

SEX DRIVE, SEXUAL ATTITUDES, AND SEXUAL BEHAVIORS

Jennifer M Ostovich

A DISSERTATION

in

Psychology

Presented to the Faculties of the University of Pennsylvania in Partial
Fulfillment of the Requirements for the Degree of Doctor of Philosophy

2005

John Sabini

Supervisor of Dissertation

John Sabini

Graduate Group Chairperson

DEDICATION

For my sister, Ellis, whose death by her own hand on April 13th of last year was a painful lesson to me that life is about more than accomplishment. The drive for perfection is a curse, not a virtue, and thus I offer this imperfect work in her memory.

*Watch over me.
Hold your hand before me in protection.
Stand guard for me, speak in defense of me.
As I speak for you, speak for me.
May it be beautiful before me,
May it be beautiful behind me,
May it be beautiful below me,
May it be beautiful above me,
May it be beautiful all around me.*

*I am restored in beauty.
I am restored in beauty.
I am restored in beauty.
I am restored in beauty.*

~ Traditional Navajo prayer

ACKNOWLEDGMENTS

Several people cajoled me into finishing and submitting this dissertation. Thanks to John Sabini for supporting me through my almost legendary graduate school tribulations, while also encouraging me to proceed with my work. Thanks as well to Robin Hornstein for helping me find the strength to continue trying when I didn't want to. Thanks to my parents for instilling in me a love of learning and a talent for writing. And finally, thanks to my close friends, with whom even the briefest of conversations can be calming, inspiring, rejuvenating. Diana Williams, in particular, seemed never to tire of our lengthy discussions about everything from the minute details of my graduate and research career, to literature, philosophy, politics, music, and the rest of life. Kathryn Jones dropped all and drove me to Toronto the day I learned of my sister's death, and for that alone, I will always be grateful. Julie McIntyre, Sophia Moskalenko, Sarah Thompson, and Shannon Wiltsey Stirman (listed in alphabetical order, not order of importance), have also been invaluable.

ABSTRACT

SEX DRIVE, SEXUAL ATTITUDES, AND SEXUAL BEHAVIORS

Jennifer M Ostovich

The purpose of the work reported here was to test hypotheses about the relations among sex drive, sexual attitudes, sexual behaviors, and sexual development. In Study 1, I establish the validity and reliability of a brief (4-item) measure of sex drive. In Study 2, I replicate Kinsey et al.'s (1948; 1953) finding that early-puberty men have a stronger sex drive and engage in a higher frequency of sexual behaviors than do later-puberty men, but that timing of puberty is unrelated to these variables for women. I extend these findings to timing of first experience of sexual arousal ("arousal"): earlier first arousal was associated with having a higher sex drive, more positive attitudes towards casual sex (i.e., a less restricted sociosexual orientation), and with having had more sexual partners than was later first arousal for both genders. Finally, first arousal, but not timing of puberty, was related to sexual orientation for women only. I discuss classes of explanations for these results. In Studies 3 and 4, I examine relations among sex drive, sociosexuality, lifetime number of sex partners, gender identity, and self-control. Sex drive was moderately to highly correlated with sociosexuality (the higher the sex drive, the more likely were men and women to endorse engagement in casual sex), and both sex drive and sociosexuality are correlated with lifetime number of sex partners. Partial correlations revealed that sociosexuality was an independent predictor of lifetime number of sex partners, whereas sex drive was not. I replicate and extend, as well, Mikach and Bailey's (1999) finding that gender identity is related to women's lifetime number of sex

partners. More masculine women had more sex partners and had a less restricted sociosexual orientation than did less masculine women; less masculine men had a higher sex drive than did more masculine men. Finally, I explore the possibility that sex drive, sociosexuality, and lifetime number of sex partners are related to self-control. Women's sex drive was significantly correlated with self-control, and their lifetime number of sex partners was marginally correlated with self-control; men's sociosexuality was significantly correlated with self control. I discuss these findings with regard to theory and research on sex drive and sociosexuality.

TABLE OF CONTENTS

DEDICATION.....	ii
ACKNOWLEDGMENTS.....	iii
ABSTRACT.....	iv
TABLE OF CONTENTS.....	vi
LIST OF TABLES.....	viii
CHAPTER 1: GENERAL INTRODUCTION.....	1
CHAPTER 2: RELIABILITY AND VALIDITY OF A NEW, BRIEF MEASURE OF SEX DRIVE.....	3
Introduction.....	3
Methods.....	6
Results.....	9
Discussion.....	13
Tables.....	15
CHAPTER 3: TIMING OF PUBERTY AND SEXUALITY IN MEN AND WOMEN.....	19
Introduction.....	19
Methods.....	26
Results.....	30
Discussion.....	35
Tables.....	40

CHAPTER 4: HOW ARE SOCISEXUALITY, SEX DRIVE, AND LIFETIME	
NUMBER OF SEXUAL PARTNERS RELATED?.....	42
General Introduction.....	42
Study 1.....	45
Methods.....	47
Results.....	48
Discussion.....	55
Study 2.....	56
Methods.....	57
Results.....	59
Discussion.....	63
General Discussion.....	64
Endnotes.....	69
Tables.....	70
CHAPTER 5: SUMMARY AND CONCLUSIONS.....	73
REFERENCES.....	76

LIST OF TABLES

Table 2-1: Original Sex Drive Questionnaire Items.....	15
Table 2-2: Means (and standard deviations), by gender, for scores on each questionnaire discussed in Chapter 2.....	16
Table 2-3: Convergeant validation correlations, by gender, for the Sex Drive Questionnaire.....	17
Table 2-4: Personality correlates of sex drive and lifetime number of sexual partners.....	18
Table 3-1: Means (and standard deviations), by gender, for scores on each questionnaire discussed in Chapter 3.....	40
Table 3-2: Spearman Rank correlations for relations between puberty and sexual attitudes and behaviors, and between first experience of sexual arousal and sexual attitudes and behaviors.....	41
Table 4-1: Means (and standard deviations), by gender, for scores on each questionnaire discussed in Chapter 4.....	70
Table 4-2: Correlations among sex drive, sociosexuality, sexual behavior measures, and gender identity, by gender.....	71
Table 4-3: Correlations among sex drive, sociosexuality, lifetime number of sex partners, and social desirability.....	72

CHAPTER 1: GENERAL INTRODUCTION

The purpose of the work discussed in this dissertation was to add the literature on human sexuality by introducing a new, valid and reliable measure of sex drive, and by using this measure to begin researching how sex drive affects men's and women's sexual choices.

Chapter 2 discusses the development and validation of the Sex Drive Questionnaire (SDQ), a measure of sex drive meant to reflect Kinsey, Pomeroy, and Martin's (1948) operationalization of sex drive. Kinsey thought of sex drive in terms of "total sexual outlet", or number of orgasms sought during any given period of time. I used Kinsey's "sexual outlet" concept as the starting point for my measure of sex drive, and was able to produce a statistically reliable and valid four-item measure that assesses drive to engage in non-partnered sexual activities (e.g., masturbation, experience of sexual desire), and self-rated strength of sex drive.

Kinsey (1948) discussed, at length, the relation between timing of onset of puberty and strength of sex drive. Surprisingly, no published research that I was able to discover followed up on Kinsey's finding that men's sex drive was negatively related with their age of onset of puberty (i.e., the earlier the puberty, the higher the sex drive; Kinsey et al., 1948) but that women's sex drive was unrelated to their age of onset of puberty (Kinsey, Pomeroy, Martin, & Gebhard, 1953). Chapter 3 discusses my efforts to further investigate this finding.

Finally, again following from Kinsey and colleagues (1948; 1953), I investigated how what Kinsey called "sociosexual attitudes and behaviors", or what Simpson &

Gangestad (1991) have called “sociosexual orientation”, was related to sex drive and to lifetime number of sexual partners. Sociosexual orientation refers to individuals’ willingness to engage in casual sexual activities: Simpson and Gangestad’s (1991) Sociosexual Orientation Inventory (SOI) measures the degree to which individuals are sexually restricted (e.g., require feelings of love before engaging in sexual behaviors) or sexually unrestricted (e.g., are willing to have sex without feelings of love). Simpson & Gangestad (1991) claimed, based on what I argue was a faulty measure of sex drive, that sociosexual orientation and sex drive are unrelated variables. Thus, any combination of strength of sex drive and sociosexuality should be equally possible: those with a high sex drive should be equally likely to be sociosexually restricted as they are to be sociosexually unrestricted, and the same for those with a low sex drive. However, it seemed to me that it would make much more sense, for practical reasons if for none other, for sex drive and sociosexual orientation to vary systematically together: People with a higher sex drive, I hypothesized, could only benefit from having an interest in engaging in casual sex (in that willingness to engage in casual sex broadens the number and variety of potential sexual partners), whereas people with a lower sex drive might as well have a lower interest in casual sex.

The purpose, then, of the research discussed in Chapter 4 was to investigate my hypothesis that, given a proper measure of sex drive, I would find a significant correlation between these sex drive and sociosexuality: the higher the sex drive, I hypothesized, the less restricted the sociosexual orientation. A second, related goal of the research reported in Chapter 4 was to investigate to what extent sex drive and sociosexual orientation predict lifetime number of sexual partners.

CHAPTER 2: RELIABILITY AND VALIDITY OF A NEW, BRIEF MEASURE OF SEX DRIVE.

As outlined in Chapter 1, my primary goal in the research reported here was to investigate how sex drive is related to several aspects of human sexuality. Before I could investigate these relationships, I needed to find a measure of sex drive that suited my needs. Finding none, I constructed one.

Spector and colleagues' Sexual Desire Inventory (SDI; Spector, Carey, & Steinberg, 1996) was the only measure of sex drive that I could find in the modern literature. I chose not to use this measure for three reasons: first, the SDI seems unnecessarily lengthy; second, and relatedly, the SDI is divided into two (I believed unnecessary) subscales, one that measures "dyadic" sexual desires, and one that measures "solitary" sexual desires; third, the SDI measures sex drive in abstract, rather than concrete, terms (i.e., the SDI measures "desire to behave sexually" in hypothetical activities, rather than measuring instances of sexual behavior itself). I preferred a briefer, more concretely-worded, behaviorally-based measure of sex drive.

I began my scale construction by generating nine items that reflected my views on sex drive. See Table 2-1 for a list of those items.

I began with the assumption that, all things equal, sex drive should be a direct reflection of the frequency with which people experience sexual desire. I asked that question directly, but I recognized that not all participants would be willing or able to answer this question accurately. I also reminded myself that a concept as complex as sex

drive would best be measured using multiple items, and so I generated the other items discussed below.

People with a high sex drive might not express that drive behaviorally for a variety of reasons (e.g., religiosity, attractiveness, self-esteem, beliefs about casual sex). Nonetheless, one would expect that the more one desires sex, the more one has it. Thus, I asked participants about their frequency of sexual intercourse during the past month. However, given recent discussions in the literature (e.g. Cecil et al., 2002; Sanders & Reinisch, 1999) of the many ways in which having had “sex” is defined in lay populations, I thought that such an item could be problematic. Therefore, I also asked about the frequency of orgasm during the past month – a measure akin to Kinsey’s (1948; 1953) “total sexual outlet” measure. Indeed, this frequency of orgasm item addresses a fundamental assumption about sex drive: that those with a higher sex drive will have a higher “total sexual outlet” (i.e., more orgasms, no matter what their source) than will those with a lower sex drive.

Of all of the sexual behaviors, masturbation is surely the behavior most under an individual’s control and least subject to pressure from, availability of, or cooperativeness of partners. This being the case, masturbatory frequency might be one of the purest indicators of sex drive – especially considering that masturbatory episodes do not necessarily result in orgasm, and thus would not necessarily be considered relevant in a “total sexual outlet” measure (Kinsey, 1948; 1953). Therefore, I included a separate item about the frequency of masturbation during the past month.

Aside from these behavior-based items (frequency of sexual intercourse, orgasm, and masturbation), I thought that people might have some insight into their level of sex

drive compared with that of similar others; therefore, I asked them to self-report their level of sex drive compared with that of the average person of their age and gender. I also asked participants whether they wished that their sex drive were stronger or weaker than its current level.

I included an item, as well, asking participants whether they had ever gotten into trouble because of their sex drive. I suspected that people with stronger sex drives would find that they had more often gotten into trouble because of their sexual desires than would people with weaker sex drives, although I suspected as well that individuals at either extreme of the sex drive continuum might experience problems due to their sex drives (i.e., that individuals with a high sex drive might get into trouble because of their strong desire for sexual activity, perhaps at socially awkward moments, but that individuals with a low sex drive might get into trouble because of their resistance to sexual activity at times when engagement in sexual activity would have fulfilled social expectations).

Finally, I expected that people with higher sex drives would take more pleasure from sexual activity than would those with lower sex drives. I thus had participants rate the amount of pleasure they received from masturbation to orgasm on a 100-point scale (I used masturbation for this item in order to remove variation due to presence of – and therefore feelings for – another individual).

Construct and Convergent Validity. It is a truism that men have a higher sex drive than women (see Baumeister, Catanese, and Vohs, 2001, for a review of the literature on gender differences in strength of sex drive, and Peplau, 2003, for a more general discussion of gender differences in human sexuality). And given that reproduction

requires sexual arousal for men but not for women, there is every evolutionary reason for this to be so. Therefore, I expected my measure to distinguish between the sexes. I also expected my measure to correlate with virginity (virgins, I expected, would have a lower sex drive than would non-virgins), and, more generally, with lifetime number of sexual partners: those higher in sex drive should be more motivated to seek out sexual partners than should those lower in sex drive.

I correlated my scale with an existing measure of sex drive (the SDI) to help establish the construct validity of my scale. I also examined the relationship between scores on my scale and frequency of self-reported sexual and romantic fantasy. For obvious reasons, I expected frequency of sexual fantasy to be substantially and positively related to strength of sex drive; I was unsure of what to expect with regard to romantic fantasy, which seemed to me as though it could go hand-in-hand with sexual fantasizing (i.e., positive correlations with both sex drive and frequency of sexual fantasy), but which could, alternatively, reflect a restricted sociosexual orientation (i.e., lack of interest in casual sexual activity, which I had hypothesized would be negatively correlated with sex drive; see Chapter 4 for a further discussion of this hypothesis).

METHOD

Participants

I used fliers, newspaper advertisements, and the University of Pennsylvania's psychology subject pool message board to recruit participants. I advertised the study as a study of "personality and behavior" in order to avoid some of the more serious problems associated with volunteer bias in sexuality research (see Trivedi & Sabini, 1998). No participants dropped out of this study when they discovered the focus of my research,

although they were given the opportunity to do so. Participants not recruited through the subject pool ($n = 96$) were compensated for their participation with gift certificates to Barnes and Noble Booksellers, whereas participants from the subject pool ($n = 181$) received one research credit in exchange for their participation.

Participants were 129 men and 148 women. Men ranged in age from 18 to 54 years, with a mean age of 22.4 ($SD = 6.3$); women ranged in age from 18 to 48 years, with a mean age of 21.8 ($SD = 5.5$). My participants were 58.8% White, 27.0% Asian or Asian-Indian, 4.3% Black, 3.2% Hispanic, and 6.7% “Other”. Participants’ religious affiliations were: 26.3% claimed no religious affiliation; 20.6% were Catholic; 20.1% were other Christian; 19.2% were Jewish; 5.8% were Hindu; and 2.2% were Muslim. Finally, participants reported their sexual orientation (measured using the Kinsey Scale; see “Measures” section) as follows: 90.7% of men scored a 0 or 1 (exclusively or mostly attracted to the other sex, or “heterosexual”), 7.0% of men scored a 5 or 6 (exclusively or mostly attracted to the same sex, or “gay”), and the remaining 2.3% men scored a 2, 3, or 4 (“bisexual”); 84.4% of women were “heterosexual”, 8.1% of women were “lesbian”, and 7.5% of women were “bisexual.”

Measures

Sex Drive. Please see Table 1 and *Results* for more on the SDQ.

Sexual Desire. Spector et al.’s (1996) Sexual Desire Inventory (SDI) is a 14-item measure of respondents’ desire to engage in various sexual behaviors, divided into two subscale (“Dyadic” vs. “Solitary” sexual behaviors). The wording of this questionnaire is, in contrast to our own more direct wording, rather oblique: for example, one item asks “During the last month, *how often* would you *have liked* to behave sexually by yourself

(for example, masturbating, touching your genitals etc.)?” Alphas for the full-scale SDI were .84 for men and .92 for women. Alphas for the Dyadic subscale were .79 for men and .89 for women; alphas for the Solitary subscale were .85 for men and .93 for women.

Fantasy. I wrote two general fantasy items for convergent validation purposes. These items were (separately): “During the past week, how often have you had a *purely romantic/purely sexual* fantasy about someone you are acquainted with (other than your regular partner, if you have one)?”. I asked participants to define romantic fantasies as being “based primarily on emotional connections, and non-sexual behaviors, such as going on a date”, and sexual fantasies as being “based primarily on sexual activities”.

Sociosexuality. I used the seven-item SOI (Simpson & Gangestad, 1991) to assess participants’ degree of sexual restraint. Unrestricted participants are those who have engaged in and are comfortable with casual sex; restricted participants do not engage in, and are not comfortable with, casual sex. Coefficient alpha for the SOI was .77 for men and .83 for women.

Self-Monitoring. The Revised Self-Monitoring Scale (RSM; Lennox & Wolfe, 1984) is a 13-item scale that assesses respondents’ ability to perceive the attitudes and wishes of others, and to behave accordingly. People high in self-monitoring are more successful at this than are people low in self-monitoring. Coefficient alpha for the RSM was .88 for men and .83 for women.

Gender Identity. Bailey and colleagues’ (1996) seven-item Childhood Gender Nonconformity scale (coefficient alphas .78 for men and .87 for women) assesses the degree to which subjects had behaved like the other gender during childhood (e.g. the degree to which young boys had been “sissies” and young girls had been “tomboys”).

Bailey and colleagues' (1996) eight-item Continuous Gender Identity scale, by contrast, assesses how masculine or feminine participants *currently* feel and behave (coefficient alphas .78 for men and .76 for women).

Sexual Orientation. I measured sexual orientation using the following question, adapted from Kinsey et al. (1948, p 638-641, 647, and 650): "To whom are you sexually attracted?" Responses were measured on a 7-point Likert scale ranging from 0 (*exclusively attracted to the other sex*) to 6 (*exclusively attracted to the same sex*), with 3 as my midpoint (*equally attracted to both sexes*).

Procedure

Participants filled out my questionnaire packet either in my lab ($n = 198$), or on the World Wide Web ($n = 79$). All participants were screened for age (no one under age 18 was allowed to participate), and the Web version of the survey was password protected, so that only screened participants were able to access it.

Lab participants were run individually. Upon arrival, they read and signed a consent form. Participants were left alone for 45 minutes to complete their questionnaires, and then were debriefed and given compensation for their participation. Web participants read the same consent form and completed the same questionnaires as did lab participants, but they received their compensation and debriefing through the mail.

RESULTS

Psychometric Properties of the SDQ.

I converted scores on the nine sex drive items into z -scores to compensate for scaling differences. Next, I calculated Cronbach's coefficient alpha using all nine of the

items listed in Table 1, and found that coefficient alpha was relatively low: .48 for men, and .66 for women. I deleted items that substantially lowered alpha one by one, until I were left with 4 items (see Table 1 items 1, 2, 3, and 5), none of which served to lower my final alpha of .79 for men, and .83 for women. I conducted a principal components factor analysis on these four items. One factor emerged (eigenvalue of 2.5 for men, and of 2.7 for women; no other eigenvalues exceeded 0.75 for either gender) that accounted for 62.8% of the variance in men's scores, and 66.3% of the variance in women's scores. In a later study (see Chapter 4), I found that the SDQ has good test-retest reliability over a six- to eight-week period (men's was $r_{(70)} = .91, p < .001$; women's was $r_{(103)} = .90, p < .001$).

Construct and Convergent Validity.

Men had a significantly higher sex drive than did women, whether sex drive was measured using the SDQ or the SDI (see Table 2 for these and other mean differences statistics).

I correlated men's and women's scores on the SDQ with their scores on the SDI and its subscales. Scores on the SDQ were significantly correlated with scores on the SDI, as well as with its subscales, for both men and women (see Table 3 for a summary of these and other correlational findings reported relevant to construct and convergent validation). The higher participants' sex drive, the higher their desire to engage in sexual behaviors, both with a partner and alone.

Fantasy. Scores for frequency of romantic and sexual fantasy were significantly correlated with one another ($r_{s(127)} = .25, p = .004$ for men; $r_{s(147)} = .54, p < .001$ for women): participants with more romantic fantasies also had more sexual fantasies. The

gender difference in this correlation was significant, $Z = 2.84, p = .005$. Sex Drive was unrelated to frequency of *romantic* fantasy for both genders, but was significantly related to frequency of *sexual* fantasy, for both men and women. The higher men's and women's sex drive, the more *sexual*, but not *romantic*, fantasies they had per week.

Sexual Behavior and Sex Drive. I correlated scores on the SDQ with self-reported virginity (“Have you ever been sexually active?”) and with self-reported lifetime number of sexual partners. Sex drive was highly correlated with both, particularly for women: the gender difference for the correlation between sex drive and virginity was significant ($Z = 2.62, p = .009$), as was the gender difference for the correlation between sex drive and lifetime number of sexual partners ($Z = 2.99, p = .003$). Participants higher in sex drive were not only less likely to be virgins than were participants lower in sex drive, but also had more sexual partners during their lifetimes than did participants lower in sex drive, and this was more true of women than of men. The correlation between the SDQ and lifetime number of sex partners remained significant when controlled for age ($r = .40, p < .001$ for men, and $r = .60, p < .001$ for women), as did the gender difference for this correlation ($Z = 2.17, p = .03$).

Not surprisingly, sex drive was significantly correlated with the average number of times participants had sexual intercourse during the average month. The higher the sex drive, the more often participants – particularly women ($Z = 2.04, p < .05$) – had sexual intercourse. I split participants into groups based on whether they were currently involved in a romantic relationship, and measured the correlation between sex drive and frequency of sexual intercourse for each group. This correlation was significant for all groups (men in a relationship $r_{s(55)} = .38, p = .005$; women in a relationship $r_{s(70)} = .41, p < .001$; men

not currently in a relationship $r_{s(69)} = .38, p = .001$; women not currently in a relationship $r_{s(72)} = .43, p < .001$). Thus, sex drive is a good predictor of frequency of sexual intercourse, regardless of whether participants are currently in a relationship.

Contrary to my expectations, not all participants high in sex drive rated their pleasure from masturbation to orgasm as being high. The correlation between sex drive and scores on this item (originally item 9, see Table 1) was nonsignificant for men, but was significant for women (sex difference significant, $Z = 1.94, p < .05$).

Finally, participants with a higher self-reported sex drive were more likely to report that their desires had gotten them “into trouble” than were participants with a lower self-reported sex drive (gender difference not significant, $Z = 1.39, p > .1$). The higher the sex drive, the more “trouble” participants reported having had as a result of their sexual desires.

Self-Monitoring. Sex drive and self-monitoring were marginally correlated for men, and significantly correlated for women. Participants higher in sex drive were more likely to engage in self-monitoring (that is, were more likely to change their behavior in order to suit their surroundings) than were participants lower in sex drive. Surprisingly, self-monitoring was uncorrelated with lifetime number of sex partners for both men and women.

Demographic Correlates of Sex Drive

Sexual Orientation. I correlated scores on the SDQ with sexual orientation, measured using the Kinsey scale. The higher the sex drive, the more likely were participants to report being attracted to members of the same sex ($r_{s(126)} = .20, p = .02$ for

men, and $r_{s(143)} = .32, p < .001$ for women; gender difference not significant, $Z = 1.04, p > .1$).

Other demographic correlates. Age was significantly correlated with scores on the SDQ for women ($r_{s(143)} = .22, p = .008$) but not for men ($r_{s(126)} = .06$). Of the other demographic variables studied (conservativeness of religion, religiosity, spirituality, whether or not the participant currently holds a job, how much the participant earns, and how much the participant's family earns), no significant relationships emerged for men (all p 's $> .2$), but several emerged for women. Women who scored higher on the SDQ were more likely to be currently holding a job ($r_{s(135)} = .19, p < .03$), earned more money ($r_{s(76)} = .34, p = .003$), and belonged to more liberal religions ($r_{s(94)} = .22, p = .03$) than did women who scored lower on the SDQ.

DISCUSSION

The Sex Drive Questionnaire has good internal reliability, and good convergent validity with Spector et al.'s (1996) SDI. The high correlation between the SDQ and the SDI suggests to us that neither the SDI's length, nor its attempt to address sexuality in abstract terms in order to avoid the confound of partner availability, is strictly necessary: four items that ask about non-partnered sexual behaviors and perceived strength of sex drive appear to be adequate for the reliable measurement of sex drive. Furthermore, the lack of a difference in correlations between the SDQ and the "solitary" and "dyadic" subscales of the SDI suggest to us that this distinction is perhaps unnecessary.

As one would expect, men are higher in sex drive than are women, view sex as being more important than do women, and have more frequent sexual fantasies than do women. Scores on the SDQ are significantly and positively related to frequency of sexual

fantasy, lifetime number of sexual partners (controlling for age), frequency of intercourse during the past month both for those currently in a relationship and for those not currently in a relationship, and amount of trouble one has been in due to one's sex drive. People higher in sex drive are also more likely to have lost their virginity than are people lower in sex drive.

My establishment of the psychometric properties of the SDQ allowed me to proceed to my next research goal, which was to study associations among strength of sex drive, recalled pubertal timing, and recalled timing of first experience of sexual arousal.

Table 2-1

Original Sex Drive Questionnaire Items; Items 1, 2, 3, and 5 Comprise the Final Version of the SDQ.

1. How often do you experience sexual desire? (scored on a seven-point Likert scale: *never; less than once a month; about once a month; about once a week; several times a week; daily; several times a day*).
2. How often do you orgasm in the average month? (*never; 1-2 times; about once per week; several times a week; daily; several times a day*).
3. How many times do you masturbate in the average month? (*never; 1-2 times; about once per week; several times a week; daily; several times a day*).
4. How many times do you have sexual intercourse in the average month? (*never; 1-2 times; about once per week; several times a week; daily; several times a day*).
5. How would you compare your level of sex drive with that of the average person of your gender and age? (scored on a seven-point Likert scale anchored by *very much lower* and *very much greater*).
6. I wish my sexual desires were weaker (scored on a five-point Likert scale anchored by *not at all* and *very strongly*)
7. I wish my sexual desires were stronger (scored on a five-point Likert scale anchored by *not at all* and *very strongly*)
8. My sexual desires have gotten me in trouble (scored on a five-point Likert scale anchored by *not at all* and *very strongly*)
9. Imagine that 100 points represents the greatest pleasure you have ever experienced. How many points would you assign to reaching orgasm during masturbation?

Table 2-2

Means (and Standard Deviations) for Scores on Each Variable, by Gender

	Men	Women	Gender Difference
SDQ	18.19 (3.40)	13.60 (4.30)	$t_{(263.97)} = 9.77, p < .001$
SDI Full	69.34 (14.46)	53.04 (21.18)	$t_{(246.64)} = 7.38, p < .001$
SDI Dyadic	46.03 (8.41)	36.98 (12.68)	$t_{(246.95)} = 6.96, p < .001$
SDI Solitary	11.34 (5.79)	6.77 (6.88)	$t_{(269.21)} = 5.94, p < .001$
SOI Full	0.35 (0.70)	-0.27 (0.62)	$t_{(253)} = 7.52, p < .001$
SOI Attitude	0.49 (0.69)	-0.38 (0.71)	$t_{(264.89)} = 9.34, p < .001$
Childhood Gender	42.53 (7.43)	35.16 (11.22)	$t_{(255.63)} = 6.51, p < .001$
Adult Gender	45.25 (8.60)	42.95 (9.16)	$t_{(270)} = 2.13, p < .04$
Romantic Fantasy	2.33 (3.70)	3.09 (4.73)	$t_{(273)} = -1.47, ns$
Sexual Fantasy	6.44 (10.58)	2.84 (9.26)	$t_{(272)} = 3.00, p = .003$
Virginity	0.75 (0.43)	0.63 (0.48)	$t_{(273.87)} = 2.15, p < .04$
# Sex Partners	4.43 (8.87)	2.71 (6.35)	$t_{(272)} = 1.86, p = .063$
Sexual Orientation	0.52 (1.40)	0.88 (1.59)	$t_{(275)} = -1.98, p < .05$
Self-Monitoring	30.64 (8.92)	30.35 (7.67)	$t_{(269)} = 0.29, ns$

Note. *n*'s for men range between 120 and 129; *n*'s for women cells range between 135 and 148.

Table 2-3

Convergent Validation Correlations, by Gender.

	SDQ	
	Men	Women
SDI Total	.67**	.74**
SDI “Dyadic”	.55**	.61**
SDI “Solitary”	.64**	.64**
Romantic Fantasy	-.10	-.04
Sexual Fantasy	.42**	.45**
Virginity	.28**	.56**
Number of Sex Partners	.39**	.61**
Intercourse/Month	.34**	.53**
Trouble	.30**	.44**
Pleasure	.04	.29*

Note. Virginity was scored as *yes* (1), *no* (0). *n*'s for men ranged from 122-127; *n*'s for women ranged from 140-143.

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

Table 2-4

Personality Correlates of Sex Drive and Number of Sex Partners, by Gender.

	SDQ		Number of Partners	
	Men	Women	Men	Women
SOI	.40**	.60**	.62**	.60**
SOI-Attitude	.34**	.50**	.43**	.47**
Self-Monitoring	-.17 ⁺	-.21*	-.08	-.06
Childhood Gender	-.17*	-.11	.04	-.20*
Adult Gender	-.11	-.07	-.01	-.12

n's for men ranged from 122-129; *n*'s for women ranged from 141-145.

p* < .01. *p* < .001 ⁺*p* = .06

CHAPTER 3: TIMING OF PUBERTY AND SEXUALITY IN MEN AND WOMEN.

Kinsey found that early onset of puberty was related to increased “sexual outlet” (Kinsey’s measure of sex drive) for men, but not for women (Kinsey, Pomeroy, & Martin, 1948; Kinsey, Pomeroy, Martin, & Gebhard, 1953). According to Kinsey et al. (1948), early puberty men begin masturbating earlier and masturbate more frequently than do later puberty men, engage in higher frequencies of pre-marital, marital, and extra-marital intercourse than do later puberty men, and engage in a higher frequency of same-sex sexual activities than do later puberty men (see Kinsey et al., 1948, p 297-326 for a thorough discussion). Kinsey et al. (1953) did not find the same relations among these variables in women: early puberty women did not masturbate earlier or more frequently than did later puberty women (p 152-153), they did not engage in more pre-marital (p 302-303), marital (p 359), or extra-marital (p 424) intercourse than did later puberty women, and they did not engage in more same-sex sexual contacts than did later puberty women (p 462-463). There was some evidence that early puberty women engaged in more pre-marital petting than did later puberty women (p 246), but Kinsey et al. warned that these differences were slight and should be interpreted with caution.

Timing of Puberty and Sexual Orientation

A sizeable proportion of the research following Kinsey et al.’s puberty findings has focused on the relation between timing of puberty and sexual orientation. For the most part, this body of work has borne out Kinsey et al.’s findings. Gay men appear to show morphological signs of puberty (such as facial, pubic, and armpit hair growth) at a

significantly younger age than do heterosexual men (Blanchard & Bogaert, 1996; Bogaert & Friesen, 2002; Tripp, 1982; but see Savin-Williams, 1995, for an exception); they also appear to have sexual feelings (Manosevitz, 1970), and perhaps also their first sexual experiences (Bogaert, Friesen, & Klentrou, 2002), earlier than do heterosexual men. Women's sexual orientation, on the other hand, seems unrelated to the timing of puberty (Bogaert, 1998; Bogaert & Friesen, 2002; Bogaert et al., 2002; Tenhula & Bailey, 1998). In one study (Bogaert & Friessen, 2002), lesbian and bisexual women reported an earlier age of first sexual experience than did heterosexual women, but did not report an earlier age of puberty than did heterosexual women.

Two kinds of theories have attempted to account for the hypothesis that pubertal timing is related to sexual orientation. Storms' (1981) theory of erotic orientation development is based on homosexual-heterosexual differences in pubertal timing. Storms hypothesized that when children reach puberty, they begin to have sexual feelings, which they associate with members of their peer group. Whether their peer group is predominantly of the same sex or of mixed sexes depends, Storms argued, on pubertal timing. Early maturers are more likely to have predominantly same-sex friends during puberty than are later maturers (who are more likely than early maturers to have friends of both sexes); therefore, early maturers are more likely than are later maturers to associate their emerging sexual feelings with members of the same sex, and thus to identify as homosexual (Storms, 1981; but see Bailey & Zucker, 1995, for their argument that peer-group makeup in childhood depends on whether the child is pre-heterosexual or pre-homosexual and that, therefore, sexual orientation precedes puberty, rather than following it).

By contrast, the neuroendocrine theory of sexual orientation (Ellis & Ames, 1987; Meyer-Bahlburg, 1984) describes neurohormonal events that occur during fetal development (rather than during postnatal development), and relates these events to later sexual behaviors, including sexual orientation (e.g., Bogaert & Friesen, 2002; Ellis & Ames, 1987; Meyer-Bahlburg, 1984; Meyer-Bahlburg et al., 1995; Tenhula & Bailey, 1998). This theory argues that sexual orientation depends on degree of androgenization of the fetal brain: more androgenization results in a sexual orientation towards women, and less androgenization results in a sexual orientation towards men. Timing of onset of puberty appears also to be related to prenatal hormonal events (e.g., Thomas & Rebar, 1989). Tenhula and Bailey (1998) argued that, given that both pubertal timing and sexual orientation seem to be affected by prenatal hormonal events, and given that each shows a well-documented gender difference, it would make sense for a relation to exist between pubertal timing and sexual orientation. Their argument (supported for men but not for women, Tenhula & Bailey, 1998) is that gays and lesbians have sex-atypical sexual orientations, and therefore might also have sex-atypical pubertal onsets (i.e., with gay men having a more feminine, early-onset puberty, and lesbians having a more masculine, late-onset puberty), due to similar neurodevelopmental events.

Note that the learned associations (Storms, 1981) and neuroendocrine theories (Ellis & Ames, 1987; Meyer-Bahlburg, 1984) of sexual orientation require different age-gaps between early and late maturers. Storms' theory would seem to require several months to a year's difference in timing of puberty; the gap would have to be wide enough to permit a reorganization of the make-up of late maturers' peer groups. Many of the results reviewed above are on the order of one to three months, which does not seem

sufficiently long for this type of reorganization. The neuroendocrine theories, by contrast, make no claims about the magnitude of heterosexual-homosexual differences in pubertal timing: they suggest only that some difference should exist.

Timing of Puberty and Sex Drive

Few researchers have followed up Kinsey's broader suggestion that timing of puberty predicts strength of sex drive. However, several researchers (most prominently Udry and his colleagues) have examined the relation between timing of puberty and initiation of sexual behaviors. The results of these studies have been suggestive, but equivocal.

Udry and Billy (1987), for example, examined the determinants of initiation of sexual intercourse in young men and women (aged 11-17). They found that White men's initiation of intercourse was related primarily to hormonal events associated with puberty, that White women's initiation of intercourse was related primarily to social controls (e.g., religiosity) and was *unrelated* to hormonal events, and that Black women's initiation of intercourse was related primarily to pubertal development. Thus, for men and for Black women, timing of puberty was related to sexual behaviors, but for White women, sociocultural factors were more important in determining sexual behaviors than was timing of puberty. The picture for women continued to be equivocal in later research. For example, Halpern, Udry, and Suchindran (1997) found that changes in testosterone level in post-menarcheal girls (mean age 13.8) were related to initiation of sexual intercourse, but, again, attendance at religious services acted as a social control in postponing initiation of sexual intercourse for White, but not for Black, girls.

The story for men is somewhat less hazy than it is for women, but it is, again, equivocal. In a longitudinal study of 7th and 8th grade boys, Halpern, Udry, Campbell, and Suchindran (1993) found that pubertal onset was significantly related to increases in sexual ideation and sexual behaviors, and with initiation of intercourse. However, Mazur, Halpern, and Udry (1994) reported later that 10th and 11th grade boys' sexual behaviors were better explained by appearance (dominance and attractiveness) than by timing of pubertal development. Furthermore, in another study, Halpern, Udry, Campbell, and Suchindran (1994) reported that attendance at religious services interacted with testosterone levels to predict sexual behaviors in boys aged 12.5 to 16 years.

Other studies have also had difficulty telling the story of how pubertal onset and sexual behavior are related. For example, Flannery, Rower, and Gulley (1993) asked 10 to 16 year-old boys and girls how "intimate" they had been with members of the other gender (measured on a Guttman scale ranging from "kissed or held hand" to "sexual intercourse"). Earlier puberty boys and girls reported having had sexual/romantic experiences of a more intimate nature than did later puberty boys and girls, although the relation for boy was (unexpectedly, and contrary to the Udry and Kinsey findings) weaker than that for girls, especially when the data were controlled for age. Moreover, Savin-Williams (1995) reported that recalled pubertal timing was significantly associated with frequency of orgasm during junior high school for his sample of gay and bisexual men, but not with frequency of orgasm during high school, or with number of lifetime male and female sex partners. These data are contrary to Kinsey et al.'s (1948) data, which suggested that earlier puberty was related to more frequent masturbation, more frequent orgasms, and more lifetime sex partners throughout the individual's lifetime.

Note that none of these studies measured sex drive: they associated puberty (and the hormonal events associated with puberty) with sexual behaviors (and, for the most part, with partnered sexual behaviors). Frequency of partnered sexual behaviors, despite being correlated with sex drive, is by no means perfectly related to sex drive (see Chapters 2 and 4 for a detailed discussion). No matter how much a person desires to engage in partnered sexual behaviors, that person will not be able to engage in them without a willing partner. Thus, it is important to extend these results, if possible, to sex drive, as measured by a scale that does not confuse the desire to engage in sexual behaviors with the ability to persuade others to engage in sexual behaviors with them. As far as I have been able to determine, no such study has yet been carried out.

Aims of the Current Study

Sex Drive and Puberty.

The purpose of this study was to examine how sex drive was related to timing of puberty. I hoped to clarify the nature of the relation between sex drive and pubertal timing for both men and women, and thereby to confirm (or disconfirm) Kinsey's hypothesis that the relation between pubertal timing and sexual behaviors reflected differences in sex drive.

A second aim of this study was to extend these findings to timing of first experience of sexual arousal ("first sexual arousal"). First sexual arousal, I expected, would be related to timing of puberty, and might act as a marker of onset of sexual maturity. I asked whether first sexual arousal might be a better predictor of sexual behavior and attitudes in women than morphological puberty.

I expected the following relations to emerge: Sex drive, lifetime number of sexual partners, and virginity status should be significantly related to timing of puberty and timing of first sexual arousal. Those with earlier puberty or earlier first sexual arousal should report a higher sex drive, more lifetime sex partners, more frequent intercourse, and should be less likely to report being virgins than should those with later puberty or later first sexual arousal.

Sociosexual Orientation and Puberty.

Sociosexual orientation reflects a person's willingness to engage in casual sex: sociosexually restricted individuals require feelings of love and commitment before having sex with a romantic partner, whereas sociosexually unrestricted individuals are comfortable having intercourse without feelings of love or commitment. Not surprisingly, restricted individuals tend to report fewer sexual encounters, and to predict that they will have fewer future sexual encounters, than do individuals with an unrestricted sociosexual orientation (e.g., Simpson & Gangestad, 1991).

I have reported elsewhere a strong relationship between sex drive and sociosexual orientation for both men and women: the higher an individual's sex drive, the less restricted their sociosexual orientation (see Chapter 4 for a discussion). Based on those data, and on Kinsey et al.'s (1948) hypothesis that timing of puberty predicts strength of sex drive, I predicted that earlier maturers (who should be high in sex drive) will have adopted a more unrestricted sociosexual orientation than later maturers (who should be lower in sex drive). If this hypothesis is supported, then it would seem reasonable to conclude that, at least to some degree, sociosexual orientation is influenced by factors present at the time of onset of puberty or first experience of sexual arousal.

Masculinity, Femininity, and Puberty.

Degree of gender-atypicality has been studied extensively with regard to lifetime number of sexual partners and especially with regard to sexual orientation (e.g., Bailey, Miller, & Willerman, 1993; Bailey, Nothnagel, & Wolfe, 1995; Bailey & Zucker, 1995). Bailey and Zucker (1995) have demonstrated that childhood gender-atypicality is a good predictor of adult sexuality for men and for women, but especially for men. If sexual orientation and pubertal timing are linked in the way that Bailey and Tenhula (1998) hypothesized, then we should expect earlier maturing men not only to be higher in sex drive and more likely to report attraction towards the same sex than later maturing men, but also to be more feminine (gender-atypical) than later maturing men. By the same token, earlier maturing women should not only be higher in sex drive and more attracted to the same sex than later maturing women, but should also to be more masculine than later maturing women.

METHOD

Participants

In Chapter 2, I discuss the characteristics of the participants whose data contributed to the findings in this chapter, and in Chapter 4; therefore, I will refer readers to Chapter 2 for a reminder of who my participants were.

Measures

Puberty

I constructed a Puberty Questionnaire based on morphological changes that occur when men and women reach puberty. Both men and women were asked the following two questions, scored to the nearest half-year:

1. How old were you when you first noticed armpit hair growth?
2. How old were you when you first noticed pubic hair growth?

I also asked men “how old were you when you first noticed facial hair growth?” I asked women two additional questions:

1. How old were you when you first noticed breast development?
2. How old were you when you had your first period?

Scores on these items were averaged to create a single “puberty” score. Coefficient alpha was .81 for both men and women.

First Sexual Arousal

I used the following single item to assess timing of first experience of sexual arousal: “How old were you when you first experienced sexual desire?”, scored to the nearest half-year.

Sex Drive

The Sex Drive Questionnaire (SDQ) is a measure of sex drive consisting of four items meant to assess the strength of respondents’ sex drive without necessitating that respondents have a romantic or sexual partner in order to be classified as high in sex drive:

1. How often do you experience sexual desire? (scored on a seven-point Likert scale from *never* to *several times a day*).
2. How often do you orgasm in the average month? (scored on a six-point Likert scale from *never* to *several times a day*).
3. How many times do you masturbate in the average month? (scored on a six-point Likert scale from *never* to *several times a day*).

4. How would you compare your level of sex drive with that of the average person of your gender and age? (scored on a seven-point Likert scale anchored by *very much lower* and *very much greater*).

I converted scores on these items into z-scores because of scaling differences. Please refer to Chapter 2 for statistical details related to the SDQ.

Sexual Orientation

Please also see Chapter 2 for sexual orientation measurement information.

Frequency of Intercourse

I measured participants' frequency of intercourse using the following item: "How many times do you have sexual intercourse in the average month?". This item was scored on the following 6-item Likert scale from *never* to *several times a day*.

Lifetime Number of Sexual Partners

Participants were asked "How many different sexual partners have you had in your lifetime?"

Sociosexuality

I used Simpson and Gangestad's (1991) Sociosexual Orientation Inventory (SOI) to assess participants' degree of sexual restraint. Items on the SOI include questions about number of different partners during the past year, number of different partners respondents foresee having during the next five years, number of "one-night stands," frequency of fantasizing about partners other than the respondent's regular partner, and attitudes about the morality and appeal of having sex with someone whom one does not love. These items were scored on different scales (some items are scored on 8- or 9-point Likert scales, some items are free-form), and thus responses were converted to z-scores

for data analysis purposes. Coefficient alpha for the SOI was .77 for men and .83 for women.

Maculinity and Femininity

Bailey et al.'s (1996) seven-item Childhood Gender Nonconformity scale (coefficient alphas .78 for men and .87 for women) assessed the degree to which subjects had behaved like the other gender during childhood (e.g., the degree to which young boys had been "sissies" and young girls had been "tomboys"). Items include questions such as "As a child (age 12 and below) I was called a "tomboy"[female version]/"sissy"[male version] by my peers" and "As a child I preferred playing with boys rather than girls [female version]/playing with girls rather than boys [male version]." Bailey et al.'s (1996) eight-item Continuous Gender Identity scale, by contrast, assessed how masculine or feminine participants currently feel and behave (coefficient alphas .78 for men and .76 for women). Example items are "I feel like part of me is male and part of me is female" and "People think I should act more feminine [female version]/masculine [male version] than I do."

Procedure

Participants completed questionnaires in private, either in my laboratory ($n = 198$) or on the World Wide Web ($n = 79$). All participants were screened for age (no one under age 18 was allowed to participate), and the Web version of the survey was password protected, so that only screened participants were able to access it. Laboratory participants brought a piece of identification with them, and their age was confirmed prior to participation; Web participants were asked their age before being sent the Web version's URL.

Laboratory participants arrived individually. Upon arrival, they read and signed a consent form, and then were left alone to complete the questionnaires. In order to reinforce participants' feeling of anonymity, I asked them to place completed questionnaires in an unmarked envelope, and to place that envelope into a sealed box, through a slot cut into its top. I assured them that I would not open the box until I had collected data from all of my participants. Participants received their compensation and a debriefing form after completion of the study. Web participants read the same consent form, and completed the same questionnaires as did lab participants, but they received their compensation and debriefing through the mail.

RESULTS

My data were for the most part negatively-skewed. Therefore, I used Spearman's Rank correlation for all results reported here. Please refer to Table 3-1 for means and sex differences on all variables reported below, and to Table 3-2 for correlational results.

Preliminary analyses showed that the responses of laboratory and Web participants were similar; therefore, their data were combined.

Puberty and First Sexual Arousal¹

Significant sex differences emerged for timing of puberty and for timing of first sexual arousal. Women reported having reached morphological puberty significantly earlier than did men (by 1.2 years, $t_{(255)} = 7.0$, $p < .001$, Cohen's $d = .88$), whereas men reported having experienced their first sexual arousal significantly earlier than did women (by 1.4 years, $t_{(269)} = -3.98$, $p < .001$, Cohen's $d = -.49$). Furthermore, first

¹In a separate study, I measured the test-retest reliability of the puberty and first sexual arousal measures over a two- to three-month time period. Test-retest scores for the puberty scale were adequate for men ($r_{(68)} = .69$, $p < .001$) and high for women ($r_{(101)} = .90$, $p < .001$). Test-retest scores on the first sexual arousal scale were adequate for men ($r_{(11)} = .63$, $p < .04$) and for women ($r_{(37)} = .70$, $p < .001$).

recalled sexual arousal in men occurred, on average, 1.9 years before puberty ($M_{\text{first sexual arousal}} = 11.2$ years, $SD = 2.9$; $M_{\text{puberty}} = 13.1$ years, $SD = 1.5$; paired $t_{(118)} = -7.8$, $p < .001$, Cohen's $d = -.82$). By contrast, first recalled sexual arousal in women occurred, on average, 0.7 years after puberty ($M_{\text{first sexual arousal}} = 12.6$ years, $SD = 3.0$; $M_{\text{puberty}} = 11.9$ years, $SD = 1.3$; paired $t_{(134)} = 3.2$, $p = .002$, Cohen's $d = .30$). Finally, timing of puberty and timing of first sexual arousal were significantly correlated for both sexes. The correlation for men was $r_{(119)} = .46$, $p < .001$; the correlation for women was $r_{(135)} = .47$, $p < .001$. For both sexes, the earlier the onset of puberty, the earlier the experience of first sexual arousal.

Sex Drive

Timing of puberty and current sex drive were not significantly correlated for women; however, a non-significant trend emerged between these variables for men, replicating Kinsey et al. (1948).² The earlier men's puberty, the higher was their sex drive. Timing of first sexual arousal was significantly correlated with sex drive for both sexes. The earlier their first sexual arousal, the higher was men's and women's current sex drive.

I computed partial correlations among scores on the SDQ, timing of puberty, and timing of first sexual arousal. The relation between SDQ and puberty, controlling for timing of first sexual arousal, was nonsignificant for both sexes ($r_{(114)} = -.08$ for men, and $r_{(126)} = -.04$ for women); the marginally significant correlation between timing of puberty and sex drive for men disappeared once timing of first sexual arousal had been controlled for. The relation between SDQ and timing of first sexual arousal, controlling for timing

²I tested for sex differences between all of the correlations reported here. Unless otherwise reported, these sex differences were non-significant.

of puberty, was nonsignificant for men ($r_{(114)} = -.07$) and significant for women ($r_{(126)} = -.22, p = .01$). Timing of first sexual arousal, then, is related to strength of sex drive for women, even when controlling for timing of puberty.

Sociosexuality

Timing of first sexual arousal and scores on the SOI were significantly related for women, and were nonsignificantly related for men. The earlier participants' first sexual arousal, the less sociosexually restricted they were. Timing of puberty and SOI were not significantly related for either sex.

The SOI has several behavior-based items, in which performance of the behavior depends on the respondent's ability to obtain a sexual partner. I removed those behavioral items from the scale, creating an attitude-based subscale of the SOI (coefficient alpha .74 for men and .79 for women), and correlated scores on that subscale with timing of puberty and timing of first sexual arousal. I found a marginally significant correlation between SOI-attitude and timing of puberty for men, and a significant correlation between SOI-attitude and timing of first sexual arousal for women (the sex difference for the latter correlation was significant, $Z = 2.17, p = .03$).

To address the question of how puberty or first sexual arousal affect SOI, I calculated partial correlations of the timing variables with SOI-attitude. The relation between SOI-attitude and puberty, controlling for timing of first sexual arousal, was significant for men ($r_{(114)} = .24, p = .01$) and nonsignificant for women ($r_{(126)} = .10$). Timing of puberty, then, was related to sociosexual attitudes for men (the earlier the puberty, the more restricted the sociosexual attitudes), even when controlling for timing of first sexual arousal. The relation between SOI-attitude and timing of first sexual

arousal, controlling for timing of puberty, was nonsignificant for men ($r_{(114)} = -.15$) and significant for women ($r_{(126)} = -.30, p < .001$). Timing of first sexual arousal, then, was related to sociosexual attitudes for women (the earlier the first sexual arousal, the less restricted the sociosexual attitudes), even when controlling for timing of puberty.

I also calculated partial correlations of the timing variables with SOI-attitude holding sex drive constant. For men, timing of first sexual arousal was unrelated to SOI-attitude, holding sex drive constant ($r_{(119)} = -.04$), but timing of puberty was related to SOI-attitude, holding sex drive constant ($r_{(113)} = .24, p = .01$). Later puberty men were more sociosexually restricted than were earlier puberty men.

The pattern was different for women. Although there was a significant first-order correlation between SOI-attitude and timing of first sexual arousal ($r_{(132)} = -.30, p = .003$), the partial correlation of timing of first sexual arousal with SOI-attitude, holding sex drive constant was half as large ($r_{(131)} = -.15, p = .09$). The partial correlation of timing of puberty with SOI-attitude, holding sex drive constant was, as was the first-order correlation, non-significant ($r_{(125)} = .06$).

Virginity

Men were significantly more likely than were women to report being a virgin, $\chi^2_{(1, n=276)} = 4.56, p = .03$. No significant correlations emerged for men or for women between virginity status and either timing of puberty or timing of first sexual arousal.

Lifetime Number of Sexual Partners

I calculated partial correlations between participants' lifetime number of sexual partners and their age at puberty and at first sexual arousal, controlling for current age. Timing of puberty was not significantly correlated with number of partners for men ($r_{(127)}$

= -.08) or women ($r_{(141)} = -.12$), but timing of first sexual arousal was significantly correlated with number of partners for both sexes (men's $r_{(127)} = -.22$, $p = .01$; women's $r_{(141)} = -.21$, $p = .01$). The earlier the first sexual arousal, the more partners men and women had, controlling for current age.

Frequency of Intercourse

There was no evidence of a relation between timing of puberty and frequency of intercourse, or between timing of first sexual arousal and frequency of intercourse, for either sex.

Masculinity and Femininity

I found no relations between timing of puberty or timing of first sexual arousal and scores on the Childhood Gender Nonconformity scale for either men or women. The same was true for scores on the Continuous Gender Identity (CGID) scale, except for the correlation between first sexual arousal and CGID for men. The earlier men's first experience of arousal, the more likely was their gender identity to include feminine qualities.

Sexual Orientation

The correlation between timing of first sexual arousal and sexual orientation was significant for women, but not for men; sexual orientation was not significantly correlated with timing of puberty for either sex. The earlier a woman's first experience of sexual arousal, the more likely she was to report that she was attracted to other women. I split participants into groups based on their sexual orientation scores, and compared the ages of first sexual arousal for men and women with scores under 2 (little to no attraction to the same sex; "heterosexual") on the Kinsey rating scale and scores 2 or above (some

to exclusive attraction to the same sex; “gay” and “lesbian”) on the Kinsey rating scale. Mean age of first sexual arousal for heterosexual women was 12.8 years ($SD = 3.1$); mean age of first sexual arousal for lesbians was 11.5 years ($SD = 2.4$). This difference was significant, $t_{(34.8)} = 2.2, p = .03$, Cohen’s $d = .47$. I also found a significant difference in age of puberty for heterosexual women versus lesbians, $t_{(33.5)} = 2.4, p = .02$, Cohen’s $d = -.50$. Mean age of puberty was 11.4 years ($SD = 1.1$) for lesbians, and 12.0 years ($SD = 1.3$) for heterosexual women. There were no significant differences in age of first sexual arousal or age of puberty for gay versus heterosexual men.

DISCUSSION

I begin my discussion with an obvious limitation of my data: they are retrospective. Adult sexuality may affect one’s memories of childhood and adolescent sexuality. Those with a higher sex drive, for example, might recall having “always” felt sexually aroused, and thus might mistakenly report an earlier first experience of sexual arousal than those with a lower sex drive, thus accounting for my correlations between age of first sexual arousal and adult sex drive. (Though such an account would be hard-pressed, one would think, to account for the complex relations I found among gender, recalled ages of first sexual arousal, of puberty, and strength of adult sex drive.) Obviously, prospective research on sexuality would solve this “chicken and egg” problem – but prospective research on sexuality, especially prospective research that addresses pre-pubescent sexuality, is difficult to arrange, for practical, ethical, and political reasons. Thus, though I acknowledge the possibility that my results might to some degree be the product of mistaken memories, I will proceed to (cautiously) interpret the results as if they, to some degree, reflect accurate memories.

Timing of Puberty, Timing of First Sexual Arousal, and Sex Drive

My data on the relations among timing of puberty, sex drive, and sexual behavior replicate the findings of Kinsey et al. (1948, 1953). The earlier men's puberty, the higher their sex drive though the puberty results were only borderline-significant (p -values ranged between .04 and .08). Like Kinsey et al. (1953), I was unable to find evidence of any relations between timing of puberty and women's sexual attitudes and behaviors. However, I was able to identify several significant relations between timing of first sexual arousal (a variable that Kinsey did not explicitly measure) and sex drive, sexual attitudes, and sexual behaviors in both genders.

Men with an earlier first sexual arousal had a higher sex drive, had more sexual partners, were more feminine, and also had a less restricted sociosexual orientation than did men with a later experience of first sexual arousal. Women with an earlier experience of first sexual arousal had a higher sex drive, a less restricted sociosexual orientation, more sexual partners, and more sexual interest in members of the same sex, than did women with a later experience of first sexual arousal. For men, partial correlations controlling for timing of first sexual arousal in the relationship between puberty and sex drive (and controlling for timing of puberty in the relationship between first sexual arousal and sex drive) reduced these correlations essentially to zero. This suggests that, for men, these two timing variables are markers of the same mechanism. But there does not appear to be a single mechanism for women. For them, timing of first sexual arousal is linked to adult sex drive both using first order correlations and when controlling for timing of puberty, but timing of puberty is *not* linked to the timing of first sexual arousal,

either at first order or after controlling for timing of first sexual arousal.³

Timing of Puberty, Timing of First Sexual Arousal, and Sexual Orientation

Lesbians' first sexual arousal occurred 1.3 years before heterosexual women' first sexual arousal, an age gap wide enough to support Storms' (1980) developmental theory of sexual orientation. The "first sexual arousal" findings for women were in almost all cases of greater magnitude than were the analogous findings for men (but, the sexual orientation findings for men should be interpreted with caution due to the very low number of gay males in my sample).

Timing of Puberty, Timing of First Sexual Arousal, and Sociosexual Orientation

My first-order correlations between timing of puberty and sex drive and timing of puberty and sociosexual orientation for men suggest that having an earlier puberty was associated with having not only a relatively intense adult sex drive, but also with choosing a relatively unrestricted sociosexual orientation. However, my partial correlations, controlling for variance due to sex drive in the correlation between timing of puberty and sociosexual orientation, revealed an unexpected reversal in the relationship between timing of puberty and sociosexual orientation: Holding sex drive constant, later puberty men had less restricted sociosexual attitudes than did earlier puberty men. This suggests that whatever mechanism controls the timing of puberty has some link with the mechanism that controls adult sex drive and sociosexual orientation. But it also suggests that there might be some second, separate mechanism that links later puberty with an unrestricted sociosexual orientation. Further research will be needed to look for that second mechanism.

³Thus, there is a sex difference in how these two timing variables are linked to sex drive, even though the correlations between them are almost identical for each sex (.46 vs .47).

For women, timing of first experience of sexual arousal was related to several aspects of adult sexual attitudes and behaviors. When I controlled for sex drive in the correlation between timing of first sexual arousal and sociosexual orientation, the magnitude of the correlation between first sexual arousal and SOI dropped by half, suggesting that whatever mechanism controls timing of first sexual arousal in women affects sociosexual orientation via sex drive.

Simpson and Gangestad (1991) have theorized that sociosexual orientation is a frequency-dependent adaptation in which sociosexually unrestricted women (for example) benefit in an environment in which most women are sociosexually restricted: sociosexually unrestricted women in a predominantly restricted female population trade the resources they might gain through a committed love relationship for the good genes they can gain through uncommitted sexual intercourse with genetically superior men.

There are two ways to interpret the frequency-dependent notion. One way is to imagine that all women have genes that dictate a contingent strategy: in an environment rich with other women pursuing resources, pursue genes. In an environment that has a substantial number of gene pursuers, on the other hand, pursue resources. The other interpretation is that most women have non-contingent resource-pursuing genes, but some women non-contingent gene-pursuing genes. The fact that one can (arguably) predict sociosexual orientation by age 12.6 (average age of first experience of sexual arousal) suggests the latter interpretation to us.

Of course, it is possible that some aspect of socialization that occurs earlier than 12.6 years affects both age of first sexual arousal and subsequent sexual attitudes and behaviors. Some researchers have called attention to father absence as such a possibility.

Belsky, Steinberg, and Draper (1991), Ellis, McFadyen-Ketchum, Dodge, Pettit, and Bates (1999), and Quinlan (2003) have each proposed that the types of families in which children, particularly girls, are raised affects their later reproductive choices. For example, Quinlan (2003) found, in a sample of 10,847 American women, that women whose parents had separated by the time they were six years of age, and whose fathers no longer played a large (or any) role in their upbringing, were at two-times greater risk of early menarche, at four-times greater risk of early sexual intercourse, and two-and-a-half times greater risk of early pregnancy relative to women whose parents did not separate. Unfortunately, I did not ask my respondents about father presence or absence, and cannot comment on whether father absence is related to early puberty and/or heightened sexuality. Future research should address this issue.

Table 3-1

Means and SDs for each Variable as a Function of Gender.

Variable	Men		Women		<i>t</i>	Cohen's <i>d</i>
	M	SD	M	SD		
Puberty (in years)	13.13	1.50	11.92	1.27	$t_{(255)} = 7.02, p < .001$.88
First sexual arousal (in years)	11.17	2.88	12.60	3.04	$t_{(269)} = -3.98, p < .001$.49
Sex Drive	0.45	0.63	-0.40	0.80	$t_{(263.9)} = 9.54, p < .001$	1.20
SOI Full	0.35	0.70	-0.27	0.62	$t_{(253)} = 7.52, p < .001$.95
SOI Attitude	0.49	0.69	-0.38	0.71	$t_{(264.9)} = 9.34, p < .001$	1.15
Number of Partners	4.43	8.87	2.71	6.35	$t_{(272)} = 1.86, p = .063$.23
Intercourse	2.33	1.32	2.17	1.40	$t_{(271)} = 1.01, p > .1$.12
Childhood Gender	6.08	1.06	5.02	1.60	$t_{(255.6)} = 6.51, p < .001$.81
Adult Gender	5.66	1.08	5.37	1.14	$t_{(270)} = 2.13, p < .04$.26
Sexual Orientation	0.52	1.40	0.88	1.59	$t_{(275)} = -1.98, p < .05$	-.24

Note. I used Levene's test for equality of variances, and corrected the following tests for unequal variance: sex drive, SOI-attitude, childhood gender. Scores on the following scales were z-scores, and thus have a range of -1.0 to +1.0: Sex Drive, SOI Full, SOI Attitude. Scores on Childhood and Adult Gender have a range of 7 and 8 to 49 and 56, respectively. Sexual Orientation was scored from 0 to 6.

Table 3-2

Spearman Rank correlations for relations between puberty and sexuality, and between first sexual arousal (FSA) and sexuality.

	Men		Women	
	Puberty	FSA	Puberty	FSA
SDQ	-.17 [†]	-.24*	-.12	-.26**
SOI Full	.11	-.17***	.03	-.26**
SOI Attitude	.17***	-.12	-.02	-.30**
Virginity	-.12	-.10	-.06	-.07
Intercourse	-.14	-.08	-.12	-.11
Childhood Gender	.01	.09	-.01	-.03
Adult Gender	-.01	.21*	-.10	-.05
Sexual Orientation	.04	-.07	-.10	-.18*

Note. The significance level for the tests reported here, using the Bonferroni adjustment, should be $p < .002$. Using this adjustment, only the correlations in **bold type** would be significant.

Note 2. *ns* for men ranged from 122-127; *ns* for women ranged from 140-143.

* $p < .03$ ** $p < .003$ *** $ps = .06$ to $.075$

CHAPTER 4: HOW ARE SEX DRIVE, SOCIOSEXUALITY, AND LIFETIME NUMBER OF SEX PARTNERS RELATED?

Alfred Kinsey, in his landmark studies on human sexual behavior (Kinsey, Pomeroy, & Martin, 1948; Kinsey, Pomeroy, Martin, & Gebhard, 1953), found not only the expected between-gender variability in sex drive, but also substantial within-gender variability in what he termed “sociosexual attitudes and behaviors”. These included such variables as preferred and actual frequency of sexual intercourse, number of sexual partners, frequency of extra-dyadic sex, and frequency of uncommitted sex. Although Kinsey’s focus was on how sex drive (or, in his terminology, a biologically-determined “total sexual outlet”, or frequency of orgasm; Kinsey et al., 1948) is related to sexual behavior, his work served also to highlight the idea that sociosexual attitudes and behaviors have a strong impact on sexual behavior, perhaps even stronger than the biological need for orgasm.

Simpson and Gangestad’s (1991) Sociosexual Orientation Inventory (SOI) was designed to measure the attitudes and behaviors that Kinsey had described over forty years earlier. Their first step towards developing the SOI was a series of studies they co-authored with Snyder on how self-monitoring and sexual behaviors are related (Snyder, Simpson, & Gangestad, 1986). Snyder and colleagues demonstrated in several studies that high self-monitors have different sexual lives than do low self-monitors. They found, for example, that high self-monitors had more frequent casual sex than did low self-monitors (Snyder, Simpson, & Gangestad, 1986); that they expected to engage in more casual sex than did low self-monitors (Snyder et al., 1986); and that they were more

attentive to physical appearance and less attentive to personality in picking dates than were their low self-monitoring counterparts (Snyder, Berscheid, & Glick, 1985). But why should this be so? Simpson and Gangestad (1991) argued that self-monitoring is one of several personality traits and attitudes (including extraversion, low degree of religiosity, and political liberalism) associated with the possession of relatively permissive attitudes about casual sex. The SOI was developed to distinguish between individuals who have these permissive traits and attitudes, and individuals who do not have these permissive traits and attitudes.

The Sociosexual Orientation Inventory.

The SOI is predicated on the idea that some people have “restricted”, and others “unrestricted”, orientations toward sexuality, and that these orientations are trait-like in nature. An unrestricted orientation involves being comfortable with engaging in casual sex, whereas a restricted orientation involves being uncomfortable with the idea of engaging in sex without love. Simpson and Gangestad argued on evolutionary grounds that, though in general being sociosexually restricted was the adaptive strategy for females, an unrestricted sociosexual orientation was a frequency-dependent, alternative strategy: in a population in which most women were restricted, an advantage would accrue to women who were unrestricted. Such women would suffer the cost of giving up commitment-based resources, but would gain the advantage of access to the best male genes. All things equal, then, the majority of women should follow a sociosexually restricted strategy, but some women should follow a more opportunistic, unrestricted strategy. My question here is whether the strategy one selects is related to the level of one’s sex drive.

Simpson and Gangestad (1991) argued that the SOI provided explanatory power (with regard to human sexual behavior) independent of that provided by measures of sex drive alone. Their assertion was based on the following finding: In committed sexual relationships, sociosexually unrestricted individuals had no more sex than did sociosexually restricted individuals; outside of such relationships, however, there was a significant correlation between SOI and frequency of sex, such that those with unrestricted sociosexual orientations had more extra-dyadic sex than did those with restricted sociosexual orientations. They argued that frequency of sex *within* a sexual relationship was a good measure of sex drive, that this frequency was unrelated to SOI, and that SOI must therefore measure the desire to have specifically extra-dyadic sex, not any old sex.

This argument, however, depends on one's accepting the notion that frequency of sex in an enduring relationship is a good measure of a person's sex drive. But is this so? Certainly in relationships one can have either less or more sex than one would like, in order to accommodate one's partner's desires, or at least compromise with them (this is a well-documented phenomenon; see Ard, 1977; Blumstein & Schwartz, 1983; Julien, Bouchard, Gagnon, & Pomerleau, 1992). Furthermore, as Kinsey and colleagues (1948; 1953) have made clear, a person's "total sexual outlet" consists of more than intercourse with a regular partner. I would argue that Simpson and Gangestad (1991) were hasty in concluding that sociosexuality and sex drive are independent, given their less than adequate measure of sex drive. I view the relationship between these two variables as a still-open question.

Measuring Sex Drive.

In order to address the question of whether sex drive and sociosexuality are related, one must use a measure of sex drive unconfounded with sociosexual orientation. The best measure of sex drive, then, will not involve questions about activities that require a partner (such as intercourse with a regular or extradyadic partner), but instead should focus on other aspects of Kinsey's "total sexual outlet" – the number of orgasms respondents have during any given time period. In Chapter 2, I reported on the reliability and validity of the Sex Drive Questionnaire (SDQ), a brief, four-item measure of sex drive. The SDQ is ideal for a study of this sort, because no item asks about sexual activities requiring a partner.

STUDY 1

Sex Drive, Sociosexuality and Lifetime Number of Sex Partners.

As I discussed above, I was hesitant to accept Simpson and Gangestad's (1991) claim that sociosexuality and sex drive are unrelated. I contend that it would benefit someone with a high sex drive to hold a positive attitude towards casual sex: an unrestricted sociosexual orientation gives one "permission" (if you will) to seek out more sexual situations than does a restricted sociosexual orientation, and thus – with luck – to engage in more sex than one otherwise could. I hypothesize that sociosexuality is not, in fact, independent of sex drive, when sex drive is appropriately measured: the higher one's sex drive, the less restricted should be one's sociosexual orientation.

I further hypothesize that gender differences will emerge in the strength of correlations between sex drive and lifetime number of sex partners, and between sociosexuality and lifetime number of sex partners. Evolutionary theorists such as Trivers (1972) have argued that women should be the ones driving sexual relations because of

gender differences in parental investment. Women's biology forces them to invest much more time and energy into their offspring than does men's biology. A high degree of parental investment (such as that required by human females) results in a "choosy" mating strategy, whereas a lower degree of parental investment (such as that required by human males) results in an "opportunistic" mating strategy. Therefore, as Trivers (1972) convincingly argues, women's choices drive mating relations: women choose when and with whom to mate.

I expect that my data will support this theoretical framework. Women's sexual behaviors should be more highly correlated with their sex drive and with their sociosexual orientation than should men's sexual behaviors; moreover, women's sex drive should be more highly correlated with their sociosexual orientation than should men's sex drive. My reasoning is as follows. Presumably, women can attract ("opportunistic" male) sexual partners more often than not when they desire them; men, on the other hand, are limited by their ability to find willing ("choosy" female) sexual partners.

Sex Drive, Sociosexuality, and Gender Identity.

Thus far, I have discussed three major goals of Study 1: first, I hope to clarify the relationship between sex drive and sociosexuality; second, I hope to develop some understanding of how sex drive and sociosexuality are related to sexual behaviors, especially lifetime number of sexual partners; and third, I hope to fit my findings *vis a vis* sex drive and sociosexuality into Trivers' (1972) parental investment/mating strategy framework.

A fourth goal of this study, inspired by recent research by Mikach and Bailey (1999), was to explore the relationship between sexual attitudes and behaviors and gender identity. Mikach and Bailey (1999) found that, the more masculine their female participants, the more sex partners they had had by age 25. Mikach and Bailey's aim was to characterize women with an "unusually" high number of sex partners, which they operationalized as having had more than 20 sex partners by age 25; these results, then, apply to a small, special category of women. These participants not only self-reported having been more masculine in their childhoods and feeling more masculine currently than did participants with fewer sex partners, but also were judged by raters as being more masculine than women without an "unusually" high number of sex partners, both physically and behaviorally. Mikach and Bailey (1999) suggest two basic causal models for this relationship: either these women are more masculine to begin with (because of hormonal and/or developmental reasons), and the pursuit of many sex partners is a part of being masculine, or these women desire more sexual partners than "feminine" women should desire (by sociocultural standards) and thus come to view themselves as being masculine. In any case, this is a controversial finding that should be further investigated.

Mikach and Bailey (1999) did not discuss how gender identity is related to male sexual behavior. My goal here, then, was not only to replicate the Mikach and Bailey finding in my female participants, but also to explore how these findings might extend to male participants.

METHOD

Please refer to Chapter 2 for details about participants, measures, and procedure.

RESULTS

Internet versus Lab Participants. There were no significant differences between internet participants ($n = 96$) and lab participants ($n = 181$) on gender (Mann-Whitney $U = 8036.0, p > .1$), sociosexuality ($t_{(253)} = 1.50, p > .1$), or sex drive ($t_{(267)} = 1.0, p > .1$). However, internet participants were significantly older than were lab participants ($t_{(275)} = 7.24, p < .001$; internet participants' mean age = 25.32, $SD = 7.76$; lab participants' mean age = 20.38, $SD = 3.59$), and also reported significantly more lifetime sex partners than did lab participants ($t_{(272)} = 4.07, p < .001$; internet participants' mean number of sex partners = 6.06, $SD = 11.90$, median = 2.0, range = 0 to 80; lab participants' mean number of sex partners = 2.19, $SD = 3.34$, median = 1.0, range = 0 to 60). A regression analysis revealed a marginal effect of source (lab vs. internet) on number of sex partners once age had been entered, $\beta = -.104, p = .084$. Because of these minor differences, I chose to combine the data from these groups, unless otherwise indicated.

Gender Differences. Men had a significantly higher sex drive than did women, $t_{(263.97)} = 9.77, p < .001$, but were significantly more likely than women to be virgins ($t_{(273.87)} = 2.15, p < .04$).¹ They also reported marginally more lifetime sexual partners than did women ($t_{(272)} = 1.86, p = .06$), and had significantly less restricted sociosexual orientations than did women ($t_{(253)} = 7.52, p < .001$). See Table 4-1 for means, standard deviations, and gender difference tests on all variables measured in Study 1.

Sociosexuality. Contrary to what Simpson and Gangestad (1991) reported, but in line with my predictions, sociosexuality and sex drive were moderately correlated for men ($r_{(117)} = .40, p < .001$) and highly correlated for women ($r_{(130)} = .60, p < .001$). The

difference between men's and women's correlations on these variables was significant, $Z = 2.18, p < .04$. Thus, the higher the sex drive, the less restricted the sociosexual orientation, particularly for women.

The SOI has several behavior-based items, in which performance of the behavior depends on the respondent's ability to acquire a sexual partner. In order to rule out confounds between my measure of sex drive and these behavioral items, I removed them from the SOI, creating an attitude-based SOI subscale (coefficient alpha .74 for men and .79 for women). I correlated scores on that subscale with scores on the SDQ, and found that the SDQ-SOI correlations remained significant for both genders (see Table 4-2 for these and all other correlations reported in this section), as did the gender difference, $Z = 1.68$, one-tailed $p < .05$. Thus, the stronger the sex drive, the less restricted the attitudinal sociosexual orientation, especially for women.

Sex Drive, Sociosexuality, and Frequency of Intercourse. Not surprisingly, sex drive was significantly correlated with the average number of times participants had sexual intercourse during the average month (see Table 4-2). The higher the sex drive, the more frequently participants – particularly women ($Z = 2.04, p < .05$) – had had sexual intercourse. I split participants into groups based on whether they were currently involved in a romantic relationship, and measured the correlation between sex drive and frequency of sexual intercourse in each group. This correlation was significant for all groups (r_s 's .38 to .43, all p 's $< .001$), and no significant group differences emerged (all Z 's < 1.96 , all p 's $> .1$). Thus, sex drive, as I have measured it, is a good predictor of frequency of sexual intercourse, regardless of whether participants are currently in a relationship.

Contrary to Simpson and Gangestad (1991), sociosexual orientation, too, was significantly correlated with frequency of sexual intercourse, for both men and women (gender difference not significant $Z < 1.96, p > .1$): the less restricted the sociosexual orientation, the more frequently participants engaged in sexual intercourse. This was true regardless of whether participants were currently in a relationship: men in a relationship $r_{s(66)} = .49, p = .001$; women in a relationship $r_{s(64)} = .60, p < .001$; men not currently in a relationship $r_{s(53)} = .40, p = .003$; women not currently in a relationship $r_{s(69)} = .27, p = .025$. Note that although no group differences emerged in the analogous correlations using the SDQ, there did emerge both group and relationship-status differences in the degree to which SOI predicted frequency of intercourse. The correlation between sociosexual orientation and frequency of sexual intercourse was, contrary to Simpson and Gangestad (1991), marginally higher for men ($Z = 1.80, p < .08$) and significantly higher for women ($Z = 3.63, p < .001$) who were in a relationship than it was for males and females not in a relationship. Note that even though the correlation between sociosexuality and frequency of intercourse is significantly stronger for women currently in a relationship than it is for men currently in a relationship ($Z = 2.21, p < .04$), the same correlation for men and women *not* currently in a relationship is significantly weaker for females than for men ($Z = 2.06, p < .05$).

I computed partial correlations between sex drive and frequency of intercourse, controlling for sociosexual orientation, for men ($r_{(113)} = .17, p = .07$) and for women ($r_{(126)} = .39, p < .001$; gender difference marginally significant, $Z = 1.83, p = .075$). I also computed partial correlations between sociosexual orientation and frequency of intercourse, controlling for sex drive, for men ($r_{(113)} = .23, p < .02$) and for women ($r_{(126)}$

= .05, $p > .1$; gender difference not significant, $Z = 1.40$, $p > .1$). Thus, holding sociosexual orientation constant, women's frequency of sexual intercourse is marginally more related to their sex drive than is men's frequency of sexual intercourse. By contrast, holding sex drive constant, there is no significant gender difference in the relationship between sociosexual orientation and frequency of sexual intercourse.

Finally, I computed these same statistics after having divided my sample by relationship status. I found the following for the correlation between sex drive and frequency of intercourse, controlling for sociosexual orientation: men not currently in a relationship, $r_{(61)} = .05$, $p > .1$; men currently in a relationship, $r_{(49)} = .27$, $p < .06$ (relationship status difference not significant, $Z = 1.15$, $p > .1$); women not currently in a relationship, $r_{(59)} = -.12$, $p > .1$; women currently in a relationship, $r_{(64)} = .33$, $p = .007$ (relationship status difference significant, $Z = 2.50$, $p < .02$). Thus, the correlation between sex drive and frequency of intercourse, holding sociosexual orientation constant, is significantly higher for women currently in a relationship than it is for women not currently in a relationship, but the correlation for men is unaffected. I found the following for the correlation between sociosexual orientation and frequency of intercourse, controlling for sex drive: men not currently in a relationship, $r_{(61)} = .42$, $p = .001$; men currently in a relationship, $r_{(49)} = .26$, $p = .07$ (relationship status difference not significant, $Z = 0.92$, $p > .1$); women not currently in a relationship, $r_{(59)} = .45$, $p < .001$; women currently in a relationship, $r_{(64)} = .09$, $p > .1$ (relationship status difference significant, $Z = 2.12$, $p = .04$). In other words, the correlation between sociosexual orientation and intercourse, holding sex drive constant, is significantly higher for women not currently in a relationship than it is for women in a relationship, but the correlation

for men is, again, unaffected. Therefore, women's *sex drive*, and not their sociosexual orientation, was related to their frequency of intercourse when they *were* in a relationship, but their *sociosexual orientation*, and not their sex drive, was related to their frequency of intercourse when they were *not* in a relationship. Men's sex drive, on the other hand, was only weakly related to their frequency of intercourse when they *were* in a relationship, and was unrelated to their frequency of intercourse when they were *not* in a relationship; their sociosexual orientation was related to their frequency of intercourse regardless of whether they were currently in a relationship.

Sex Drive, Sociosexuality, and Lifetime Number of Sex Partners. I correlated scores on the SDQ with self-reported virginity ("Have you ever been sexually active?") and with self-reported lifetime number of sexual partners. Sex drive was highly correlated with both, and – in line with the "choosy female" logic – particularly for women: the gender difference for the correlation between sex drive and virginity was significant ($Z = 2.62, p = .01$), as was the gender difference for the correlation between sex drive and number of sexual partners ($Z = 2.99, p < .005$). Participants higher in sex drive were not only less likely to be virgins than were participants lower in sex drive, but also had more sexual partners during their lifetimes than did participants lower in sex drive, and this was significantly more true of women than of men. The correlation between scores on the SDQ and lifetime number of sex partners remained significant when controlled for age ($r = .40, p < .001$ for men, and $r = .60, p < .001$ for women), as did the gender difference for this correlation ($Z = 2.17, p < .04$).

I conducted these same analyses for scores on the SOI. Sociosexual orientation was significantly correlated with self-reported virginity and with self-reported lifetime

number of sexual partners. The gender difference for the correlation between sociosexual orientation and virginity was significant ($Z = 2.17, p < .04$); however, the gender difference for the correlation between sociosexual orientation and number of sexual partners was not significant ($Z = 1.42, p > .1$). Participants (especially women) with less restricted sociosexual orientations were less likely to be virgins than were participants with more restricted sociosexual orientations. Furthermore, as one would expect, participants with less restricted sociosexual orientations had more sexual partners during their lifetimes than did participants with more restricted sociosexual orientations. The correlations between scores on the SOI and lifetime number of sex partners remained significant when controlled for age ($r = .53, p < .001$ for men, and $r = .57, p < .001$ for women); the gender difference between these two correlations, controlling for age, was marginally significant ($Z = 1.86, p = .07$).

Next, I tested whether sex drive or sociosexual orientation was a better predictor of virginity status and of lifetime number of sex partners, by gender. For men, sociosexual orientation was a significantly better predictor of virginity status than was sex drive ($Z = 2.98, p < .005$), and was also a significantly better predictor of lifetime number sex partners than was sex drive ($Z = 4.33, p < .0001$). For women, however, *sex drive* was a better predictor of virginity status than was sociosexual orientation ($Z = 2.87, p < .007$), and sex drive and sociosexual orientation were equally good predictors of lifetime number of sex partners ($Z = 1.03, p > .1$).

Predicting Lifetime Number of Sex Partners. Finally, I conducted partial correlations in order to better understand the roles of sex drive and sociosexuality in predicting lifetime number of sex partners. The correlation between sociosexual

orientation and lifetime number of sex partners, controlling for sex drive, was $r_{(114)} = .51$, $p < .001$ for men, and was $r_{(127)} = .55$, $p < .001$ for women (gender difference not significant, $Z = 0.43$, $p > .1$). By contrast, the correlations between sex drive and lifetime number of sex partners, controlling for sociosexual orientation was $r_{(114)} = .04$, $p > .1$ for men, and was $r_{(127)} = .01$, $p > .1$ for women. Sociosexuality, then, appears to be an independent predictor of lifetime number of sex partners, but sex drive does not.

Gender Identity. Sex Drive and Childhood Gender Conformity were significantly correlated for males, but not for females (see Table 4-2). The gender difference between these correlations was not significant, however, $Z = 0.50$, $p > .1$. Men with a higher current sex drive reported a less masculine gender identity as children than did males with a lower current sex drive. In addition, sex drive was unrelated to (adult) Continuous Gender Identity for both genders.

Sociosexual orientation was unrelated to Childhood Gender Conformity and Continuous Gender Identity for men, but was marginally related to each for women (p 's for each scale $< .07$; gender differences not significant, Z 's < 1.96 , p 's $> .1$). Women with a less restricted sociosexual orientation were somewhat more masculine, both as children and currently, than were women with a more restricted sociosexual orientation.

Finally, lifetime number of sex partners was significantly correlated with Childhood Gender Conformity for women ($r_{s(145)} = -.20$, $p < .02$), but not for men ($r_{s(129)} = .04$, $p > .1$; gender difference marginally significant, $Z = 1.98$, $p < .06$). However, lifetime number of sex partners was unrelated to Continuous Gender Identity for both genders (women's $r_{s(142)} = -.12$, $p > .1$; men's $r_{s(128)} = -.01$, $p > .1$; gender difference not significant, $Z < 1.96$, $p > .1$). Thus, women with a more masculine childhood gender

identity reported more lifetime sexual partners than did women with a less masculine childhood gender identity.

DISCUSSION

Several theoretically interesting findings emerged in Study 1, which I was keen to replicate and extend in a second study.

First, contrary to Simpson and Gangestad (1991), scores on the SDQ and the SOI were substantially correlated. Second, even though sex drive and sociosexuality are moderately to strongly correlated with one another, sociosexuality nonetheless appears to be an independent predictor of lifetime number of sex partners, whereas sex drive does not. Having a high sex drive does not, in and of itself, lead to having many sexual partners: an individual must have an unrestricted sociosexual orientation in order for sex drive to affect his or her sexual behavior.

Third, sex drive was more strongly related to lifetime number of sexual partners, frequency of intercourse, and SOI for women than for men, which lends credence to the evolutionary psychology suggestion (e.g. Trivers, 1972) that, due to hypothesized differences in mating strategies, “choosy” women’s sexual needs should drive partnered sexual relations more than should “opportunistic” men’s sexual needs.

Fourth, and finally, gender identity was somewhat related to sex drive, sociosexuality, and lifetime number of sex partners in my sample. The higher men’s current sex drive, the more feminine was their self-reported childhood gender identity. And, replicating Mikach and Bailey (1999), (a) the less restricted women’s sociosexual orientation, the more masculine were their childhood and current gender identities, and (b) the more sexual partners women reported having, the more masculine was their

childhood gender identity (this despite my not having female participants who fit Mikach and Bailey's standard for "unusually" high numbers of sex partners: only one woman out of the 114 participants who reported their lifetime number of sex partners reported as many as 20 partners). In other words, I can have some confidence that a more masculine gender identity is correlated with women's having more sexual partners, perhaps because more masculine women appear to be less sociosexually restricted than less masculine women. I am unable to suggest why a more feminine gender identity might be correlated with a higher sex drive in adulthood for men.

STUDY 2

I conducted this follow-up study for four main reasons. First, I was eager to replicate my Study 1 findings that (a) sex drive and sociosexuality are correlated, that (b) sociosexual orientation is, nonetheless, an independent predictor of lifetime number of sex partners, whereas sex drive is not, and that (c) women's sex drive is more related to partnered sexual behavior than is men's sex drive. Second, I was curious to test whether these findings would replicate with a more uniform sample of college students (recall that my internet sample from Study 1 was older and more sexually experienced than was my lab sample), and also whether sex drive and SOI were stable across two test periods. Sex drive and sociosexual orientation should be stable over time: if scores on these measures were to fluctuate over several weeks' time, then I would have to rethink my view that sex drive and sociosexuality are trait-like in nature.

Third, I thought it wise to test how sex drive, sociosexual orientation, and self-reported lifetime number of sex partners would be related to scores on a social desirability measure. The evolutionary model suggests that men and women should both

present themselves to potential mates as loyal (i.e., as sociosexually restricted), and also that women should present themselves as chaste and as possessing a low sex drive. This is because of the problem of uncertainty of paternity: men can feel relatively confident that their chaste, loyal, and low-sex-drive mate will not cheat on them with other men. I hypothesized, then, that analyses would reveal significant correlations between social desirability and sociosexual orientation, sex drive, and lifetime number of sexual partners, especially (for the latter two) for women.

Fourth, and finally, I wanted to further explore the nature of the relations among sex drive, sociosexuality, and lifetime number of sex partners. Specifically, I wondered whether the correlations among sex drive, sociosexuality, and number of sex partners would change if I controlled for scores on a measure of trait self-control.

There exist several possible combinations of sex drive and sociosexuality: individuals may have a high sex drive and an unrestricted sociosexual orientation; a high sex drive and a restricted sociosexual orientation; a low sex drive and an unrestricted orientation; or a low sex drive and a restricted orientation. All of these combinations seem relatively easy to maintain, with the exception of the high sex drive/restricted combination. I wondered whether, for individuals with this profile – and especially for women with this profile (because they appear to be in the “driver’s seat”, compared with men, when it comes to sexual encounters) – self-control might moderate the relationship between sex drive and sociosexuality.

METHOD

Participants

I used the University of Pennsylvania's psychology subject pool message board to recruit participants for Study 2. Once again, I advertised my study as being on "personality and behavior" to avoid recruitment biases, and once again, no participants dropped out of the study once they were told about its focus on sex. Participants were told that the study would require two web-based sessions, and that they would be emailed about six weeks after their first session with a reminder to participate in their second session. Participants who completed both sessions received research credit in exchange for their participation.

My participants were 90 men and 131 women (total $n = 221$). Of these, 76 men and 111 women completed surveys at both Time 1 and Time 2 (completion rates 84.4% and 84.7%, respectively). Men ranged in age from 18 to 25 years, and women ranged in age from 18 to 27 years. Men and women had the same mean age of 19.8 years ($SD = 1.3$); the same median age of 20.0 years, and the same modal age of 19 years.

Materials and Procedure

Participants filled out the 4-item SDQ, the SOI, and reported their lifetime number of sexual partners on two occasions. They also filled out the 36-item Self-Control Scale (Tangney, Baumeister, & Boone, 2004), and the 33-item Marlowe-Crowne (1964) Social Desirability Scale at Time 2. One group of participants filled out these questionnaires in October and December of 2002 and another group filled out these questionnaires between January and April of 2003. Participants were emailed six weeks after filling out their Time 1 survey with a request to return to my password-protected website to fill out their Time 2 survey. After I received their Time 2 responses, participants were debriefed, and given research participation credit.

RESULTS

Test-retest and internal reliability of the SDQ. Scores on the SDQ were roughly normally distributed at both testing sessions. Coefficient alpha was .82 for men at Time 1; .82 for women at Time 1; .81 for men at Time 2; .82 for women at Time 2. The test-retest correlation for men's scores on the SDQ was $r_{(70)} = .91, p < .001$; the analogous correlation for women was $r_{(103)} = .90, p < .001$. These correlations indicate substantial stability of scores on the SDQ over a six to eight week period.

Test-retest and internal reliability of the SOI. Scores on the SOI were left-skewed. Therefore I used Spearman's *rho* to calculate all statistics in which the SOI was included.

The SOI's coefficient alpha was .83 for men at Time 1; .85 for women at Time 1; .81 for men at Time 2; .80 for women at Time 2. Test-retest correlations were high: men's test-retest correlation was $r_{s(56)} = .89, p < .001$, and women's test-retest correlation was $r_{s(68)} = .82, p < .001$. Test-retest correlations for the attitudinal subscale of the SOI were of a similar magnitude ($r_{s(58)} = .84, p < .001$ for men, and $r_{s(68)} = .78, p < .001$ for women), as were test-retest correlations for the behavioral subscale ($r_{s(56)} = .88, p < .001$ for men, and $r_{s(69)} = .75$ for women).

Correlations between SDQ and SOI at Times 1 and 2. I correlated Time 1 SDQ scores with Time 1 SOI scores ($r_{s(75)} = .44, p < .001$ for men, and $r_{s(112)} = .36, p < .001$ for women; gender difference not significant, $Z = 0.63, p < .1$) and Time 2 SDQ with Time 2 SOI scores ($r_{s(57)} = .51, p < .001$ for males and $r_{s(68)} = .57, p < .001$ for women; gender difference not significant, $Z = 0.46, p > .1$). These data replicate my Study 1 finding that sex drive and sociosexuality are statistically related.

Scores on the SDQ and SOI were correlated across Times 1 and 2. Time 1 SDQ and Time 2 SOI were significantly correlated at $r_{s(57)} = .52$ for men and $r_{s(69)} = .50$ for women (gender difference not significant, $Z < 1.96$, $p > .1$). Correlations between Time 2 SDQ and Time 1 SOI were also significant, $r_{s(57)} = .51$, $p < .001$ for men, and $r_{s(71)} = .39$, $p = .001$ for women (gender difference not significant, $Z < 1.96$, $p > .1$). Thus, the SDQ and SOI predict one another across several weeks' time.

Sex Drive and Lifetime Number of Sex Partners. I replicated my finding from Study 1 that those with a higher sex drive had more lifetime sex partners than did those with a lower sex drive. The correlation between the SDQ and number of partners at Time 1 was $r_{s(58)} = .38$, $p = .001$ for men, and $r_{s(114)} = .40$, $p < .001$ for women; at Time 2, it was $r_{s(58)} = .39$, $p = .003$ for men, and $r_{s(68)} = .48$, $p < .001$ for women (gender differences not significant, Z 's < 1.96 , p 's $> .1$).

Sociosexuality and Lifetime Number of Sex Partners. As expected, participants with a higher sex drive had more lifetime sex partners than did participants with a lower sex drive ($r_{s(75)} = .51$, $p < .001$ and $r_{s(112)} = .58$, $p < .001$, respectively, for men and women at Time I, and $r_{s(57)} = .57$, $p < .001$ and $r_{s(69)} = .53$, $p < .001$, respectively, for men and women at Time 2; gender differences not significant, Z 's < 1.96 , p 's $> .1$).

Sociosexuality, Sex Drive, and Lifetime Number of Sex Partners. I partialled variance due to sociosexuality out of the correlation between sex drive and lifetime number of sex partners. Once I had controlled for scores on the SOI, the relationship between sex drive and number of sex partners was rendered non-significant for both men ($r_{(72)} = -.05$) and women ($r_{(109)} = .07$). I then partialled variance due to sex drive out of the correlation between sociosexuality and lifetime number of sex partners; this correlation

remained significant ($r_{(72)} = .57, p < .001$ for men, and $r_{(109)} = .65, p < .001$ for women; gender difference not significant, $Z < 1.96, p > .1$).

Social Desirability. I measured social desirability at Time 2 only, and therefore all statistical tests reported in this section were computed using Time 2 data only. Social desirability was significantly correlated with men's and women's scores on the SDQ, and with women's scores on the SOI, but was not significantly correlated with either gender's self-reported lifetime number of sex partners (see Table 3).

I conducted partial correlation analyses to test whether the relationship between sex drive and sociosexuality remained significant when controlled for social desirability, and indeed, these relationships survived this analysis ($r_{(65)} = .46, p < .001$ for men; $r_{(59)} = .46, p = .001$ for women). Furthermore, the correlation between sex drive and lifetime number of partners ($r_{(54)} = .33, p = .01$ for men; $r_{(59)} = .34, p < .01$ for women), and the correlation between sociosexuality and lifetime number of sex partners ($r_{(53)} = .64, p < .001$ for men; $r_{(60)} = .55, p = .001$ for women) remained significant when controlled for socially desirable scoring.

Finally, I conducted the same partial correlation analyses (among SDQ, SOI, and lifetime number of sex partners) reported earlier, but this time controlling as well for social desirability. The correlation between sex drive and lifetime number of sex partners, controlling for both sociosexuality and social desirability was .06 for men ($n = 52, p > .1$) and .15 for women ($n = 58, p > .1$; gender difference not significant, $Z = .05, p > .1$). The correlation between sociosexuality and lifetime number of sex partners, controlling for both SDQ and social desirability was .59 for men ($n = 52, p < .001$) and .48 for women ($n = 58, p < .001$; gender difference not significant, $Z = .79, p > .1$). Thus, controlling for

socially desirable scoring, sociosexual orientation remains an independent predictor of lifetime number of sex partners, and sex drive does not.

Self-Control. I correlated scores on the Self-Control Scale with scores on the SDQ, on the SOI and its subscales, and with lifetime number of sexual partners. Self-control was not significantly correlated with SDQ for men, $r_{s(76)} = .18, p > .1$; however, it was for women, $r_{s(110)} = .34, p < .001$ (gender difference not significant, $Z < 1.96, p > .1$; note that high scorers on the Self-Control Scale *lack* self-control, and thus these correlations are positive). Thus, for women, the lower their self-reported self-control, the higher their sex drive. Self-control was marginally related to scores on the SOI ($r_{s(74)} = .21, p < .08$) and on the behavioral subscale of the SOI ($r_{s(74)} = .22, p < .06$) for men, but not for women ($r_{s(109)}$'s .15 and .14, respectively, with p 's $> .1$). The correlation between self-control and scores on the attitudinal subscale of the SOI did not achieve significance for either gender ($r_{s(74)} = .15, p = .20$ for men, and $r_{s(110)}$'s .15, $p > .1$ for women; gender difference not significant, $Z < 1.96, p > .1$). Thus, for men, having less self-control appears to be somewhat related to having a less restricted sociosexual orientation, probably due to scores on the behavioral component of the SOI. Finally, the correlation between self-control and number of sex partners was $r_{s(76)} = .19 (p < .10)$ for men, and $r_{s(110)} = .17 (p < .07)$ for women. There is some evidence that women with less self-control might have more sex partners than women with more self-control.

The relationship between sex drive and lifetime number of partners was weakened, but not significantly, for both men ($r_{(73)} = .21, p < .07$, down from .39; $Z = 1.19, p > .1$) and women ($r_{(107)} = .21, p = .003$, down from .39; $Z = 1.46, p > .1$) when I controlled for scores on the Self-Control Scale. By contrast, the relationship between SOI

and lifetime number of partners was strengthened, but not significantly, for both men ($r_{(71)} = .55, p < .001$, up from $.51; Z = 0.33, p > .1$) and women ($r_{s(106)} = .67, p < .001$, up from $.58; Z = 1.08, p > .1$) when I controlled for scores on the Self-Control Scale. In other words, self control had little to no effect on these relationships.

Finally, the correlation between sex drive and lifetime number of sex partners, controlled for by scores on both the SOI and the Self-Control Scale was $-.04 (p > .1, n = 70)$ for men, and $.04 (p > .1, n = 105)$ for women; the correlations between sociosexual orientation and lifetime number of sex partners, controlled for by scores on the SDQ and the Self-Control Scale was $.53 (p < .001, n = 70)$ for men, and $.65 (p < .001, n = 105)$ for women, replicating my earlier findings.

DISCUSSION

I was able to replicate the Study 1 finding that sex drive and sociosexual orientation are correlated, even across a six- to eight-week period. Those higher in sex drive are less sociosexually restricted than are those lower in sex drive. As in Study 1, sociosexuality, but not sex drive, was an independent predictor of lifetime number of sex partners. It seems that sex drive predicts number of sex partners only for those with an unrestricted sociosexual orientation; for those with a restricted sociosexual orientation, sex drive is irrelevant to lifetime number of sex partners.

I was unable to replicate the Study 1 finding that sex drive, sociosexuality, and lifetime number of sex partners were significantly more interrelated for women than for men (note, however, that the Study 2 gender differences, though minimal, are in the correct direction). This may be because of the somewhat younger and less sexually experienced sample used in this study (the Study 1 participants were, on average, 22.1

years old and had had 3.5 lifetime sex partners; the Study 2 participants were 19.7 years old and had had 2.2 lifetime sex partners).²

I found evidence of socially desirable responding in this study; however, when I controlled my main findings (i.e., the correlations among sex drive, sociosexuality, and lifetime number of sex partners) for socially desirably responding, they were unaffected.

Finally, I found evidence for a relationship between self-control and sex drive in women, and some indication that a relationship might exist between self-control and scoring on the SOI (particularly on its behavioral subscale) in men. Women with less self-control described themselves as having a higher sex drive than did their higher-self-control counterparts, and men with less self-control described themselves as being less sociosexually restricted than did their higher-self-control counterparts. However, self-control does not appear to moderate any relationships among sex drive, sociosexuality, and lifetime number of sexual partners.

GENERAL DISCUSSION

Relationships Among Sex Drive, Sociosexuality, and Lifetime Number of Sex Partners.

Simpson and Gangestad (1991) claimed that sex drive and sociosexuality are unrelated. They used as evidence for this their finding that sociosexuality and frequency of intercourse were unrelated for those in committed relationships, but that those with an unrestricted sociosexual orientation had more frequent intercourse than did those with a restricted sociosexual orientation outside of such relationships. My data paint a different picture. Sex drive and frequency of intercourse were related *regardless* of whether participants were in a relationship. Sociosexual orientation and frequency of intercourse

were also related, however, particularly for those *in* a relationship – contrary to Simpson and Gangestad’s expectations. The results of my partial correlations indicate that, as Simpson and Gangestad suggested, frequency of intercourse for *women in a relationship* is determined by their levels of sexual desire and not by their sexual attitudes, but that the reverse is true for *women not in a relationship*. For *men*, however, relationship status was irrelevant: sociosexual orientation and sex drive were each correlated with frequency of intercourse, regardless of relationship status. Thus, Simpson and Gangestad were partly correct in making their assertions about how frequency of intercourse, sex drive, and sociosexuality are related, but they were also mistaken on some points – particularly for men.

Their most serious mistake was in accepting frequency of intercourse as a measure of sex drive. My data, using the SDQ instead of frequency of intercourse as a measure of sex drive, indicate that sex drive and sociosexuality are, indeed, moderately- to highly correlated. As predicted, the higher the sex drive, the less restricted the sociosexual orientation, and the lower the sex drive, the more restricted the sociosexual orientation. This arrangement makes sense especially for those with a higher sex drive, because it gives them “permission” to engage in many sexual experiences.

My results also indicate, however, that this correlation between sex drive and sociosexuality does not negate the predictive power of the SOI, as far as lifetime number of sex partners is concerned. Indeed, as Kinsey observed, sociosexuality is more important than is sex drive in predicting lifetime number of sex partners: when I controlled for variation due to sex drive in the correlation between sociosexuality and number of partners, the correlation remained strong; when I controlled for variation due

to sociosexuality in the correlation between sex drive and number of partners, however, the correlation fell to zero. Thus, it appears that sociosexuality, although quite convincingly correlated with sex drive, brings something extra to the table when it comes to predicting how many sexual partners a person will have in their lifetime.

Sex and Self-Control.

I wondered whether this extra “something” might have to do with trait self-control: after all, having a high sex drive but denying oneself sex except under certain circumstances (feelings of love and commitment) must take a certain degree of self-control. Of course, some people (men, unattractive people of both genders) are not necessarily in a position to engage in casual sexual encounters, regardless of their sexual desires, and thus self-control would not be an issue for them. But it seems unlikely that all people who are high in sex drive and also sociosexually restricted are men or are unattractive. Therefore, I hypothesized that there should be some indication that self-control moderates the relationships among sex drive, sociosexuality, and lifetime number of sex partners.

Trait self-control was indeed related to sex drive (in women) and to SOI (in men, but only marginally so). However, self-control appears not to be that extra “something” that would help us understand the relationships among sex drive, sociosexuality, and number of sex partners: variance due to scores on the Self-Control Scale did not affect the relationship between sex drive and number of sex partners for men and did not affect the relationship between sociosexuality and number of sex partners for either gender.

Are Women in the Driver’s Seat?

I did not replicate, in Study 2, my Study 1 finding that sex drive is more strongly related to lifetime number of sexual partners, frequency of intercourse, and SOI for women than for men, although note that the Study 2 gender difference in the correlation between sex drive and number of sex partners is in the correct direction. My failure to replicate may be because my participants were slightly different across the two studies. Additional analyses (see endnote 2) have indicated to us that this gender difference in “sexual power” may be somewhat dependent on age or on intentions (short-term vs. long-term couplings). It may be the case that women who are not interested in long-term relationships do not exert as much sexual power over men as do women who are interested in long-term relationships. This statement is, of course, speculative, and further research is needed to test whether the data bear it out.

Causality.

One problem with retrospective self-report studies like the ones reported here is that they (of course) do not distinguish cause from effect. I am not able to address whether people report having a high sex drive because they have engaged in many sexual behaviors, or whether people have engaged in many sexual behaviors because they have a high sex drive. Or, more to the point, whether strength of sex drive and sociosexual orientation are causally related. Prospective research would, of course, provide some answers as to causality; in the meantime my evidence that there exist relationships among sex drive, sociosexuality, and lifetime number of sexual partners is a critical step in helping researchers better understand the nature of human sexual relations.

Concluding Remarks.

My results suggest that sex drive and sociosexuality are related, but that sociosexuality retains its predictive power with regard to number of sex partners, whereas sex drive loses its predictive power, once variation due to the other variable is controlled for.

This leaves us with a final question: How do sociosexuality and sex drive come to be related as they are? One possibility is that people select their sexual attitudes based on their desires: the stronger their desires, the more they endorse unrestricted attitudes. Seen in this light, attitudes simply *ex post facto* justify behavior. Another possibility is that some third factor – genes strike me as a particularly likely candidate – lead people both to their sex drive and to their sexual attitudes.

Endnotes

¹ I used Levene's test for equality of variances on all *t*-tests, and used the appropriate correction (and thus show degrees of freedom with decimals) when indicated.

² I went back to my Study 1 data to test whether these differences emerged for both the lab and internet samples, and found that this “females in the driver's seat” gender difference did not occur for the younger (lab) sample. For example, the correlation between sex drive and lifetime number of sex partners, controlling for age, was $r_{s(37)} = .18, p > .1$ for male internet participants and was $r_{s(47)} = .35, p = .01$ for female internet participants (gender difference not significant, $Z = 0.80, p > .1$), whereas the same correlations for lab participants were was $r_{s(83)} = .42, p < .001$ for males and was $r_{s(87)} = .46, p < .001$ for females (gender difference not significant, $Z < 1.96, p > .1$). The within-gender venue differences, despite being in the expected direction, were nonsignificant for males ($Z = 1.30, p > .1$) and females ($Z = 0.71, p > .1$). Future studies should examine whether the “females in the driver's seat” effect is age-related, or perhaps mating-market-related (i.e., perhaps my younger sample is not currently interested in the long-term mating market, whereas my older sample is).

Table 4-1

Means (and Standard Deviations) for Scores on Each Variable, by Gender

	Males	Females	Gender Difference?
SDQ	18.19 (3.40)	13.60 (4.30)	$t_{(263.97)} = 9.77, p < .001$
SOI Full	0.35 (0.70)	-0.27 (0.62)	$t_{(253)} = 7.52, p < .001$
SOI Attitude	0.49 (0.69)	-0.38 (0.71)	$t_{(264.89)} = 9.34, p < .001$
Childhood Gender	42.53 (7.43)	35.16 (11.22)	$t_{(255.63)} = 6.51, p < .001$
Adult Gender	45.25 (8.60)	42.95 (9.16)	$t_{(270)} = 2.13, p < .04$
Virginity	0.75 (0.43)	0.63 (0.48)	$t_{(273.87)} = 2.15, p < .04$
# Sex Partners	4.43 (8.87)	2.71 (6.35)	$t_{(272)} = 1.86, p = .063$

Note. *ns* for male cells range between 120 and 129; *ns* for female cells range between 135 and 148.

Table 4-2

Correlations Among Sex Drive, Sociosexuality, Sexual Behavior Measures, and Gender Identity, by Gender.

	SDQ		SOI	
	Males	Females	Males	Females
Virginity	.28**	.56**	.41**	.47**
# Sex Partners	.39**	.61**	.62**	.60**
SOI-Attitude	.34**	.50**	.90**	.97**
Intercourse/Month	.34**	.53**	.35**	.36**
Childhood Gender	-.17*	-.11	.03	-.16
Adult Gender	-.11	-.07	.08	-.16

Note. Virginity was scored as *yes* (1), *no* (0). Male *ns* ranged from 122-127; female *ns* ranged from 140-143.

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

Table 4-3

Correlations Among Sex Drive, Sociosexuality, Lifetime Number of Sex Partners, and Social Desirability

	Social Desirability	
	Males	Females
SDQ	-.30**	-.25*
SOI	-.17	-.41**
# Sex Partners	-.11	-.20

Note 1. Male *ns* ranged from 56-68; female *ns* ranged from 63-97.

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

CHAPTER 5: SUMMARY AND CONCLUSIONS

The purpose of the research reported in this dissertation was to construct a brief, valid, and reliable measure of sex drive, and to use that measure to study relations among sex drive, sexual attitudes, and sexual behaviors.

One of the more remarkable implications of the work reported here is that Kinsey's (1948; 1953) research on sexual attitudes and behaviors, despite scientific and political arguments against its soundness (e.g. Eriksen, 1998; Hobbs & Lambert, 1948; Milton, 2004; Terman, 1948), is still relevant – and replicable – today.

I employed Kinsey's idea of measuring sex drive in terms of “total sexual outlet”, or number of orgasms required (or desired) by a person in any given amount of time, in constructing my measure of sex drive, the Sex Drive Questionnaire (SDQ). This measure had good reliability and validity. For example, the SDQ was significantly correlated, in both genders, with several hypothesized correlates of sex drive, for example, lifetime number of sexual partners, virginity, and frequency of sexual fantasy.

More surprisingly, given critiques of Kinsey's sampling, interviewing, and statistical methodologies, I was able to replicate his finding that timing of puberty predicts sex drive and other sexual attitudes and behaviors in men, but not in women. I extended this finding to timing of first experience of sexual arousal, and found that this measure predicted level of sex drive and other sexual attitudes and behaviors for men *and* women. The direction of these findings is, given current research ethics, unknowable: certainly, sex drive could affect timing of puberty (in men, at least) and timing of first

experience of sexual arousal (in men and women), but the opposite could also be true (timing of puberty and timing of first experience of sexual arousal could affect sex drive).

Not only did Kinsey write about the relationship between puberty and sexuality, but also he wrote about how “sociosexual attitudes” might be related to human sexuality. Indeed, Kinsey speculated that these sociosexual attitudes might be more important than any other single measure in understanding human sexual behavior. Simpson and Gangestad’s (e.g., 1991) work on sociosexual orientation seemed to have borne this out, except for one problem: they did not adequately rule out the contribution of sex drive to understanding human sexual behavior.

I hypothesized that, given a valid, reliable measure of sex drive unconfounded with sociosexual orientation, I would show that sex drive was not only significantly correlated with sociosexual orientation, but also that sex drive was equally as important as, if not more important than, sociosexuality in explaining human sexual behavior. I did indeed demonstrate that sex drive and sociosexuality were moderately to strongly correlated for both genders: the higher one’s sex drive, the less restricted was one’s sociosexual orientation. However, Simpson and Gangestad (1991) were correct to presume that sociosexuality was an independent predictor of lifetime number of sex partners, whereas sex drive was not. And thus, Kinsey, too, was correct to hypothesize that “sociosexual attitudes” might, indeed, be the most important factor in understanding human sexual behavior.

The moderate- to high correlations I found between sex drive and sociosexual orientation, along with the overshadowing of sex drive by sociosexuality when it comes to predicting lifetime number of sexual partners, leads me to suspect that sex drive and

sociosexuality are two evolved mechanisms that interact in an if-then manner. For example, if one has a high sex drive, then one should “choose” an unrestricted sociosexuality; if one has an unrestricted sociosexuality, then one should seek a high number of sexual partners across the lifespan; if one has a low sex drive, then one might safely “choose” a restricted sociosexuality; if one has a restricted sociosexuality, then one should limit one’s number of sexual partners across the lifespan. The combination of a high sex drive and an unrestricted sociosexuality should result, all things equal, in an opportunistic mating strategy, whereas the combination of a lower sex drive and a more restricted sociosexuality should result, all things equal, in a choosy, more emotionally committed mating strategy.

Future research might follow adult sexual attitudes and behaviors longitudinally: do sex drive and sociosexual orientation change over time? Do the relations among sex drive, sociosexuality, and lifetime number of sexual partners change over time? Which factors might moderate the correlation among these variables? My research suggests that this factor is not self-control; my future research will test whether a person’s level of morality, self-esteem, subjective attractiveness, or objective attractiveness might moderate this correlation.

REFERENCES

- Ard, B. N. (1977). Sex in lasting marriages: A longitudinal study. *Journal of Sex Research, 13*, 274-285.
- Bailey, J. M., Bechtold, K. T., & Berebaum, S. A. (2002). Who are tomboys and why should I study them? *Archives of Sexual Behavior, 31*, 333-341.
- Bailey, J. M., Finkel, E., Blackwelder, K., and Bailey, T. (1996). Masculinity, femininity, and sexual orientation. Unpublished manuscript.
- Bailey, J. M., Nothnagel, J., & Wolfe, M. (1995). Retrospectively measured individual differences in childhood sex-typed behavior among gay men: Correspondence between self- and maternal reports. *Archives of Sexual Behavior, 24*, 613-622.
- Bailey, J. M., & Zucker, K. J. (1995). Childhood sex-typed behavior and sexual orientation: A conceptual analysis and quantitative review. *Developmental Psychology, 31*, 43-55.
- Baumeister, R. F., Catanese, K. R., & Vohs, K. D. (2001). Is there a gender difference in strength of sex drive? Theoretical views, conceptual distinctions, and a review of relevant evidence. *Personality and Social Psychology Review, 5*, 242-273.
- Belsky, J., Steinberg, L., & Draper, P. (1991). Childhood experience, interpersonal development, and reproductive strategy: An evolutionary theory of socialization. *Child Development, 62*, 647-670.
- Bingham, C. R., Miller, B. C., & Adams, G. R. (1990). Correlates of age at first sexual intercourse in a national sample of young women. *Journal of Adolescent Research, 5*, 18-33.

- Blanchard, R., & Bogaert, A. F. (1996). Biodemographic comparisons of homosexual and heterosexual men in the Kinsey interview data. *Archives of Sexual Behavior, 25*, 551-579.
- Blumstein, P., & Schwartz, P. (1983). *American Couples*. New York: Simon & Schuster.
- Bogaert, A. F. (1996). Volunteer bias in human sexuality research: Evidence for both sexuality and personality differences in males. *Archives of Sexual Behavior, 25*, 125-139.
- Bogaert, A. F. (1998). Physical development and sexual orientation in women: Height, weight, and age of puberty comparisons. *Personality and Individual Differences, 24*, 115-121.
- Bogaert, A. F., & Friesen, C. (2002). Sexual orientation and height, weight, and age of puberty: New tests from a British national probability sample. *Biological Psychology, 59*, 135-145.
- Bogaert, A. F., Friesen, C., & Klentrou, P. (2002). Age of puberty and sexual orientation in a national probability sample. *Archives of Sexual Behavior, 31*, 73-81.
- Cecil, H., Bogart, L. M., Wagstall, D. A., Pinkerton, S. D., & Abramson, P. R. (2002). Classifying a person as a sexual partner: The impact of contextual factors. *Psychology & Health, 17*, 221-234.
- Crowne, D. P. & Marlowe, D. (1964). *The Approval Motive: Studies in Evaluative Dependence*. New York, London, Sydney: John Wiley & Sons, Inc.
- Ellis, L., & Ames, M. A. (1987). Neurohormonal functioning and sexual orientation: A theory of homosexuality-heterosexuality. *Psychological Bulletin, 101*, 233-258.

- Ellis, B. J., McFadyen-Ketchum, S., Dodge, K. A., Pettit, G. S., & Bates, J. E. (1999). Quality of early family relationships and individual differences in the timing of pubertal maturation in girls: a longitudinal test of an evolutionary model. *Journal of Personality and Social Psychology, 77*, 387–401.
- Eriksen, J. A. (1998). With enough cases, why do you need statistics? Revisiting Kinsey's methodology. *Journal of Sex Research, 35*, 132-140.
- Flannery, D. J., Rowe, D. C., & Gulley, B. L. (1993). Impact of pubertal status, timing, and age on adolescent sexual experience and delinquency. *Journal of Adolescent Research, 8*, 21-40.
- Gangestad, S. W., & Simpson, J. A. (1990). Toward an evolutionary history of female sociosexual variation. *Journal of Personality, 58*, 69-96.
- Halpern, C. T., Udry, J. R., Campbell, B., & Suchindran, C. (1993). Testosterone and pubertal development as predictors of sexual activity: A panel analysis of adolescent males. *Psychosomatic Medicine, 55*, 436-447.
- Halpern, C. T., Udry, J. R., Campbell, B., Suchindran, C., & Mason, G. A. (1994). Testosterone and religiosity as predictors of sexual attitudes and activity among adolescent males: A biosocial model. *Journal of Biosocial Science, 26*, 217-234.
- Halpern, C. T., Udry, J. R., & Suchindran, C. (1997). Testosterone predicts initiation of coitus in adolescent females. *Psychosomatic Medicine, 59*, 161-171.
- Hobbs, A. H., & Lambert, R. D. (1948). An evaluation of "Sexual Behavior in the Human Male". *American Journal of Psychiatry, 104*, 758-764.
- Kinsey, A. C., Pomeroy, W. B., & Martin, C. E. (1948). *Sexual behavior in the human male*. Philadelphia: Saunders.

- Kinsey, A. C., Pomeroy, W. B., Martin, C. E., & Gebhard, P. H. (1953). *Sexual behavior in the human female*. Philadelphia: Saunders.
- Lennox, R. D. & Wolfe, R. N. (1984). Revision of the self-monitoring scale. *Journal of Personality and Social Psychology, 46*, 1349-1364.
- Mazur, A., Halpern, C., & Udry, J. R. (1994). Dominant looking male teenagers copulate earlier. *Ethology & Sociobiology, 15*, 87-94.
- Meyer-Bahlburg, H. F. L. (1984). Psychoendocrine research on sexual orientation: Current status and future options. *Progress in Brain Research, 61*, 375-398.
- Meyer-Bahlburg, H. F. L., Ehrhardt, A. A., Rosen, L. R., Gruen, R. S., Veridiano, N. P., Vann, F. H., et al. (1995). Prenatal estrogens and the development of homosexual orientation. *Developmental Psychology, 31*, 12-21.
- Manosevitz, M. (1970). Early sexual behavior in adult homosexual and heterosexual men. *Journal of Abnormal Psychology, 76*, 396-402.
- Mikach, S. M. & Bailey, J. M. (1999). What distinguishes women with unusually high numbers of sex partners? *Evolution and Human Behavior, 20*, 141-150.
- Milton, H. L. (2004). The making of sexual and scientific revolutions. PSYCcritiques, np.
- Peplau, L. A. (2003). Human sexuality: How do men and women differ? *Current Directions in Psychological Science, 12*, 37-40.
- Quinlan, R. J. (2003). Father absence, parental care, and female reproductive development. *Evolution and Human Behavior, 24*, 376-390.
- Sanders, S. A. & Reinisch, J. M. (1999) Would you say you “had sex” if ...? *JAMA: Journal of the American Medical Association, 281*, 275-277.

- Savin-Williams, R. C. (1995). An exploratory study of pubertal maturation timing and self-esteem among gay and bisexual male youths. *Developmental Psychology, 31*, 56-64.
- Simpson, J. A., & Gangestad, S. W. (1991). Individual differences in sociosexuality: Evidence for convergent and discriminant validity. *Journal of Personality and Social Psychology, 60*, 870-883.
- Snyder, M., Berscheid, E., & Glick, P. (1985). Focusing on the exterior and the interior: Two investigations of the initiation of personal relationships. *Journal of Personality and Social Psychology, 48*, 1427-1439.
- Snyder, M., Simpson, J. A., & Gangestad, S. W. (1986). Personality and sexual relations. *Journal of Personality and Social Psychology, 51*, 181-190.
- Spector, I. P., Carey, M. P. & Steinberg, L. (1996). The Sexual Desire Inventory: development, factor Structure, and evidence of reliability. *Journal of Sex & Marital Therapy, 22*, 175-190.
- Strassberg, D. S. & Lowe, K. (1995). Volunteer bias in sexuality research. *Archives of Sexual Behavior, 24*, 369-383.
- Tangney, J. P., Baumeister, R. F., & Boone, A., L. (2004). High self-control predicts good adjustment, less pathology, better grades, and interpersonal success. *Journal of Personality, 72*, 271-322.
- Terman, L. M. (1948). Kinsey's "Sexual Behavior of the Human Male: Some comments and criticisms. *Psychology Bulletin, 45*, 443-459.

- Thomas, M. A., & Rebar, R. W. (1989). The endocrinology of normal and abnormal female puberty. *Current Opinion in Obstetrics & Gynecology*, *1*, 259-265.
- Tripp, C. A. (1982). Tripp's answer to Bell, Weinberg & Hammersmith's objections to his review of their *Sexual Preference: Its Development in Men and Women*. *Journal of Sex Research*, *18*, 366-368.
- Trivedi, N., & Sabini, J. (1998). Self-selection, sexuality and personality. *Archives of Sexual Behavior*, *27*, 199-213.
- Tenhula, W. N., & Bailey, J. M. (1998). Female sexual orientation and pubertal onset. *Developmental Neuropsychology*, *14*, 369-383.
- Trivers, R. L. (1972). Parental investment and sexual selection. In B. Campbell (Ed.), *Sexual Selection and the Descent of Man*, 136-179. Chicago: Aldine-Atherton.
- Udry, J. R., & Billy, J. O. (1987). Initiation of coitus in early adolescence. *American Sociological Review*, *52*, 841-855.