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## The desire for sexual variety as a key to understanding basic human mating strategies

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### Abstract

Different authors have proposed competing evolutionary theories of human mating. Some argue that both sexes are designed to pursue a singular long-term mating strategy. Others contend that both sexes are designed to function as essentially multiple maters. Sexual Strategies Theory (SST; D.M. Buss & D.P. Schmitt, 1993), in contrast, proposes that men and women have evolved short-term and long-term mating strategies that are pursued differently by each sex depending on theoretically derived dimensions of context. According to SST, the sexes tend to differ in the nature and prominence of the short-term component of human mating—particularly the short-term desire for sexual variety. The current research was designed to test competing empirical predictions from these contrasting theories by focusing on sex differences in the desire for sexual variety. Study 1 ( $N = 1,049$ ), consisting of five separate samples, found large and consistent sex differences in the desire for short-term sexual variety, even after employing statistical methods to control for skewed distributions and statistical outliers. Study 2 ( $N = 192$ ) confirmed the results of Study 1 using an older, more mature sample. Study 3 ( $N = 50$ ) again replicated these sex differences using an observer-based method of inquiry. Study 4 ( $N = 167$ ) found evidence that short-term mating was unrelated generally to psychological dysfunction and may be related to mentally healthy personality characteristics in men. Discussion focuses on the viability of pluralistic compared with monomorphic evolutionary theories of human mating strategies.

The fundamental nature of human mating strategies has been the focus of intense theoretical and empirical scrutiny over the past decade (e.g., Buss & Schmitt, 1993; Gangestad & Simpson, 2000; Kenrick, Sadalla, Groth, & Trost, 1990). Although researchers have converged on many of the basic outlines of mate selection criteria, far more debate has centered on the temporal dimension of mating. Are humans fundamentally monogamous, designed to seek a singular partner for a lifetime? Or are humans essentially promiscuous, designed to seek multiple short-term partnerships? Do humans have a mixed menu of temporally

diverse mating strategies? And do men and women differ fundamentally in the temporal component of their mating strategies?

The debate about the temporal dimension of mating has crystallized into several basic positions. According to one evolutionary theorist, humans are designed to be serial monogamists: “Human pair-bonds originally evolved to last only long enough to raise a single dependent child through infancy, the first 4 years . . . those first hominid forebears who remained together until their child was weaned survived disproportionately, selecting for serial monogamy” (Fisher, 1992, p. 154). Fisher argues that by divorcing after roughly 4 years, a man would be able to re-mate with a younger woman of higher fertility, whereas a woman would be able to re-mate with another man

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who provided “better protection and support” (Fisher, 1992, p. 159). Furthermore, “with each new pair-bond social ties would be extended to a band nearby” (Fisher, 1992, p. 161).

Fisher’s theory of an evolved serial monogamy strategy is proposed to be equally optimal for both sexes. One problem with this theory is that a woman’s reproductive value declines more than a man’s with increasing age (Symons, 1979; Williams, 1975). Moreover, the presence of children generally makes it more difficult for a woman to mate with increasingly better partners because children are typically viewed by prospective partners as a cost, not a benefit, on the mating market (Daly & Wilson, 1988). Fisher responds to these points by suggesting that infrequent interband contact would have limited a woman’s ability to acquire a “prime mate” on her first mateship, and hence over time contact with other bands may have afforded opportunities to “marry up.” Furthermore, she notes that an existing man’s mate value might decline precipitously due to injury, opening up to women the advantages of “trading up.” Serial monogamy, in roughly 4-year intervals, thus represents one theoretical position on the temporal dimension of human mating strategy design.

A second theory is that humans are fundamentally designed for life-long romantic relationships, and any deviation from long-term pair-bonding would represent a disruption of our natural mating psychology. Zeifman and Hazan (1997), for example, argue that human mating psychology has co-opted evolved attachment mechanisms. Adult attachment, in this view, is designed to provide mutual support and protection, cement the bond between a man and a woman, and enhance the survival and reproduction of children. Without the force of attachment, they argue, mating partnerships would become unstable. Men, in particular, might stray from the bonds of long-term mating, imperiling the survival and reproduction of the children. According to Zeifman and Hazan, any tendency toward short-term mating would severely jeopardize

children, given the many years of protection and assistance human offspring typically need to thrive: “It is doubtful that a short-term bonding mechanism, or serial monogamy, would have been selected for” (p. 251). The Zeifman-Hazan theory, therefore, contrasts markedly with Fisher’s serial monogamy theory.

A clear implication of the Zeifman-Hazan theory is that deviations from secure attachment represent evolutionary or ultimate-level maladaptations rather than viable alternative mating strategies. Indeed, insecure attachment experiences are related to a broad range of psychological dysfunction (Dozier, Stovall, & Albus, 1999). Moreover, “dysfunctional early attachment relationships [those that are not secure] are a common precursor of adult sexual deviance” (Zeifman & Hazan, 1997, p. 255). Thus, this view holds that our most basic human mating strategy consists of secure romantic attachment and relatively long-term monogamy. Deviations from this pattern are seen as ultimately maladaptive in posing risks to children in the evolutionary currencies of survival and reproduction and are proximately maladaptive in causing romantic relationship instability and general psychological dysfunction (Hazan & Zeifman, 1999).

Miller and Fishkin (1997) concur with Zeifman and Hazan’s theory but are even more explicit in claiming that short-term mating and variations from secure attachment represent early developmental failures: “It seems that a propensity to spend more of one’s time seeking short-term relationships rather than long-term ones may have been a ‘fallout’ of a failure to interface with human’s adapted for social environment (e.g., responsive paternal and maternal caregivers)” (p. 228). Short-term mating is seen as a perturbation or deviation from the preferred species-typical pair-bonding strategy, resulting from unnatural and recent sources of variability in parental care that emerged only “after the Pleistocene era” (p. 228). They contend “our current biological design—rooted in our Pleistocene gatherer-hunter roots—strongly favors relatively en-

during relationships and few sex differences in mating strategies" (p. 197). Thus, ancestral men and women alike are believed to have normatively developed secure attachments with parents and subsequently pursued long-term pair-bonds as adults.

At the other end of the temporal spectrum of theoretical positions are those who argue that men and women are fundamentally and equally designed to be short-term maters. Silverstein (1996) argues that both men and women are essentially promiscuous, drawing special attention to species closely related to humans such as bonobo chimpanzees, which are highly indiscriminate in their mating practices. However, beyond phylogenetic comparisons few theoretical arguments or human empirical evidence are provided to support this position (see also Hrdy, 1981).

The final theoretical position on the temporal spectrum of mating design involves pluralistic approaches to human mating strategies (e.g., Gangestad & Simpson, 2000). These approaches tend to view the many forms of human mating, including those linked to both secure and insecure attachment, as potentially viable reproductive strategies (Belsky, 1997; Chisholm, 1996). They tend also to use a behavioral ecological perspective, emphasizing that varying environments during an individual's development naturally induce adaptive shifts in mating strategies and behaviors (Belsky, Steinberg, & Draper, 1991; Lancaster, 1989). We will focus in this article on one version of the pluralistic perspective called Sexual Strategies Theory (SST) that has provoked theoretical debate about the fundamental nature of human mating strategies.

According to SST (Buss & Schmitt, 1993), men and women have evolved a temporal menu of mating alternatives, including both short-term and long-term sexual strategies. Each sexual strategy is thought to harness certain adaptive desires that lead (or would have led in our ancestral past) to increased reproductive success in a given selective environment. A central feature of SST is that the evolved psychological underpinnings of these mating strategies are

proposed to differ between the sexes, sometimes in rather profound ways. In long-term mating, for example, the sexes are proposed to differ in several of the key qualities desired in a partner, with men placing a greater value on cues to fertility (age, features of physical appearance) and fidelity (signals of sexual faithfulness) and women placing a greater value on resources and men's long-term commitment to them and their children (Ellis, 1992; Schmitt & Buss, 1996).

The short-term mating strategy, too, is proposed to differ between the sexes. For women, short-term mating may have evolved as a strategy to develop special protective friendships with certain males (Smuts, 1985), to gain access to males with high quality or diverse genes (Gangestad & Simpson, 1990; Smith, 1984), to gain access to some males with many resources (Symons, 1979), or to gain access to many males with some resources (Hrdy, 1981). Women may also seek short-term mates as a means of finding a higher-quality mate in case their current partners someday need replacement (Schmitt & Buss, 2001; Smith, 1984). Thus, for women the adaptive benefits of short-term mating may result from a relatively discriminating process of carefully identifying and selectively mating with men who possess superior levels of status, resources, or genetic quality (Greiling & Buss, 2000).

In contrast, for men the adaptive benefits of short-term mating likely followed from more indiscriminate desires, particularly the indiscriminate desire for sexual variety (Symons, 1979). This tenet stems from the selective consequences that follow from a large and fundamental sex difference in minimum obligatory parental investment (Trivers, 1972). Whereas it takes a woman a substantial 9-month investment of internal fertilization and gestation to produce a child, a man's minimum investment can be as small as a single act of sex. The direct reproductive benefits associated with multiple mating via sexual variety, therefore, would have been considerably higher for human males than for females, all else be-

ing equal (see also Bjorklund & Shackelford, 1999).

Buss and Schmitt (1993) used this line of reasoning to make three key predictions concerning sex differences in short-term mating psychology. *Prediction 1*: Men will express greater desire for, or interest in, short-term mates more than women. *Prediction 2*: Men will prefer a larger number of sex partners over varying time intervals than women. *Prediction 3*: Men will require less time to elapse before consenting to sex than will women. With each prediction, SST asserts that the design of men's short-term mating psychology—due to a selective history of lower obligatory parental investment—should be influenced by the desire for sexual variety more than the design of women's short-term mating psychology. Note that these predictions do not imply that all men should pursue short-term mating as a sole, or even primary, reproductive strategy. SST clearly delineates the many adaptive benefits for men that accrue from long-term mating. Nor does this series of predictions imply that women should completely refrain from seeking short-term mating relationships. Women may gain significant adaptive advantages by pursuing situationally contingent short-term mate-ships (Greiling & Buss, 2000; Lancaster, 1989). Instead, SST forecasts that men will more actively desire brief mating relationships, prefer larger numbers of partners, and require less time before sex than women because men, but not women, possess an adaptive short-term desire for sexual variety.

Although a voluminous body of empirical evidence has cumulated supporting the basic tenets of SST (see Buss, 1998 for a review), this suite of hypothesized sex differences in the desire for sexual variety has remained hotly disputed. Miller and Fishkin (1997), for example, contend that findings of significant mean-level sex differences in the desire for a large number of sex partners are misleading due to the presence of male outliers. In their attempt to replicate Buss and Schmitt's (1993) original findings, Miller and Fishkin note: "These variables were highly skewed resulting in severe violations

of assumption of normality" (p. 220). Rather than natural variation in the desire for sexual variety residing both within each sex and between the sexes, Miller and Fishkin hypothesize "few sex differences in mating strategies" (p. 197). Most men and women are assumed to be fundamentally alike in their mating desires, with both wanting "one or two" partners for a lifetime: "In fact, we would expect that whereas most men and women would be seeking a long-term mate, their desire to seek a short-term mate would be minimal" (p. 224).

This point of contention is pivotal for discriminating among different evolutionary theories of human mating and romantic relationships. Any theory that portrays humans as designed to be exclusively long-term strategists would forecast very few individuals to express short-term desires for sexual variety. Only those unfortunate few who have experienced developmental attachment failures would forsake monogamous long-term mating as adults and engage in short-term sexual relationships. Even then, any short-term mated individuals would likely display residual expressions of psychological dysfunction. Theories that view humans as essentially promiscuous would expect nearly all people to report a potent desire for sexual variety. Any reported lack of short-term desires might be explained as resulting from religious, legal, or cultural traditions designed to counter our natural tendency toward promiscuity. Furthermore, all monomorphic theories of human sexuality—whether most people are expected to be monogamous or promiscuous—would logically predict no significant sex differences in the desire for sexual variety because all humans should be designed to pursue the same basic mating strategy. Of course, it is not the case that monomorphic theories anticipate all people to be *exactly identical* in manifest or phenotypic sexual behavior, but such theories produce the reasoned expectation that differences in desires for sexual variety both between and within the sexes "would be minimal" due to a uniform genotypic design of the human mind.

In contrast, pluralistic evolutionary approaches like those of Belsky (1997) and Chisholm (1996) would predict substantive adaptive variation exists within each sex in the desire for short-term opportunistic mating. Depending on their own mate value, the local sex-ratio, and other ecological sources of information (see Gangestad & Simpson, 2000), some men and women should pursue frequent short-term mateships, whereas others in different situations are expected to pursue long-term mating strategies. Pluralistic approaches such as SST (Buss & Schmitt, 1993) would further predict that functional sex differences in short-term mating would be driven by the adaptive male desire for sexual variety. Thus, the goal of the current set of studies was to pit the predictions from the various temporal mating theories against each other, with a special focus on sex and individual differences in the desire for sexual variety.

### **Study 1: The Desire for Sexual Variety among College Undergraduates**

#### *Method*

*Sample.* The participants in this study were comprised of five samples. The first sample was obtained from an archival data set originally collected by Buss and Schmitt (1993). This sample included 75 men and 73 women from a large public university in Michigan; the average age of participants was 18.7 years. We will refer to this data set as the "Original" sample.

The second sample included 103 men and 214 women from a medium-sized private university in Illinois. The third sample included 120 men and 268 women from a public university in Florida. The fourth sample included 81 men and 137 women from a large public university in Texas. The fifth sample included 35 men and 91 women from a public university in New York. The second through fifth samples were combined to form what will be referred to as the "Undergraduate" sample. The Undergraduate sample had a total of 339 men and 710 women, and the average age of participants

was 21.3 years. Members of all samples participated in the current study for extra credit in psychology courses, and they were primarily middle-class and Caucasian.

*Procedure.* The Undergraduate sample completed questionnaires adapted specifically from Buss and Schmitt (1993). All participants were presented with a packet of measures entitled "The Anonymous Questionnaire Study." The first page of the packet contained blanks on which participants were to provide their age and sex, and it contained the following instructional set: "*Instructions:* This questionnaire is entirely voluntary. All your responses will be kept confidential and your personal identity will remain anonymous. No identifying information is requested on this survey, nor will any such information be added later to this survey. If any of the questions make you uncomfortable, feel free not to answer them. You are free to withdraw from this study at any time for any reason. This questionnaire should take about 5 minutes to complete. Thank you for your participation."

The first questionnaire adapted from Buss and Schmitt (1993) was used to test Prediction 1 and will be referred to as the "Currently Seeking" measure. This measure asked participants: "Please rate the degree to which you are currently seeking a long-term mating partner (i.e., a marriage partner) and short-term mating partners (i.e., one-night stands, brief affairs, etc.) by circling one number on each of the following 7-point scales." This instructional set was followed by two Likert-type scales ranging from 1 (currently not at all seeking) to 7 (currently strongly seeking), one scale for rating "Long-Term Mating Partner Seeking" and one scale for rating "Short-Term Mating Partner Seeking."

The second questionnaire adapted from Buss and Schmitt (1993) was used to test Prediction 2 and will be referred to as the "Number of Partners" measure. This measure instructed participants to fill in open-ended blanks with their responses concerning: "Ideally, how many different sex partners would you like to have . . ." over

different periods of time ranging from 1 Month to “your remaining lifetime.” Unlike the original measure from Buss and Schmitt, participants in this study also responded regarding how many different partners they would ideally like to have sex with in the next day and in the next week.

The third questionnaire adapted from Buss and Schmitt (1993) was used to test Prediction 3 and will be referred to as the “Time Known” measure. This measure asked participants to rate on a 6-point scale ranging from +3 (definitely yes) to -3 (definitely not) the degree to which, “If the conditions were right, would you consider having sexual intercourse with someone you viewed as desirable if . . .” they had known that person for varying amounts of time ranging from 5 Years to 1 Hour. Unlike the original measure from Buss and Schmitt, participants also responded to time periods of 10 Years and 1 Minute. The specific order of presentation of the three measures had participants first complete the Time Known measure, then the Number of Partners measure, and then the Currently Seeking measure.

### *Results and discussion*

*Do male undergraduates seek short-term mates more than female undergraduates?* Prediction 1 from SST forecasts that men will actively desire short-term mates more than women. To test this prediction, we performed independent *t*-tests comparing undergraduate men’s mean level of seeking short-term mates with undergraduate women’s mean level of short-term seeking as assessed by the Currently Seeking measure. As described in Buss and Schmitt (1993), the Original sample included men who, on average, rated their current level of short-term seeking ( $M = 4.7, SD = 1.7$ ) significantly higher than did women ( $M = 2.9, SD = 1.8$ ),  $t(121) = 5.76, p < .001$ . To evaluate whether this sex difference was generalizable to populations other than young undergraduate students from Michigan, we examined the levels of short-term mate

seeking among men and women in the larger and more diverse Undergraduate sample. The original sex difference in short-term mate seeking was replicated in the Undergraduate sample, with men’s level of seeking short-term mates ( $M = 3.4, SD = 2.1$ ) significantly higher than women’s ( $M = 2.2, SD = 1.7$ ),  $t(1035) = 10.12, p < .001$ .

Although no explicit predictions were made about overall levels of long-term mate seeking, we also examined sex differences in the tendency to seek long-term mates. In the Original sample, men and women were similar in their self-reported long-term mate seeking. However, in the larger Undergraduate sample consisting of participants from four diverse universities, we found that women ( $M = 4.5, SD = 2.1$ ) were significantly higher than men ( $M = 3.8, SD = 2.0$ ) in their long-term mate seeking,  $t(1033) = -5.04, p < .001$ . Buss and Schmitt (1993) also hypothesized that “short-term mating will represent a larger component of men’s sexual strategy than of women’s sexual strategy.” (p. 210). We found the relative proportion of short-term mate seeking (short-term mate seeking divided by the sum of short-term and long-term mate seeking) was significantly higher in men ( $M = .47, SD = .21$ ) than women ( $M = .34, SD = .20$ ),  $t(1031) = 10.12, p < .001$ . This sex difference displayed a moderate to large effect size ( $d = .65$ ) and was also statistically significant and moderate in size in the Original sample,  $t(121) = 3.54, p < .001, d = .62$ .

Overall, Prediction 1 was supported in the current study utilizing a larger and somewhat more diverse sample than was originally used in Buss and Schmitt (1993). From this we can conclude that, although there is meaningful variation within each sex, college-aged men do seek short-term mates more than women. They do so on average, and they do so proportionately. Among evolutionary theories of human mating, pluralistic theories that predict sex differences in the short-term desire for sexual variety seem to most reasonably account for this pattern of results.

It is important to note that alternate

nonevolutionary explanations of these findings exist, such as gender socialization and social-role stereotyping (e.g., Eagly, 1987). Men may desire sexual variety and seek short-term mates more than women because men have experienced a developmental history in which they observed other men preferring sexual variety, and short-term mating was seen as consistent with their particular culture's view of masculinity. Certainly, it will be important to replicate these findings across a wide range of cultures, and this research is currently underway. However, this form of alternate explanation often leaves many unanswered questions. Why do men experience this form of socialization, why do cultures define masculinity in this way, and why do sex-roles exist in the first place? Indeed, one of the earliest critics of sex difference research recently concluded: "The socialization account has not proved adequate to the task of explaining gender differentiation" (Maccoby, 1998, p. 9). Of course, the forces of gender socialization likely do play an important role in the development of human mating tendencies. However, we feel the evolutionary perspective will be essential in fully explaining these phenomena. Only by integrating what we know from comparative psychology, human ethology, and reproductive biology with standard socialization explanations of human mating will a comprehensive theory of sex differences be possible (e.g., Geary, 1998; Mealey, 2000). At present, because our findings reside amid a vast array of empirical studies supporting the theory of parental investment (including decades of research on nonhuman animals), we believe our evolutionary explanation of sex differences in the desire for sexual variety is the most parsimonious among alternate psychological hypotheses.

*Do male undergraduates prefer more sexual partners than female undergraduates?* The second prediction from SST was that men will desire larger numbers of sexual partners than women. To evaluate the replicability of the empirical findings from Buss

and Schmitt (1993), we examined the extent to which sex differences existed in the Number of Partners measure in the Undergraduate sample. A primary criticism of the findings reported by Buss and Schmitt using the Number of Partners measure was that because the scales are open-ended, some participants (particularly a few insecure men) might respond with "extreme" desires for large numbers of future sexual partners. These extreme responses might skew the distribution of short-term desires among men as a whole and artificially inflate the group mean representing the average man (see Miller & Fishkin, 1997). In fact, Buss and Schmitt had some male participants report extreme desires (i.e., more than 2 standard deviations above the mean) and dealt with the issue by truncating all outliers above 100 to 99.

Although most methods of dealing with outliers result in similar statistical outcomes, Rosenthal and Rosnow (1991) suggest a better way to handle extreme scores on open-ended scales is to use "trimmed means," both in terms of reporting means and when performing statistical significance tests of differences between means (see also Howell, 1987; Yuen & Dixon, 1972). Trimmed means are created by eliminating a percentage of scores on both sides of a distribution. Typically, the outer 5% of scores are eliminated, reflecting the view in the social sciences that the outer 5% of scores may be significantly different from the true mean. In accordance with the recommendations of Rosenthal and Rosnow, we eliminated from consideration the outer 5% of participants based on their responses to the "lifetime" scale of the Number of Partners measure. This was done within each sample by removing the top 2.5% and the bottom 2.5% from the distributions of each sex. We also eliminated from our statistical analyses all participants who failed to complete the "lifetime" scale from the Number of Partners measure. As a result, the final sample sizes for our statistical analyses involving trimmed means included 69 men and 67 women from the Original

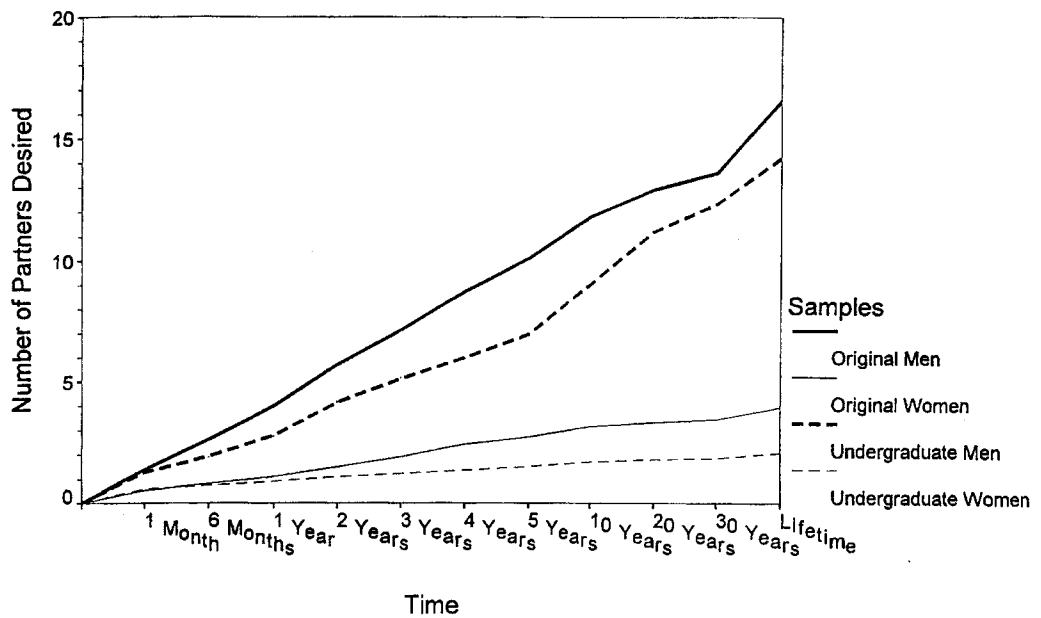
sample and 287 men and 644 women from the Undergraduate sample.

A comparison of the number of partners desired by men and women in the Original sample and the larger Undergraduate sample is displayed in Figure 1. The trimmed means for male and female participants in the Original sample were largely replicated in the Undergraduate sample. None of the male means from the Undergraduate sample were significantly different from the Original sample's male means. Among women, the Undergraduate sample reported desiring slightly fewer partners than the Original sample for the time periods after the 6-Month interval. Hence, the only significant differences between the Original and Undergraduate samples were that Undergraduate women wanted fewer sex partners than the Original women.

As shown in the first two columns of Table 1, the sex differences in desire for sexual partners found in the Original sample also were replicated in the large and geographically diverse Undergraduate sample. The average Undergraduate man wanted ap-

proximately 14 sex partners in his lifetime, whereas the average woman wanted just over 2,  $t(929) = 7.20, p < .001$ . Even so, the Undergraduate male distributions had standard deviations that were quite large. Further examinations of the male Undergraduate distribution revealed that even after eliminating the most extreme scores, the male distribution was still significantly skewed. This led us to consider using medians to further evaluate whether men and women differed significantly in the number of partners they desire across future time intervals.

In the Original sample, the medians for men and women were significantly different at every time interval. For example, over a participant's lifetime the median man desired 9 sexual partners, whereas the median woman desired 3,  $\chi^2(142) = 16.2, p < .001$ . The interpolated medians of men and women in the Undergraduate sample are displayed down the right side of Table 1. Because the use of medians made unnecessary the need to eliminate outliers, the results in Table 1 were based on the original sample sizes first reported in the Method



**Figure 1.** Trimmed mean number of sexual partners desired by men and women in the Original and Undergraduate samples at different time periods into the future.



**Table 1.** Sex differences in the number of partners desired in the undergraduate sample

Time	Trimmed Means		<i>t</i>	Medians		$\chi^2$
	Men	Women		Men	Women	
1 Month	1.3 (1.6)	0.6 (0.6)	9.42***	1.0 (0.7)	0.6 (0.6)	102.10***
6 Months	1.9 (3.1)	0.7 (0.6)	9.21***	1.3 (0.9)	0.7 (0.6)	154.88***
1 Year	2.8 (4.9)	0.9 (0.7)	9.59***	1.6 (1.3)	0.9 (0.5)	177.05***
2 Years	4.2 (8.7)	1.1 (0.8)	8.82***	1.9 (1.8)	1.0 (0.5)	135.46***
3 Years	5.1 (10.4)	1.2 (1.0)	9.39***	2.2 (2.0)	1.1 (0.5)	112.50***
4 Years	6.0 (12.4)	1.4 (1.1)	9.33***	2.4 (2.4)	1.2 (0.7)	87.95***
5 Years	7.0 (14.5)	1.5 (1.3)	9.39***	3.0 (2.8)	1.3 (0.7)	78.12***
10 Years	9.1 (21.9)	1.7 (1.6)	8.39***	3.6 (3.8)	1.4 (0.8)	76.78***
20 Years	11.2 (37.4)	1.8 (1.7)	6.32***	3.6 (4.3)	1.4 (0.9)	69.65***
30 Years	12.4 (40.8)	1.9 (1.8)	6.45***	3.8 (4.6)	1.4 (0.9)	70.06***
Lifetime	14.2 (42.7)	2.1 (2.0)	7.20***	4.0 (4.8)	1.5 (1.1)	54.26***

Note: Means reported in this table were trimmed means (Rosenthal & Rothnow, 1991) from a sample of 287 men and 694 women. The standard deviation of each mean is reported in parentheses below the mean. The *t*-values represent the significance of sex differences between trimmed means. The medians reported were interpolated from the distributions of 339 men and 710 women. The Interquartile Range (*Q*) for each distribution is presented in parentheses below each median. The  $\chi^2$  statistics were computed using the Median Test command from SPSS, uninterpolated medians were used in the Median Tests. \*\*\* =  $p < .001$ .

section. As shown down the second set of columns of Table 1, the medians for men and women in the Undergraduate sample were significantly different for every time interval. For example, over a participant's lifetime the median Undergraduate man desired 4 sexual partners, whereas the median woman desired 1.5,  $\chi^2(977) = 54.26, p < .001$ .

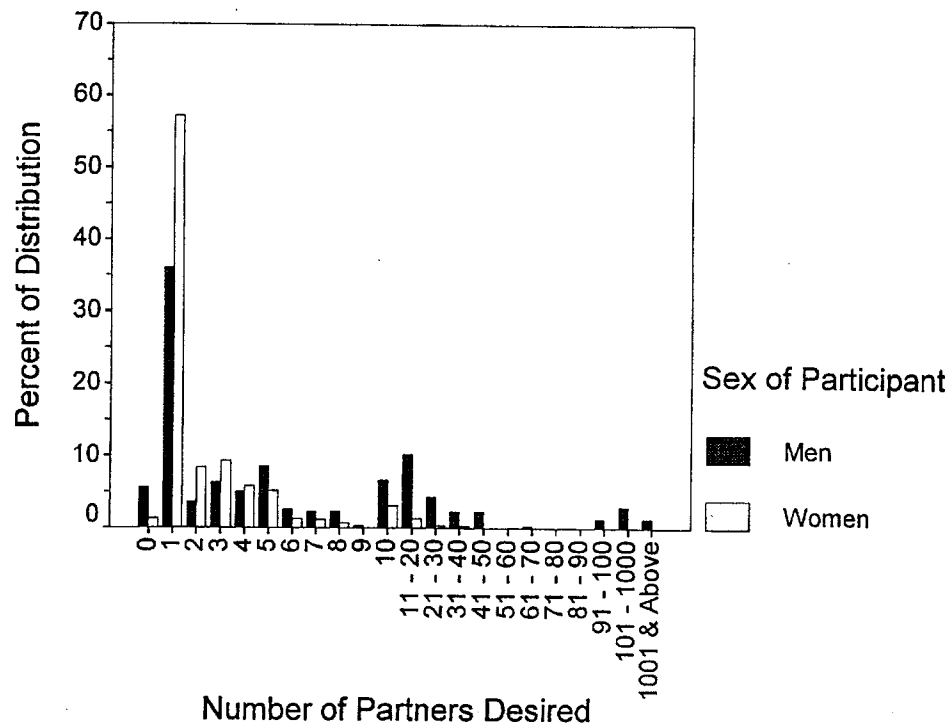
The interquartile ranges for the sexes, listed below each median in Table 1, also suggested that the male and female distributions diverged in a robust manner. For example, the 75th percentile for Undergraduate men was at about 9 sex partners in a lifetime, whereas for women the 75th percentile was less than 3 partners. In addition, Kolmogorov-Smirnov tests for differences in the distributions of male and female desires for sexual variety were also significant

(e.g., number of partners desired in a lifetime,  $K-S Z = 4.95, p < .001$ ). In short, although the median number of partners desired was less than the mean for all time intervals and for both sexes, *the differences between men and women in their desires for large numbers of sex partners persisted whether trimmed means, medians, or distributions were analyzed*. Indeed, Miller and Fishkin (1997) reported that male and female medians were significantly different in their study using the Number of Partners measure.

Finally, we examined whether the number of partners desired by men and women in the Undergraduate sample were significantly different from one. In men, the number of partners desired was significantly higher than one for all time periods, ranging from 1 Month,  $t(286) = 2.88, p < .01$ , to an

entire Lifetime,  $t(286) = 5.25, p < .001$ . In addition, the median number of partners desired by men in lifetime was 4.0. Although the modal number of partners desired in a lifetime was 1, over 58% of men reported a desire for more than one mating partner in a lifetime. For women, the number of partners desired was significantly *less* than one for time periods ranging from 1 Month,  $t(643) = -18.32, p < .001$ , to 1 Year,  $t(643) = -3.49, p < .001$ . However, from the time period 2 Years,  $t(643) = 2.94, p < .01$ , to an entire Lifetime,  $t(643) = 13.64, p < .001$ , women did desire significantly more than one partner. The median number of partners desired by women in a lifetime was 1.5. The modal number of partners desired in a lifetime was 1 for women, and 40% of women reported a desire for more than one mating partner in a lifetime. Figure 2 displays the complete distribution of male and female scores, using the categories employed by Miller and Fishkin (1997) for extreme values.

From these results we can conclude that college-aged men and women, on average, tend to express desires for more than one mating partner. Moreover, men tend to express this preference more strongly, and more consistently, than women. Across all subsamples from Texas to New York we found that men have a greater desire for sexual variety than women. Indeed, using a similar set of measures, this pattern of results was recently replicated in Germany (H.A. Euler, personal communication, January 12, 2001). The robust nature of these results suggests that the existence of a monomorphic mating orientation—with almost all humans possessing either long-term or short-term reproductive strategies—is manifestly unlikely. A large number of men (58%) and women (40%) preferred more than one mating partner for a lifetime, which strongly contradicts the hypothesis that most humans are long-term sexual strategists. On the other hand, a significant portion of men



**Figure 2.** Frequency distributions of the number of sexual partners desired by men and women in a lifetime, Undergraduate sample (latter frequencies are collapsed into categories).

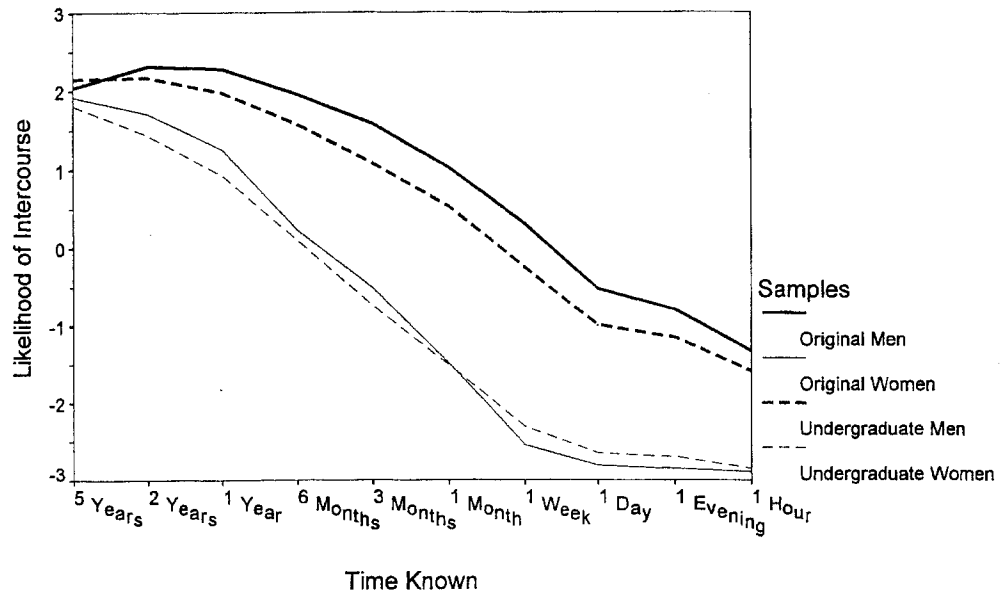
and women expressed a desire for only one mating partner for a lifetime, suggesting that some humans are devoted long-term maters. Overall, these data are most consistent with pluralistic evolutionary theories such as SST (see also Gangestad and Simpson, 2000, for an examination of the trade-offs that might occur that lead men and women to actively pursue short-term versus long-term sexual strategies). Both men and women exhibited a wide range of mating desires, including short-term and long-term temporal orientations; and men preferred a higher number of sexual partners, an index of the desire for sexual variety, than did women.

*Do male undergraduates require less time before consenting to sex than female undergraduates?* The third prediction from SST was that men will be willing to engage in sexual intercourse after less time has elapsed than women. To test this prediction in a larger and somewhat more diverse sample, we performed independent *t*-tests comparing men's mean level of sexual intercourse likelihood with women's mean level of sexual intercourse likelihood across all

time periods as assessed by the Time Known measure.

In the Original sample, men were significantly more likely than women to consider having sex with someone they viewed as desirable after knowing the person for multiple time periods ranging from 1 Hour to 2 Years. As displayed in Figure 3, the pattern of responses found in the Original sample was confirmed in the Undergraduate sample. Moreover, the sex differences found in the Original sample also were replicated in the Undergraduate sample. Unlike the Original sample, the difference between men and women also was significant at the 5-Year interval in the Undergraduate sample,  $t(1043) = 3.43, p < .001$ . Across both samples, the average woman considered having sex with someone they viewed as desirable only after they had known the person for about 6 Months, whereas the average man across samples considered having sex with someone they viewed as desirable after knowing the person for about 1 Week.

Overall, the Time Known findings of Buss and Schmitt (1993), along with all the other findings of Buss and Schmitt, were



**Figure 3.** Likelihood of consenting to sexual intercourse with a desirable person at different time periods into the future, reported by men and women; Original and Undergraduate samples.

replicated in Study 1 across a larger and more geographically diverse sample of participants. At this point, it appears highly likely that college-aged men desire sexual variety significantly more than college-aged women. Most important, among modern evolutionary theories of human mating it seems pluralistic theories such as SST best account for the robust nature of sex and individual differences in the desire for sexual variety.

### **Study 2: The Desire for Sexual Variety in a Mature Sample**

The primary goal of Study 2 was to test the three key sexual variety predictions from SST in an older and more mature sample of participants. Because previous studies have focused on young college undergraduates, it remains unknown whether sex differences in actively seeking short-term mates, in preferring large numbers of sexual partners, or in requiring less time to elapse before consenting to sex might endure across the lifespan. Women could become more engaged in short-term mating over time, perhaps because they gain self-confidence or accrue material resources with age (cf. Townsend, 1993). Conversely, it has been argued that men tend to become more long-term oriented with more sexual experience and emotional maturity (Mathes, King, & Miller, 1998). In either case, it is possible that sex differences in the desire for sexual variety substantially diminish over time. Thus, the persistence of sex differences in short-term mating across mature samples would constitute additional support for the SST position that men's natural short-term sexual psychology is anchored in the desire for sexual variety. Finding significant sex differences in the desire for sexual variety among older individuals would also provide evidence that monomorphic theories of human mating are unlikely to be correct.

#### *Method*

*Sample.* A sample consisting of 83 men and 109 women who were older than age 30

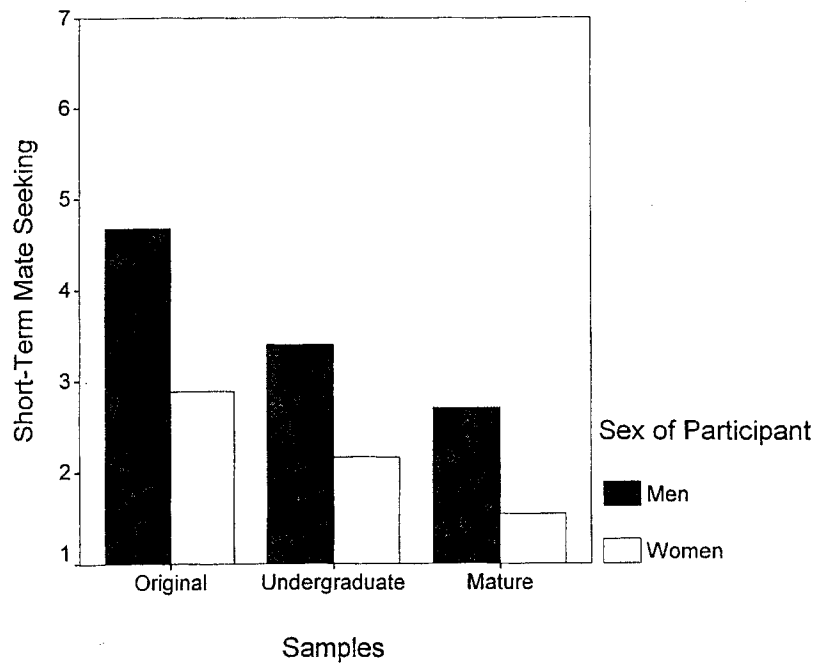
was collected from a public university in Florida. This sample will be referred to as the "Mature" sample, and the average age of participants was 39.9 years with a standard deviation of 7.9 years. No differences existed in age between men ( $M = 40.3$ ) and women ( $M = 39.6$ ) in the Mature sample. Members of this sample participated in the study for extra credit in a psychology course and were primarily middle-class and Caucasian.

*Procedure.* The Mature sample completed the same packet of measures adapted from Buss and Schmitt (1993) described in Study 1. This included the Time Known measure, the Number of Partners measure, and the Currently Seeking measure.

#### *Results and discussion*

*Do older men seek short-term mates more than older women?* To evaluate whether the sex differences in short-term mate seeking found in Study 1 were generalizable to older populations with more sexual experience, we examined the levels of short-term seeking among men and women in the Mature sample. The Mature sample provided a further replication of the sex difference in short-term seeking uncovered by Buss and Schmitt (1993), with men ( $M = 2.7$ ) seeking short-term mates more than women ( $M = 1.5$ ),  $t(186) = 4.71, p < .001$ . In addition, we found the relative proportion of short-term mate seeking was significantly higher in mature men than mature women,  $t(184) = 3.40, p < .001$ . This sex difference once again displayed a moderate effect size ( $d = .50$ ), further replicating the results of Study 1.

As displayed in Figure 4, there appeared to be a tendency for participants to report less interest in short-term mating as the age of the sample increased,  $F(2, 1345) = 32.06, p < .001$ . It is possible that interest in short-term mating generally decreases with age. For example, all post hoc Tukey HSD's examining differences among the various samples were significant. That is, all samples were significantly different across age groupings. Perhaps older participants are

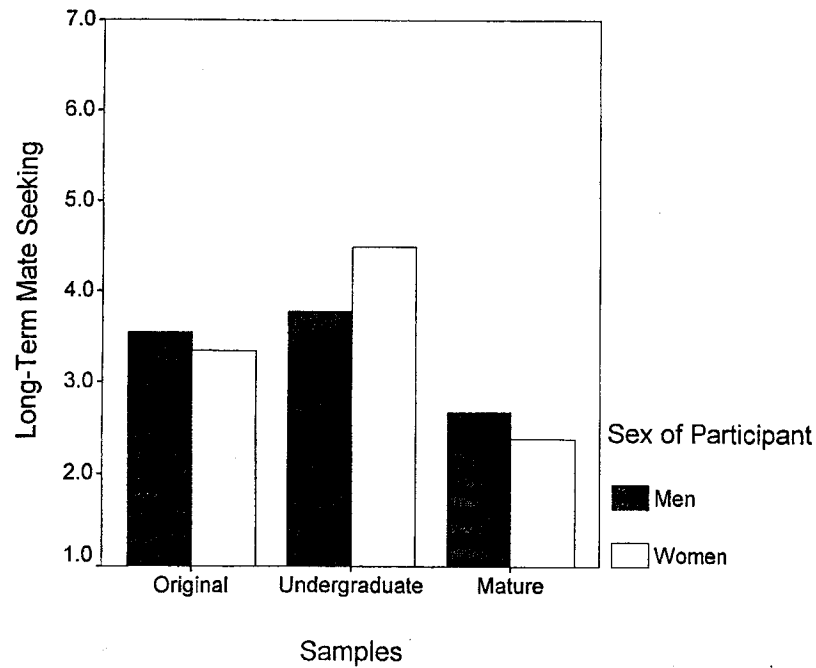


**Figure 4.** Mean level of seeking short-term mates reported by men and women; Original, Undergraduate, and Mature samples.

more likely to be married, and so their short-term mate seeking was significantly attenuated. It may also be that older participants experience a lower sex drive, and this lessens their overall tendency to seek short-term mates. An alternate explanation of the significant differences among samples could involve the fact that the Undergraduate and Mature samples were assessed after the onset of AIDS awareness. The Original data was collected in 1987, and research has shown that sexual attitudes and behaviors of short-term mating were lessened by AIDS awareness throughout the 1980s and early 1990s (Clark, 1990; Laumann, Gagnon, Michael, & Michaels, 1994). With our current methods, it is difficult to pinpoint precisely why age differences exist in short-term mate seeking. Nevertheless, in the current study, mean-level sex differences in short-term mate seeking were replicated in an older and presumably more sexually experienced sample.

In the Mature sample, no sex differences were found in mean-levels of seeking long-

term mates. However, two findings stand out among the levels of long-term mate seeking displayed in Figure 5. First, the Mature participants reported seeking long-term mates significantly less than the other samples,  $F(1, 1343) = 105.34, p < .001$ . It seems likely that members of the Mature sample were already in marital relationships and so were not in the midst of currently seeking long-term mating partners. Unfortunately, we failed to assess marital status in collecting data from either the Undergraduate or Mature samples. Second, women in the Undergraduate sample ( $M = 4.5$ ) reported seeking long-term mates significantly more than women in the Original sample ( $M = 3.3$ ),  $t(759) = -4.11, p < .001$ . We might speculate that women from the Undergraduate sample, who were an average age of about 21 years and presumably near the end of their undergraduate educations, felt greater motivation for currently seeking long-term mates than those from the Original sample, who were about 19 years of age and near the beginning of their



**Figure 5.** Mean level of seeking long-term mates reported by men and women; Original, Undergraduate, and Mature samples.

college experiences. In sum, Prediction 1 was strongly supported in a sample of older participants.

*Do older men prefer more sexual partners than older women?* The second prediction from SST was that men will desire larger numbers of sexual partners than will women. To evaluate the replicability of the empirical findings from Study 1 among older participants, we examined the extent to which sex differences existed in the Number of Partners measure in the Mature sample. As shown in the first two columns of Table 2, the significant sex differences in the desire for sexual partners found in the Original and Undergraduate samples were replicated in the Mature sample. Using trimmed means, with a sample of 67 men and 99 women, the average Mature man wanted over 74 sex partners in his lifetime, whereas the average woman wanted 1.4. As presented down the right side of Table 2, the medians for men and women also were significantly different at every time interval.

For example, over a participant's lifetime the median Mature man desired 1.8 sexual partners, whereas the median woman desired 1.2. In addition, Kolmogorov-Smirnov tests for differences in the distributions of mature male and female desires were also significant (e.g., number of partners desired in a lifetime, K-S  $Z = 1.95, p < .001$ ).

We examined whether the number of partners desired by mature men and women were significantly different from one. In mature men, the number of partners desired was significantly higher than one for all time periods, ranging from 1 Month,  $t(66) = 2.71, p < .01$ , to an entire Lifetime,  $t(66) = 2.83, p < .01$ . The median number of partners desired by men in a lifetime was 1.8. As with the Undergraduate sample, although the modal number of partners desired in a lifetime was 1, over 46% of mature men reported a desire for more than one mating partner in a lifetime. For women, the number of partners desired was significantly less than one for the time period of 1 Month,  $t(98) = -3.61, p < .001$ . However, from the time period 10

**Table 2.** Sex differences in the number of partners desired in the mature sample

Time	Trimmed Means		<i>t</i>	Medians		$\chi^2$
	Men	Women		Men	Women	
1 Month	2.1 (3.4)	0.8 (0.5)	3.72***	1.2 (0.7)	0.8 (0.6)	13.03***
6 Months	4.8 (10.8)	0.9 (0.5)	3.58***	1.4 (1.2)	0.9 (0.6)	18.29***
1 Year	8.7 (24.2)	1.0 (0.5)	3.13**	1.5 (1.4)	1.0 (1.1)	21.39***
2 Years	16.6 (54.0)	1.1 (0.6)	2.82**	1.6 (2.1)	1.1 (0.6)	15.32***
3 Years	22.5 (74.3)	1.1 (0.7)	2.83**	1.6 (2.3)	1.1 (0.6)	18.01***
4 Years	27.6 (91.9)	1.1 (0.7)	2.83**	1.7 (2.5)	1.1 (0.6)	16.55***
5 Years	31.6 (107.6)	1.1 (0.7)	2.76**	1.7 (2.8)	1.1 (0.6)	17.50***
10 Years	41.3 (132.1)	1.3 (1.3)	2.97**	1.7 (3.3)	1.2 (0.6)	11.73***
20 Years	48.4 (151.1)	1.2 (0.9)	3.06**	1.7 (4.8)	1.2 (0.6)	14.88***
30 Years	59.0 (180.2)	1.3 (1.0)	3.14**	1.7 (7.6)	1.2 (0.6)	10.10**
Lifetime	74.1 (211.3)	1.4 (1.3)	3.43***	1.8 (13.0)	1.2 (0.6)	10.12**

Note: Means reported in this table were trimmed means (Rosenthal & Rothnow, 1991) from a sample of 67 men and 99 women. The standard deviation of each mean is reported in parentheses below the mean. The *t*-values represent the significance of sex differences between trimmed means. The medians reported were interpolated from the distributions of 83 men and 109 women. The Interquartile Range (*Q*) for each distribution is presented in parentheses below each median. The  $\chi^2$  statistics were computed using the Median Test command from SPSS, uninterpolated medians were used in the Median Tests. \*\* =  $p < .01$ , \*\*\* =  $p < .001$ .

Years,  $t(98) = 2.31, p < .05$ , to an entire Lifetime,  $t(98) = 3.44, p < .001$ , women did desire more than one partner. The median number of partners desired by women in a lifetime was 1.2. The modal number of partners desired in a lifetime was 1 for women, and over 25% of women reported a desire for more than one mating partner in a lifetime.

It should be noted that the medians in the Undergraduate and Mature samples were somewhat lower than in the Original sample. One possible explanation for the lower medians in the samples from Studies 1 and 2 may involve the use of two new scales in the Number of Partners measure. The Number of Partners measure completed by the Mature and Undergraduate samples asked how many sexual partners

the participants desired in 1 Day and 1 Week. The Original sample's Number of Partners measure started at the 1 Month interval. Because the number of sex partners desired in 1 Day is likely less than the number desired in 1 Month, the first item on the Number of Partners measure may have acted as an anchor from which participants in the Mature and Undergraduate samples never adjusted (Tversky & Kahneman, 1974).

*Do older men require less time before consenting to sex than older women?* The third prediction from SST was that men will be willing to engage in intercourse after less time has elapsed than women. The pattern of responses found in the Original and Undergraduate samples was replicated in the

