Evolution and Human Behavior 28 (2007) 382–391

Evolution and Human Behavior

The structure and measurement of human mating strategies: toward a multidimensional model of sociosexuality

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Initial receipt 7 November 2005; final revision received 18 April 2007

Abstract

Recent theoretical perspectives concerning the structure of variation in human mating have focused less on conceptualizations of alternate mating strategies and more on the evolution of a conditional strategy. Empirical evidence suggests that this conditional strategy may involve the simultaneous pursuit of long-term and short-term mating tactics. Despite these developments, empirical measurement has proceeded using the *Sociosexual Orientation Inventory* (SOI), which measures restricted and unrestricted mating orientations along a single bipolar continuum. To fully capture the pluralistic nature of human mating, we suggest that a multidimensional empirical measure is required. To test our hypothesis, we subjected an expanded version of the SOI, which included items measuring psychological orientation toward short-term mating and long-term mating, to principal components analysis. A three-factor structure representing short-term mating orientation, long-term mating orientation, and previous sexual behavior emerged. In subsequent analyses, we demonstrate that our newly developed long-term and short-term dimensions (a) are largely independent and (b) correlate differentially with other theoretically relevant variables.

Keywords: Mating strategies; Reproductive strategies; Sociosexuality; SOI; Measurement

1. Introduction

The current study focuses on the theoretical structure and empirical measurement of human mating strategies, particularly on the strategic dimension of sociosexuality (Gangestad & Simpson, 1990; Simpson & Gangestad, 1991). *Sociosexuality* refers to individual differences in willingness to engage in sexual relations without closeness or commitment; its existing measure, the *Sociosexual Orientation Inventory* (SOI), has become the leading measure of individual differences in mating. We argue that despite its widespread use, the SOI is a potentially limited measure of both between-sex and within-sex variation in mating orientation.

1.1. The SOI: a measure of sociosexual variation and human mating strategies

The SOI (Simpson & Gangestad, 1991) measures sociosexual orientation (or willingness to engage in uncommitted sex) along a single bipolar continuum. *Restricted* individuals require greater closeness and commitment prior to having sex with a romantic partner, whereas *unrestricted* individuals are comfortable with engaging in casual sex. The SOI has become the leading measure of variation in human mating strategies (e.g., Bailey, Gaulin, Agyei, & Gladue, 1994; Barber, 1998; Hoier, 2003; Salmon, 2003) and has most frequently been conceptualized and used as a single dimension assessing individual differences in long-term versus short-term mating (e.g., Brase & Walker, 2004; Buss, 1999; Clark, 2004; Greiling & Buss, 2000; Hirsch & Paul, 1996; Kirkpatrick, 1998; Klusmann, 2002; Mikach & Bailey, 1999; Schmitt, Shackelford, Duntley, Tooke, & Buss, 2001; but for examples of empirical studies that used the SOI strictly as a measure of short-term mating strategy, see Michalski and Shackelford, 2002; Wiederman & Dubois,

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doi:10.1016/j.evolhumbehav.2007.04.005

1998). Nonetheless, we believe that recent theoretical perspectives and empirical data challenge the validity of the SOI as a measure of variation in mating strategy.

1.2. Are mating strategies better measured and conceptualized as multidimensional?

Given recent theoretical and empirical research in the area of human mating, we believe that a multidimensional measure might more fully capture variation in mating strategies. We believe that two distinct sets of modifications to the SOI are required.

1.2.1. Sociosexual attitudes and behaviors

The SOI is an aggregate of sociosexual attitudes (attitudes in favor of casual sex) and sociosexual behaviors (number of previous sexual partners). As argued by Bailey et al. (1994), it is potentially useful to analyze sociosexual attitudes separate from sociosexual behaviors, as it is possible to examine the level (psychological or behavioral) upon which contextual constraints act to create variation in mating strategy. Mating strategies are integrated sets of psychological adaptations and their behavioral manifestations (Buss & Schmitt, 1993). Of these two components, behavioral manifestations are thought to be uniquely susceptible to opportunities and constraints that exist in the environment (Symons, 1989; Tooby & Cosmides, 1990).

These considerations led Bailey et al. (1994) to develop a variety of new scales, as alternatives to the SOI, to assess sociosexual attitudes and preferences independently of sexual behavior in their own research. In one set of analyses, they divided the original SOI into separate subscales to assess attitudes and behaviors separately, and demonstrated that two groups (homosexual men and heterosexual men) differed significantly with respect to one (behavior) but not the other (attitude) subscale. They interpreted this finding as supporting their "hypothesis that heterosexual and homosexual men differ in their *opportunities*, but not in the *intensity of motivation*, to engage in casual sex" (Bailey et al., 1994, p. 1086; italics added). Because opportunities represent just one of many factors (beyond attitudes or preferences) that influence actual behavior, it seems important to differentiate attitudes from behavior in both conceptualization and measurement.

1.2.2. Restricted and unrestricted sociosexual attitudes

Evolutionary theories of mating are essentially unanimous on the point that human sexual psychology is pluralistic, and that male and female evolved psychology includes the capacity for implementing both long-term and short-term mating tactics (e.g., Buss & Schmitt, 1993; Gangestad & Simpson, 2000). However, the prevailing measure of human sexual strategies, the SOI, measures only a single dimension. If the unidimensional SOI is taken to index interest in or motivation toward uncommitted sex (ranging from low to high, or from *restricted* to *unrestricted*) as implied by its authors, then motivation toward long-term mating is ignored. This may be adequate for many purposes, but, in general, suggests that the field lacks a comprehensive measure of mating orientation. On the other hand, the use of the SOI as a measure of long-term *versus* short-term mating entails a crucial but unexamined assumption that these orientations are mutually exclusive opposite poles of a single bipolar continuum.

Simpson and Gangestad (1991) demonstrated that sex accounts for a substantial amount of variation in sociosexuality, with males being more likely to possess an unrestricted sociosexual orientation than females. Therefore, researchers using the SOI as a measure of long-term versus short-term mating might be led to conclude that males are primarily interested in short-term mating and females are primarily interested in long-term mating. Empirical studies designed to test sexual strategies theory challenge this conceptualization. For instance, Buss and Schmitt (1993) found that males and females do not differ significantly in their stated pursuit of a long-term mate, yet differ widely in their stated pursuit of short-term sexual partners. Based on these findings, we believe that a two-dimensional model of sociosexual attitudes that distinguishes restricted/long-term attitudes from unrestricted/short-term attitudes would better conceptualize and measure between-sex variation in mating psychology.

Theoretical developments concerning the structure of within-sex variation also have implications for measuring individual differences in mating orientation. For instance, models of alternate mating strategies suggest that individuals favor either long-term mating strategies or short-term mating strategies (e.g., Gangestad & Simpson, 1990). However, models of a conditional mating strategy with mixed mating tactics suggest that there is a degree of psychological and behavioral flexibility within individuals that allows them to sequentially or simultaneously enact both long-term and short-term tactics (e.g., Buss & Schmitt, 1993; Fisher, 1998; Trivers, 1972). Indeed, recent empirical studies on the conditional expression of long-term and short-term mate preferences provide evidence of female mixed mating tactics (e.g., Havlicek, Roberts, & Flegr, 2005; Little, Jones, Penton-Voak, Burt, & Perrett, 2002; Penton-Voak et al., 1999). Therefore, measuring orientation toward only one dimension of mating and developing generalizations of overall strategy are potentially misleading. Again, we believe that a two-dimensional model of sociosexual attitudes would best measure the hypothesized variation within the sexes.

1.3. The current study

The purpose of the current study is to develop and validate a multidimensional measure of mating strategy. In Phase 1, we use factor analysis to construct such a measure that distinguishes short-term attitudes, long-term attitudes, and sexual behavior. In Phase 2, we demonstrate the utility of

this multidimensional measure and model by examining the empirical relationships of our new scales, along with the original SOI, with three sets of variables that have been previously correlated with the SOI.

2. Phase 1

In Phase 1, we conducted a factor analysis of 25 sociosexuality items—some taken from previous research and others developed for this study.

2.1. Method

2.1.1. Participants and procedure

Participants were 328 (167 males and 161 females) Introductory Psychology students at the College of William and Mary (Williamsburg, VA). These students ranged in age from 17 to 23 years, with a median age of 19 years. Approximately 41% of the sample described themselves as being in a dating relationship at the time of testing. Of those in a relationship, the median relationship length was 10 months. Furthermore, just over half of the sample (171) reported having at least one sexual partner during their lifetime. Of those with previous sexual experience, the median number of sexual partners was 2. Participants completed the anonymous questionnaire in small groups in exchange for course credit. The questionnaire was administered in one of two formats: paper-and-pencil format or computer format.[1]

2.1.2. Measures

In addition to reporting their sex, age, and current dating status, participants responded to 25 items related to sociosexuality and mating. These included seven items from the original SOI (Simpson & Gangestad, 1991), five items selected from the *Interest in Uncommitted Sex* scale (Bailey et al., 1994), and a question about the lifetime number of sexual partners known to correlate with the SOI (Ostovich & Sabini, 2004; Simpson & Gangestad, 1991). In addition, we developed nine new items to assess attitudes toward long-term committed relationships and three new items to better tap female short-term mating psychology by emphasizing the quality of the potential short-term sexual partner.[2] Participants were asked to respond to attitudinal items using a Likert-type scale (i.e., 1=*strongly disagree* to 7=*strongly agree*). Items were presented in a randomly determined order and were distributed throughout a larger questionnaire on personality and romantic relationships to eliminate potential demand characteristics.

Table 1
Means and standard deviations for scales, disaggregated by the sex of the respondent

Scale	Female sample	Male sample
STMO	2.67 (1.42)	4.05 (1.52)
LTMO	6.31 (0.86)	6.06 (0.92)
Previous sexual behavior	1.98 (3.60)	3.16 (5.85)

2.2. Results

2.2.1. Factor analysis and scale construction

Because several items were moderately correlated with sex, separate principal components analyses were conducted for men and women. To test the equivalency of factor structures, we calculated a coefficient of congruence (CC) (see Finch & West, 1997) for each pair of factors. There was a high level of congruence for each factor pairing (CC≥.90 for all factors), indicating that within-sex factor structures were almost identical. We therefore combined male and female data to produce a more stable factor structure based on the full sample of 328 participants, after standardizing each item through *z*-score transformation within subsamples to control for between-sex variance and differences in response format.

Based on eigenvalue scree (Cattell, 1966) and factor interpretability, three factors accounting for >60% of the variance were extracted and rotated using an oblique procedure.[3] Factor loadings are presented in the Appendix.

Scales were created using items that loaded on one factor only (i.e., no cross-loadings) and yielded scale scores that could be easily interpreted. Accordingly, 10 items from the first factor were averaged to create a short-term mating orientation (STMO) scale (Items 1–10). Responses to seven of the items loading on the second factor were averaged to create a long-term mating orientation (LTMO) scale (Items 11–16 and 18). Three items from the third factor were aggregated to create a measure of previous sexual behavior (Items 22–24). The Cronbach's α values for each of the three scales, respectively, were .95, .88, and .83. The means and standard deviations for each scale are presented separately for males and females in Table 1.

2.2.2. Interscale correlations

Several scales whose distributions were strongly skewed were log transformed prior to further analysis. These included

[1] One hundred seventy-three participants completed the paper-and-pencil version, while 155 participants completed the computer version. Participants from the two groups were not significantly different from each other in terms of age, dating status, or number of previous sexual partners. Factor analyses conducted within each group revealed a high level of congruence for each factor pairing [coefficient of congruence (CC) ≥.90 for all factors], indicating that within-group factor structures were almost identical. Thus, we combined the data in order to produce a more stable and replicable factor structure.

[2] The SOI and similar measures, such as the *Interest in Uncommitted Sex* scale (Bailey et al., 1994), contain items that primarily assess the desire to engage in casual indiscriminate mating. Theoretical (Gangestad & Simpson, 2000) and empirical research (e.g., Regan, 1998) suggest that female short-term mating psychology is not well measured by such items. The sexual strategies of females reflect the tradeoff between two specific mate choice dimensions rather than a relaxation of mate standards.

[3] An orthogonal rotation yielded a similar factor structure with similar item loadings. However, the oblique rotation pattern matrix yielded a clearer simple structure.

the LTMO and previous sexual behavior scales for both sexes, as well as the SOI and STMO scales for females.

Correlations among the scales, separately for men and women, are shown in Table 2. In support of our argument for measuring STMO and LTMO separately, our STMO and LTMO scales only modestly (inversely) correlated with one another. Correlations between these scales and the original SOI clearly demonstrate that the latter measures primarily STMO and is only weakly (inversely) related to long-term orientation. Previous sexual behavior also correlates much more strongly with the STMO scale than with the LTMO scale.

2.2.3. Between-sex variation in mating psychology

Based on the previous empirical findings of Buss and Schmitt (1993), we predicted that a two-dimensional model of sociosexual attitudes would better conceptualize between-sex variation in mating psychology. To test this hypothesis, we conducted a repeated-measures analysis of variance, with sex as the between-subjects factor and with LTMO and STMO as the within-subjects factor. Items on each scale were scored in the direction of STMO. A significant Attitude×Sex interaction [$F(1,326)=49.73$, $p<.01$] was found (Fig. 1). As predicted, males and females differed more in their orientation toward casual sex ($M_{diff}=1.38$) than in their orientation toward long-term committed relationships ($M_{diff}=0.25$). Independent-samples t tests revealed a significant sex difference for both STMO [$t(326)=8.49$, $p<.001$] and LTMO [$t(326)=-2.52$, $p<.05$].

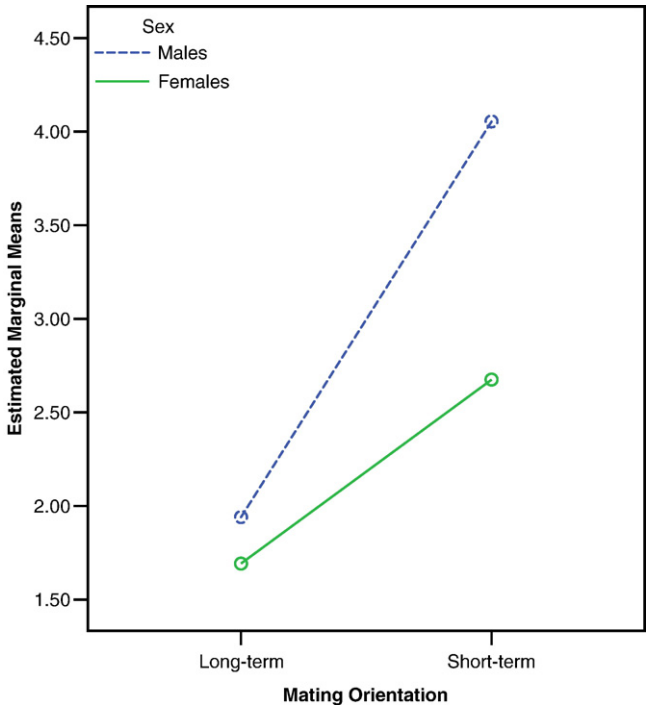

Fig. 1. Mating orientation by sex interaction. Items on each scale were scored in the direction of STMO.

3. Phase 2

In Phase 2, we sought to externally validate the new measures developed in Phase 1 and to examine the ways in which our multidimensional measure may clarify and extend previous empirical research on sociosexuality and mating. We chose three sets of theoretically relevant measures for this purpose:

Romantic partner choice: Whether viewed from the perspective of the frequency-dependent selection model of sociosexuality (Gangestad & Simpson, 1990) or more recent theories of facultative mating strategies (Buss & Schmitt, 1993; Gangestad & Simpson, 2000), LTMO and STMO entail distinct patterns of mate choice. Generally, individuals with a restricted sociosexual orientation or LTMO should more highly value attributes pertaining to personal and parenting qualities, whereas persons with an unrestricted sociosexual orientation or STMO should more highly value indicators of genetic quality, such as physical attractiveness and social visibility (e.g., Simpson & Gangestad, 1992; Townsend, 1993). A multidimensional model extends previous research by reconceptualizing the relationship between mating orientation and mate choice as occurring within individuals as well as between individuals. We predicted that preferences for personal/parenting qualities would relate to our LTMO scale and that preferences for attractiveness/social visibility would relate to our STMO scale.

Adult romantic attachment: Kirkpatrick (1998) suggested that widely used measures of adult romantic attachment styles may reflect, to a large extent, alternative reproductive strategies rather than attachment processes per se. Specifically, the dimension contrasting *secure*-versus-*avoidant* attachment appears to reflect orientations toward long-term mating versus short-term mating, respectively, and much empirical research previously interpreted in attachment theory terms is consistent with this alternative interpretation. However, the few extant studies in which adult attachment measures have been correlated with the SOI have shown only weak to moderate relationships (e.g., Brennan & Shaver, 1995). One explanation for this weak relationship comes from empirical (Hazan & Shaver, 1987) and theoretical research (Kirkpatrick, 1998; Zeifman & Hazan, 1997) suggesting that the secure-versus-avoidant dimension of attachment more strongly reflects the extent to which an individual is able and willing to engage in a long-term

Table 2
Intercorrelations between scales, disaggregated by the sex of the respondent

Scale	1	2	3	4
1. SOI	–	.80 **	−.22 *	.78 **
2. STMO	.84 **	–	−.27 **	.40 **
3. LTMO	−.41 **	−.42 **	–	−.14
4. Previous sexual behavior	.64 **	.36 **	−.08	–

Male data are displayed above the diagonal. Female data are displayed below the diagonal.

* $p<.05$.

** $p<.01$.

committed relationship. We predicted that our LTMO and STMO scales would correlate differentially with attachment, with the secure-versus-avoidant dimension being more strongly related to our LTMO scale.

Self-perceived mate value: Both sexual strategies theory and strategic pluralism theory suggest that one's own mate value will directly influence the use of long-term and short-term mating tactics. Specifically, Buss and Schmitt (1993) argue that individuals who embody the characteristics preferred by members of the opposite sex are best able to pursue their sex-typical preferred mating strategy. Gangestad and Simpson (2000) extend this argument by suggesting that a male's tendency to enact short-term mating should be a direct function of his genetic quality. Furthermore, female mate value should account for less variation in mating strategy, as females track the demands of the environment and not necessarily the preferences of males. Using the SOI, Lalumiere, Seto, and Quinsey (1995)[4] reported that high self-perceived mate value was related to unrestricted sociosexual orientation among males; among females, low global self-esteem (but not self-perceived mate value) was related to unrestricted sociosexual orientation. In two studies, Clark (2004) found that self-perceived attractiveness was related to unrestricted sociosexual orientation in females. We predicted that self-perceived mate value would more strongly relate to our STMO scale than to our LTMO scale, and that this pattern would be particularly evident among males. Moreover, we suggest that differentiating sociosexual attitudes from behaviors is crucial to properly investigating these relationships.

3.1. Method

3.1.1. Participants and procedure

One hundred seventy-three (94 males and 79 females) participants from Phase 1 completed an additional set of questionnaires in exchange for course credit.

3.1.2. Measures

Along with measures from Phase 1, the questionnaire included the following three measures on which responses were provided on Likert-type scales (i.e., 1=*strongly disagree* to 7=*strongly agree*).

The *Romantic Partner Attribute Index* (Simpson & Gangestad, 1992) instructs participants to rate the importance of 15 attributes in terms of how much they influence their selection of a potential mate. The measure yields two scores: one reflecting preference for personal/parenting qualities and the other reflecting preference for physical attractiveness/social visibility.

The 36-item *Experiences in Close Relationships* (Brennan, Clark, & Shaver, 1998) scale measures two orthogonal attachment dimensions, *avoidance* (versus security) and *anxiety*. The avoidance dimension indexes the level of discomfort with closeness and dependence. For example, one item states, "I get uncomfortable when a romantic partner wants to be very close." The anxiety dimension measures anxiety concerning relationship abandonment (e.g., "I need a lot of reassurance that I am loved by my partner").

The *Self-Perceived Mating Success Scale* (Landolt, Lalumiere, & Quinsey, 1995) assesses an individual's perception of how the opposite sex perceives him or her in terms of attractiveness. A sample item is, "Members of the opposite sex are attracted to me."

3.2. Results

3.2.1. Romantic partner choice and sociosexuality

In contrast to findings reported by Simpson and Gangestad (1992), the SOI was not significantly related to preference for personal/parenting qualities (r=−.08, ns) nor to preference for attractiveness/social visibility (r=.14, ns). Among men, the SOI was significantly correlated to the attractiveness/social visibility dimension (r=.29, p<.01), but not to the personal/parenting qualities dimension; neither correlation was significant among women.

Our LTMO and STMO measures also were uncorrelated with mate preferences in the total sample and among women. Among men, preference for personal/parenting qualities significantly correlated with the LTMO (r=.33, p<.01), but not with the STMO (r=−.02, ns). Male preference for attractiveness/social visibility in a mate was positively related to STMO (r=.24, p<.01) and inversely related to LTMO (r=−.24, p<.01). Thus, our separate measures of mating orientation were more useful empirically in predicting mate preferences than was the original SOI.

3.2.2. Adult romantic attachment and sociosexuality

Results for the original SOI replicated previous findings reported by Brennan and Shaver (1995). The SOI correlated only weakly with the two dimensions of adult romantic attachment. There was a weak but significant positive relationship between the SOI and avoidance (r=.18, p<.05), and there was a weak but significant inverse relationship between the SOI and anxiety (r=−.17, p<.05).

In contrast, the avoidance dimension was much more strongly related to our LTMO scale (r=−.54, p<.01) than to the STMO scale (r=.22, p<.01). The anxiety dimension was only weakly related to STMO (r=−.17, p<.05) and was unrelated to LTMO (r=.13, ns). These patterns were similar within each sex separately. This strong relationship between long-term orientation and attachment security supports the contention of Kirkpatrick (1998) that this dimension may reflect variation in mating strategy rather than attachment processes per se.

3.2.3. Self-perceived mate value and sociosexuality

Self-perceived mate value was moderately correlated with the SOI for both males (r=.32, p<.01) and females (r=.40, p<.01). Members of both sexes who perceive themselves as desirable to the opposite sex were more likely to report an unrestricted sociosexual orientation.

Among males, self-perceived mate value was positively correlated with the STMO scale (r=.27, p<.01) and inversely

[4] As cited in Buss (1999).

correlated with the LTMO scale (r=−.22, p<.05). These results mirror those found when using the SOI as a bipolar measure of restricted versus unrestricted mating, and suggest that males trade long-term mating tactics for short-term mating tactics based on their ability to attract members of the opposite sex (Gangestad & Simpson, 2000). Among females, however, self-perceived mate value was not significantly related to either STMO (r=.20, p=ns) or LTMO (r=.00, p=ns).

We also examined the relationships between self-perceived mate value and our measure of previous sexual behavior. Consistent with previous findings, self-perceived mate value was significantly correlated with higher levels of previous sexual behavior for males (r=.34, p<.01) and even more strongly for females (r=.46, p<.01). Thus, individuals with more extensive sexual histories perceive themselves to be more desirable to members of the opposite sex. Given that female self-perceived mate value was strongly related to (previous) sexual behavior but was unrelated to (current) mating orientation highlights the importance of the distinction between mating psychology and behaviors.

4. Discussion

Phase 1 of this research was designed to demonstrate that, in contrast to previous research based on the unidimensional bipolar SOI, individual differences in mating strategy are better conceptualized as a multidimensional construct that distinguishes sociosexual attitudes from sociosexual behaviors, as well as restricted/long-term attitudes from unrestricted/short-term attitudes. Factor analysis confirmed the hypothesized three-factor structure of 25 sociosexuality/mating items. Phase 2 demonstrated that measuring these components separately yields theoretically important empirical findings that have been overlooked previously in the absence of a multidimensional framework and measure.

4.1. Sociosexual attitudes and sociosexual behaviors

Our findings support the arguments advanced by several theorists that psychological adaptations should be distinguished from their behavioral expression, as behavioral expression can vary according to the opportunities and constraints in the local environment (Symons, 1989; Tooby & Cosmides, 1990). Similar findings reported by Webster and Bryan (in press) provide even further support for the distinction between sociosexual attitudes and behaviors. By conceptualizing and measuring sociosexual attitudes and behaviors as distinct constructs, both the psychological and behavioral tactics of mating strategies can be examined in relation to other variables of interest.

Determining the level at which adaptive individual differences exist has become a topic of debate. Some researchers have emphasized the universal nature of sex-specific psychological mechanisms for mating (e.g., Buss & Schmitt, 1993), while others have emphasized adaptive individual differences in sex-specific psychological architecture (e.g., Gangestad & Simpson, 2000). Our findings regarding the relationship between sociosexual attitudes and behaviors in Phase 1 are more consistent with this latter view given that we found moderate correlations between sociosexual attitudes and behaviors, particularly STMO and previous sexual behavior. However, more research is needed to address this topic, and a multidimensional measure that distinguishes motivational preferences (LTMO and STMO) from behavioral expression (previous sexual behaviors) will, no doubt, be useful.

4.2. STMO and LTMO

Two important findings in Phase 1 suggest that the SOI is a limited measure of both within-sex and between-sex variations in mating psychology. First, there appears to be more individual variation in the desire for short-term sexual relationships than in the desire for long-term committed relationships. Second, the sexes systematically differ much more in their desire and willingness to engage in short-term relationships than in their desire and willingness to engage in long-term relationships. By conceptualizing sociosexual attitudes along a single bipolar continuum, the SOI conflates two temporally distinct dimensions of mating psychology, and this conflation has consequences for the measurement of both within-sex and between-sex variations in mating psychology.

Examination of the relationships between the long-term and short-term mating dimensions and the SOI demonstrates that the SOI functions primarily as a measure of STMO and behavior. This is not surprising given that the SOI was developed as a measure of willingness to engage in uncommitted sex. Nevertheless, the SOI has become the leading measure of individual variation in mating strategy, and as we have shown in the current study, this may be problematic. Future research using the SOI must take into account its limitations as a measure of human mating orientation.

4.3. The value of a multidimensional model

Research using the SOI as a measure of mating strategy has focused on the following topic areas: strategy development, strategy pursuit, and possible constraints on strategy pursuit. Thus, the SOI has been related to variables such as adult romantic attachment, romantic partner choice, and mate value. In Phase 2, we presented research relating these variables to the SOI, discussed potential limitations, and hypothesized that a multidimensional measure would extend research in new and interesting directions.

4.3.1. Romantic partner choice

Although our findings for partner choice variables mirror those found previously using the SOI, they do not necessarily provide support for a model of alternate mating strategies suggested by Simpson and Gangestad (1992). For instance, the long-term and short-term dimensions could correlate with mate choice dimensions in opposite directions if personal and environmental constraints create the need for

strategic tradeoffs in mate choice. Strategic pluralism theory proposes that this is indeed the case. Specifically, females are thought to make tradeoffs between paternal investment qualities and genetic fitness qualities based on environmental cues when selecting mates, whereas males make tradeoffs based on their mate value. The current findings partially support this hypothesis. However, our findings are somewhat limited in that they do not address the qualities that are essential to the individual when selecting a mate in different temporal contexts. An interesting topic for future research would involve examining the interaction between an individual's STMO and LTMO and what they consider to be a necessity versus a luxury in a potential mate (Li, Bailey, Kenrick, & Linsenmeier, 2002).

4.3.2. Adult romantic attachment

The application of attachment theory to adult romantic relationships has become an enormously popular topic in social and personality psychology, and measures of individual differences in adult attachment have been shown to correlate in predicted ways with countless other variables in the close relationships arena. However, Kirkpatrick (1998) has argued that these findings are equally interpretable as reflecting predictable correlates of mating strategies rather than attachment processes. We showed that the SOI, as a single bipolar continuum of LTMO and STMO, dramatically underestimates the relationship between attachment security/avoidance and overall mating strategy. As predicted, the avoidance dimension was strongly correlated with LTMO but was only modestly related to STMO. These findings provide the foundation for future research to clarify the relationship between adult romantic attachment and mating strategy.

4.3.3. Self-perceived mate value

Mate value, as a variable that acts within each sex to constrain mating behaviors, is a unique candidate for examining the level at which adaptive individual differences in mating tactics exist. Our results suggest that males of relatively high mate value are more psychologically and behaviorally oriented toward short-term mating than are males of relatively lower mate value. As predicted by strategic pluralism theory, high-mate-value males are also less oriented toward long-term mating. Among females, self-perceived mate value was unrelated to mating orientation. However, it was related strongly to previous sexual behavior, suggesting that high-mate-value females differ from low-mate-value females in the number of mating opportunities they encountered in the past, but not in their current mating psychology. Our findings parallel those found previously regarding female sociosexuality and mate value (cf., Clark, 2004; Mikach & Bailey, 1999; Reise & Wright, 1996), and extend past research by demonstrating a lack of congruence between female mating orientation and sexual behavior. Understanding the nature of this discrepancy will be an interesting avenue for future research (Townsend, 1995; Townsend, Kline, & Wasserman, 1995).

4.4. Limitations and future directions

There are several important limitations to consider when evaluating the results of the current study. One important limitation concerns a restricted range of responses to the LTMO scale. Almost every participant endorsed, to some degree, the pursuit of a long-term committed relationship. This finding challenges the validity of the LTMO scale as an individual-differences measure and raises an important theoretical question about the nature of the long-term mating system. Is LTMO best conceptualized as a human universal trait or as an individual differences trait?

Many theories describing variation in human mating argue that the primary strategy for males and females involves the pursuit of a long-term committed relationship, with the pursuit of short-term opportunistic mating as a secondary tactic (Buss, 1998; Fisher, 1998; Gangestad & Simpson, 2000). This type of strategy with mixed mating tactics would involve little variation in psychological orientation toward long-term mating and possibly a substantial amount of variation in orientation toward short-term mating. Anthropological data on marriage and pair bonding certainly support this view (e.g., Fisher, 1989; Lancaster & Kaplan, 1994).

Despite these theoretical and empirical perspectives, the results of Phase 2 demonstrate that the variance captured by the LTMO scale is meaningful in that it uniquely relates to theoretically relevant variables, such as adult romantic attachment. Furthermore, a multidimensional measure may more fully capture complex mating patterns in spite of low variability on the long-term dimension. For instance, on the unidimensional bipolar SOI, those who pursue a mixture of long-term and short-term mating tactics score close to the middle of the scale and, thus, are not conceptually distinct from restricted and unrestricted orientations. A multidimensional measure allows for at least three meaningful conceptual patterns of mating orientation: mixed short-term/long-term orientation, exclusive short-term orientation, or exclusive long-term orientation. Such conceptual patterns could be analyzed in a number of ways to examine differences between those who are oriented toward mixed mating and those who are more exclusively oriented toward either long-term or short-term mating.

An additional caveat concerns the conceptualization and measurement of the sociosexual behavior factor. The SOI primarily assesses the number of previous sexual partners, which is a limited and potentially misleading conceptualization of behavioral tactics involved in the pursuit of a mating strategy. For example, in the current study, high-mate-value women reported a greater number of sexual partners but did not appear to be more psychologically orientated toward short-term mating. One possible explanation for this finding is that these women have a higher number of monogamous relationships, which are being captured in sexual history items. An important next step involves developing better conceptualization and a better measure of the sociosexual behavioral factor. In its current form, there is a need to isolate

previous short-term sexual behaviors from total previous sexual behaviors. Moreover, future research is needed to determine the types of behaviors that map onto the long-term dimension. This may involve broadening the behavioral component to include commitment and investment behaviors that are only indirectly related to sexuality.

5. Conclusion

Recent theoretical and empirical developments have led us to question the validity of the SOI as a measure of individual mating strategy. We have suggested that the SOI, the leading measure of human mating strategies, does not map on to a theoretical and empirical model of a conditional strategy with mixed mating tactics, and that a multidimensional measure is required. The results of our two-part study provide preliminary support for a multidimensional model of sociosexuality.

Acknowledgments

Preparation of this manuscript was facilitated by a Faculty Research Assignment from the College of William and Mary to Lee A. Kirkpatrick. We thank two anonymous reviewers for their valuable comments on an earlier draft of the manuscript.

Appendix

Factor loadings of 25 sociosexuality items

Item	Factor 1	Factor 2	Factor 3
1. I can easily imagine myself being comfortable and enjoying "casual" sex with different partners.	**0.92**	0.02	0.03
2. I can imagine myself enjoying a brief sexual encounter with someone I find very attractive.	**0.92**	0.15	0.04
3. I could easily imagine myself enjoying one night of sex with someone I would never see again.	**0.90**	0.03	−0.01
4. Sex without love is OK.	**0.89**	0.05	−0.07
5. I could enjoy sex with someone I find highly desirable even if that person does not have long-term potential.	**0.85**	−0.01	−0.04
6. I would consider having sex with a stranger if I could be assured that it was safe and he/she was attractive to me.	**0.84**	−0.05	0.13
7. I would never consider having a brief sexual relationship with someone.	**0.77**	0.03	−0.02
8. Sometimes I would rather have sex with someone I did not care about.	**0.72**	−0.18	−0.03
9. I believe in taking sexual opportunities when I find them.	**0.68**	−0.16	−0.01
10. I would have to be closely attached to someone (both emotionally and psychologically) before I could feel comfortable and fully enjoy having sex with him or her.	**0.63**	0.04	−0.25
11. I am interested in maintaining a long-term romantic relationship with someone special.	0.08	**0.86**	0.15
12. I hope to have a romantic relationship that lasts the rest of my life.	−0.10	**0.84**	−0.12
13. I would like to have a romantic relationship that lasts forever.	0.08	**0.78**	0.05
14. Long-term romantic relationships are *not* for me.	−0.13	**0.78**	−0.04
15. Finding a long-term romantic partner is *not* important to me.	−0.09	**0.75**	0.07
16. I can easily see myself engaging in a long-term romantic relationship with someone special.	−0.02	**0.72**	−0.07
17. I cannot imagine spending the rest of my life with one sex partner.	0.39	−0.52	0.14
18. I can see myself settling down romantically with one special person.	0.02	**0.41**	0.01
19. If I never settled down with one romantic partner, that would be OK.	−0.02	0.40	−0.34
20. I would like to have at least one long-term committed relationship during my lifetime.	0.04	0.37	0.37
21. How often do you fantasize about having sex with someone other than your current dating partner?	0.21	−0.22	−0.17
22. During your entire life, with how many partners of the opposite sex have you had sexual intercourse?	0.08	0.05	**−0.91**
23. With how many partners of the opposite sex have you had sexual intercourse within the past year?	0.11	0.09	**−0.87**
24. With how many partners of the opposite sex have you had sex on one and only one occasion?	0.08	−0.07	**−0.81**

25. With how many partners of the opposite sex do you foresee having sexual intercourse during the next 5 years?	0.44	−0.11	−0.41

N=328 (166 males and 161 females). Items were recoded and standardized within subsamples of males and females to control for sex and to eliminate differences in response format. Factor 1 corresponds to STMO, Factor 2 corresponds to LTMO, and Factor 3 corresponds to previous sexual behavior. Items 1, 4, 10, 21, and 23–25 are from the SOI. Items 3, 6, 8, 9, and 17 are from the *Interest in Uncommitted Sex* scale. Items 2, 5, are 7 are specific to female short-term mating. Items 11–16 and 18–20 are specific to LTMO.

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