 1$, but the data did strongly favor the predicted pattern (see Figure 2). That is, men reported more sexual partners than did women in the exposure threat condition (3.7 vs. 2.6, $\eta^2 = .03$), where gender expectations are most salient. The magnitude of the sex difference decreased in the anonymity condition (4.2 vs. 3.4, $\eta^2 = .01$), and the direction of the difference actually reversed in the bogus pipeline condition, with men reporting fewer partners than women (4.0 vs. 4.4, $\eta^2 = .001$).

Age of first intercourse. A two-way ANOVA on participants' reports of the age of their first intercourse indicated no main effects of sex of participant or testing condition, $F_s < 1$, but did yield a significant interaction, $F(2, 142) = 4.72$, $p = .01$, $\eta^2 = .062$ (see Figure 3). Planned comparisons revealed no sex difference between reported age of first intercourse in the pipeline condition, $F(1, 35) = 0.08$, $p = .77$. In the anonymous condition however, women reported a significantly earlier age of first intercourse than did men,

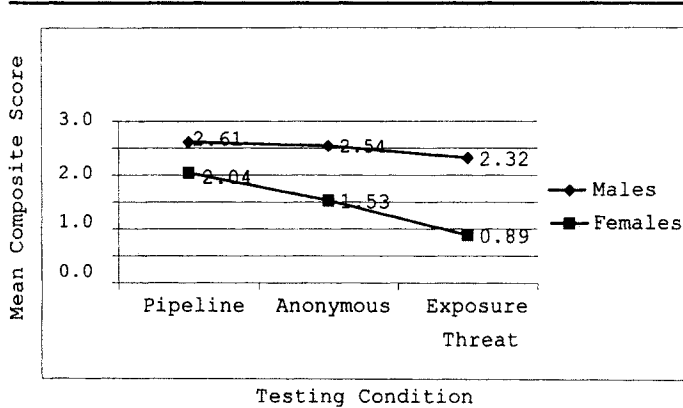
Table 1. Means and Standard Deviations for Sexual Attitudes and Behaviors by Participant Sex and Testing Condition

Instrument	Participant sex	Testing condition		
		Pipeline	Anonymous	Exposure threat
Sexual Opinion Survey ^a	Male	74.7 (17.8)	73.0 (22.8)	68.7 (21.8)
	Female	66.6 (27.2)	64.1 (25.5)	54.0 (19.6)
Attitudes Toward Sexuality ^b	Male	43.7 (8.5)	43.9 (8.6)	40.1 (10.0)
	Female	42.3 (9.3)	43.6 (11.4)	41.9 (8.6)
Sexual Experience ^c	Male	21.3 (9.5)	22.0 (6.3)	19.0 (9.2)
	Female	20.6 (7.1)	19.0 (8.8)	18.5 (7.9)

Note. The n_s for the bogus pipeline, anonymous, and exposure threat conditions, respectively, were 29, 28, and 42 for men and 22, 33, and 47 for women.

^aSexual Opinion Survey scores can range from 0 to 126; higher scores reflect more positive emotional reactions to sexuality. ^bAttitudes Toward Sexuality Scale scores can range from 13 to 65; higher scores reflect more permissive sexual attitudes. ^cSexual Experience Scale scores can range from 0 to 30; higher scores reflect a broader range of sexual experience.

Figure 1. Mean composite score for autonomous sexual behaviors as a function of participant sex and testing condition.



$F(1, 43) = 6.02, p = .018$, indicating a reversed pattern of typical self-report research. In the exposure threat condition, men reported an earlier age of first intercourse than did women, although the difference did not quite reach significance, $F(1, 64) = 3.17, p = .08$. The effect of testing condition was significant for the women, $F(2, 75) = 3.92, p = .024, \eta^2 = .095$, but not for the men, $F < 2$.

DISCUSSION

Though not as clear as we had expected, the pattern of results generally supported the idea that men and women use gender-specific self-presentation strategies when reporting their sexual behaviors. Sex differences were greatest in the exposure threat condition, which encouraged gender role accommodation, and were smallest in the bogus pipeline condition, which discouraged stereotypical responses and encouraged honest responding instead. These findings suggest that some sex differences found by sex researchers may reflect false accommodation to gender role norms when reporting sexuality, particularly on the part of women. This pattern was more apparent for self-reports of

sexual behaviors than of attitudes toward sexuality.

The results were clearest for autonomous sexual behaviors (i.e., masturbation, exposure to hardcore & softcore erotica), which are considered more appropriate for males than females. Typical sex differences, with more men than women reporting having engaged in these behaviors, were found in the exposure threat condition. These sex differences were smaller in the anonymous condition and even more diminished in the bogus pipeline condition. Participants' reports of the age of their first consensual intercourse also significantly differed by sex and testing condition, with almost no sex differences evident in the bogus pipeline condition and a typical sex difference with men reporting a 6-month younger age than women in the exposure threat condition (although not quite significant). Surprisingly, women reported an earlier age than men in the anonymous condition.

Sex differences in self-reports of the number of sexual partners also showed the predicted trend, although it was not significant. The sex difference was greatest in the exposure threat condition, which encouraged gender role accommodation, and decreased in the anonymous condition. In the bogus pipeline condition, which encouraged honesty rather than social desirability, women actually reported more sexual partners than did men. This pattern should be interpreted cautiously because the overall interaction between participant sex and testing condition was not significant. Nonetheless, the trend is intriguing and may help explain why heterosexual males report a greater number of sexual partners than do heterosexual females (Wiederman, 1997).

Women's reports of sexual experiences fluctuated more than did men's as a function of testing condition. This is not altogether surprising, given the different expectations for the sexes regarding sexual behavior, with more constraints placed on women (Schwartz & Rutter, 1998). Gender expectations consistent with the sexual double standard may be responsible for heightening women's sensitivity to

Figure 2. Mean number of sexual partners as a function of participant sex and testing condition.

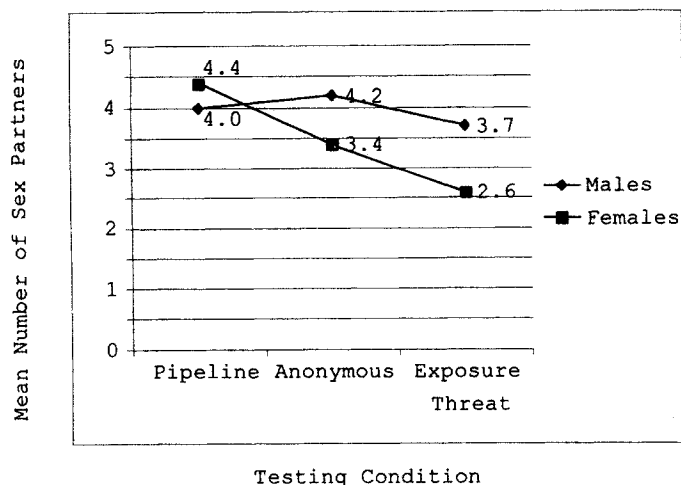
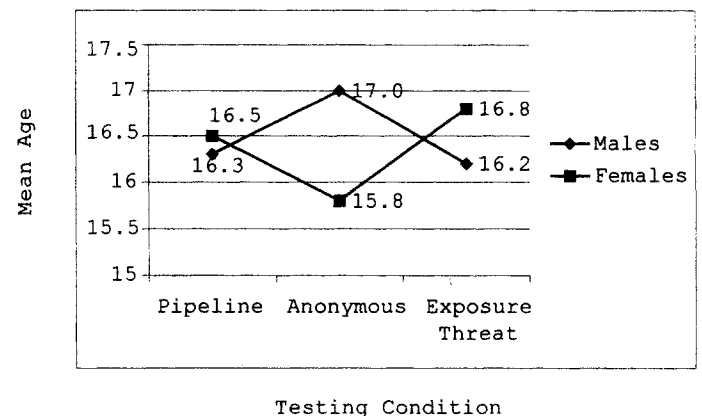


Figure 3. Mean age of first consensual sexual intercourse as a function of participant sex and testing condition.



the degree of privacy or pressure to respond honestly more so than men's, especially in the exposure threat condition. Men have a history of enjoying and expressing sexual freedom, autonomy, and liberation, and therefore may be more comfortable than women expressing their sexuality on self-report measures. Because men do not face the same negative consequences for expressing their sexuality as do women, they may not experience the need to inhibit these responses to the same degree.

The lack of significant effects of testing condition on sex differences in erotophilia and sexual attitudes is interesting and requires further explanation, in light of some of the significant findings related to behavior. One plausible explanation is that reports of sexual attitudes and opinions are not as influenced by normative expectations for men and women as are reports of sexual behaviors. This would account for fluctuations found in self-reported behavior but not attitudes across testing conditions. A second possible explanation is that individuals, particularly women, experience more constraints placed on their sexual behaviors than on their sexual attitudes, which may pressure them to falsely accommodate to behavioral norms more so than to attitudinal norms for sexuality. Thus, sexual behaviors may be more susceptible to social desirability responding and self-presentation strategies than are sexual attitudes. If this is the case, findings on sex differences in self-reported sexual attitudes may indicate real differences between the sexes whereas the typical patterns found in self-reported sexual behavior may not accurately reflect true sex differences.

It is well known that response bias can weaken the credibility and validity of findings obtained with the traditional survey approach (Catania, Gibson, Marin, Coates, & Greenblatt, 1990). As the present study suggests, self-presentation strategies relevant to gender role norms also affect self-reports of sexual behavior. Much of the data reported on sexuality are collected in settings more similar to our exposure threat condition than either the bogus pipeline or the anonymous conditions. Thus, in sex research based on self-reports, sex differences may be exaggerated due to false accommodation to gender role norms. These differences may reflect respondents' ideas of what they are expected to report rather than their actual experience. Although it is not practical to use the bogus pipeline technique in all sex research, our results illustrate the need for researchers to do everything possible to minimize the likelihood that participants' responses are tainted by social expectations.

Future researchers interested in using the bogus pipeline method should be aware of a potential weakness in our procedure stemming from an attempt to control for confounds between the bogus pipeline and the anonymous conditions. Although participants in our anonymous condition were not attached to the bogus pipeline while completing the sex survey, they had been made aware of the experimenter's desire to obtain honest responses by being attached to the pipeline while completing the video filler

task (although half of the time this occurred after the sex survey had been completed). The anonymous condition we designed was therefore unlike that used by most sex researchers.

Lately there has been heated debate regarding the origins of sex differences in sexual behavior and attitudes (see Eagly & Wood, 1999; Pratto & Hegarty, 2000; Wood & Eagly, 2002), with two distinct explanations prevalent in the psychological literature. Evolutionary psychologists attribute sex differences to the evolved dispositions of men and women, with differential patterns of sexual behavior developing over time due to their likelihood of maximizing reproductive success (Buss, 1998; Buss & Schmidt, 1993; Symons, 1979). In contrast, social role theorists (Eagly, 1987) suggest that sex differences in social behavior mirror gender roles and stereotypes, which originate from the differential distribution of men and women into social roles in domestic and paid labor. Thus, evolutionary theorists favor distal explanations whereas social role theorists favor proximal explanations. Although our study does not directly address the origins of sex differences in sexuality, it does suggest that reports of sex differences based on self-reports may reflect conformity to normative expectations for men and women rather than actual differences in behavior. When the impact of normative expectations for men and women was muted by pressure to be honest in the bogus pipeline condition, sex differences were minimized. When existing gender norms seemed most appropriate to use, as in the exposure threat condition, men's and women's reports corresponded to gender role norms for sexuality more closely, with men reporting more sexual experiences than women. Participants seemed to alter their self-presentations to meet the demands of the testing condition, which lends support to the social role perspective that sex differences in sexuality stem from gender-differentiated normative pressures that designate men as more sexual than women.

In closing, one reason that the results are not as strong as we had hoped is that the very sex differences that we sought to explain were not particularly robust. Main effects of participant sex were evident only on the 3-item composite measure of sexual experience and the erotophilia-erotophobia measure. No sex differences, for example, were found on the Attitudes Toward Sexuality Scale, a measure that has consistently yielded sex differences in the past (Fisher & Hall, 1988). This overall lack of sex difference findings may indicate a broader shift in gender role norms which has implications for men's and women's attitudes and behavior. Several recent sexuality surveys have found no sex differences in self-reported sexual behavior (Browning, Kessler, Hatfield, & Choo, 1999), incidence of casual sexual interactions (Maticka-Tyndale, Herold, & Mewhinney, 1998; Paul, McManus, & Hayes, 2000), number of sexual partners in the past year (Brown & Sinclair, 1999), or desired number of lifetime sexual partners (Pedersen et al., 2002). The lack of sex differences in these studies and in our analysis may reflect currently shifting gender roles and

their subsequent impact on normative expectations and expressions of sexual behavior. This trend is somewhat analogous to Eagly & Wood's (1999) finding that sex differences in mate-selection preferences are minimized in societies with high levels of gender equality. As a given society advances toward gender equality, differences in gender role expectations may diminish, rendering sex differences in self-reports of sexuality obsolete.

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