

The Truth Must Be in Here Somewhere: Examining the Gender Discrepancy in Self-Reported Lifetime Number of Sex Partners

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One of the most consistent and troubling findings in sexuality research is that men report a substantially greater number of sexual intercourse partners compared to women. In a population that is more or less closed and is comprised of approximately equal proportions of men and women, such a finding is illogical. In the current article, I review the primary explanations that have been offered for this gender discrepancy and review the relevant data that exist for each explanation. Afterwards, I present data from two studies in which I further explored the apparent gender discrepancy and factors that may account for it. The first study involved a sample of college students (N = 324), whereas the second study was based on a nationally representative sample of adults (N = 2,524; 1994 General Social Survey, Davis & Smith, 1994). In Study 1, accounting for a lack of inclusion of casual sex partners and for self-rated dishonesty in reporting did not affect the gender discrepancy in lifetime number of sex partners, whereas correcting for the ratio of men versus women on campus did to a small degree. Only correcting for self-rated inaccuracy eliminated the gender discrepancy. In Study 2, removing those respondents who had participated in prostitution reduced the gender discrepancy somewhat. However, the gender discrepancy appeared to be driven primarily by men's greater tendency to report large, "round" numbers of partners. The results are discussed with regard to possible explanations for greater distortion in men's estimates of lifetime sex partners compared to women's estimates, directions for further investigation are suggested, and recommendations are provided for researchers who ask respondents to report lifetime number of sex partners.

Given the private and sensitive nature of sexual information, researchers typically must rely on self-reports of sexual activity and experience. Unfortunately, such self-reports are vulnerable to multiple forms of bias and unreliability (Catania, Binson, Van der Straten, & Stone, 1995; Catania, Gibson, Chitwood, & Coates, 1990; Catania et al., 1993; Clement, 1990; Wiederman, 1993), which may lead to researchers finding spurious relationships between sexual experience and other variables. One of the most robust relationships in research on human sexuality may be an example of this phenomenon. With remarkable consistency, men report a greater number of sexual partners compared to women (Oliver & Hyde, 1993; Smith, 1992a, b).

Substantial discrepancies between men's and women's self-reported lifetime numbers of sex partners have been documented among adolescents (e.g., Luster & Small, 1994) and college students (e.g., Lottes, 1993; McDonald et al.,

1990; Walsh, 1993), as well as national samples of adults drawn from the United States (Laumann, Gagnon, Michael, & Michaels, 1994; Smith, 1991, 1992b), Britain (Wellings, Field, Johnson, & Wadsworth, 1994), France (ACSF, 1992), New Zealand (Davis, Yee, Chetwynd, & McMillan, 1993), and Norway (Sundet, Magnus, Kvaem, Groennesby, & Bakkeiteig, 1989). Apparently, this gender discrepancy is not new; Kinsey and his colleagues mentioned it with regard to data collected during the 1940s (see Kinsey, Pomeroy, Martin, & Gebhard, 1953, p. 683).

Rather than a small but statistically significant gender difference, the typical discrepancy in men's and women's lifetime number of sex partners is large by any definition. For example, in national samples, the mean number of sex partners for men and women, respectively, was 12.3 versus 3.3 in the United States (Smith, 1991), 9.9 versus 3.4 in Britain (Wellings et al., 1994), 11.0 versus 3.3 in France (ACSF, 1992), 10.2 versus 4.2 in New Zealand

(Davis et al., 1993), and 12.5 versus 5.2 in Norway (Sundet et al., 1989). In populations that are more or less closed systems with an approximately equal ratio of men and women, such as the United States (U.S. Bureau of the Census, 1993), this apparent gender discrepancy does not make logical sense (Einon, 1994; Gurman, 1989).

Failure to address this seemingly illogical gender discrepancy has led some critics to question the validity of all sex research based on self-report (e.g., see Lewontin, 1995). Accordingly, noted sex researcher Ira

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Reiss (1995) observed that "this gender discrepancy in our surveys is a serious problem, and researchers need to find better ways of obtaining more valid responses" (p. 81). How is this gender discrepancy in self-reported lifetime number of sex partners to be explained?

Several possible explanations have been proposed, each of which is based on either potential sampling bias or potential response bias. The purpose of the current article is threefold: (a) to review the primary explanations that have been advanced for the apparent gender discrepancy, (b) to review existing data relevant to each proposed explanation, and (c) to present the results of two studies in which I further investigated the nature of the apparent gender discrepancy with regard to several explanations that have been proposed by previous authors.

Possible Explanations for the Gender Discrepancy

Potential Sampling Bias

Explanations for the gender discrepancy that rely on some form of sampling bias share the notion that it is extremely difficult, if not impossible, to obtain a truly representative sample in which to perform a comparison of men's and women's self reports. One reason is that, when it comes to sexual partners, no system from which one wishes to sample is completely closed (wherein members *only* have had sexual relations with other members of the specified group). So, to the extent that men or women have greater sexual experience with members outside of the group in which sampling takes place, the apparent gender discrepancy could be explained by one gender accumulating more partners from an unrepresented (not sampled) group. Such an issue is especially relevant when considering samples that are not nationally representative but rather of convenience (e.g., college students). However, as a sole or primary expla-

nation for the existence of the gender discrepancy in self-reported lifetime number of sex partners, the lack of a truly closed system appears inadequate because of the robustness of the gender discrepancy, even within several nationally representative samples. Also, the nature of the gender discrepancy is consistently such that men report a greater number of partners than do women. Next I consider some more specific explanations that are based on issues of sampling.

Unequal gender ratio in the population. Phillis and Gromko (1985) observed that an unequal ratio of men to women in the population under study can affect apparent gender discrepancies in sexual experience. In their sample of 327 female and 117 male college students, significantly more men (76%) than women (62%) reported having had sexual intercourse. However, the gender ratio at their university was quite skewed (57% women, 43% men).

Assuming that this unequal gender ratio affected men's versus women's opportunities for sexual intercourse, Phillis and Gromko calculated the total number of theoretical partners for all men and women at their university. After doing so, the total number of sex partners was only 4% greater for men than for women (although Table 1 in their article erroneously lists the difference as 2%). However, even though men in their sample appeared to report a greater number of sex partners ($M = 4.26$) relative to women ($M = 3.76$), the difference between these means was not statistically significant to begin with (see Phillis & Gromko, 1985, p. 439).

With regard to national samples of adults from four countries, Smith (1992a) took data on men's and women's self-reported number of sex partners over the past year or five years and statistically corrected them according to the gender ratio of adults in each country. In the United States and Canada there were slightly more women than men, so

correcting for this fact reduced slightly the apparent gender discrepancy in self-reported partners. However, in Britain and Norway there were slightly more men than women; hence the apparent gender discrepancy in self-reported partners actually *increased* slightly when corrected for unequal gender ratios in the population surveyed. It appears that, at least in studies employing probability sampling and national samples of adults (e.g., Smith, 1991; Wellings et al., 1994), unequal gender ratios do not explain adequately the substantial gender discrepancies that have been observed in men's versus women's self-reported number of sexual partners (Smith, 1992a).

Younger female partners. Several authors have noted that, compared to women, men tend to select sex partners who are relatively younger and such a gender difference in partner choice may affect self-reported lifetime number of sex partners (e.g., Johnson, Wadsworth, Field, Wellings, & Anderson, 1990; Laumann et al., 1994). In other words, as most surveys involve adult respondents (age 18 years and older), some men included in the sample have had sex with female partners who are not old enough to be included in the survey. Although this fact may explain some small degree of the gender discrepancy, it cannot explain adequately the relatively large difference between men's and women's self-reports. That is, in national surveys, men typically report approximately three times as many lifetime sex partners as do women (e.g., ACSE, 1992; Smith, 1991, 1992a; Wellings et al., 1994). Preference for pre-adult sex partners explains the apparent gender discrepancy in lifetime partners only if two thirds of adult men's partners are currently younger than age 18, which is a highly unlikely scenario (Morris, 1993).

Similarly, it would seem that if men begin their sexual careers earlier than do women, men would have a longer period of time in which to

accumulate sex partners. However, any such difference in onset of sexual intercourse does not explain the gender discrepancy in lifetime number of sex partners because men still have to have a female partner, regardless of the age of the male. Additionally, at least among the most recent generation of young adults, there does not appear to be a gender discrepancy in age at first experience of sexual intercourse (e.g., Laumann et al., 1994; Sprecher, Barbee, & Schwartz, 1995).

Hypersexual women and prostitutes. Several authors (e.g., Laumann et al., 1994; Symons, 1979; Walsh, 1993; Wellings et al., 1994) have proposed that perhaps the apparent gender discrepancy in number of sex partners is explained by existence of a small subgroup of women who have had sex with an enormous number of men. To address this possibility of a subgroup of highly experienced women who were not prostitutes, Einon (1994) analyzed data from the national samples collected in Britain (Wellings et al., 1994) and France (ACSF, 1992). She found no evidence for the notion that there are more atypically "hypersexual" women compared to such men (and actually found evidence for a relatively greater incidence of "hypersexual" men who reported extremely large numbers of sex partners).

What about professional prostitutes? These women presumably have large numbers of male sex partners, yet may be less likely to be included in studies using typical sampling methodology. Einon (1994) also calculated the number of different male clients that prostitutes in Britain would need to service to resolve the gender discrepancy in self-reported lifetime number of sex partners in that country. Einon considered several levels of estimated prevalence of prostitution and number of different clients serviced per week, and for each scenario, prostitution was an unrealistic explanation for the gender discrepancy. Still, it is unknown what effect, if any, re-

moving respondents who have participated in prostitution might have on the apparent gender discrepancy in self-reported lifetime number of sex partners.

Potential Response Bias

Definition of sex partners. Laumann et al. (1994) and Wellings et al. (1994) proposed that perhaps men and women define *sex partner* differently (also see Catania et al., 1995). Apparently, some respondents interpret survey terms in idiosyncratic ways (e.g., see Wellings et al., 1994, pp. 18-19). If there is a gender difference in this regard, then perhaps men are more likely to respond to questions about lifetime number of sex partners by including those with whom they experienced any form of sexual contact, whereas perhaps women are more likely to include only those partners with whom they shared vaginal intercourse. Theoretically, this explanation for the gender discrepancy in self-reported lifetime number of sex partners seems unlikely, however, as large-scale surveys generally include carefully worded definitions of what is meant by *sex partner* and the specific sexual behaviors shared with such partners are a primary focus of inquiry (e.g., Laumann et al., 1994; Wellings et al., 1994).

A related explanation is that men and women may not necessarily differ in their definition of what constitutes *sex* but rather may differ with regard to definitions of *partner*. A number of researchers have called upon the notion of a cultural "double standard" to explain apparent gender differences in some aspects of sexual experience (e.g., Mark & Miller, 1986; Sprecher, McKinney, & Orbach, 1987). The notion is that men and women perceive different cultural pressures with regard to what is considered appropriate or acceptable sexual behavior. As a result, it may be that men are more comfortable than women in defining their sexual past according to the total number of individuals with

whom they had sexual intercourse, regardless of the context of the experience.

In contrast, women who have had sexual intercourse outside of a loving or committed relationship may be uncomfortable or embarrassed to admit such experience, perhaps even to themselves. With regard to empirical evidence, men do generally hold more permissive sexual attitudes compared to women (Oliver & Hyde, 1993). Also, sexual activity and experience appear to be more important to men than to women (Sedikides, Oliver, & Campbell, 1994; Sprecher & Reagan, 1996; Wiederman & Allgeier, 1993) and more highly related to men's self-concept (Walsh, 1991). In contrast, emotional intimacy with others appears to be more central to women's self-concept than to men's (Josephs, Markus, & Tafarodi, 1992; Sedikides et al., 1994).

When asked how many *partners* they have had, men may be more likely to define this term according to sexual contact, whereas women may be more likely to define it according to *relationship* partners with whom they had sexual intercourse. Spencer, Faulkner, and Keegan (1988) found that, among their unmarried respondents, the term *sexual partner* was commonly associated with some type of romantic relationship and did not typically include instances of casual sex, whereas married respondents frequently resisted classifying their spouse as a sexual partner. Wellings et al. (1994) attempted to circumvent this phenomenon by defining for research participants that *partner* meant "people who have had sex together just once, or a few times, or as regular partners, or as married partners" (p. 19). To my knowledge, the possibility that women may be more likely to exclude casual sex partners from their self-reported total number of sex partners has not been investigated systematically.

Intentional distortion/dishonesty. In accord with the notion of a cultural "double standard," as described in

the previous section, several authors have proposed that men and women may lie about their sexual experience ("social desirability response bias") and may do so in different ways (Catania et al., 1995). It has been suggested that men may be more likely to exaggerate their reports regarding lifetime number of sex partners, whereas women may be more likely to lie by minimizing the number of sex partners (Lauermann et al., 1994; Smith, 1992a, b; Wellings et al., 1994). To the extent that respondents feel pressured to conform to perceived cultural expectations regarding appropriate (socially desirable) sexual experience for men versus women, there is the possibility for conscious distortion in disparate directions according to respondent gender. Data bearing on this issue, however, are less than conclusive.

Clark and Tiffit (1966) had male college students complete a questionnaire regarding several forms of socially sensitive behavior. Afterwards, the men were connected to a polygraph machine and given the opportunity to correct their previous responses before being asked about them while connected to the "lie detector." In comparing the initial versus "corrected" reports, men initially underreported homosexual experience and masturbation. When it came to heterosexual experience, however, only a small minority of respondents appeared to have distorted their first responses, and of those men who did, the respondents were just as likely to have underreported as overreported.

More recently, Tourangeau, Smith, and Rasinski (1997) used a "bogus pipeline" methodology to investigate the degree of conscious distortion introduced in men's and women's self-reported sexual experience. That is, the researchers went to great lengths to ensure that respondents in the bogus pipeline condition believed that the experimenters would be able to tell whether the respondent was being truthful. Inter-

estingly, respondents in the bogus pipeline condition did report substantially higher lifetime numbers of sex partners; however, there was no significant gender by experimental condition interaction. The gender discrepancy was virtually identical in both cases, with men in the control condition reporting 1.72 partners for each partner women in the control condition reported versus men in the bogus pipeline condition reporting 1.60 partners for each partner women in the bogus pipeline condition reported.

However, in contrast to adults, it appears that the direction of intentional distortion may vary as a function of gender among adolescents. In a longitudinal study of adolescents, Rodgers, Billy, and Udry (1982) considered the minority of respondents who were inconsistent between Time 1 and Time 2 in their reports of having experienced each of several forms of sexual behavior. Interestingly, girls were much more likely than boys to have "rescinded" their earlier report of sexual intercourse. Rodgers et al. (1982) concluded that "White males are the most consistent responders across virtually the whole range of experiences . . . [whereas] the females—both Black and White—were the most inconsistent responders in the petting and intercourse behaviors" (p. 291). In a subsequent study with similar methodology, Newcomer and Udry (1988) noted that "although the sample size was too small to test for [statistical] significance, there was a tendency for boys to lie and say that they had had sex and for girls to lie and say that they had not had sex" (p. 420).

Alexander, Somerfield, Ensminger, Johnson, and Kim (1993) also conducted a longitudinal study involving a large group of adolescents. In contrast to earlier results, however, Alexander et al. found that males were *more* likely than females to demonstrate inconsistency over time in their self-reported sexual behavior. They concluded that "it

would appear that White adolescent females provide the most reliable information about sexual behavior" (p. 467).

In a large random-digit dialing sample of adults ages 18-49 years residing in the United States, Catania et al. (1996) investigated the effect of prefacing interview questions with a relatively accepting context. For example, approximately one half of respondents were simply asked how many sexual intercourse partners the respondent had had both prior to and since age 18, whereas the remaining respondents were presented with the following preface to the two questions: "The number of sexual partners people have had differs a lot from person to person. Some people report having had one sex partner, some two or more partners, and still others report hundreds of partners" (p. 352). Catania et al. (1996) found that this question resulted in more men and fewer women retrospectively reporting virginity prior to age 18. However, with regard to number of sexual partners since age 18, both men and women who received the preface reported relatively fewer partners, and there was no gender difference in the effect of the experimental manipulation.

What are we to make of these findings? Although some dishonesty apparently occurs in sex surveys, the effect may be negligible (see Jaccard & Wan, 1995, for review) and may apply more to adolescent sexual experiences. In a large sample of college students, Nicholas, Durrheim, and Tredoux (1994) found that respondents were more likely to report having lied on a questionnaire regarding sexuality compared to questionnaires the respondents completed regarding biographical information or sociopolitical attitudes. Still, the absolute difference between the rates of lying on each questionnaire was very small. With a large sample of young adult men and women, Johnson and DeLamater (1976) asked research participants to rate their "candor," or

honesty, in responding to previous interview items having to do with sexual behavior and exposure to erotica. Johnson and DeLamater (1976) noted that "when respondents who said they underreported or overreported sexual activity are removed from consideration, the overall distribution of sexual experience changes little" (p. 180).

Inaccurate recall/estimation. It has been noted that self-reports of sexual activity are prone to unreliability because of faulty recall (Catania et al., 1990, 1995; Croyle & Loftus, 1993; Jaccard & Wan, 1995). When asked to recall the occurrence of events that are not unique or not infrequent, people tend to estimate the number of occurrences rather than attempt to "recall and count" each individual occurrence (Blair & Burton, 1987; Bradburn, Rips, & Shevell, 1987; Croyle & Loftus, 1993). Accordingly, when asked about total lifetime number of sex partners, those who have had several may be less likely to attempt to count the actual number of partners compared to those respondents with no or only a few partners. Those respondents with a greater number of different sex partners then may be more likely to use some other strategy to arrive at a global estimate or "ballpark" figure (Catania et al., 1995). Using various heuristics or strategies to derive a response to questions regarding the frequency of some activity or experience can result in a substantial degree of unreliability (Marquis, Marquis, & Polich, 1986; Strecher, Becker, Clark, & Prasada-Rao, 1989).

With regard to lifetime number of sex partners, Morris (1993) noted that, in large sex surveys, a relatively small subsample of men report very high numbers of partners and proposed that the reports from these atypical men were largely responsible for the gender discrepancy (also see Johnson et al., 1990). Morris demonstrated that the gender difference could be substantially reduced by just considering those respon-

dents with 20 or fewer self-reported partners. If the gender discrepancy is primarily related to faulty recall (or overestimation) of past sexual partners, one would expect the gender discrepancy to become relatively larger as the span of time recalled increases (i.e., it is easier to recall the number of sex partners since age 18 when one is 19 years old compared to when one is 65 years old). This line of explanation has received little empirical investigation with regard to self-reported lifetime number of sex partners (Catania et al., 1995).

The Current Set of Studies

Several potential explanations have been proposed for the robust gender discrepancy in self-reported lifetime number of sex partners. When previous findings are reviewed, the explanations based on potential sampling bias (unequal gender ratio in population, men having younger partners, men's greater involvement in prostitution) generally seem less viable than those explanations based on potential response bias. Still, I conducted the two studies described next in an attempt to investigate further several proposed explanations, specifically, the explanations based on unequal gender ratio in convenience samples, men's greater involvement in prostitution, women's reluctance to include casual sex partners, respondents' intentional distortion, and overall inaccuracy in recall/estimation. Study 1 was based on a convenience sample of college students, whereas Study 2 was based on a national sample of adults drawn from the United States (Davis & Smith, 1994).

I began with the following hypotheses. I expected that, compared to women, men would be more likely to report dishonesty and inaccuracy in their self-reports but would be more likely to include casual sex partners in their estimation of total number of sex partners. Accordingly, I hypothesized that correcting for these

factors would substantially reduce or eliminate any gender discrepancy in self-reported lifetime number of sex partners (Study 1). Among a sample drawn from a university where a marked discrepancy existed with regard to the ratio of men versus women on campus (Study 1), I hypothesized that correcting for the gender ratio would reduce or eliminate the apparent gender discrepancy in lifetime number of sex partners (Phillis & Gromko, 1985). To the extent that men are more likely than women to patronize prostitutes, who themselves are not likely to be included in national surveys, I hypothesized that removing respondents who had participated in prostitution would reduce or eliminate the gender discrepancy in self-reported lifetime number of sex partners (Study 2). Last, I hypothesized that, compared to women, men's self-reported lifetime number of sex partners would reveal tendencies toward giving "ballpark" estimates, which may be more vulnerable to distortion (Study 2).

Study 1

Method

Participants and procedure. Research participants were recruited from introductory psychology courses at a midsized, Midwestern state university during the Fall 1995 semester and received research credit toward completion of the course. As students' self-selection of research projects in which to participate has been shown to result in biased samples (Griffith & Walker, 1976; Jackson, Procidano, & Cohen, 1989), it is important to note that potential participants were unaware of the nature of the study at the point of signing up for participation. Upon arrival to the testing site, potential respondents were informed that participation required completing a brief, anonymous questionnaire regarding their sexual experiences. None of the potential participants declined to participate upon learning of the nature of the study, and all

completed the questionnaire in mixed-gender groups of 5-20 in the presence of a female research assistant. Participants returned the completed questionnaire by placing it in a box (containing other completed questionnaires) separated from the research assistant by several feet.

The final sample consisted of 151 men and 173 women. The men ranged in age from 18 to 25 years ($M = 19.27$, $SD = 1.27$), and the women ranged in age from 18 to 24 years ($M = 18.53$, $SD = .89$). The large majority of both the men (95.4%) and the women (95.4%) were White, non-Hispanic. Only one respondent (a woman) was married.

Measures. Questions regarding basic demographic information (gender, age, ethnicity) were followed with the questions "Have you ever experienced sexual intercourse (penis in vagina)?" and "If yes, with how many different partners have you had sexual intercourse?" Immediately afterwards, respondents had to turn the page to continue the questionnaire. At this point, they were asked questions regarding their honesty, accuracy, and inclusion of casual sex partners in responding to the earlier question about lifetime number of intercourse partners.

Specifically, respondents were asked to rate the honesty of their self-report using a seven-point scale (ranging from 1 = *Not at all Honest* to 4 = *Somewhat Honest* to 7 = *Completely Honest*). I recognized that respondents may simply lie about their lying; however, short of an experimental manipulation to enhance honest reporting (e.g., a "bogus pipeline"), the self-rated honesty measure seemed to be the best option and was similar to the methodology used in previous studies (Johnson & DeLamater, 1976; Nicholas et al., 1994). Respondents were also asked to rate the accuracy of their self-report using a similar seven-point scale (ranging from 1 = *Not at all Accurate* to 4 = *Somewhat Accurate* to 7 = *Completely Accu-*

rate). Last, with regard to their self-reported lifetime sex partners, respondents were asked ". . . did you include partners with whom you had sexual intercourse even though you were not in a dating relationship?" (*Yes/No*).

Results

Overall, 21.2% of the men and 28.3% of the women reported not having had a sexual intercourse partner. Because of gender differences in the variance associated with self-reported lifetime number of sex partners, the potential gender difference in mean number of partners was examined using a *t*-test based on separate variance estimates. As expected, men reported a greater lifetime number of sex partners (Range = 0-35, $M = 3.51$, $SD = 5.26$) relative to women (Range = 0-16, $M = 2.31$, $SD = 2.81$), $t = 2.52$, $p < .01$. Note that the ratio of men's to women's number of sex partners was 1.52:1.

With regard to inclusion of casual sex partners, there was no gender difference in the proportion of men (6.0%) or women (7.5%) who indicated that they had *not* included casual sex partners in their lifetime number of sex partners, $X^2(1, N = 324) = .31$, $p < .58$. Removing these individuals from the sample did not appear to diminish the gender discrepancy in lifetime number of sex partners (resulting means were 3.53 for men and 2.38 for women, for a ratio of 1.48:1), as men continued to exhibit significantly more partners compared to women, $t = 2.26$, $p < .03$.

With regard to self-rated honesty, only 7.9% of men and 12.1% of women gave a rating less than 7, and this was not a significant gender difference, $X^2(1, N = 324) = 2.47$, $p < .12$. Also, removing these individuals from the sample did not appear to diminish the gender discrepancy in lifetime number of sex partners ($M = 3.45$ for men; $M = 2.22$ for women, for a ratio of 1.55:1), as men continued to exhibit significantly more

partners compared to women, $t = 2.45$, $p < .02$.

With regard to self-rated accuracy, 21.9% of the men and 10.4% of the women gave a rating less than 7. I labeled these individuals as relatively less accurate and, after removing them from the sample, men and women no longer differed in their respective number of sex partners ($M = 2.53$ for men; $M = 2.19$ for women, for a ratio of 1.16:1), $t = .82$, $p < .42$. Was this reduction in the gender discrepancy the result of removing men who overreported, or women who underreported, or both? To investigate the nature of the relationship between self-rated accuracy and self-reported number of sex partners, I compared those respondents who rated their accuracy as anything less than perfect (i.e., less than a 7 on the scale) with those who gave the highest rating to the accuracy of their self-report (i.e., the "more accurate" group). I then entered gender and accuracy into an analysis of covariance (ANCOVA) with self-reported lifetime number of sexual partners as the dependent variable and respondent age as the covariate. Even after controlling for respondent age, there was a statistically significant two-way interaction ($F = 14.96$, $p < .009$).

As noted previously, women who were more accurate ($n = 155$) reported a mean of 2.19 sex partners, which did not differ significantly from the mean of 3.28 partners reported by women who were less accurate ($n = 18$), $t = 1.20$, $p < .25$. In contrast, men who were less accurate ($n = 33$) reported substantially more sex partners ($M = 7.00$) compared to the more accurate men ($M = 2.53$), $t = 3.46$, $p < .001$.

Last, I considered the extent to which accounting for any difference in the ratio of men versus women on campus would affect the gender discrepancy in self-reported lifetime number of sex partners. During the Fall 1995 semester, 10,288 women were enrolled, compared to 8,827 men. Accounting for this gender

ratio decreased the ratio of men's sex partners compared to women's from 1.52:1 (originally) to 1.30:1 (corrected).

In summary, the gender discrepancy in self-reported lifetime number of sex partners was decreased somewhat by accounting for the differential proportions of men versus women on campus. The only other variable found to affect the gender discrepancy, and the one that eliminated the gender discrepancy when controlled for, was self-rated accuracy of recall/estimation. That is, it appears that the gender discrepancy in the current sample was due primarily to a small subsample of men who reported relatively large numbers of partners and admitted to some degree of inaccuracy in their recall or estimation. In more diverse and representative samples, is the gender discrepancy driven by a relatively small subset of men who report extremely atypical numbers of partners? In line with the notion of inaccuracy in recall, does the gender discrepancy increase with age? These issues, as well as the issue of participation in prostitution, were investigated using a large representative sample of adults drawn from the population of the United States.

Study 2

Method

Participants and procedure. Data were from the 1994 General Social Survey (GSS), which is conducted annually by the National Opinion Research Center (NORC) and consists of face-to-face interviews with adults selected to represent the civilian household population of the continental United States (see Davis & Smith, 1994). The interviews consist of dozens of questions regarding demographic information and measurement of attitudes and experiences in several diverse domains (i.e., sexuality is certainly not the primary focus of the GSS). The sample is limited to those who speak English and are at least 18 years of age.

Respondents in the current study were all 1,074 men and 1,450 women who participated in the 1994 GSS. In recruiting the sample for the GSS, ethnic minorities are not oversampled, leaving relatively small groups of non-White respondents. Accordingly, the large majority of men (86.0%) and women (83.2%) were White, 9.8% of men and 12.8% of women were Black, and the remaining 4.2% of men and 3.9% of women were self-identified as belonging to another ethnic group. With regard to marital status, 56.8% of the men and 48.7% of the women were married at the time of participation in the GSS. Respondent age is coded in 10-year increments in the GSS data set (see Davis & Smith, 1994). That is, the coding categories range from 1 (less than age 20) to 4 (age 40-49) to 8 (age 80 or greater). For this reason, reporting mean age of the sample does not make sense. However, there were no upper age limits imposed on selection of respondents to the GSS.

Measures

Sexual experience. Immediately after the face-to-face interview, participants were given a brief, self-administered questionnaire regarding their sexual experience, which they sealed in an envelope before returning it to the interviewer. The primary questionnaire item used in the current study was "Now thinking about the time since your 18th birthday, how many female partners have you had sex with?" for men, and "Now thinking about the time since your 18th birthday, how many male partners have you had sex with?" for women. Although the item generically refers to "sex partners," preceding questionnaire items inquired about frequency of "sexual intercourse." Still, the imprecision of the item measuring lifetime number of sex partners is problematic. To measure participation in prostitution, respondents were asked a single question, "Thinking about the time since your 18th birthday, have you ever had sex with a person you paid or who paid

you for sex?" Unfortunately, the question did not distinguish between those who were paying versus receiving money for sex.

Results

Although similar proportions of men (6.0%) and women (5.2%) reported having 0 lifetime sex partners, men reported a greater mean number of such sex partners (Range = 0-500, $M = 14.25$, $SD = 34.50$) relative to women (Range = 0-350, $M = 4.81$, $SD = 12.62$), $t = 8.55$ (based on separate variance estimates), $p < .001$. These summary statistics, however, mask an interesting pattern that becomes apparent when we consider the distribution of responses. A summary of the distribution of men's and women's responses to the open-ended question regarding lifetime number of sex partners is presented in Table 1. Note a distinct preference for the responses "10" and "12" compared to the adjacent response possibilities. Also, not shown in Table 1, of the 64 women in the sample who reported more than 15 sex partners, 53 (82.8%) reported a number that ended in 0 or 5. In other words, there was a marked preference for reporting in bundles of 5 and 10 (e.g., 25, 30, 50, 70). In fact, all reported numbers greater than 36 ($n = 18$) were covered by 7 specific numbers, each of which ended in 0 (i.e., 40, 50, 60, 70, 100, 150, 350). Similar to the women, of the 226 men in the sample who reported more than 15 sex partners, 194 (85.8%) reported a number that ended in 0 or 5. Again, there was a marked preference for reporting in bundles of 5 or 10.

Was the degree of gender discrepancy in reported lifetime number of sex partners related to age? Because of the relatively few respondents in the age categories "less than age 20" and "age 80 and older," respondents in these categories were combined with those in the respective adjacent category. The mean number of sex partners reported by men and women as a function of age of re-

Table 1
Distribution of Men's and Women's Self-reported Lifetime Number of Sex Partners

Response	Women	Men
	(<i>n</i> = 1,450)	(<i>n</i> = 1,074)
0	5.2%	6.0%
1-5	74.2%	47.0%
6	3.7%	4.9%
7	2.0%	2.2%
8	1.7%	2.7%
9	0.4%	0.7%
10	4.6%	7.9%
11	0.1%	0.3%
12	1.4%	2.4%
13	0.3%	0.1%
14	0.3%	0.3%
15	1.7%	4.4%
>15	4.4%	21.0%

Note: Source of data is the General Social Survey (GSS; Davis & Smith, 1994).

spondent is reported in Table 2, as is the degree of gender discrepancy. Note the generally linear increase in the gender discrepancy in the lifetime number of sex partners with age (i.e., the third column in the table), $r = .91$.

What about potential effects of having participated in prostitution? To address this issue, I performed an analysis of variance (ANOVA) with gender and ever having participated in prostitution as the independent variables and lifetime number of sex partners as the dependent variable. There was a significant main effect for gender ($F = 33.98, p < .0001$) and for prostitution ($F = 177.43, p < .0001$), but the two-way interaction was nonsignificant ($F = .31, p < .58$). Those men ($n = 190$) and women ($n = 30$) who reported ever having participated in prostitution reported a mean of 32.56 sex partners, compared to 6.57 mean partners by those who denied ever participating in prostitution. By removing the respondents who admitted to having ever participated in prostitution, the ratio of men's sexual partners to women's decreased slightly from 2.96:1 to 2.38:1, although men continued to report a substantially greater number of sex partners ($M = 10.23, SD = 19.86$) relative to women ($M = 4.30, SD = 7.80$), $t = 8.44, p < .001$. This slight reduction in the

Table 2
Gender Discrepancy in Lifetime Number of Sex Partners as a Function of Respondent Age

Respondent Age	Mean Lifetime Number of Partners		Ratio Men:Women
	Women (<i>n</i> = 1,450)	Men (<i>n</i> = 1,074)	
18-29	3.72	8.84	2.38:1
30-39	6.50	14.10	2.17:1
40-49	6.17	18.98	3.08:1
50-59	5.74	19.99	3.48:1
60-69	2.41	13.12	5.44:1
70 and older	1.58	7.60	4.81:1

Note: Source of data is the General Social Survey (GSS; Davis & Smith, 1994).

gender discrepancy in lifetime number of sex partners appears to be due not to a gender difference in partners among men and women who have participated in prostitution, but rather to men's greater likelihood of having participated in prostitution compared to women in the sample, $X^2(1, N = 2,524) = 190.37, p < .00001$.

General Discussion

Findings and Explanation

Among the college students surveyed in Study 1, accounting for the different proportions of men versus women on campus did decrease slightly the gender discrepancy in lifetime number of sex partners, just as removing those respondents in Study 2 who had participated in prostitution decreased slightly the gender discrepancy in that sample. Gender differences in the definition of *sex partner* as well as gender differences in degree of honesty did not appear to be primary causes of the gender discrepancy in self-reported lifetime number of sex partners. Also, there was no gender difference in the likelihood of reporting a failure to include casual sex partners in one's count or estimation of sex partners, and removing respondents who did not include casual sex partners did not affect the gender discrepancy. Still, the primary effect on the gender discrepancy appears to be related to response bias rather than sampling bias.

A small subsample of respondents in Study 1 admitted to less than perfect honesty in their self-reported lifetime number of sex partners. However, there was no gender difference in the proportion of respondents who admitted some degree of dishonesty, and removing these respondents did not affect the gender discrepancy.

With regard to self-reported accuracy, however, men were twice as likely as women to admit some degree of inaccuracy in their self-reports, and these relatively inaccurate men accounted for the gender discrepancy in lifetime number of sex partners. Specifically, only those men who were less accurate reported significantly greater numbers of partners, and removing this subsample eliminated the apparent gender discrepancy.

Based on the results of Study 1, it appears that inaccurate recall or estimation is a primary, although probably not the only, reason for the apparent gender discrepancy in self-reported lifetime number of sex partners. Note that these results do not rule out the possibility that men consciously exaggerate their reports and/or women consciously minimize them (as hypothesized by Catania et al., 1995, 1996; Smith, 1992a, b). It may be easier to admit benign "inaccuracy" compared to the more self-incriminating trait of "dishonesty." Still, several respondents in Study 1 did admit to some degree of dishonesty, yet such dishonesty did not result in systematic bias. If inaccurate

recall is more responsible for the gender discrepancy than is conscious dishonesty, then one might expect the gender discrepancy to increase with age of respondent, as a longer period of time is the focus of recall or estimation.

In the nationally representative sample used in Study 2, the gender discrepancy increased with age of the respondents ($r = .91$, also see Davis et al., 1993, for similar findings). This increasing gender discrepancy with age of the respondent may be due to the greater time period over which the respondent had to reflect, which then allowed for increased distortion in accuracy of recall or estimation for those respondents with several partners. However, aside from the gender discrepancy, there appeared to be an overall cohort effect for lifetime number of sex partners, such that respondents 70 years of age and older appeared to report fewer partners than did the younger respondents (see Laumann et al., 1994, for similar results and a discussion of them). Thus, the apparent relationship between age and gender discrepancy in lifetime number of sex partners may be due to some type of cohort effect rather than increased memory distortion per se. For example, it may be that older women were more likely to minimize their self-reported sex partners because of a generational difference in prohibitions against women having had multiple sex partners. Perhaps the younger women felt more comfortable admitting multiple sex partners, thereby reducing the gender discrepancy among the youngest respondents.

One finding that supports the explanation of the more benign inaccurate recall or estimation over conscious lying is the distinct tendency for respondents with relatively large numbers of sex partners to choose numbers that ended in 0 or 5. If one were consciously attempting to deceive, one's credibility might be enhanced by giving a response that

would appear more precise (e.g., 52 as opposed to 50). However, respondents demonstrated a marked preference for "round" numbers. The results of the current study correspond to those involving self-report of other sensitive information, such as income, drug use, and criminal history. Past research on self-report of these topics has indicated a fair degree of unreliability, but such unreliability does not seem to manifest consistently as either overreporting or underreporting (Marquis et al., 1986). Although the gender discrepancy in lifetime number of sex partners is probably multidetermined, it appears that a primary source of the gender discrepancy is a tendency for respondents who have had several partners to recall or estimate the exact number inaccurately. This tendency may exist for both men and women who report relatively large numbers of sex partners. Still, why would men be more likely than women to demonstrate such a phenomenon?

As noted previously, sexual activity appears to be more important to men than to women (Sedikides et al., 1994; Walsh, 1991; Wiederman & Allgeier, 1993), and men generally hold more permissive sexual attitudes compared to women (Oliver & Hyde, 1993). Accordingly, men may have a greater tendency to "round up" when estimating their lifetime number of sex partners because of greater salience of the notion of having had extensive sexual experience. That is, perhaps men are not consciously trying to deceive researchers but rather tend to "deceive" themselves with regard to the extensiveness of their sexual experience.

Other research has demonstrated that men think and fantasize about sex with greater frequency than do women (Jones & Barlow, 1990; Leitenberg & Henning, 1995), and men are relatively more likely to expose themselves to explicit erotica and and to masturbate (Oliver & Hyde, 1993). When it comes to both sexual

fantasy (Ellis & Symons, 1990) and sexual ideals (Buss & Schmitt, 1993; Ehrlichman & Eichenstein, 1992; Laumann et al., 1994), men are more likely than women to desire multiple sex partners and the novelty of different partners (Symons, 1979). It may be that years of vivid sexual thoughts and fantasies involving sex with numerous *different* women, especially as experienced during masturbation or sexual activity with an actual partner, contribute to the apparent bias in recalling or estimating lifetime number of sex partners.

When people make judgments in general, they are prone to potential anchoring biases (Dawes, 1988). As men have relatively greater exposure mentally to "having had sex" with numerous women, their estimates of the number of actual women with whom they have had sex may be biased accordingly. This hypothesis might also explain other data indicating that men apparently underestimate the number of dates that occurred prior to sexual intercourse within their latest relationship (Cohen & Shotland, 1996) and overestimate the frequency with which they have had sexual intercourse during the recent past (Berk, Abramson, & Okami, 1995).

If this explanation for men's greater tendency to overestimate lifetime numbers of sex partners is valid, degree of fantasizing about sex with different women, self-reported lifetime number of sex partners, and perceived degree of inaccuracy of such self-report should all be highly related. Along these lines, Seal (1997) examined concordance within college student dating couples for self-reports of sexual experiences the couple had shared. He found that such concordance was not related to length of relationship or length of time since initial sexual experience within the couple, but rather was related to men's age and sociosexual orientation. Men who were relatively older and less restricted in their sociosexual orientation evidenced lower agreement with their partners

regarding sexual activity the couple had shared. It appeared that the men with more sexual experience and openness to casual sex had the greatest difficulty recalling the actual sexual experiences shared with their current partner. It may be that greater sexual experience resulted in a "blurring" in memory across sexual partners. Specific investigation of the role of sexual fantasy in producing such "blurring" and resulting inaccuracy of recalled sexual experience awaits further research.

Other possible explanations for men being more likely than women to give "ball park" estimates include women being relatively more invested in providing accurate responses to research tasks. Generating answers to survey questions requires cognitive effort, and decreased motivation to provide such effort results in the generation of a plausible, even if inaccurate, response (Krosnick, 1991). Research is needed to investigate whether women are indeed more invested than men in providing accurate responses to sexual experience questions. Also, people are more likely to be able to recall events that were emotionally involving (Croyle & Loftus, 1993). To the extent that women are more emotionally invested in sexual relationships than are men, women may have access to more accurate recall.

Recommendations

If a primary factor behind the gender discrepancy is men's overestimation of number of sex partners, especially at the high end of the distribution, what should sex researchers do when lifetime number of sex partners is a focus of study? My recommendation is to recognize that, at least for respondents who have had many partners, generating a number in response to the question "How many sex partners have you had?" is not simply a matter of counting actual partners. It is likely that respondents use various heuristics to attempt to *estimate* lifetime number of partners. Respondents

somehow likely go from a subjective sense of having had "several" partners to arriving at a specific number. This process is further complicated by the fact that men with increased sexual experience tend to display a relatively more impulsive sexual decision-making style (e.g., Seal & Agostinelli, 1994). So, to the extent that this relative impulsivity affects cognitive processes involved in answering questionnaire items, men with the greatest lifetime number of sex partners may be most prone to faulty estimation strategies. Certainly, further research is needed to investigate how respondents address the task of arriving at a specific answer to questions about lifetime numbers of sex partners, particularly with regard to potential effects due to sexual experience and personality variables.

Does the fact that self-reported lifetime number of partners is inherently unreliable for at least a substantial subgroup of respondents negate using this variable in empirical research? I believe the answer is "no," depending on the research question under consideration. If the research question is "What is the mean number of lifetime sex partners in a specific population?" or "How many people have had a particular number of lifetime sex partners?" then I believe researchers are on shaky ground accepting self-reported number of partners at face value. In cases when the absolute number of partners is important (e.g., estimating absolute risk of sexually transmitted disease), researchers should invest in methods that may reduce the inherent bias in generating lifetime estimates.

Fortunately, rather than determining the absolute amount of sexual experience, many research questions in sexual science have to do with potential relationships between variables, and the absolute inaccuracy of self-reported number of partners would be of less concern in such cases (Brecher & Brecher, 1986). That is, if one is interested in

potential correlations between a particular measure and lifetime number of sex partners, the relative position of each respondent in the overall distribution is of primary importance rather than absolute accuracy of the number of partners. Still, it may be important to reduce the influence of extreme statistical outliers by truncating those at the extreme tail of the distribution or by using the square root or a log transformation of the self-reported number of sex partners to reduce overall variance (e.g., as in Tourangeau & Smith, 1996, and Tourangeau et al., 1997).

Another possibility is only to include those respondents who report fewer than 10 sex partners. Statistically, these individuals constitute the norm or typical range of experience with regard to lifetime number of sex partners. At the point of 10 or more self-reported partners, it was clear in the national sample (Study 2) that respondents preferred round numbers (e.g., 10, 15, 20, 30, 100). It is unclear whether a difference in self-report of 25 partners versus 50 partners represents a difference in reality (actual experience), so to base research findings on such a difference is questionable. In the college student sample (Study 1), limiting the sample to those with fewer than 10 sex partners would have excluded only 7.9% of the men and 3.5% of the women. The practice is more problematic using the national sample (Study 2), as 36.4% of the men versus 12.8% of the women would have been excluded.

Another possibility is to consider those respondents who report more than 10 partners as having "relatively more" sexual experience and considering them as a more homogeneous group than their self-reported numbers imply. That is, those respondents with more than 10 self-reported partners might be designated as having a somewhat arbitrarily chosen number of partners, such as "12." Finer distinctions between respondents could be maintained by placing respondents on a 15-point

continuum, thereby creating an ordinal scale, where the first 10 points correspond to the actual number of self-reported partners (0-9), 10 represents those who reported 10-15 partners, 12 represents 16-25 partners, 13 represents 26-50 partners, 14 represents 51-100 partners, and 15 represents >100 partners.

It is likely that having to make a global, lifetime estimate, especially one involving a span of many years, leaves the respondent prone to anchoring biases. For example, recall of lifetime number of partners may be biased by recall of the number of relatively recent partners, such that an individual with several partners during the past two years may be more likely to overestimate lifetime number of partners relative to an individual with the same actual number of lifetime partners who has had only one partner during the past two years. Similarly, individuals who have repeatedly recounted earlier sexual exploits may overestimate lifetime number of sex partners relative to other individuals with the same actual sexual experience who rarely think about early sexual partners (or who may have "repressed" such thoughts because of traumatic experiences and/or negative emotions; Croyle & Loftus, 1993). Anchoring biases may be reduced by asking respondents to recall (or estimate) the number of sex partners during discrete periods of their life (e.g., during high school, since high school but before turning 21, since graduating from college but before their 30th birthday). By providing developmental milestones around which to organize recall or estimation, researchers may be able to obtain more accurate numbers from which to calculate respondents' lifetime number of sex partners.

At the least, researchers using self-reported sex partners as a variable should control for the gender discrepancy by analyzing data separately for men and women, converting self-reported number of sex partners to a Z score based on sepa-

rate distributions for men versus women, or statistically controlling for gender in multivariate analyses. Although it apparently has not been common practice in the past, researchers might also provide respondents with the opportunity to rate the degree of accuracy of their self-reported number of partners, or at least give an indication of the extent to which the response is based on an estimate rather than attempted recall/counting, so that researchers can statistically correct for bias inherent in estimation of large numbers of partners.

Although there are no easy answers, sex researchers must recognize the potential for bias and unreliability in self-reported sexual experience. One of the most troublesome examples is the apparent gender discrepancy in self-reported lifetime number of sex partners, which remains an enigma. Methods for improving recall and estimation of sexual experience may be important in reducing the gender discrepancy and should be investigated further. Certainly, additional research is warranted to investigate the process through which respondents arrive at answers to our questions regarding their sexual activity and experience.

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