Beyond Global Sociosexual Orientations: A More Differentiated Look at Sociosexuality and Its Effects on Courtship and Romantic Relationships

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Sociosexuality is usually assessed as the overall orientation toward uncommitted sex, although this global approach may mask unique contributions of different components. In a large online study ($N = 2,708$) and a detailed behavioral assessment of 283 young adults (both singles and couples) with a 1-year follow-up, the authors established 3 theoretically meaningful components of sociosexuality: past behavioral experiences, the attitude toward uncommitted sex, and sociosexual desire (all measured by a revised version of the Sociosexual Orientation Inventory). Discriminant validity was shown with regard to (a) their factorial structure, (b) sex differences, (c) many established correlates of sociosexuality, and (d) the prediction of observed flirting behavior when meeting an attractive opposite-sex stranger, even down to the level of objectively coded behaviors, as well as (e) the self-reported number of sexual partners and (f) changes in romantic relationship status over the following year. Within couples, the 3 components also showed distinct degrees of assortative mating and distinct effects on the romantic partner. Implications for the evolutionary psychology of mating tactics are discussed.

Keywords: sociosexuality, human mating tactics, flirting, romantic relationships, evolutionary psychology

Kinsey's studies on normative sexuality (Kinsey, Pomeroy, & Martin, 1948; Kinsey, Pomeroy, Martin, & Gebhard, 1953) were the first to provide scientific evidence that promiscuity is a fairly frequent phenomenon (a finding later confirmed, for example, by Laumann, Gagnon, Michael, & Michaels, 1994, and Schmitt, 2005b). Kinsey introduced the term *sociosexuality* to describe individual differences in people's willingness to engage in uncommitted sexual relationships. The construct of sociosexuality received much interest in various branches of psychology when Simpson and Gangestad (1991) provided a short self-report measure of global sociosexual orientations, the Sociosexual Orientation Inventory (SOI). It assesses sociosexuality along a single broad dimension, with high scores indicating an *unrestricted* sociosexual orientation (i.e., an overall more promiscuous behavioral tendency) and low scores indicating a *restricted* sociosexual orientation. The SOI proved to be a valuable instrument in more than 40 published studies (reviewed in Simpson, Wilson, & Winterheld,

2004), where it showed relations to, for example, mate choice preferences (Fletcher, Simpson, Thomas, & Giles, 1999; Simpson & Gangestad, 1992), courtship behaviors (Simpson, Gangestad, & Biek, 1993; Simpson, Gangestad, & Nations, 1996), and romantic relationship stability (Simpson, 1987) and quality (Ellis, 1998; Jones, 1998; Simpson & Gangestad, 1991). Another important reason for the success of the SOI was that it became the standard operationalization of individual differences in the study of long-term versus short-term mating tactics in evolutionary psychology (e.g., Schmitt, 2005b). This allowed sociosexuality research to take place within an elaborated theoretical framework (Buss & Schmitt, 1993; Gangestad & Simpson, 2000; Trivers, 1972). However, despite its undeniable success, a limitation that runs through the history of sociosexuality research like a central thread is the almost exclusive focus on sociosexual orientations as a unitary behavioral tendency (Asendorpf & Penke, 2005; Jackson & Kirkpatrick, 2007; Townsend, Kline, & Wasserman, 1995; Webster & Bryan, 2007). In the current article, we argue for a more differentiated perspective on sociosexuality.

Global Sociosexual Orientations

When biologist Alfred Kinsey (Kinsey et al., 1948, 1953) first wrote about sociosexuality, his approach to human sexuality was the standard biological approach to an unknown territory (which human sexuality was at that time): as descriptive and objective as possible. Consequently, he introduced sociosexuality as a global behavioral tendency; his interests in underlying causes and mechanisms were fairly limited. Simpson and Gangestad (1991) appeared to share this global perspective when they developed the SOI. Even though they acknowledged different aspects of sociosexuality ("overt" and "covert" behaviors, attitudes), their endeavors were guided by the explicit aim of developing a broad measure of global

sociosexuality (Simpson & Gangestad, 1991, p. 883). As a result, the SOI total score became an amalgam of (a) past sociosexual behaviors (Items 1 and 3), (b) future behavioral expectancy (Item 2), (c) the frequency of unrestricted fantasies (Item 4), and (d) attitudes toward sociosexuality (Items 5, 6, and 7) (Table 1).

Despite the obvious psychological heterogeneity of these items, the fact that the SOI remained the sole operationalization of sociosexuality corroborated the implicit equation in the literature of sociosexuality with the SOI total score. In addition, the global conceptualization of sociosexuality happened to fit quite smoothly with the evolutionary psychology of human mating that developed around it in the following years, which tended to focus more on the environmental and personal factors that determine global sociosexual orientations (Gangestad & Simpson, 2000; Schmitt, 2005b) than on the evolved psychological mechanisms that allow individuals to choose their mating tactics adaptively (Penke, Todd, Lenton, & Fasolo, 2007). The main objective of the current article is to characterize how global sociosexual orientations emerge from different psychological components of sociosexuality. This might tell us where to look for underlying psychological mechanisms and might thus aid their discovery in future research.

Three Components of Global Sociosexual Orientations

Sociosexual Behavior

According to Kinsey, individual differences in sociosexuality are first of all behavioral: Some people have uncommitted sex on a regular basis, others only seldom or never. Only these behavioral differences (and their reproductive outcomes) are what ultimately matters for evolutionary models of human mating, as only differential reproductive outcomes are visible to natural selection. Over the lifetime, an individual's history of sociosexual behaviors reflects his or her overall allocation of effort (in terms of time, energy, money, and other limited resources) to short-term versus long-term mating tactics (i.e., finding and courting a variety of potential mates vs. investing in a single committed relationship and potential offspring), as studied in biological life history theory (Roff, 1992). At any point in life, however, past sociosexual behavior reflects an individual's personal experiences and learning history in the mating domain, and it might also be indicative of his or her habitual behavioral tendencies in this area. Histories of more or less unrestricted sociosexual behaviors, in turn, are the developmental outcome of individual desires in transaction with per-

sonal and external (social and nonsocial) constraints on each individual's ability to fulfill his or her sociosexual desire.

Sociosexual Attitude

The sociosexual attitude can be conceptualized as the evaluative disposition toward uncommitted sex. As such, it may entail reflections about one's own wish for emotional closeness prior to having sex, as well as one's moral feelings toward this topic (Haidt, 2001). Many factors influence individual differences in attitudes, including various sociocultural ones. Cultural values (like chastity or freedom of self-expression), traditions (like religious commandments), and institutions (like marriage systems) tend to reflect the reproductive demands of the environment and can thereby reinforce the adaptive degree of sociosexuality in populations (Gangestad, Haselton, & Buss, 2006; Low, 2007). Simultaneously, they provide powerful means to influence the sociosexuality of other people in the population. For example, Baumeister and Twenge (2002) argued that the cultural suppression of female sociosexual unrestrictiveness is likely the result of women constraining each others' behavior. This way, they can control the availability and consequently the exchange value of female sexual accessibility on the mating market (see also Baumeister & Vohs, 2004). Thus, the culturally expected degree of sociosexuality will not necessarily reflect the sociosexual desire or determine the sociosexual behavior of each particular individual, though it will likely influence each individual's sociosexual attitude by mechanisms of cultural transmission (Gangestad et al., 2006)—and consequently their social self-presentation.

Sociosexual Desire

Like general sexual desire (Ostovich & Sabini, 2004; Regan & Berscheid, 1999), sociosexual desire is a motivational state that is characterized by heightened sexual interest and that is often accompanied by subjective sexual arousal and sexual fantasies. But unlike general sexual desire, unrestricted sociosexual desire comes with a sexual attraction that is specifically targeted at potential mates to whom no committed romantic relationship exists (see Simpson & Gangestad, 1991; Simpson et al., 2004). This preference for a certain class of incentives (i.e., uncommitted sexual partners) gives sociosexual desire a clear motivational component that makes it more concrete than the somewhat vague concept of

Table 1
The Sociosexual Orientation Inventory (SOI)

Item	Text
1	With how many different partners have you had sex (sexual intercourse) within the past year?[a]
2	How many different partners do you foresee yourself having sex with during the next five years (please give a *specific, realistic* estimate)?[a,b]
3	With how many partners have you had sex on *one and only one* occasion?[a]
4	How often do you fantasize about having sex with someone other than your current dating partner?[c]
5	Sex without love is OK.[d]
6	I can imagine myself being comfortable and enjoying "casual" sex with different partners.[d]
7	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.[d,e]

[a] Open response format. [b] Usually trimmed at 30. [c] Rating scale from 1 (*never*) to 8 (*at least once a day*). [d] Rating scale from 1 (*I strongly disagree*) to 9 (*I strongly agree*). [e] Reverse coded.

general sexual desire (Bancroft, 1989). Sociosexual desire is thus the motivational disposition to allocate mating effort to long-term versus short-term mating tactics.

Two sources of individual differences in sociosexual desire have been discussed in the literature: First of all, because sociosexual desire is a specific form of general sexual desire, some degree of general sexual desire should be necessary for an unrestricted sociosexual desire. General sexual desire, in turn, depends on a certain minimal level of free testosterone (Regan & Berscheid, 1999). Indeed, free testosterone has been called the physiological correlate of mating effort allocation (Ellison, 2001). In addition, a second psychophysiological mechanism seems to be important here: The state of passionate love (also called infatuation or *limerence*), which has been linked to the dopaminergic reward system, usually focuses sexual attraction on a single person and thus makes sociosexual desire highly restrictive (Fisher, 2004; Tennov, 1979). However, this highly activated state does not last forever, making sociosexual desires more unrestricted again after a period of time that has been said to be limited to approximately four years of romantic relationship (the "four-year itch," Fisher, 1987). For some, the infatuation period might be much shorter; these people tend to fall in and out of love quite frequently. As a consequence, they experience unrestricted sociosexual desire more often. Still others rarely or never fall into the state of infatuation (Tennov, 1979)—for them, the degree of sociosexual desire should be purely dispositional.

Sociosexual desire usually shows one of the largest sex differences in psychology (Hyde, 2005): On average, men have unrestricted fantasies more often (Ellis & Symons, 1990), are more willing to have sex with strangers, and wish for a larger diversity of future sex partners (Buss & Schmitt, 1993; Schmitt et al., 2003). As a proximate explanation, it has been suggested that the physiological systems for sexual attraction are more dependent on the physiological systems for interpersonal attachment in women than in men (Diamond, 2003). Ultimately, *parental investment theory* argues that the sex difference in sociosexual desire is an evolved psychological adaptation to the inevitable differences in minimal parental investment between the sexes (Buss & Schmitt, 1993), which imply higher potential benefits and lower costs of short-term mating for men than for women (Trivers, 1972).

However, Gangestad and Simpson (2000) argued that intrasexual differences in sociosexual desires are much larger than intersexual differences. To account for intrasexual differences in sociosexuality, they proposed the *strategic pluralism model*. According to this model, men will be motivated to have multiple uncommitted sexual relationships owing to their more unrestricted sociosexual desire, but their behavioral success will be limited by their ability to find willing sexual partners, because mating markets are competitive: As long as heterosexual men and women who desire different degrees of variety and commitment in their sexual relationships live in a population with a roughly equal sex ratio, it will be impossible for every man and every woman to translate their sociosexual desire into behavior (Asendorpf & Penke, 2005; Kokko & Jennions, 2003; Penke, Todd, et al., 2007). There will always be women who fail to turn a sexual affair with the man they want into an exclusive long-term relationship, and most men won't have as many one-night stands as they might wish for.

A man's behavioral success will depend on his ability to live up to the mate choice preferences of women. Female preferences, in turn, are contingent on the reproductive demand imposed by the environment: When offspring survival is heavily dependent on biparental care (e.g., when physical conditions are harsh or resources are hard to gather or monopolize), the model predicts that women will have restrictive sociosexual desires and prefer exclusive relationships with men who are good fathers and good providers. However, when environmental conditions are luxurious enough to make females independent of male investment, it is predicted that female desires will become less restricted. This should especially be the case when high prevalence rates of infectious diseases and parasites make mate choice for genetic benefits ("good genes" that are passed from the chosen mate to potential offspring) highly important. Under such conditions, women might forgo relationship exclusivity for mating opportunities with those few men with the best indicators of genetic quality (Gangestad & Simpson, 2000). Thus, female mate preferences are directly linked to their sociosexual desires, which in turn are contingent on ecological conditions. Although it is likely that further conditions affect sociosexuality (e.g., Schmitt, 2005b), the principles of the strategic pluralism model nicely illustrate how personal and environmental factors constrain people's abilities to translate their sociosexual desires into behaviors.

Taken together, we expect that there are at least three distinguishable components of global sociosexual orientations: the sociosexual *behavior* that results from the individual degree of *desire* for uncommitted sexual relationships and the *attitude* toward sociosexuality that an individual partly acquired during socialization and communicates in social settings. These three components will interact in the socioenvironmental context of a local mating market and have reciprocal effects on each other during an individual's lifelong development. For example, a young man might start with a highly unrestricted sociosexual desire during puberty but may soon face the social disapproval of a restricted social environment (e.g., in his conservative hometown) and rejection by restricted women as a response to his unrestricted advances. This will put severe limits on his behavioral success with unrestricted mating tactics and might make his attitudes more restricted, but at the same time might have no effects on his desires. When he later changes to a more unrestricted environment (e.g., by moving to a more liberal city), he might encounter less restricted potential mates. At first, his learned restricted attitudes might inhibit his motivation to initiate unrestricted behaviors, but after a while his attitudes might change and reflect his unrestricted desire again. How well he is able to translate his desire into behavior will depend on his attractiveness. If his attractiveness is low, his continuing failures on the behavioral level might have a restricting impact on his attitude and maybe even his desire. If his attractiveness is high, all three components may become very unrestricted—or he may eventually fall in love (i.e., infatuation, limerence) and become highly restricted in his desire and actual behavior but keep some degree of unrestrictedness in his attitudes that reflect his unrestricted cultural environment.

This fictional scenario should make clear that it is hard to imagine how a construct as broad and heterogeneous as global sociosexuality could be the result of a single psychological factor, such as the mere interest in having uncommitted sex. Instead, we propose that global sociosexuality, as measured by the SOI, provides a snapshot of the transactional process between three psychological components (and the socioenvironmental context): It

should reflect the communality (shared core) of sociosexual desires, attitudes, and behavioral histories, which results from the correlations these interdependent components will naturally show at any point in time (see Simpson & Gangestad, 1991; Snyder, Simpson, & Gangestad, 1986). While global sociosexual orientations are informative up to a certain point, each component has a unique psychological meaning, and a more differentiated perspective might provide deeper insights into the construct of sociosexuality, the process of mating effort allocation, and human mating in general.

Overview

In the following, we aim to provide a more differentiated perspective on global sociosexuality by studying its three components separately, and their unique contributions to human mating. In Study 1, we first revisited the structure of global sociosexuality, as reflected in the SOI. To provide an operationalization of our differentiated perspective, we revised the SOI to become a multidimensional measure of the three sociosexuality components that we theoretically proposed: sociosexual behavior, attitude, and desire. At the same time, we improved on some of the psychometric issues with the SOI that are frequently criticized (Asendorpf & Penke, 2005; Voracek, 2005; Webster & Bryan, 2007). Furthermore, Study 1 investigated the relative contribution of the different sociosexuality components to a broad array of relationships in the nomological network of global sociosexuality in order to characterize their distinctive contributions. Study 2 elaborated on these results by establishing distinctive predictive validity for the three sociosexuality components with regard to three criteria: courtship behavior, relationship outcomes, and number of future sexual partners. We also looked at dyadic effects within couples (including assortative mating), which might influence these predictive relationships. For comparative purposes, the results for global sociosexuality are also reported throughout.

Study 1

The purpose of Study 1 was to establish the three-component structure of sociosexuality, in tandem with an appropriate measure. We first compared psychometric characteristics and sex differences in the well-established SOI with a revised version of the SOI that allows for a separate assessment of past sociosexual behavior, sociosexual attitudes, and sociosexual desire. Furthermore, we replicated parts of the nomological network that has been found for global sociosexuality (Simpson et al., 2004), including indicators of individual romantic relationship and sexual history, current relationship quality, general sexual desires, mate choice preferences, self-assessments, and related personality traits and attitudes. For each correlate, we tested the unique contributions of each sociosexuality component in order to shed some light on its specific characteristics and its role in the emergence of global sociosexual orientations.

Psychometric Issues of the SOI

Despite its success, various technical details of the SOI have been repeatedly criticized (Asendorpf & Penke, 2005; Jackson & Kirkpatrick, 2007; Voracek, 2005; Webster & Bryan, 2007). These

include the one-dimensional conceptualization of sociosexuality in the SOI, which is problematic not only on the theoretical grounds we outlined above but also empirically: The internal consistency of the SOI tends to be quite variable across samples, sometimes falling below the threshold of what is usually regarded as acceptable. For example, across the 48 samples of the International Sexuality Description Project, Cronbach's alpha for the SOI (based on raw scores of all seven items) varied between .31 and .86 (Schmitt, 2005b). Furthermore, Webster and Bryan (2007) failed to find support for a one-factorial structure of the SOI in a large sample of college students. They suggested two correlated factors, sociosexual behavior and attitude, instead. However, these two factors also failed to provide a clear solution, as the behavioral expectancy item (Number 2) showed equal loadings on both factors, and the fantasy item (Number 4) was not well represented in this structure.

In addition to construct heterogeneity, the psychometric quality of the SOI is attenuated by the open response formats of the first three (behavioral) items. Such open questions for numbers of sexual partners tend to provide heavily skewed data, with low reliability of the values in the right tail of the distribution due to exaggerations, ballpark estimations, and systematic memory biases (Brown & Sinclair, 1999; Wiederman, 1997). As a consequence, the first three items can contribute an amount of variance to the SOI total score that is several times higher than the variance of the other four items—one very high value can thus completely dominate an individual's total score. High values in the open SOI items often receive some form of special treatment, but there is no consensus on this: Some researchers trim only Item 2 (e.g., Simpson & Gangestad, 1991), whereas others trim all three open items (e.g., Webster & Bryan, 2007), eliminate the upper 1% of the data (e.g., Schmitt, 2005b), or log-transform them to normality (Penke, Eichstaedt, & Asendorpf, 2006). Most often, however, the way this problem is treated is not reported. Needless to say, this reduces the comparability of results.

Another factor that limits result comparability is that there is also no consensus in the literature with regard to the scoring of the SOI. This issue stems from the fact that the seven SOI items come with three different response scales of unequal length. As a consequence, the SOI items cannot simply be summed to a total score but must be transformed to a common metric first. Simpson and Gangestad (1991) suggested three alternative ways to do so (factor analysis, z standardization, and a weighting formula). One of the latter two is usually used, even though they tend to provide different results (Voracek, 2005).

Finally, the origin of the SOI in the study of romantic couples (Simpson, 1987; Simpson & Gangestad, 1991) left its marks in the formulation of the fantasy item, Item 4. In its original wording, only subjects who are currently involved in a romantic relationship are able to give a meaningful response. Since then, however, the SOI has been used in samples that included singles, with the consequence that Item 4 is often skipped by these participants or omitted by the researchers (e.g., Brennan & Shaver, 1995; Clark, 2004, 2006; Greiling & Buss, 2000). Others (e.g., Schmitt, 2005b) circumvent this problem by changing the item text, even though the consequences for the construct validity are largely unknown.

The Nomological Network of Global Sociosexuality

In this study, we assessed a selection of variables that cover the most important domains of global sociosexuality's nomological network (Simpson et al., 2004). The best replicated finding in the sociosexuality literature is that men have a more unrestricted sociosexual orientation than women (e.g., Schmitt, 2005b). As global sociosexuality is defined as the willingness to engage in uncommitted sex, other obvious correlates are the desire for sexual variety (Schmitt, 2005a, 2005b) and the lifetime number of sexual partners (Ostovich & Sabini, 2004; Simpson & Gangestad, 1991). However, as Simpson and colleagues (Simpson & Gangestad, 1991; Simpson et al., 2004) emphasized, an unrestrictive sociosexual orientation does not imply the general avoidance of long-term romantic relationships. Instead, unrestricted individuals in committed relationships might consider having uncommitted sex with extrapair partners (i.e., sexual affairs). More central to the construct of sociosexuality is a trade-off in the allocation of mating effort to either one primary mate or many mates. It is thus not the mere engagement in long-term relationships that marks different sociosexual orientations but the quality of these relationships (Ellis, 1998; Simpson & Gangestad, 1991). According to Fisher's (1987) "four-year itch" hypothesis, it can be expected that sociosexual orientations become more unrestricted in longer lasting relationships.

Partly because unrestricted individuals care less about long-term relationships and partly because the social values and norms in Western societies do not tolerate "open relationships," the lack of motivation for relationship exclusivity in unrestricted individuals presents a permanent threat for relationship stability (Simpson, 1987). A natural side effect of unrestricted sociosexuality is thus an accumulation of ex-partners. Furthermore, because romantic commitment is encouraged in every major religion, sociosexual orientations tend to be more restrictive in more religious individuals (Kinsey et al., 1948, 1953; Laumann et al., 1994).

A more controversial domain of the nomological network is the relationship between global sociosexuality and general sexual desire. Simpson and Gangestad (1991) originally introduced the construct of sociosexuality as independent of sexual desire. Indeed, they showed that it was unrelated to the frequency of sexual intercourse in couples. However, Ostovich and Sabini (2004) later pointed out that general sexual desire should reflect the overall sexual outlet, which is arguably better captured by more impersonal indices, like masturbation frequency (see also Kinsey et al., 1948, 1953). When operationalized this way, there is a substantial relationship between general sexual desire and sociosexuality.

Sociosexuality is also related to mate choice, but in a highly specific manner. Several studies have shown that unrestricted individuals have a higher preference for physical attractiveness and other indicators of good overall condition (e.g., Fletcher et al., 1999; Simpson & Gangestad, 1992), with the theoretical rationale that these traits signal good genetic quality (Penke et al., 2007). In contrast, sociosexuality tends to be unrelated to other mate preferences (e.g., for warmth, reliability, or status). As attractive men are more likely to be chosen as short-term mates, they seem to infer their own mate value from their sociosexual history and use this information for their mating decisions (Clark, 2004, 2006; Landolt, Lalumiere, & Quinsey, 1995; Penke & Denissen, 2008; Penke et al., 2007).

Finally, a number of studies have related sociosexuality to various personality traits, with the overall result that unrestricted individuals tend to be extraverted sensation seekers, whereas restricted people tend to be agreeable and inhibited (reviewed in Simpson et al., 2004).

We expect to replicate all these established relationships for global sociosexuality, as assessed by both the original SOI and our new revised version.

Predicted Relationships for the Three Sociosexuality Components

Besides replicating the nomological network of global sociosexuality, our main interest lies in the pattern of relationships between these variables and the three proposed sociosexuality components. Although different components of sociosexuality are known to be intercorrelated (Simpson & Gangestad, 1991), each component will likely show stronger relationships to some variables in the nomological network than to others. Indeed, it might be that some relationships are exclusively due to a link with one of the components but not with the other two. This way, it should be possible to characterize the three distinctive components we propose.

For example, strong sex differences in sociosexual desire have been theoretically predicted and found in earlier studies (Regan & Berscheid, 1999; Schmitt et al., 2003), but they are logically impossible in sociosexual behavior in heterosexual populations (Asendorpf & Penke, 2005; Kokko & Jennions, 2003). Sex differences in sociosexual attitudes will likely reflect sex differences in desires to a certain degree, but because these explicit attitudes develop and are communicated in a sociocultural environment that reflects the reproductive interests of both men and women, sex differences in attitudes can be expected to be somewhat attenuated compared with those found for desires.

In general, the behavioral component of sociosexuality will reflect actual past experiences in the mating domain, which emerge on competitive mating markets in interaction with the somewhat diverging interests of the opposite sex and therefore may or may not match an individual's own attitudes and desires. As a result, the behavior component should show especially strong (and probably unique) links to variables like the numbers of prior romantic relationships, sexual partners, and extrapair sexual partners, as well as the actual occurrence of infidelity in general. We also expect that men's self-perceived mate value correlates highest with past behaviors, as they provide the most reliable source of information for self-evaluations (Penke & Denissen, 2008; Penke, Todd, et al., 2007). Finally, personality traits like shyness or sensation seeking affect what kinds of social environments people seek out (Plomin, DeFries, & Loehlin, 1977), which may come with different amounts of opportunities for unrestricted sociosexual behavior. Specific links between personality traits and sociosexual desires are less likely.

Sociosexual attitudes, however, might be somewhat related to personality traits. Explicit attitudes toward uncommitted sex will reflect self-perceptions of desires and behaviors to a certain degree, but they are also influenced by moral feelings, internalized values, and social self-presentation, which will likely affect the self-concept that people report in self-report questionnaires that assess socially undesirable traits like sensation seeking or interest in short-term mating. Similarly, self-reported mate preferences

might be just as much influenced by values, fashions, and peer group as they are by desires and own behavior. One primary source of sociosexual values is religion, so someone's religiosity should also affect his or her sociosexual attitudes.

Finally, the desire component is conceptualized as the dispositional motivation to invest efforts into short-term versus long-term mating tactics, independent of the behavioral success and the explicit attitude toward uncommitted sex. When people with unrestricted desires invest less in their long-term relationships, this should come with a devaluation of long-term partners (i.e., mates as attachment figures), which likely results in a lower relationship quality. Instead, unrestricted desires should be linked to a high interest in short-term mates, which usually comes with a stronger preference for physical attractiveness (Penke, Todd, et al., 2007). Furthermore, as we argued in the introduction, general sexual desire and infatuation are likely crucial mechanisms of sociosexual desire, so relationships with sexual desire and the "four-year itch" effect should be strongest for this component.

Because we assume that the three sociosexuality components are in a state of dynamic interplay (as in our introductory example), a variable that affects one component might also have an indirect effect on the other two (and on global sociosexuality). For example, people with more restricted attitudes because of their religiosity might in turn also change their behaviors or even desires. Still, the unique relationships of each component should provide some insight into the nature of this interplay.

Method

Sample. Study 1 is based on data from a large online survey. Despite former preconceptions, evidence is accumulating that online studies can provide valid psychological data (Gosling, Vazire, Srivastava, & John, 2004), including data for sex research (Mustanski, 2001; Penke et al., 2006). The current study was limited to adult participants aged 18–50 years who reported heterosexual orientation and prior sexual experience. A total of 2,708 German-speaking Internet users (1,026 men, 1,682 women; mean age = 24.2 years, $SD = 7.1$, $Mdn = 22$) completed the survey and agreed to a final item that asked whether all their responses had been

serious. The majority (92.8%) were native speakers. Slightly more than two thirds of the sample (71.3%) had at least a German Fachabitur or Abitur (college entrance examinations), whereas the others had left school with 10 years of formal education or less. A total of 1,447 participants (53.4%) were currently involved in a committed romantic relationship. As an incentive, participants received an automatically generated personality profile after completing the study.

Measures. After a list of demographic questions, including items regarding age, sex, native language, education, religious affiliation, and degree of religiosity, the participants answered German adaptations of the following measures:

The Self-Perceived Mate Value Scale, by Landolt, Lalumiere, and Quinsey (1995), consists of eight items with 7-point rating scales that ask for the reactions one usually receives from members of the opposite sex (men: $\alpha = .91$, $M = 3.23$, $SD = 1.01$; women: $\alpha = .93$, $M = 3.84$, $SD = 1.13$). A questionnaire on romantic relationships and sexuality included the original SOI (Table 1; for descriptive and psychometric statistics, see Table 2), the five new items of the revised SOI (SOI–R; see below and Appendix), and items asking for (a) current romantic relationship involvement, (b) the number of past romantic relationships that lasted longer than 1 month, (c) the total number of sexual intercourse partners so far, (d) the number of sexual intercourse partners while in a relationship with someone else (i.e., extrapair copulation partners), and (e) their average monthly masturbation frequency. For all following analyses, the total number of sexual partners and the number of extrapair copulation partners were log-transformed to reduce their skewness.

Those participants who reported current involvement in a romantic relationship also reported the duration of their current relationship and their average monthly sexual intercourse frequency with their partner. Furthermore, they answered the following questions on a dichotomous yes–no scale: "Do you believe your current partner is 'Mr./Mrs. Right'?," "Have you ever had a sexual affair with someone else while in the relationship with your current partner?," and "Could you imagine having a sexual affair with someone else while being in the relationship with your current partner?"

Table 2
Descriptive Statistics and Sex Differences of the Sociosexuality Measures in Both Studies

Variable	No. items	Men				Women				Sex difference	
		α	r_{tt}	M	SD	α	r_{tt}	M	SD	t	Cohen's d
Study 1											
SOI–R Behavior	3	.85		2.76	1.83	.84		2.65	1.73	1.62	.06
SOI–R Attitude	3	.87		6.42	2.33	.83		5.41	2.37	1.81***	.43
SOI–R Desire	3	.86		5.62	1.91	.85		3.96	1.94	21.72***	.86
SOI–R total score	9	.83		4.93	1.50	.83		4.01	1.52	15.49***	.61
SOI	7	.76		57.03	49.78	.75		45.23	39.10	6.46***	.27
Study 2											
SOI–R Behavior	3	.85	.83	3.09	1.88	.79	.86	3.10	1.64	0.04	.00
SOI–R Attitude	3	.76	.73	6.99	1.79	.88	.79	6.26	2.36	2.92**	.35
SOI–R Desire	3	.86	.68	4.98	1.88	.83	.39	3.97	1.82	4.61***	.55
SOI–R total score	9	.83	.83	5.02	1.40	.84	.78	4.44	1.49	3.36***	.40
SOI	7	.75	.74	59.23	40.56	.76	.79	51.37	40.32	1.63	.19

Note. *df*s for *t* tests were 2,706 in Study 1 and 281 in Study 2. r_{tt} = 1-year retest stability; SOI = Sociosexual Orientation Inventory; SOI–R = revised SOI.
** $p < .01$. *** $p < .001$.

Finally, the participants who were currently in a relationship completed the Personal Relationship Quality Components questionnaire (Fletcher, Simpson, & Thomas, 2000), which assesses six components of romantic relationship quality: satisfaction, commitment, closeness, trust, passion, and love. In this study, the short version of the questionnaire was used, which assesses each component with one item, all presented with a 7-point rating scale. In our analyses, we concentrated on the more reliable sum score (men: $\alpha = .86$, $M = 32.30$, $SD = 6.74$; women: $\alpha = .87$, $M = 33.21$, $SD = 6.90$), which can be regarded as a broad measure of relationship quality.

In addition, one subgroup of the total sample ($n = 867$) indicated on 10-point percentile scales how much they preferred the following 20 characteristics in a potential mate: friendliness, dominance, creativity, physical attractiveness, even temper, responsibility, intelligence, sense of humor, similar values, athletic ability, parental qualities, good education, sex appeal, good vocational prospect, sexual experience, fidelity, social status, richness, interesting personality, and desire for children. We reduced this list of preferences by submitting the data to a principal-components factor analysis.[1] Both the scree plot and a parallel analysis of 100 random data sets suggested the extraction of three factors (explained variance: 46.35%). After varimax rotation, Factor 1 was marked by friendliness (.74), fidelity (.73), and responsibility (.71). This factor closely resembles the warmth–trustworthiness ideal that was found by Fletcher et al. (1999) in a more comprehensive analysis of partner ideals and the *attachment preference* that Penke, Todd, et al. (2007) proposed on the basis of a theoretical review. Richness (.78), social status (.75), and good vocational prospect (.71) were the items with highest loading on Factor 2, a factor matching well to Fletcher et al.'s (1999) status–resources ideal and Penke, Todd, et al.'s (2007) *resource preference*. Finally, Factor 3 was marked by physical attractiveness (.65), sex appeal (.64), interesting personality (.57), and creativity (.56), fitting with Fletcher et al.'s (1999) vitality–attractiveness ideal and Penke, Todd, et al.'s (2007) *condition preference*. The factor structure of self-reported mate preferences in our study thus reflected three major preference dimensions that have been established in the mate choice literature. Individual factor scores were calculated for each participant.

A different subgroup of participants ($n = 1,131$) completed four other questionnaires instead. The Short-Term Mating Interest scale (STMI) is based on three measures first introduced by Buss and Schmitt (1993): the Time Known measures, asking for the willingness to engage in sexual activity with an attractive stranger after various time intervals (6-point rating scales); the Number of Partners measure, asking for the number of desired sexual partners across various future time periods (open response format); and a single item with a 7-point rating scale asking how actively one is currently seeking a short-term mate (e.g., a brief affair). Schmitt (2005a) aggregated three Time Known items (1 month, 1 year, 5 years), three Number of Partners items (1 month, 1 year, 5 years), and the short-term mate-seeking item after z standardization to the STMI, an index of overall short-term mating interest. The participants in our study responded to a slightly different selection of five items from the same measures, namely, the Time Known item with an interval of 1 evening; the Number of Partners items with periods of 1 year, 5 years, and the rest of one's lifetime; and the short-term mate-seeking item. We calculated an alternative STMI by summing these five items after log-transformation of the three (heavily skewed) Number of Partner items and sex-specific z

standardization of all five items. Despite being based on fewer items, our alternative STMI tended to be more internally consistent ($\alpha = .84$ for both men and women) than the original STMI was in Schmitt's (2005a) study ($\alpha = .79$).

The Sensation Seeking Scale (Form V, by Zuckerman, Eysenck, & Eysenck, 1978; German adaptation by Beauducel, Strobel, & Brocke, 2003) is a 40-item questionnaire that assesses the individual tendency to seek out various, new, complex, and intensive experiences, even if this entails taking risks. Items are presented as pairs of opposing statements, of which participants have to choose the one they agree with more (dichotomous response format). In the current sample, the scale was reliable for both men ($\alpha = .78$, $M = 22.92$, $SD = 6.05$) and women ($\alpha = .77$, $M = 20.87$, $SD = 5.80$).

Trait social inhibitedness was measured with the Shyness Scale by Asendorpf and Wilpers (1998), which consists of five items with 5-point rating scales (men: $\alpha = .83$, $M = 13.92$, $SD = 4.10$; women: $\alpha = .83$, $M = 13.36$, $SD = 4.03$).

The Sex Drive Questionnaire by Ostovich and Sabini (2004) is a self-report measure of what Kinsey et al. (1948) termed "total sexual outlet." It reflects the individual degree of sexual activity, be it with a partners or alone. It consists of four items with varying response formats, which are aggregated after z standardization. The internal consistency for this scale was marginally acceptable ($\alpha = .68$ for men and .72 for women).

Results

The structure of the SOI. The SOI was originally proposed by Simpson and Gangestad (1991) as a one-dimensional measure of a broad construct. We tested this assumption in a confirmatory factor analysis of a model that had all seven SOI items (which were z-standardized prior to the analysis) loading on the same latent factor. As already found by Webster and Bryan (2007), this model fit the data poorly, $\chi^2(14, N = 2,708) = 992.18$, $p < .001$ (comparative fit index [CFI] = .815, normative fit index [NFI] = .813, standardized root-mean-square residual [SRMR] = .101). Next, we attempted to replicate the two-factor structure of the SOI advocated by Webster and Bryan, with Items 1, 2, and 3 loading on a "behavior" factor and Items 2 and 4–7 loading on an "attitude" factor that is correlated with the behavior factor. Just as in their study, this model fit our data well, $\chi^2(12, N = 2,708) = 40.53$, $p < .001$ (CFI = .995, NFI = .992, SRMR = .019), and significantly better, not only as the one-factor model, $\Delta\chi^2(2) = 475.83$, $p < .001$, but also as two similar two-factor models that restricted Item 2 (which asks for expected future sex partners) to load exclusively on either the behavior, $\Delta\chi^2(1) = 526.23$, $p < .001$, or the attitude factor, $\Delta\chi^2(1) = 16.62$, $p < .001$. The current data thus fully confirm the results reported by Webster and Bryan.

However, we also tested an additional model, which modified the Webster and Bryan model toward a three-factor structure. The modification was that Item 4 (which asks for extrapair sexual fantasies) no longer loaded on the attitude factor but defined a

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[1] The reported results are based on the combined sample of men and women. Separate factor analyses for men and women resulted in an almost identical factor structure (Tucker's $\varphi = .96$, .95, and .92 for the attachment, resources, and condition preference factors, respectively). All results remained virtually unchanged when based on sex-specific factor scores.

distinct "desire" factor (i.e., the loading of Item 4 on this factor was fixed to 1). This third factor was correlated with both the attitudinal and the behavioral factor on the latent level. Our alternative three-factor model showed a good fit to the data, almost identical to the Webster and Bryan model, $\chi^2(12, N = 2,708) = 42.11, p < .001$ (CFI = .994, NFI = .992, SRMR = .019), had the same number of degrees of freedom, and had an only slightly worse Akaike information criterion (48,431.32 vs. 48,429.74 for the Webster and Bryan model). On empirical grounds, these two models can thus be regarded as equally plausible.

We assume that there is a straightforward reason why the three-factor structure of sociosexuality, which we favor on theoretical grounds, did not turn out to be superior to the two-factor model: The desire component of sociosexuality is not well represented in the items of the SOI (i.e., only in Item 4, which has the psychometric flaws discussed above). In addition, both Webster and Bryan's (2007) and our results underlined the ambiguous nature of the expectancy item, Item 2, which showed simultaneous affinities to both behavioral and attitudinal sociosexuality.

The SOI–R. Because of the structural and psychometric issues of the SOI, we added five new sociosexuality items to the questionnaire battery of the current study, which were selected from a total pool of 40 items in a series of pilot studies (details are available from Lars Penke). These five items were used to construct a psychometrically improved revision of the SOI, the SOI–R.

One item ("In your entire lifetime, with how many different people have you had sexual intercourse without having an interest in a long-term committed relationship with this person?," Number 3 in the Appendix) was intended as a replacement for the ambiguous Item 2 of the SOI. Together with Items 1 and 3 of the SOI, these three items were chosen to reflect the behavioral component of sociosexuality (the facet *Behavior*). To avoid the issues that come with the open response format of these items in the SOI, we recoded the open responses to nine categories. Note that these categories are more differentiated at the low end of behavioral frequencies than at the high end, which makes the contribution of sociosexual behavior events to the facet score asymptotical. This has the psychometric advantage of reduced facet skewness, but it deviates from the SOI by relying on the (to our knowledge yet untested) assumption that an additional sexual partner is more indicative of individual differences in sociosexual behavior for those with a history of few (as compared with many) sexual partners. The nine categories may be used to form a 9-point rating scale for these items in future studies (see Appendix).

The attitudinal component of sociosexuality is already well reflected in Items 5 to 7 of the SOI. However, the text of SOI Item 7 is very long and complicated, which might lead to measurement problems with less attentive or less educated participants. We thus replaced it with a shorter alternative ("I do *not* want to have sex with a person until I am sure that we will have a long-term, serious relationship"). Together with the original Items 5 and 6, it forms the facet *Attitude*.

Finally, three of the novel items (Items 7 to 9 in the Appendix, e.g., "In everyday life, how often do you have spontaneous fantasies about having sex with someone you have just met?") reflected aspects of the sociosexuality facet *Desire*. Like the original SOI Item 4, all new items refrain from asking people directly for their self-concepts of sociosexual desire, owing to the well-established difficulties that come with explicit self-reports of motivational dispositions (Nisbett & Wilson, 1977; Wilson, 2002). Instead, these items ask for the frequency with which responders have the subjective experience of physiological and cognitive states that usually co-occur with unrestricted sociosexual desire (i.e., sexual arousal or sexual fantasies that involve someone who is not the primary romantic partner), thus taking an indirect path to infer desire. Note that all these new Desire items avoid the requirement of an existing romantic relationship. Because this is not the case for SOI Item 4, we dropped it in the revised version. Note also that the rating scales of the SOI–R items now have nine alternatives, whereas SOI Item 4 had eight. This way, the number of response alternatives is the same for all nine SOI–R items.

The SOI–R thus contains a total of nine items, four taken from the SOI and five new ones. The structure of the SOI–R was also evaluated with confirmatory factor analyses. As with the SOI, we first tested a one-dimensional model, with all nine items loading on a single factor. This model was not supported by the data, $\chi^2(27) = 6,582.64, p < .001$ (CFI = .503, NFI = .503, SRMR = .173). Next, we tested a model with a behavioral (SOI–R Items 1 to 3) and a correlated "broad-sense attitudinal" factor (SOI–R Items 4 to 9), corresponding to the two-factor Webster and Bryan model. Again, the fit was poor, $\chi^2(26, N = 2,708) = 3,465.62, p < .001$ (CFI = .739, NFI = .738, SRMR = .160). In contrast, the model we theoretically expected, with three correlated factors (Behavior, Attitude, and Desire), each defined by three items (see Figure 1), fit the data well, $\chi^2(24, N = 2,708) = 224.69, p < .001$ (CFI = .985, NFI = .983, SRMR = .035), significantly better than the one-factor, $\Delta\chi^2(3) = 2,119.32, p < .001$, and the two-factor models, $\Delta\chi^2(2) = 1,620.47, p < .001$.
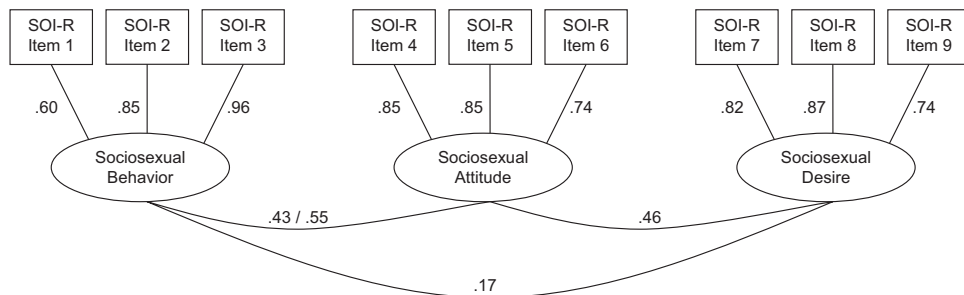

Figure 1. Confirmatory factor analysis of the revised Sociosexual Orientation Inventory (SOI–R). All factor loadings and correlations are significant at $p < .001$. The two correlations between the sociosexual Behavior and Attitude factors are for men and women, respectively. The difference is significant at $p < .001$.

We also tested for sex differences in the SOI–R structure by fitting the three-factor model separately to data from men and women and then constraining all factor loadings and correlations to be equal across sexes. This model provided a good fit to the data, $\chi^2(57, N = 2,708) = 273.43$, $p < .001$ (CFI = .983, NFI = .978, SRMR = .045), though the fit improved somewhat when the latent correlation between sociosexual Behavior and Attitude was allowed to differ between men and women, $\Delta\chi^2(1) = 5.29$, $p < .05$. Because this sex difference was also found by Webster and Bryan (2007) for the SOI, we report this correlation separately for both sexes in Figure 1. Note that a hierarchical model where the three latent factors define a single higher order factor of global sociosexuality yields an identical fit to the data. We chose to present the correlated-factors model to underline our theoretical assumption that global sociosexual orientations are an emergent phenomenon of its three psychologically distinguishable components.

The three items that correspond to each of the three SOI–R components yield very reliable sociosexuality facet scales (Table 2), especially when their briefness is taken into account. The SOI total score corresponds especially well to the SOI–R Behavior facet ($r = .77$), even better than the average of the three SOI behavioral items (Items 1–3, $\alpha = .67$) ($r = .70$), which differs only in one item and the scale format. Not surprisingly, the SOI–R Attitude facet corresponds almost perfectly to an aggregate of the SOI's three attitudinal items ($\alpha = .83$, $r = .94$), two of which also contribute to the SOI–R facet. Of greater interest, the SOI–R Desire facet corresponds very well to the fantasy item, Item 4, of the SOI ($r = .64$), even though there is no item overlap here.

The positive intercorrelations of the SOI–R facets (Figure 1) allow for aggregating all nine SOI–R items to a global sociosexuality index, similar to the one provided by the SOI. This aggregate also shows good reliability (Table 2). The correspondence of the SOI and SOI–R total scores is not exceptionally high ($r = .64$ for men and .68 for women), likely owing to the fact that the SOI–R puts somewhat more emphasis on the Desire component and less on the Behavior component than the SOI does.

Sex differences. As can be seen in Table 2, the well-established sex difference for the SOI was replicated in this sample (Cohen's $d = .27$) and was even more pronounced for the SOI–R total score ($d = .61$). However, analyses on the level of the SOI–R facets indicated that the Behavior facet did not contribute to the sex differences ($d = .06$). In contrast, the Attitude facet showed a sex difference comparable to the one found for global sociosexual orientations ($d = .43$), whereas the Desire facet showed a much larger sex difference ($d = .86$), which is large compared with conventional standards (Cohen, 1969).

Effects of relationship status and duration. We first tested for effects of the current romantic relationship status on global sociosexuality in two 2 (sex) $\times$ 2 (relationship status) univariate analyses of variance (ANOVAs), with either the SOI or the SOI–R total score as dependent variable. Whereas only sex had a significant effect on the SOI, $F(1, 2704) = 44.97$, $p < .001$, $\eta_p^2 = .02$, sex, relationship status, and their interaction all had significant effects on the SOI–R (all ps $< .001$, $\eta_p^2 = .08$, .01, and .004, respectively). Subsequent t tests indicated that the SOI–R total score was significantly lower in coupled than in single women, $t(1680) = 7.34$, $p < .001$, $d = .36$, but men did not differ by relationship status, $t(1024) = 1.51$, $p = .13$, $d = .09$. In order to solve this discrepancy, we ran a 2 (sex) $\times$ 2 (relationship status)

multivariate analysis of variance (MANOVA) with the three SOI–R facets as dependent variables. Here, the effect of sex was significant on the Attitude, $F(1, 2704) = 113.54$, $p < .001$, $\eta_p^2 = .04$, and Desire facets, $F(1, 2704) = 500.13$, $p < .001$, $\eta_p^2 = .16$, but not on the Behavior facet, $F(1, 2704) = 2.84$, $p = .09$, $\eta_p^2 = .001$. Relationship status had no effect on the Attitude facet ($F < 1$), but it had an effect on Desire, $F(1, 2704) = 344.26$, $p < .001$, $\eta_p^2 = .11$, and slightly on Behavior, $F(1, 2704) = 10.28$, $p = .001$, $\eta_p^2 = .004$. Interactions between sex and relationship status were significant for the facets Attitude, $F(1, 2704) = 7.81$, $p = .005$, $\eta_p^2 = .003$, and Desire, $F(1, 2704) = 13.45$, $p < .001$, $\eta_p^2 = .005$. Subsequent t tests indicated that individuals in a relationship showed slightly more unrestricted behavior than singles, $t(2706) = 3.00$, $p = .02$, $d = .12$, and that men had a slightly more unrestricted attitude when in a relationship, $t(1024) = 2.36$, $p = .02$, $d = .15$, while relationship status had no effects on attitudes in women, $t(1680) = 1.55$, $p < .12$, $d = -.08$. Of greater interest, individuals in a relationship had substantially more restricted desires, $t(2706) = 19.10$, $p < .001$, $d = .73$, though this effect was larger in women, $t(1680) = 18.20$, $p < .001$, $d = .89$, than in men, $t(1024) = 9.29$, $p < .001$, $d = .58$.

Within the subsample of individuals in a relationship, we also tested for effects of relationship duration on sociosexuality. Neither the SOI nor the SOI–R or any of its facets showed linear relationships with relationship duration (log-transformed to reduce skew) (all rs $< |.10|$, all ps $> .05$). However, interesting results emerged when we investigated the "four-year itch" hypothesis proposed by Fisher (1987). We compared those participants who had been in a relationship for 4 years or less ($N = 1,043$) with those whose relationship had already lasted for more than 4 years ($N = 376$). Two 2 (sex) $\times$ 2 (relationship duration) ANOVAs with either the SOI or the SOI–R total score as dependent variable yielded main effects of sex, SOI: $F(1, 1415) = 43.77$, $p < .001$, $\eta_p^2 = .03$; SOI–R: $F(1, 1415) = 141.80$, $p < .001$, $\eta_p^2 = .09$, and relationship duration, SOI: $F(1, 1415) = 4.93$, $p = .03$, $\eta_p^2 = .003$; SOI–R: $F(1, 1415) = 5.39$, $p = .02$, $\eta_p^2 = .004$, but no interaction effects (ps $> .05$), with those in a relationship for 4 years or longer being slightly more unrestricted, SOI: $t(1417) = 2.32$, $p = .02$, $d = .13$; SOI–R: $t(1417) = 3.07$, $p = .002$, $d = .18$. A 2 (sex) $\times$ 2 (relationship duration) MANOVA with the three SOI–R facets as dependent variables and subsequent t tests indicated, besides the usual pattern of sex differences, that the two relationship duration groups differed only in Desire, $F(1, 1415) = 18.93$, $p < .001$, $\eta_p^2 = .01$, and not in Attitude or Behavior (ps $> .10$). All interaction effects were nonsignificant (ps $> .10$). See Figure 2 for the means.

Both relationship status and relationship duration above or below Fisher's four-year threshold thus had their most noteworthy effects on the Desire component of sociosexuality. These effects are illustrated in a slightly different manner in Figure 2. All sex and group differences in this figure are significant at $p < .001$.

The nomological network of global sociosexuality and its components. In order to dissect the relations between global sociosexual orientations and its correlates, we first compared facet-level relationships with the SOI and SOI–R total scores. These zero-order correlations are shown in the first five columns of Tables 3 and 4. However, because the three facets also contain common variance that reflects their sociodevelopmental interdependences, the nomological network of their unique variance
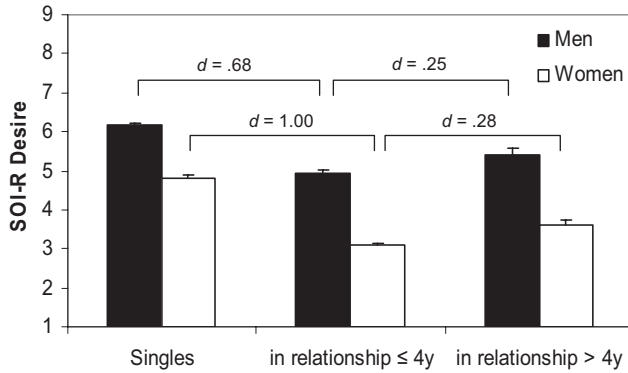
Figure 2. Effects of relationship status and duration on sociosexual desire in Study 1. For all sex and group differences, $p < .001$. SOI–R = revised Sociosexual Orientation Inventory.

should give a clearer picture of the nature of their relationships with the correlates of global sociosexuality. We therefore calculated uniqueness scores for Behavior, Attitude, and Desire by simultaneously regressing each of the three facets on the other two facets. The regressions were run separately for men and women. The resulting residual scores reflect the variance of each facet that is not shared with the other two. The three rightmost columns of Tables 3 and 4 show the correlates of these three uniqueness scores (technically semipartial correlations).[2]

Owing to the threat of error accumulation that comes with such a large number of significance tests, we set the alpha to a more conservative level of .01. However, the very large sample size already ensures a high robustness of the results.

As expected, both the SOI and the SOI–R total scores showed substantial correlations in both sexes with the total number of past romantic relationships, sexual partners, and extrapair sexual partners, as well as, to a lesser degree, self-perceived mate value. The correlations of the three SOI–R facets with these variables indicate that all these relationships are mainly due to the Behavior facet. This conclusion is strongly supported by the uniqueness correlations: With the other two facets statistically controlled, only the unique variance of the Behavior component of sociosexuality relates to the quantity of prior relationships, sex partners, and sexual infidelities and to self-perceived mate value.

For both sexes, the SOI–R total score (and in women also the SOI) showed a small but significant correlation with degree of religiosity and the self-reported condition preference (i.e., a preference for fertility and "good genes"), suggesting that unrestricted individuals tend to be less religious and prefer attractive, vital mates. Both indices of global sociosexuality also correlated negatively with self-reported attachment preference in women, indicating a greater preference for warmth and trustworthiness in more restricted women. In all these cases, however, the uniqueness correlations revealed that the effects are mainly driven by the Attitude components (though Desire also has a unique effect on women's self-reported condition preference).

The desire for sexual variety (as assessed by the STMI), an obvious correlate of global sociosexuality, showed strong correlations with all SOI–R facets. Therefore, it is interesting that only the uniquenesses of the facets Attitude and Desire correlate with the STMI—genuine

sociosexual behavior seems not to be represented in this measure. The Sensation Seeking Scale, on the other hand, apparently reflects a personality dimension that is truly related to all aspects of sociosexuality. The same is not true for shyness, which relates to sociosexual Behavior and Attitude but not to Desire.

Sexual desire within a relationship, as indexed by the sexual intercourse frequency with the current partner, shows only very weak relations to sociosexuality and its components. In contrast, general sexual desire, as indexed by the Sex Drive Questionnaire and masturbation frequency, shows substantial relationships with sociosexuality, especially with sociosexual Desire. The current study was thus able to simultaneously replicate the findings of Simpson and Gangestad (1991) and Ostovich and Sabini (2004).

Substantial negative relations were found between unrestricted sociosexuality and indicators of relationship quality, commitment, and exclusivity in both men and women. What all these variables have in common is that they overlap with the unique sociosexual Desire variance. The only incremental contributions of other sociosexuality components are that considering being unfaithful to one's current partner correlates with the Attitude component, and having already been unfaithful in the current relationship correlates with the Behavior component.[3]

Discussion

Study 1 strongly supported our initial contention that global sociosexuality is not a unitary construct but has different components that make unique contributions to the understanding of sociosexual orientations. Like Webster and Bryan (2007), we were unable to confirm the one-dimensional structure of the SOI. Instead, we could replicate the two-factor structure they suggested, but we also showed that a model with the three factors we expected theoretically (behavior, attitude, and desire) fit our data just as well. The three-factor structure of sociosexuality received even stronger support when tested in our revised version of the SOI, where the desire component was adequately represented by more than one item.

We were largely able to replicate the nomological network of global sociosexuality with both the SOI and the SOI–R. More

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[2] Note that uniqueness correlations provide a less biased estimate of the unique contribution of each facet to global sociosexuality than either beta coefficients from multiple regressions on all three facets or correlations with component scores from a principal-components analysis that rotated the facets to orthogonality. Whereas both alternative methods divide contributions of the communalities (i.e., shared variances) of the facets to the relationships with other variables equally between the betas or correlation coefficients, shared variance effects are completely controlled in uniqueness correlations. Furthermore, uniqueness correlations circumvent potential multicollinearity issues. However, the general pattern of results in both Study 1 and Study 2 remained virtually unchanged when either multiple regressions or orthogonal components were used.

[3] Owing to the age range of our sample, we also checked the dependency of our results on age. Both the SOI (men: $r = .17$, $p < .001$; women: $r = .12$, $p < .001$) and the SOI–R (men: $r = .09$, $p = .006$; women: $r = .07$, $p = .003$) total scores were weakly correlated with age. On facet level, Behavior increased with age ($r = .25$, $p < .001$, for both sexes), whereas Attitude was unaffected and Desire showed a weak decline in women ($r = -.13$, $p < .001$). Virtually all results remained unchanged when age was statistically controlled.

Table 3

Correlates of Sociosexuality and Its Components for the Men in Study 1

Variable	Zero-order correlations					Uniqueness correlations		
	SOI	SOI–R	SOI–R B	SOI–R A	SOI–R D	SOI–R B	SOI–R A	SOI–R D
No. prior romantic relationships	.39***	.35***	.46***	.25***	.07	.40***	.08	−.03
No. prior sexual partners	.68***	.59***	.86***	.38***	.09**	.77***	.07	−.07
No. prior extrapair sexual partners	.53***	.43***	.61***	.26***	.12***	.55***	.02	.01
Self-Perceived Mate Value Scale	.24***	.23***	.34***	.16***	.03	.27***	.07	−.01
Religiosity	−.07	−.17***	−.07	−.21***	−.08	.01	−.19***	.00
Attachment preference factor[a]	−.03	−.08	−.02	−.10	−.05	.01	−.09	−.01
Resources preference factor[a]	.09	−.01	.09	−.08	.00	.11	−.11	.03
Condition preference factor[a]	.02	.19***	.08	.21***	.10	.02	.17**	.01
Short-Term Mating Interest[b]	.33***	.70***	.34***	.67***	.52***	.06	.45***	.30***
Sensation Seeking Scale[b]	.32***	.53***	.35***	.49***	.32***	.15***	.31***	.15***
Shyness Scale[b]	−.25***	−.27***	−.30***	−.23***	−.07	−.22***	−.12**	.02
Sex Drive Questionnaire[b]	.22***	.42***	.15***	.32***	.46***	.01	.15***	.37***
Masturbation frequency	.07	.22***	−.01	.13***	.38***	−.07	.01	.36***
Only men in a romantic relationship								
Personal Relationship Quality Components	−.06	−.23***	−.03	−.16***	−.32***	.04	−.05	−.29***
Current partner is "Mrs. Right"	−.12**	−.23***	−.05	−.20***	−.26***	.03	−.11	−.21***
Could imagine to be unfaithful	.26***	.54***	.29***	.45***	.48***	.12	.23***	.36***
Been unfaithful in this relationship	.24***	.32***	.35***	.18***	.23***	.30***	−.02	.18***
Sexual intercourse frequency	.10	.12**	.16***	.16***	−.03	.10	.14**	−.10

Note. $N = 1,026$; for men in a romantic relationship, $n = 528$. SOI = Sociosexual Orientation Inventory; SOI–R = revised SOI; B = Behavior facet; A = Attitude facet; D = Desire facet.
[a] $n = 316$. [b] $n = 709$.
** $p < .01$. *** $p < .001$. p levels $\geq .01$ are not reported.

important, an analysis of the three SOI–R facets supported our predictions that (a) sex differences are most pronounced in sociosexual desire, smaller for attitude, and absent in the behavior component; (b) relationship status and duration (Fisher's "four-year itch") have their strongest effects on desire; and (c) many correlates of sociosexuality are specific to only one of the three components (especially when their shared variance is controlled). Some specific predictions received no support: Self-perceived mate value was unexpectedly related not only to male but also to female behavior (see also Clark, 2004, 2006). Mate preferences related to attitude, not to desire. This probably reflects a general problem of self-reported preferences, which have been found to be unable to predict actual mate choices (Todd, Penke, Fasolo, & Lenton, 2007). We come back to this in the General Discussion. Some unexpected significant relationships were also found for sensation seeking and sexual intercourse frequency. However, the central message of the nomological network analyses, that each of our proposed sociosexuality components can be distinctively characterized by its unique relationships to some variables in the network but not others, received strong support.

Overall, these results confirm the SOI–R as a valid measure of global sociosexuality, and support the three distinguishable sociosexuality components we hypothesized on theoretical grounds. However, Study 1 was based solely on cross-sectional data. From these concurrently assessed self-reports, we cannot evaluate the usefulness of differentiating the three proposed sociosexuality facets in the prediction of future mating behavior and relationship outcomes. Furthermore, we cannot tell from individual data what dyadic effects sociosexuality has within romantic relationships or whether they show different developmental patterns or degrees of assortative mating. Study 2 was aimed to answer these additional questions.

Study 2

In Study 2, we assessed the predictive validity of sociosexual behavior, attitude, and desire, as well as global sociosexual orientations, with regard to three criteria: (a) flirtatious behavior during an interaction with an attractive opposite-sex stranger, (b) stability and change of romantic relationship status (single vs. in a relationship) over a 1-year period, and (c) degree of sexual promiscuity over the same time interval. All three criteria can be expected to be predicted by global sociosexuality: The construct is all about the tendency to be more promiscuous. Low relationship stability will often be a consequence of promiscuity and the low motivation to invest in long-term relationships that is characteristic of unrestricted individuals, whereas these same individuals are often very motivated to flirt with (i.e., to court) attractive potential mates whenever they encounter them.[4] Because these motivational dispositions are captured by the desire component, we expect it to be predictive of all three criteria, too. However, the behavior component is likely also predictive of all three criteria, as it reflects past short-term mating success (i.e., mate value and potential), experience in this domain, and habitual tendencies to evoke or encounter short-term mating opportunities. In contrast, we

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[4] Of course, flirting can also have the purpose to establish a long-term relationship. However, it is extremely unlikely that all (or even most) of the participants that flirted in our lab situation did so because they got immediately interested in a long-term relationship with this particular stranger they had never met before. Instead, we assume that people differ in their spontaneous habitual tendency to flirt whenever they have the chance to get in touch with an attractive member of the opposite sex. A habitual courting tendency would be a form of short-term mating effort that unrestricted individuals are more likely to show.

Table 4
Correlates of Sociosexuality and Its Components for the Women in Study 1

Variable	Zero-order correlations					Uniqueness correlations		
	SOI	SOI–R	SOI–R B	SOI–R A	SOI–R D	SOI–R B	SOI–R A	SOI–R D
No. prior romantic relationships	.26***	.23***	.38***	.20***	−.05	.33***	.05	−.13***
No. prior sexual partners	.62***	.56***	.83***	.42***	.05	.72***	.04	−.10***
No. prior extrapair sexual partners	.49***	.41***	.57***	.31***	.07	.48***	.04	−.04
Self-Perceived Mate Value Scale	.16***	.19***	.23***	.15***	.06	.15***	.03	.04
Religiosity	−.15***	−.18***	−.16***	−.18***	−.05	−.08	−.12***	.01
Attachment preference factor[a]	−.15***	−.23***	−.16***	−.23***	−.13**	−.05	−.15***	−.05
Resources preference factor[a]	.01	−.05	.01	−.07	−.03	.06	−.09	.00
Condition preference factor[a]	.16***	.25***	.11**	.23***	.20***	.00	.15***	.13**
Short-Term Mating Interest[b]	.41***	.68***	.30***	.65***	.52***	−.03	.46***	.33***
Sensation Seeking Scale[b]	.31***	.46***	.31***	.43***	.28***	.11***	.27***	.14***
Shyness Scale[b]	−.15***	−.21***	−.21***	−.19***	−.08	−.14***	−.09**	−.01
Sex Drive Questionnaire[b]	.26***	.33***	.22***	.24***	.29***	.11***	.09**	.22***
Masturbation frequency	.18***	.24***	.11**	.14***	.30***	.04	.01	.28***
Only women in a romantic relationship								
Personal Relationship Quality Components	−.21***	−.28***	−.14***	−.13***	−.40***	−.08	.03	−.37***
Current partner is "Mr. Right"	−.21***	−.27***	−.11**	−.16***	−.36***	−.02	−.03	−.32***
Could imagine to be unfaithful	.32***	.45***	.21***	.32***	.51***	.04	.14***	.41***
Been unfaithful in this relationship	.31***	.39***	.30***	.24***	.37***	.19***	.04	.30***
Sexual intercourse frequency	.09**	.05	.12***	.07	−.07	.09**	.05	−.10**

Note. $N = 1,682$; for women in a romantic relationship, $n = 919$. SOI = Sociosexual Orientation Inventory; SOI–R = revised SOI; B = Behavior facet; A = Attitude facet; D = Desire facet.
[a] $n = 551$.   [b] $n = 1,131$.
** $p < .01$.   *** $p < .001$. p levels $\geq .01$ are not reported.

see no reason to expect that sociosexual attitudes, independent of desires and past behaviors, contribute to the prediction of future sociosexual behavior.

In order to control for dyadic effects of sociosexuality, we assessed participants currently involved in a romantic relationship together with their partners. On the basis of the assumption that attitude partly captures the component of sociosexuality that is socially communicated (sometimes even to influence others), we expected that it would play a role in how partners affect each other's sociosexuality. Furthermore, because desire reflects the motivation to invest in a long-term relationship, couples in which both members have an unrestricted desire should be especially unstable. Finally, we used these data to explore assortative mating for sociosexuality on global and component levels.

Method

Sample. Participants were recruited for a study on "love, sexuality, and personality" by advertisements in various public places and a diverse range of media. They signed up for the study by answering a prequestionnaire on the Internet. An honorarium of € 16 (about $25) and personal feedback were offered as an incentive. Registration required providing demographic and relationship information that was used to prescreen participants for current relationship, marriage, and parental status; age; sexual and relationship experience; sexual orientation; and current psychoactive medication.

A final sample of 283 heterosexual, sexually experienced participants without children, aged 20–30 years ($M = 23.7$ years, $SD = 2.7$; 140 men, 143 women), completed all tasks. They consisted of 70 unmarried couples and 143 singles. All participants had been in at

least one committed relationship for at least 1 month, with a mean of 3.5 relationships ($SD = 2.3$). The couples had been together for 0.67 to 7.96 years, with a mean of 2.74 years ($SD = 1.63$). All participants were native speakers and were not on psychoactive medication in the 3 months prior to the study. Sixty percent were currently students, whereas 15.7% had left school with 10 years of formal education or less (i.e., no German Abitur or Fachabitur).

Procedure. After completing the online prequestionnaire, suitable participants were scheduled for a 2-hr lab session. All participants were tested individually, guided by a same-sex experimenter. Couples arrived at the laboratory together but were tested separately in parallel sessions. While in the lab, participants completed various assessments, including filling out the SOI and the SOI–R (see Table 1 for descriptives and reliabilities[5]), as well as a videotaped dyadic get-acquainted interaction with an opposite-sex confederate who was introduced as another participant of the study (Ickes, 1983). Standardized photographs were also taken. At the end, participants were debriefed, were asked to provide their e-mail and phone number for a follow-up study, and received payment and a personality profile. One year after the lab session, the follow-up was conducted as an online study.

Interaction with confederate. Two female and three male students served as conversation partners for the participants during the interaction. These confederates were carefully chosen

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[5] Further analyses (available from Lars Penke) revealed that the low retest stability of the Desire facet could be partially explained by its dependence on romantic relationship status, with women in particular showing more restrictive desires when starting a new relationship and less restrictive desires when separating.

for communicative skills, above-average attractiveness, heterosexual orientation, appropriate age, and an overall appearance comparable to the other confederate(s) of the same sex. Confederates were instructed to act like they were single and participating in the study, naive to the situation. They were trained to be friendly and open at the beginning of the interaction and to adjust their behavior to the behavior of their current interaction partner, such that the course of the interactions was largely determined by the participants. No participant had ever met his or her confederate before.

When the participant had completed the first assessments, the experimenter guided him or her to another room that looked more like a living room than a typical laboratory space, and offered one of two chairs to the participant. The chairs were arranged next to a small table such that the conversation partners were sitting at a 120 degree angle to each other. Each conversation partner was focused on by a video camera at the opposite side of the room that captured a close-up view of the face from a close-to-frontal angle (only the camera focusing on the participant was actually recording the conversation; the other served as a dummy to support the cover story). A third camera recorded both conversation partners from a 120 degree angle.

As part of the cover story, the experimenter made recordings of the participant's voice (unrelated to the present study), which were introduced as an intermission to bridge the waiting time for the conversation partner. Afterward, the experimenter reentered the room with one of the opposite-sex confederates, offered him or her the other seat, and briefly introduced him or her as another participant of the study. Subsequently, the experimenter explained that the purpose of the setting was to study what happens in the first minutes when strangers meet, asked both the participant and the confederate to get to know each other for 10 min, explained that the conversation would be video recorded, and left the room. Seven minutes later (not 10, as announced), the experimenter reentered the room and separated the participant and the confederate for the rest of the study. No participant showed serious signs of doubt about the cover story, an impression that was confirmed by unobtrusive inquiries by the experimenters at the end of the study. After the debriefing, all subsequent reactions of the participants were positive toward the study, with no sign of harm due to the deception.

Confederate ratings. The confederate rated the participants directly after the conversation on various items, including "Would you give this person your phone number?" and "Would you go out to the cinema with this person if he/she asked you?," both taken from Grammer (1995) and rated on a scale from 1 (*no way*) to 5 (*I would love to*). Because these two variables were highly correlated ($r = .73$ for the male and .70 for the female confederates' ratings, both $ps < .001$), they were averaged to a single score labeled *interest of confederate*.

Follow-up. Exactly 360 days after taking part in the lab session (T1), participants received an e-mail that offered them a free cinema ticket for responding to a 20-min follow-up online questionnaire (T2). Nonresponders received a reminder e-mail 10 days later and were called by one of the experimenters from the lab study after 14 days. The questionnaire first asked for changes in romantic relationship status over the past 12 months, with two response alternatives ("currently single" and "currently in a relationship") for those who were single at T1, and four alternatives ("in the same relationship all the time," "in the same relationship,

but separated in between," "in a different relationship," and "currently single") for individuals who were in a relationship at T1. Subsequent questions included the SOI, the SOI–R, an open item asking for the number of partners with whom they had had sex for the first time during the last 12 months, and various items unrelated to the present study.

Video analyses: Global ratings. Four independent, trained raters (two women, two men) rated the flirting behavior of the participants within the first 3 min of the videotaped interaction twice. In a first round, they rated all interactions recorded from the side perspective (with both interaction partners completely visible). In a second round, ratings were based on the frontal facial recordings. Thereby, both gross body positions and movements of both conversation partners and more subtle facial expressions of the participant were captured in the ratings. In both rounds, videos were presented with audio. All ratings were done every 30 s (indicated by a timed acoustic signal) on a scale from 1 (*not very much*) to 7 (*very much*) in response to the question "How much does this person flirt with the confederate?" Thus, each rater provided a total of 12 ratings for each participant. All raters were unacquainted with the participants and blind to their relationship status and the results of all other parts of the study.

For both rating rounds, the interrater agreement was high for each of the six 30-s segments (side perspective: $\alpha = .84$ to .88; frontal perspective: $\alpha = .85$ to .90). Thus, ratings of all four raters were aggregated for each segment. Within each perspective, the six aggregated segment ratings were further aggregated to highly reliable composites ($\alpha = .98$ and .97 for the side and frontal perspectives, respectively). Because these two composite flirting ratings were highly correlated ($r = .69$), they were aggregated to a final *global flirting rating* composite, based on 2 (camera perspectives) × 6 (30-s segments) × 4 (raters) = 48 ratings per participant. Potential influences of the specific confederate a participant faced during the conversation were statistically controlled by regressing the global flirting rating on the dummy-coded confederates within sexes and using the residuals in all analyses.

Video analyses: Behavior codings. The videos of the interaction were used to code 16 objective behaviors of the participants within the first 3 min, including the duration of (a) gazing at the confederate's face; (b) speaking; (c) smiling; (d) laughing; (e) illustrators (communicative gestures); and adaptors (nonillustrative hand movements) to the (f) body, (g) face, and (h) other objects (mostly the chair or table); as well as the frequency of (i) short glances (lasting less than 1 s) toward the confederate; (j) "look throughs" (passing looks at the confederate without fixation); (k) interactive gestures; (l) hair flips or tosses; (m) "coy smiles" (smiles toward the confederate, followed by an immediate downward gaze); (n) "head akimbos" (folding of the hand behind the head, thereby exposing the axillaries); (o) "backchannel responses" (affirmative nods or vocalizations); and (p) touching the confederate (except handshakes). In addition, the speaking time of the confederate was coded. The speaking times of both the participant and the confederate were subtracted from the total time coded (3 min) to arrive at the duration of silence in each conversation. All behaviors were chosen because they showed relations to contact readiness, rapport, and flirtation in earlier studies (Asendorpf, 1988; Bavelas, Chovil, Lawrie, & Wade, 1992; Bernieri, Gillis, Davis, & Grahe, 1996; Eibl-Eibesfeldt,

1989; Grammer, 1995; Grammer, Kruck, Juette, & Fink, 2000; Simpson et al., 1993).

Two trained research assistants coded the behaviors using The Observer 5.0 (Noldus, 2003). Twenty-one videos were double-coded to allow reliability determination. All behaviors involving hand or arm movements (e.g., illustrators, adaptors) were coded from the clips with full body shots from the side; all other behaviors were coded from the frontal facial recordings. Head akimbos and touching the confederate did not occur in any of the conversations. Intercoder reliabilities (intraclass correlations) for the other behaviors were high, ranging from .86 (backchannel responses) to .99 (facial gazing, short glances).

Facial attractiveness ratings. During the lab session, participants' faces were videotaped with a Cannon MV700i camcorder while they stood upright in front of a neutral background and maintained a neutral facial expression. Later on, video capturing software was used to choose the one frame with the most frontal and neutral recording of each participant's face and to convert it to a digital picture. Size was standardized to identical interpupilar distance. These pictures were divided into four sets of equal size ($N = 70–71$), two for male and two for female participants. Each of the four sets was rated by 15 different heterosexual undergraduate students of the opposite sex (age $M = 24.4$ years, $SD = 6.7$), who judged the attractiveness of each picture on a scale from 1 (*not attractive at all*) to 7 (*very attractive*) in exchange for course credit. Interrater reliabilities were good for both male ($\alpha = .90$ for Set 1 and .91 for Set 2) and female ($\alpha = .91$ for Set 1 and .89 for Set 2) raters, so that ratings could be aggregated across raters after z standardization.

Results

Attrition analysis. For the online follow-up study, 91.2% ($N = 258$) of the lab sample provided information on their current relationship status, and 85.5% completed the whole follow-up questionnaire, including the SOI and the SOI–R. Both those who responded partly and those who responded completely had, on average, received higher education and were more unrestricted on the Behavior facet of the SOI–R than those who failed to do so (ps $< .05$), but these groups did not differ significantly with regard to their T1 age, sex, relationship status, SOI–R Attitude and Desire facet scores, global flirting rating, or rated facial attractiveness.

Sex differences in sociosexuality. As in Study 1, sex differences were larger for the SOI–R than for the SOI and largest for the Desire facet, medium for Attitude, and absent for Behavior (Table 2).

Prediction of flirting behavior. We tested how sociosexuality predicted flirting behavior in the lab, using the global flirting rating as a criterion. Flirting with strangers is a proximate behavioral criterion for sociosexuality, as it entails the active courtship patterns that might initiate sexual contacts or new romantic relationships. As can be seen in Table 5, the SOI and SOI–R global scores predicted flirting behavior in both men and women, as does the Behavior facet of the SOI–R. In contrast, the Attitude facet is unrelated to the global flirting rating in both sexes. Finally, the Desire facet is strongly predictive of the global flirting rating in men but only marginally so in women. To further corroborate these findings, we calculated uniqueness scores for all three facets by regressing each facet on the other two and saving the residuals (see Study 1). An interesting pattern emerged from the uniqueness correlations: Whereas they confirmed the predictive value of past sociosexual Behavior and male sociosexual Desire, the unique variance of sociosexual Attitude turned out to be a *negative* predictor of the global flirting rating for both men and women. It appears that people display flirting tendency toward attractive strangers in line with their sociosexual desires and behavioral histories, even if this contradicts their explicit attitudes.

To have a closer look at how sociosexuality is communicated in get-acquainted situations, we analyzed the objectively coded behavior of the participants during the conversation. In a first step, we reduced the 15 behaviors that actually occurred in our sample with sex-specific principal-component factor analyses. A comparison of the eigenvalues with a parallel analysis of 100 random data

Table 5

Accuracies and Cue Validities for All Brunswikian Lens Model Analyses in Study 2

Variable	Betas for scale scores					Betas for uniquenesses		
	SOI	SOI–R	SOI–R B	SOI–R A	SOI–R D	SOI–R B	SOI–R A	SOI–R D
Men								
Global flirting rating	.27**	.33***	.28**	.06	.41***	.20*	−.18*	.38***
Behavior coding: Fixation	.09	.14	.05	−.04	.28***	.01	−.18*	.33***
Behavior coding: Expressivity	.10	.10	.07	−.02	.16†	.05	−.11	.18*
Behavior coding: Joyfulness	−.02	.06	−.05	.07	.11	−.09	.04	.10
Behavior coding: Inhibitedness	.01	.02	−.04	.05	.03	−.07	.05	.03
Women								
Global flirting rating	.26**	.17*	.28***	.02	.14†	.28***	−.14†	.07
Behavior coding: Fixation	.10	.11	.12	.16	−.01	.06	.13	−.08
Behavior coding: Expressivity	−.04	−.14	−.11	−.10	−.13	−.05	−.04	−.09
Behavior coding: Joyfulness	.27**	.17*	.26**	.02	.21*	.24**	−.14	.15
Behavior coding: Inhibitedness'	−.07	−.05	−.08	.01	−.04	−.09	.05	−.02
Behavior coding: Flirting gestures	.08	−.02	.06	−.03	−.02	.09	−.06	−.03

Note. All beta weights are controlled for the confederate during the conversation (dummy coded). SOI = Sociosexual Orientation Inventory; SOI–R = revised SOI.
* $p < .05$. ** $p < .01$. *** $p < .001$. † $p < .10$.

sets with identical sample size suggested four factors for men and five for women, a decision that was further supported by an inspection of the scree plot. After orthogonal rotation, the first three factors were very similar in both sexes (Tucker's φ = .93, .93, and .86, respectively). Factor 1 had high loadings of facial gazing (.90 in both sexes) and few short glances (men: −.87, women: −.85), thereby reflecting how directly the participants looked at the confederates. We called this factor *Fixation*. Factor 2 showed high positive loadings by speaking time (men: .76, women: .82) and amount of illustrators used (men: .64, women: .69) and a negative loading by the amount of silence that occurred (men: −.54, women: −.70). We labeled it *Expressivity*. Factor 3 was marked by the amount of smiling (men: .68, women: .74) and laughing (men: .61, women: .77) the participants showed and was consequently called *Joyfulness*. Factor 4 showed low congruence between the sexes (Tucker's φ = .24). However, for both sexes the highest loading behavior was the amount of body adaptors (men: .76, women: .74) used by the participant. In addition, the factor was marked by coy smiles (.76) in men and by look throughs (.62) and interactive gestures (.66) in women. Because all these behaviors can be linked to social inhibition, we called the factor *Inhibitedness* in both sexes (but marked the female factor with a prime to indicate its sex-specific structure). Finally, Factor 5, which we found only in women, was marked by hair flips/tosses (.79) and coy smiles (.71), two prototypical female courtship behaviors, leading to the label *Flirting Gestures*.[6]

The relationships between sociosexuality, the coded behavior factors, and the global flirting rating were analyzed in Brunswikian lens models (Brunswik, 1956). In a lens model, the accuracy of the assessment of a latent trait (here sociosexuality) during the social perception of a person's behavior (here the global flirting rating) is explained by the validity of objectively observable cues (here the coded behavior factors and their relationship to sociosexuality) and the utilization of these cues by the perceivers (here the relationship between the behavior factors and the flirting rating) (see Figure 3). For both men and women, we calculated separate lens models with the SOI and SOI–R total scores, each of the three SOI–R facets, and each facet's uniqueness as the latent trait. The confederates were dummy-coded and statistically controlled. Note that within sex, the cue utilizations stay the same, no matter which sociosexuality score is used; they can be found in Figure 3. In contrast, the accuracies and cue validities depend on which latent trait (i.e., sociosexuality variable) is analyzed in the lens model; these are all reported in Table 5.

As Table 5 shows, none of the four objective behavior factors were valid cues to the SOI or SOI–R total scores of men. Only an analysis on facet level revealed that high scores on the Fixation factor (and marginally the Expressivity factor) predicted male sociosexual Desire. These findings were corroborated with the uniqueness regressions, which also revealed a negative relationship between the Fixation factor and Attitude. In itself, unrestricted sociosexual Desire apparently leads men to more strongly fixate an attractive woman during a conversation, whereas an unrestricted explicit Attitude has the opposite effect. In women, both the SOI and the SOI–R total scores predicted more joyful behavior during the interaction, indicating that the amount of female smiling and laughing is a valid cue to global sociosexuality. On facet level, this relationship replicated for Behavior and Desire, though the uniqueness regressions showed that past behavioral history, not current
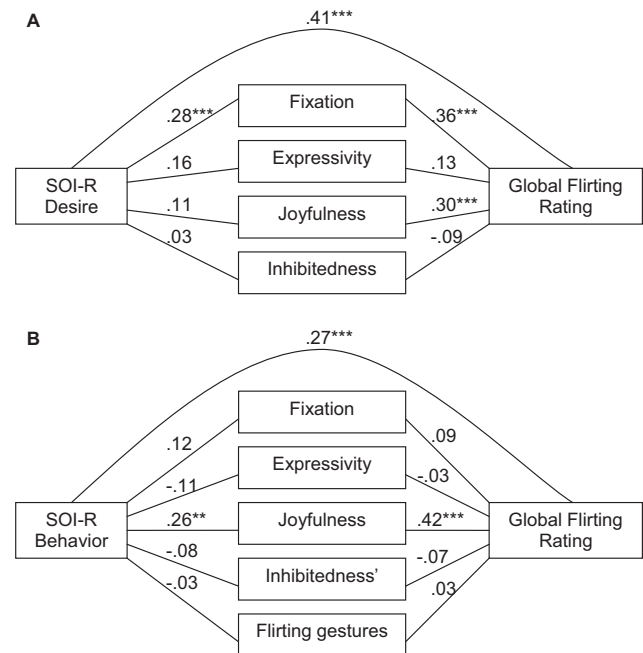

Figure 3. Significant links in the Brunswikian lens models between sociosexuality, coded behaviors, and rated flirting behavior in Study 2 for men (A) and women (B). SOI–R = revised Sociosexual Orientation Inventory. ** $p < .01$. *** $p < .001$.

desire, is what is specifically linked to the Joyfulness factor. The cue utilizations (Figure 3) indicate that Fixation and Joyfulness were used by the raters to form their flirting rating for men, whereas only Joyfulness was used in the formation of this impression for women.

Taken together, the results from the Brunswikian lens model analyses imply that Fixation of a potential mate is a valid cue to male sociosexual Desire, which was used by our raters to infer flirtation. After the other two facets were controlled, a similar but weaker and negative association existed in men for the explicit sociosexual Attitude. In women, Joyfulness during the conversation was a valid cue to past sociosexual Behavior that the raters utilized when judging flirtation. Figure 3 summarizes the major relationships we found for men and women.

Prediction of relationship status stability and change. To test whether sociosexuality predicts changes in romantic relationship status over 1 year, we compared the sociosexuality means between four groups: (a) those who were single at both T1 and T2 (*stable singles*, N = 78); (b) those who were in the same relationship at T1 and T2 (*in same relationship*, N = 114); (c) those who were in a new relationship at T2, no matter whether they had been single or in a different relationship at T1 (*in new relationship*, N = 52); and (d) those who were single at T2 because the relationship they had at T1 had ended (*single after separation*, N = 14). Two univariate

[6] When a fifth factor was extracted for men, it turned out to be not interpretable, with no coded behavior loading .60 or higher. All factor loadings not mentioned in the text were below .50. Further details on the coded behaviors and their factor structure are available on request from Lars Penke.

ANOVAs with 4 (group) $\times$ 2 (sex) between-subject factors and either the SOI or the SOI–R total scores as dependent variables indicated that relationship status group had a significant effect in both cases, SOI: $F(3, 250) = 12.56$, $p < .001$, $\eta_p^2 = .13$; SOI–R: $F(3, 250) = 21.09$, $p < .001$, $\eta_p^2 = .20$, whereas the sex effect was significant for the SOI–R, $F(1, 250) = 6.59$, $p = .011$, $\eta_p^2 = .03$, but not the SOI, $F(1, 250) = 1.49$, $p = .22$ (cf. Table 2), and the Group $\times$ Sex interaction was not significant for either measure ($Fs < 1$). Bonferroni-adjusted pairwise comparisons of the means revealed that in both cases, those who were in the same relationship at T2 had lower global sociosexuality scores at T1 than those who remained single or who had found a new partner ($ps < .001$). In addition, those in a new relationship at T2 had marginally higher SOI total scores at T1 than those who were single after separation at T2 ($p = .054$; $ps > .10$ for all other pairwise comparisons).

Next, we ran a 4 (group) $\times$ 2 (sex) MANOVA with the three SOI–R facets as dependent variables. Relationship status group had a significant effect on Behavior, $F(3, 250) = 13.82$, $p < .001$, $\eta_p^2 = .14$, and Desire, $F(3, 250) = 35.91$, $p < .001$, $\eta_p^2 = .30$, but only a marginal effect on Attitude, $F(3, 250) = 2.52$, $p = .058$, $\eta_p^2 = .03$. Sex effects were again significant for Attitude, $F(1, 250) = 6.09$, $p = .014$, $\eta_p^2 = .02$, and Desire, $F(1, 250) = 11.36$, $p < .001$, $\eta_p^2 = .04$, but not for Behavior ($F < 1$), whereas Group $\times$ Sex interactions were insignificant for all three facets ($Fs < 1$). Bonferroni-adjusted pairwise comparisons indicated that both those who had remained in the same relationship and those who had changed their relationship status from being in a relationship to being single at T2 were lower on the Behavior facet at T1 than both those who had stayed single and those who had started a new relationship at T2 (all $ps < .03$). Furthermore, those in a stable relationship that prevailed until T2 were lower in their sociosexual Desire at T1 than the three other groups (all $ps < .005$). All other pairwise comparisons, including all for the Attitude facet, failed to reach significance ($ps > .10$). Effect sizes for the significant group differences were generally large (see Figure 4).

Prediction of sexual behavior. Finally, we tested the predictive validity of the sociosexuality measures by examining the relation between their assessment at T1 and the number of sexual partners between T1 and T2. The criterion was measured by two items at T2: (a) SOI(–R) Item 1 (asking for the total number of sexual partners in the past 12 months) and (b) an item asking for the number of new sexual partners in the past 12 months with whom the participant had never had intercourse before. Both items were log-transformed to reduced skew. They correlated .86 in men and .89 in women and were thus aggregated after z standardization within sex to form an index of *future sexual partners*.

Future sexual partners was predicted by the total SOI (men: $r = .53$, $p < .001$; women: $r = .49$, $p < .001$) and SOI–R (men: $r = .57$, $p < .001$; women: $r = .39$, $p < .001$) scores at T1. The more differentiated perspective provided by the SOI–R facet-level correlations showed that the predictive validity was highest for the Behavior (men: $r = .58$, $p < .001$; women: $r = .45$, $p < .001$) and Desire (men: $r = .48$, $p < .001$; women: $r = .36$, $p < .001$) components, whereas it was lower for the Attitude component (men: $r = .27$, $p = .003$; women: $r = .17$, $p = .05$). The differences in effect sizes between Attitude and the other two facets were all significant (all $ps < .03$). The uniqueness correlations revealed that Behavior (men: $r = .44$, $p < .001$; women: $r = .32$, $p < .001$) and Desire (men: $r = .32$, $p < .001$; women, $r = .24$, $p = .007$) but not Attitude (men: $r = -.02$, $p = .84$; women: $r = -.06$, $p = .52$) made a unique contribution to the prediction of future sexual partners over the 1-year period.

Predictive validity of flirting behavior. If flirting is, as we argued, a more proximate behavioral criterion for sociosexuality, reflecting the active courtship patterns that initiate subsequent sexual contacts and new romantic relationships, our measure of flirting behavior should predict these outcomes. This link was indeed supported by our data: First, controlling for the dummy-coded confederate, the global flirting rating predicted the reported interest of the confederate in the participant (men: $\beta = .30$, $p < .001$; women: $\beta = .44$, $p < .001$). This relationship remained significant for both sexes when facial attractiveness was simultaneously entered into the regression (men: $\beta = .22$, $p < .01$; women: $\beta = .43$, $p < .001$). Furthermore, the global flirting rating at T1 predicted future sexual partners (men: $\beta = .34$, $p < .001$; women: $\beta = .24$, $p < .01$), again independent of facial attractiveness (men:
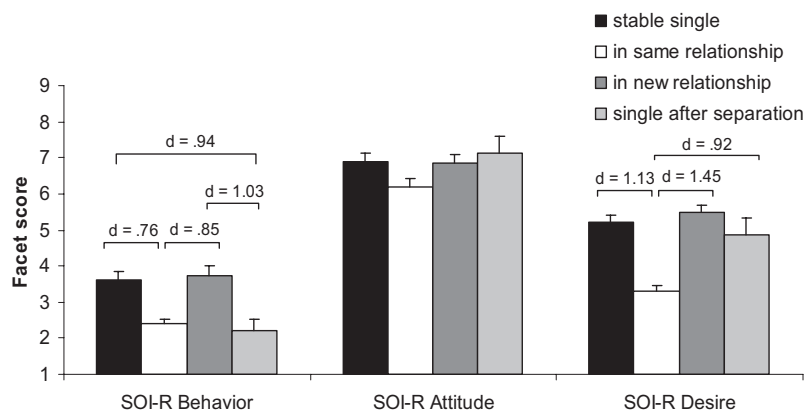

Figure 4. Mean differences in the revised Sociosexual Orientation Inventory (SOI–R) facets between relationship status groups in Study 2. Groups refer to the relationship status 12 months after the assessment of the SOI–R. Effect sizes (Cohen's d) are given for all significant ($p < .05$) group differences.

$\beta = .29, p < .01$; women: $\beta = .24, p < .01$).[7] Finally, an ANOVA revealed that the global flirting rating at T1 differed between relationship status groups at T2, $F(3, 250) = 12.57, p < .001$, $\eta_p^2 = .13$ (sex had no main or interaction effects, $ps > .10$), with those who were single at both points or who found a new partner receiving a higher flirting rating in the lab than those who continued the same relationship or who stayed single after separation ($ps < .05$ for these Bonferroni-corrected pairwise comparisons). Because the amount of flirtation in our lab interaction was predictive of future mating outcomes, the predictive relationships between the sociosexuality facets and flirting behavior can be regarded as consequential.

Partner effects. So far, we have analyzed the predictive validity of global sociosexuality and its facets on mating success and relationship outcomes on the individual level. For those currently involved in a romantic relationship, this entails a simplification, as such dyadic relationships can be defined by the presence of effects that one partner has on the other (Kenny, Kashy, & Cook, 2006).

One possible partner effect is that the mere involvement in a romantic relationship alters the effects that the individual level of sociosexuality has on behavior in the mating domain. Therefore, we reran all of the above analyses, controlling for romantic relationship status wherever appropriate. The general pattern of results remained unchanged.

Alternatively, it could be that not only one's own sociosexual orientation but also the sociosexuality of one's partner affects mating behavior and relationship outcomes. For example, having an unrestricted partner might motivate people to behave more unrestrictedly themselves or might increase their likelihood to terminate the relationship, independent of their own sociosexuality. Thus, we also analyzed potential effects of the partner's sociosexuality in the subsample of 70 couples. We applied Kenny et al.'s (2006) actor–partner interaction model (APIM) to test for such effects, using the SPSS 12.0 mixed procedure syntax they provided. In the APIM, effects that a characteristic of the target individual (actor) has on an outcome are disentangled from effects that a characteristic of his or her partner has on this outcome and from interaction effects stemming from the specific combination of characteristics both partners bring into the relationship. We ran a series of APIMs, with either (a) the global flirting rating, (b) relationship breakup during the next 12 months, or (c) the number of future sexual partners as the dependent variable. We ran separate analyses for each SOI–R facet, yielding a total of nine analyses. In a first step, the actor's and partner's scores on an SOI–R facet as well as their product were entered as predictors. In a second step, sex and its two- and three-way interactions with the other predictors were also entered. While several analyses indicated significant actor effects (which generally replicated the findings from the whole sample), partner effects and actor–partner interactions were significant in only three of the nine analyses. Detailed results for these three analyses, which also replicated when the uniqueness scores of the facet were used, are given in Table 6.

As can be seen in Table 6, the partner's sociosexual Attitude had a *negative* effect on the amount of flirtatious behavior the participants had displayed in the lab interaction, whereas there were no effects of the actor's Attitude, sex, or any interaction. This result could mean that those who are in a relationship with someone who expresses a very restrictive attitude are more likely to flirt with

alternative mates or (as both variables were assessed concurrently) that those who are more likely to flirt with strangers evoke a more restrictive attitude toward promiscuity in their partners. Different effects were found for sociosexual Desire: More unrestricted levels of Desire in either member of a couple increased the likelihood of a breakup within the upcoming year. The significant interaction indicated that this effect was even more accentuated when both partners had unrestricted desires, even though the three-way interaction suggests that the joint effect was somewhat stronger for men. Apparently, women are slightly more likely to terminate a relationship when only one partner has unrestricted desires. Similarly, both the actor's and the partner's Desire, as well as their interaction, predicted the number of sexual partners over the next 12 months. This might simply be a side effect of lower relationship stability, or an indication that preferences for sexual (non)exclusivity of one partner tend to have consequences for both.

Assortative mating. Given the existence of some partner effects, it is also interesting to look at the degree of assortative mating that exists for global sociosexuality and its facets. Assortative mating refers to the fact that mate choice for some characteristics is nonrandom, resulting in couples that resemble each other above chance level. Simpson and Gangestad (1991) reported a moderate degree of assortative mating for the SOI total score ($r = .30$). We failed to replicate this finding for the SOI ($r = .13$, $p = .28$) but found a similar degree of assortative mating for the SOI–R ($r = .34, p = .004$). An analysis on facet level revealed that only Attitude ($r = .36, p = .002$), and not Behavior ($r = .10, p = .41$) or Desire ($r = .16, p = .18$), showed significant within-dyad resemblances. This pattern of results was even more obvious in the correlations of the uniqueness scores ($r = .01, .31,$ and $.03$ for Behavior, Attitude, and Desire, respectively). Thus, only the attitude component seems to be responsible for assortative mating on sociosexuality.

Discussion

Study 2 showed that sociosexual behavior, attitude, and desire not only emerge as components from the empirical structure of global sociosexuality measures and show distinct correlational patterns with concurrently assessed self-reports, but are also predictive of mating behavior and romantic relationship outcomes in a highly differentiated manner. As predicted, people with a history of unrestricted sociosexual behavior were more likely to stay single over the next year (when single) or to change partners (when in a relationship). Sociosexual desire was more restricted in those who would remain in their relationship for the next 12 months, whereas those who would separate tended to have desires almost as unrestricted as singles. Sociosexual attitudes, in contrast, did not predict future relationship status. Similarly, only past behaviors and current desires related to flirtatious behavior toward attractive strangers and future numbers of sex partners. After sociosexual behavior and desire were controlled, unrestricted attitudes had

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[7] Global sociosexuality correlated significantly with facial attractiveness in men (SOI: $r = .19, p = .02$; SOI–R: $r = .19, p = .02$) but not in women (SOI: $r = -.15, p = .07$; SOI–R: $r = -.02, p = .86$). On facet level, only male Behavior showed a significant relationship to facial attractiveness ($r = .23, p = .007$). This pattern was even more obvious in the uniqueness correlations.

Table 6
Hierarchical Modeling of Actor, Partner, Sex, and Interaction Effects of Sociosexuality Facets on Outcome Variables in Study 2

	Model 1		Model 2	
Variable	b	SE	b	SE
Flirting behavior rating				
Intercept	−.355	.086	−.337	.089
Actor SOI–R Attitude	−.009	.035	−.004	.035
Partner SOI–R Attitude	−.080*	.033	−.084*	.037
Actor × Partner	.006	.015	.004	.015
Sex			−.097	.072
Actor × Sex			.008	.038
Partner × Sex			−.002	.039
Actor × Partner × Sex			.008	.012
Relationship breakup				
Intercept	.135***	.037	.139***	.041
Actor SOI–R Desire	.061***	.016	.062***	.017
Partner SOI–R Desire	.048**	.016	.046**	.017
Actor × Partner	.030*	.013	.031*	.013
Sex			−.008	.011
Actor × Sex			−.014	.018
Partner × Sex			−.004	.018
Actor × Partner × Sex			.008*	.004
Number of future sex partners				
Intercept	−.416***	.070	−.403***	.079
Actor SOI–R Desire	.142***	.037	.136***	.039
Partner SOI–R Desire	.107**	.038	.112**	.041
Actor × Partner	.065*	.026	.065*	.026
Sex			.028	.057
Actor × Sex			−.010	.041
Partner × Sex			.018	.042
Actor × Partner × Sex			.015	.019

Note. Breakup is dummy coded (0 = no breakup, 1 = breakup). Sex is dummy coded (1 = male, −1 = female). All predictors are centered on dyad level. Only models with significant partner effects are shown. SOI–R = revised Sociosexual Orientation Inventory.
* $p < .05$.   ** $p < .01$.   *** $p < .001$.

even a negative effect on flirting behavior, indicating that people show courtship behavior in line with their desires or habitual behavioral tendencies even when it contradicts their explicit attitudes. Within couples, a partner's restricted attitude apparently elicited (or was elicited by) flirtatious advances toward alternative mates. A partner with restricted sociosexual desire, on the other hand, facilitated a monogamous and stable romantic relationship. Assortative mating occurred only on attitudes. These results further confirm that the three components of global sociosexuality behave quite distinctively, indicating that separating them would benefit the study of sociosexual orientations.

General Discussion

It might be a historical coincidence that sociosexuality has been treated almost exclusively as a broad, global construct. Kinsey introduced it as a descriptive dimension in his normative studies, and Simpson and Gangestad (1991) seemed to be inspired by a type approach when establishing the construct in psychology (see Gangestad & Simpson, 1990). In the following years, sociosexuality was more and more equated with mating strategies and tactics within an evolutionary life-history framework (Simpson et al., 2004). All these approaches enforce a global perspective on sociosexuality.

On second sight, however, different aspects of sociosexuality do not need to be—and sometimes cannot be—closely interrelated.

The most obvious contrast exist between sociosexual desire, which shows large sex differences in line with evolutionary expectations (Schmitt et al., 2003), and behavior, where every act of heterosexual sexuality requires a man and a woman. In every population with a balanced sex ratio, the overall number of committed and uncommitted sexual acts will be the same for men and women, so it is impossible that every member of either sex behaves exactly as he or she desires (Asendorpf & Penke, 2005). Supporting this argument, we found only a weak latent correlation of .17 between the behavior and desire components of sociosexuality. Neither do explicit attitudes need to reflect desires or behaviors. Our studies provided strong support for a more differentiated perspective on sociosexuality. The three proposed sociosexuality components—behavior, attitude, and desire—were found in the empirical structure of the established SOI and also in the structure of our new SOI–R, which was able to assess them reliably. Furthermore, we showed that their contributions to the nomological network, the predictive validity, and the interpersonal effects of global sociosexuality are highly specific.

Note that the unique correlates of each component imply that they contribute something to the construct of sociosexuality that

was overlooked when only global sociosexuality was studied. We believe that these novel aspects can be especially informative when it comes to tearing apart the psychological processes that underlie sociosexual orientations: They tell us something about each component even when it does not overlap with the other two. For example, general sexual desire seems to be a crucial aspect of sociosexual desire and thus necessary, though clearly not sufficient, for explaining global sociosexuality. In the following, we discuss the specific characteristics separately for each component.

Sociosexual Behavior

The behavior component, reflecting the quantity of past short-term sexual encounters, shows strong and unique links to the diversity of past romantic and sexual relationships, as well as the occurrence of sexual infidelity. It can thus be regarded as a measure of the mating tactic an individual has implemented so far—or was able to implement. The trade-offs and difficulties that individuals face when trying to pursue their preferred mating tactic within competitive mating markets (Penke et al., 2007) are inferable from the facts that the correlation between sociosexual desire and behavior is rather low, and that the behavior component does not show the strong sex difference that is usually found for desire and attitude. They are also reflected in the fact that traits that affect the initiation of mating interactions (like physical attractiveness, shyness, and sensation seeking) and self-perceptions of mate value relate to this component (see also Gangestad & Simpson, 2000). Thus, the behavior component encompasses mating *potential* just as much as experiences.

Our results also confirmed the prediction that men and women who had more experience with short-term relationships in the past (i.e., those with high Behavior facet scores) were more likely to have multiple sexual partners and unstable relationships in the future. The behaviorally expressed level of sociosexuality thus seems to be a fairly stable personal characteristic. This stability seems to stem at least partly from the active behavior of individuals, because past sociosexual behavior also predicted the amount of flirtatious advances they showed toward an attractive stranger. For women, we could trace this relationship back to the amount of smiling and laughing they showed during an initial encounter. Smiling has been interpreted as a signal of low dominance and contact readiness (Eibl-Eibesfeldt, 1989), and it is perceived as attractive (O'Doherty et al., 2003). Furthermore, women tend to smile more when confronted with attractive men (Hazlett & Hoehn-Saric, 2000). One way to interpret these results it that women with more short-term mating experience might have learned how to use joyfulness to appear attractive and approachable for men they find attractive—successfully, as our confederates' ratings indicate—which in turn raises their odds for more unrestricted sociosexual behavior in the future.

Sociosexual Attitude

The unique contributions of the attitudinal component to the effects of sociosexual orientations were rather limited in our studies. Some of the strongest correlations were found with other self-rated personality constructs. Although it is reasonable that individuals adopt attitudes toward uncommitted sex that match their levels of sensation seeking, sex drive, desire for sexual

variety, shyness, and preference for exciting and attractive partners, it is striking that attitude was the only sociosexuality component that related to all kinds of self-report questionnaires. In sharp contrast, attitude was the only sociosexuality component that did not contribute uniquely to the prediction of future sexual behavior and relationship outcomes, and it was even negatively related to flirting behavior when past behaviors and current desires were statistically controlled, possibly indicating that people act against their explicit attitude when they are not grounded in their desires or behavioral histories. Furthermore, men and women expressed a more restricted attitude when their partners responded flirtatiously toward alternative mates or when conforming to religious values. Finally, sociosexual attitudes were solely responsible for the existence of assortative mating on sociosexuality, which might be explained by the fact that this is likely the most intentionally communicated component. Whether it is a result of direct mate choice for partners that express a similar attitude or an indirect effect of social homogamy (i.e., choosing a mate from within one's social environment—such as college, job, or neighborhood—where others might share similar attitudes) remains unclear from the current data.

Taken together, this pattern of findings supports our hypothesis that the unique aspect of sociosexual attitudes (which is not simply an explicit reflection of one's own behavior and desire) partly reflects social self-representation and cultural socialization—how people want to be seen by others and how others have told them to be. This interpersonal-influence aspect of sociosexuality is important, because (a) the adaptive value of different sociosexual orientations differs between environments (Gangestad & Simpson, 2000; Schmitt, 2005b), which makes the cultural transmission of mating tactics valuable (Gangestad et al., 2006); (b) men and women have to negotiate their conflicting desires when forming sexual relationships (Arnquist & Rowe, 2005; Buss & Schmitt, 1993); and (c) manipulating the sociosexual orientations of rivals can benefit one's own outcome within a competitive mating market (Baumeister & Twenge, 2002; Baumeister & Vohs, 2004). However, when it comes to what mating tactic someone will actually pursue, we failed to find predictive validity for attitudes, at least with regard to the behaviors we assessed.

Sociosexual Desire

As expected, desire showed the largest sex differences. It is likely that this component drives the sex differences in global sociosexuality. Within sex, sociosexual desire was related to general sex drive, desire for sexual variety, and sensation seeking. What was most compelling about this component, however, were its transactions with romantic relationships: On the one hand, sociosexual desire was more restricted in individuals who were currently in a relationship, became more restricted when a new relationship was started (see footnote 5), and got more unrestricted again after about 4 years (consistent with Fisher, 1987) or when a breakup occurred. On the other hand, more unrestricted sociosexual desires of both partners predicted relationship dissolution and sexual involvement with new partners. Furthermore, desire showed substantial negative relationships with concurrently assessed relationship quality, commitment, and fidelity.

Most of these personality–relationship transactions were somewhat stronger in women than in men, which might explain

the considerably lower retest stability of desire in women. This pattern of sex differences makes sense from an evolutionary perspective: Investing mating effort in a single long-term mate as long as the relationship is tenable aids basic female reproductive demands, like securing resources and paternal support (Buss & Schmitt, 1993; Trivers, 1972). From a proximate perspective, it might be that the low stability of female desire reflects fluctuations in women's sociosexual interests over the menstrual cycle (Gangestad, Garver-Apgar, Simpson, & Cousins, 2007; Gangestad, Thornhill, & Garver, 2002). However, owing to the response format of the SOI–R Desire items, this operationalization is not well suited to capture changes over an interval as short as one menstrual cycle.

For men, in contrast, desiring short-term sexual encounters whenever they become attainable can yield high fitness payoffs. In support of this theoretical prediction, not only was male desire less reactive to romantic relationship status, it also predicted flirting behavior independent of men's relationship status. The link between desire and flirting was partly mediated by the amount of gazing toward a potential mate. Other studies have found that direct gaze, similar to smiling, indicates attraction, contact readiness, and attention (Kleinke, 1986) and is perceived as attractive (Kampe, Frith, Dolan, & Frith, 2001; Mason, Tatkow, & Macrae, 2005). However, contrary to smiling, direct gaze also signals dominance (Kleinke, 1986)—a trait women prefer in short-term mates (Gangestad et al., 2007). This might explain why we found that sociosexuality predicts different flirtatious behaviors in men and women.

Implications and Limitations

The decomposition of global sociosexuality into three components has implications for future evolutionary psychological studies of individual differences in mating tactics. Differences in mating tactics reflect different solutions to life-history trade-offs, especially between investment in stable long-term relationships with high levels of parental investment versus less stable relationships with more or better partners. However, what is evolutionarily relevant about mating tactics is only their behavioral implementation over the reproductive lifespan, because only actual behaviors affect reproductive success and ultimately fitness. Thus, sociosexual attitudes, desires, and also early (prereproductive) behavioral experiences can affect fitness only if they have an impact on actual reproductive behaviors. We provide the first evidence that sociosexual desire and past behavioral experiences indeed predict future mating behavior. Our study is also the first to show that sociosexual orientations in general and sociosexual behavior in particular are fairly stable over a period as long as 1 year (shorter retest stabilities over 6 weeks and 2 months have already been reported by Ostovich & Sabini, 2004, and Simpson & Gangestad, 1991, respectively). However, longitudinal studies over more extended time periods are needed to shed light on how sociosexual orientations affect life-history decisions and trade-offs over the whole reproductive lifespan. This is especially important because most studies on sociosexuality have been conducted with about 20-year-old undergraduate students (our participants had a more heterogeneous background, but those in Study 2 were only slightly older on average and all childless). At this age, mating behavior seldom leads to reproduction but has a more exploratory character that is

distinctive from the mating behavior with reproductive goals that occurs later in life (Arnett, 2000; Furman, 2002; Penke, Todd, et al., 2007). Indeed, Locke and Bogin (2006) argued that humans evolved an extended adolescent life phase to provide a "training period" for mating skills. Future studies should aim to understand how trade-offs in actual reproductive behaviors emerge from the interplay of sociosexual desires, attitudes, and past behavioral experiences.

The most central implication of our results is that studying sociosexuality as one unitary construct masks important effects that are specific to its components. It is also insufficient to separate only sociosexual behavior and attitude (as suggested by Webster & Bryan, 2007, and Jackson & Kirkpatrick, 2007[8]), as some of the most substantial effects were unique to sociosexual desire, and attitude itself lacked predictive validity for future behavior. This is especially critical because some studies rely exclusively on attitudinal items when assessing sociosexuality (e.g., Kurzban & Weeden, 2005; Rhodes, Simmons, & Peters, 2005) or use sociosexuality measures that are heavily biased toward the attitude component (Bailey, Kirk, Zhu, Dunne, & Martin, 2000). Of interest, self-reported mate preferences, which showed unique relations only to the attitude component, have also been found to lack predictive validity for actual behavior (Todd et al., 2007). This suggests that self-reported preferences might be best conceptualized as attitudes (i.e., evaluative dispositions for characteristics of a mate) and that explicit attitudes are generally problematic for understanding the mechanisms that guide human mating behavior (Nisbett & Wilson, 1977; Wilson, 2002).

While the three components of sociosexuality we propose may help to analyze mating tactics, they are ultimately not differentiated enough. Various motives can lead to similar levels of sociosexual behavior, attitude, and desire (Cooper, Shapiro, & Powers, 1998; Greiling & Buss, 2000; Hill & Preston, 1996; Jones, 1998; Townsend et al., 1995), and in the end they result from interactions between evolved psychological mating adaptations (e.g., Fisher, 2004; Gangestad et al., 2007; Penke, Todd, et al., 2007), genetic variance within these systems (Penke, Denissen, & Miller, 2007), and ecological factors that impose constraints and evoke conditional responses (Gangestad et al., 2006; Gangestad & Simpson, 2000; Schmitt, 2005b). Our more differentiated perspective on sociosexuality provides only one of the levels we need to explore in order to understand how evolution prepared the functional design of our species to exhibit complex adaptive mating behaviors.

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[8] Jackson and Kirkpatrick's (2007) revision of the SOI actually distinguishes between independent long-term and short-term mating orientations as well as sexual behaviors, with the latter two being extensions of the original SOI attitude and behavior items, respectively. Their long-term mating orientation facet adds attitudinal items that correspond to an avoidant romantic attachment style. The SOI–R and its facets, in contrast, are generally unrelated to attachment styles ($rs \leq |.21|$, details available from Lars Penke). Furthermore, Jackson and Kirkpatrick dropped the fantasies item, Item 4, of the original SOI, thereby completely ignoring the desire component of sociosexuality. Thus, the distinction between long-term and short-term mating attitudes is at the heart of Jackson and Kirkpatrick's work, whereas our focus is on the decomposition of the classical construct of sociosexuality.

References

Arnett, J. J. (2000). Emerging adulthood: A theory of development from the late teens through the twenties. *American Psychologist, 55,* 469–480.

Arnquist, G., & Rowe, L. (2005). *Sexual conflict.* Princeton, NJ: University Press.

Asendorpf, J. B. (1988). Individual response profiles in the behavioral assessment of personality. *European Journal of Personality, 2,* 155–167.

Asendorpf, J. B., & Penke, L. (2005). A mature evolutionary psychology demands careful conclusions about sex differences. *Behavioral and Brain Sciences, 28,* 275–276.

Asendorpf, J. B., & Wilpers, S. (1998). Personality effects on social relationships. *Journal of Personality and Social Psychology, 74,* 1531–1544.

Bailey, J., Kirk, K. M., Zhu, G., Dunne, M. P., & Martin, N. G. (2000). Do individual differences in sociosexuality represent genetic or environmentally contingent strategies? Evidence from the Australian twin registry. *Journal of Personality and Social Psychology, 78,* 537–545.

Bancroft, J. (1989). *Human sexuality and its problems* (2nd ed.). Edinburgh, Scotland: Churchill Livingstone.

Baumeister, R. F., & Twenge, J. M. (2002). Cultural suppression of female sexuality. *Review of General Psychology, 6,* 166–203.

Baumeister, R. F., & Vohs, K. D. (2004). Sexual economics: Sex as female resource for social exchange in heterosexual interactions. *Personality and Social Psychology Review, 8,* 339–363.

Bavelas, J. B., Chovil, N., Lawrie, D. A., & Wade, A. (1992). Interactive gestures. *Discourse Processes, 15,* 469–489.

Beauducel, A., Strobel, A., & Brocke, B. (2003). Psychometrische Eigenschaften und Normen einer deutschsprachigen Fassung der Sensation Seeking-Skalen, Form V [Psychometric properties and norms of a German version of the Sensation Seeking Scales, Form V]. *Diagnostica, 49,* 61–72.

Bernieri, F. J., Gillis, J. S., Davis, J. M., & Grahe, J. E. (1996). Dyad rapport and the accuracy of its judgment across situations: A lens model analysis. *Journal of Personality and Social Psychology, 71,* 110–129.

Brennan, K. A., & Shaver, P. R. (1995). Dimensions of adult attachment, affect regulation, and romantic relationship functioning. *Personality and Social Psychology Bulletin, 21,* 267–283.

Brown, N. R., & Sinclair, R. C. (1999). Estimating number of lifetime sexual partners: Men and women do it differently. *Journal of Sex Research, 36,* 292–297.

Brunswik, E. (1956). *Perception and the representative design of psychological experiments* (2nd ed.). Berkeley: University of California Press.

Buss, D. M., & Schmitt, D. P. (1993). Sexual strategies theory: An evolutionary perspective on human mating. *Psychological Review, 100,* 204–232.

Clark, A. P. (2004). Self-perceived attractiveness and masculinization predict women's sociosexuality. *Evolution and Human Behavior, 25,* 113–124.

Clark, A. P. (2006). Are the correlates of sociosexuality different for men and women? *Personality and Individual Differences, 41,* 1321–1327.

Cohen, J. (1969). *Statistical power analysis for the behavioral sciences.* New York: Academic Press.

Cooper, M., Shapiro, C. M., & Powers, A. M. (1998). Motivations for sex and risky sexual behavior among adolescents and young adults: A functional perspective. *Journal of Personality and Social Psychology, 75,* 1528–1558.

Diamond, L. M. (2003). What does sexual orientation orient? A biobehavioral model distinguishing romantic love and sexual desire. *Psychological Review, 110,* 173–192.

Eibl-Eibesfeldt, I. (1989). *Human ethology.* New York: Aldine de Gruyter.

Ellis, B. J. (1998). The Partner-Specific Investment Inventory: An evolutionary approach to individual differences in investment. *Journal of Personality, 66,* 383–442.

Ellis, B. J., & Symons, D. (1990). Sex differences in sexual fantasy: An evolutionary psychological approach. *Journal of Sex Research, 27,* 527–555.

Ellison, P. T. (2001). *On fertile ground: A natural history of human reproduction.* Cambridge, MA: Harvard University Press.

Fisher, H. (1987). The four year itch. *Natural History, 10,* 22–29.

Fisher, H. (2004). *Why we love: The nature and chemistry of romantic love.* New York: Henry Holt.

Fletcher, G. J. O., Simpson, J. A., & Thomas, G. (2000). The measurement of perceived relationship quality components: A confirmatory factor analytic approach. *Personality and Social Psychology Bulletin, 26,* 340–354.

Fletcher, G. J. O., Simpson, J. A., Thomas, G., & Giles, L. (1999). Ideals in intimate relationships. *Journal of Personality and Social Psychology, 76,* 72–89.

Furman, W. (2002). The emerging field of adolescent romantic relationships. *Current Directions in Psychological Science, 11,* 177–180.

Gangestad, S. W., Garver-Apgar, C. E., Simpson, J. A., & Cousins, A. J. (2007). Changes in women's mate preferences across the ovulatory cycle. *Journal of Personality and Social Psychology, 92,* 151–163.

Gangestad, S. W., Haselton, M. G., & Buss, D. M. (2006). Evolutionary foundations of cultural variation: Evoked culture and mate preferences. *Psychological Inquiry, 17,* 75–95.

Gangestad, S. W., & Simpson, J. A. (1990). Toward an evolutionary history of female sociosexual variation. *Journal of Personality, 58,* 69–96.

Gangestad, S. W., & Simpson, J. A. (2000). The evolution of human mating: Trade-offs and strategic pluralism. *Behavioral and Brain Sciences, 23,* 573–644.

Gangestad, S. W., Thornhill, R., & Garver, C. E. (2002). Changes in women's sexual interests and their partners' mate-retention tactics across the menstrual cycle: Evidence for shifting conflicts of interest. *Proceedings of the Royal Society of London, Series B, 269,* 975–982.

Gosling, S. D., Vazire, S., Srivastava, S., & John, O. P. (2004). Should we trust Web-based studies? A comparative analysis of six preconceptions about Internet questionnaires. *American Psychologist, 59,* 93–104.

Grammer, K. (1995). *Signale der Liebe* [Signals of love]. Munich: Dtv.

Grammer, K., Kruck, K., Juette, A., & Fink, B. (2000). Non-verbal behavior as courtship signals: The role of control and choice in selecting partners. *Evolution and Human Behavior, 21,* 371–390.

Greiling, H., & Buss, D. M. (2000). Women's sexual strategies: The hidden dimension of extra-pair mating. *Personality and Individual Differences, 28,* 929–963.

Haidt, J. (2001). The emotional dog and its rational tail: A social intuitionist approach to moral judgment. *Psychological Review, 108,* 814–834.

Hazlett, R. L., & Hoehn-Saric, R. (2000). Effects of perceived physical attractiveness on females' facial displays and affect. *Evolution and Human Behavior, 21,* 49–57.

Hill, C. A., & Preston, L. K. (1996). Individual differences in the experience of sexual motivation: Theory and measurement of dispositional sexual motives. *Journal of Sex Research, 33,* 27–45.

Hyde, J. S. (2005). The gender similarities hypothesis. *American Psychologist, 60,* 581–592.

Ickes, W. (1983). A basic paradigm for the study of unstructured dyadic interaction. In H. Reis (Ed.), *New directions for methodology of social and behavioral science* (pp. 5–21). San Francisco: Jossey-Bass.

Jackson, J. J., & Kirkpatrick, L. A. (2007). The structure and measurement of human mating strategies: Toward a multidimensional model of sociosexuality. *Evolution and Human Behavior, 28,* 382–391.

Jones, M. (1998). Sociosexuality and motivations for romantic involvement. *Journal of Research in Personality, 32,* 173–182.

Kampe, K. K. W., Frith, C. D., Dolan, R. J., & Frith, U. (2001, October 11). Reward value of attractiveness and gaze. *Nature, 413,* 589.

Kenny, D. A., Kashy, D. A., & Cook, W. L. (2006). *Dyadic data analysis.* New York: Guilford Press.

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.

Kleinke, C. L. (1986). Gaze and eye contact: A research review. *Psychological Bulletin, 100,* 78–100.

Kokko, H., & Jennions, M. (2003). It takes two to tango. *Trends in Ecology and Evolution, 18,* 103–104.

Kurzban, R., & Weeden, J. (2005). HurryDate: Mate preferences in action. *Evolution and Human Behavior, 26,* 227–244.

Landolt, M. A., Lalumiere, M. L., & Quinsey, V. L. (1995). Sex differences in intra-sex variations in human mating tactics: An evolutionary approach. *Ethology and Sociobiology, 16,* 3–23.

Laumann, E., Gagnon, J., Michael, R., & Michaels, S. (1994). *The social organization of sexuality: Sexual practices in the United States.* Chicago: University of Chicago Press.

Locke, J. L., & Bogin, B. (2006). Language and life history: A new perspective on the development and evolution of human language. *Behavioral and Brain Sciences, 29,* 259–280.

Low, B. S. (2007). Ecological and sociocultural influences on mating and marriage systems. In R. Dunbar & L. Barrett (Eds.), *The Oxford handbook of evolutionary psychology* (pp. 449–462). Oxford, England: Oxford University Press.

Mason, M. F., Tatkow, E., & Macrae, C. N. (2005). The look of love: Gaze shifts and person perception. *Psychological Science, 16,* 236–239.

Mustanski, B. S. (2001). Getting wired: Exploiting the Internet for the collection of valid sexuality data. *Journal of Sex Research, 38,* 292–301.

Nisbett, R., & Wilson, T. (1977). Telling more than we can know: Verbal reports on mental processes. *Psychological Review, 84,* 231–259.

Noldus. (2003). *The Observer 5.0.* Wageningen, the Netherlands: Noldus Information Technology.

O'Doherty, J., Winston, J., Critchley, H., Perrett, D., Burt, D. M., & Dolan, R. J. (2003). Beauty in a smile: The role of medial orbitofrontal cortex in facial attractiveness. *Neuropsychologia, 41,* 147–155.

Ostovich, J. M., & Sabini, J. (2004). How are sociosexuality, sex drive, and lifetime number of sexual partners related? *Personality and Social Psychology Bulletin, 30,* 1255–1266.

Penke, L., & Denissen, J. J. A. (2008). Sex differences and lifestyle-dependent shifts in the attunement of self-esteem to self-perceived mate value: Hints to an adaptive mechanism? *Journal of Research in Personality, 42,* 1123–1129.

Penke, L., Denissen, J. J. A., & Miller, G. F. (2007). The evolutionary genetics of personality. *European Journal of Personality, 21,* 549–587.

Penke, L., Eichstaedt, J., & Asendorpf, J. B. (2006). Single Attribute Implicit Association Tests (SA-IAT) for the assessment of unipolar constructs: The case of sociosexuality. *Experimental Psychology, 53,* 283–291.

Penke, L., Todd, P. M., Lenton, A. P., & Fasolo, B. (2007). How self-assessments can guide human mating decisions. In G. Geher & G. F. Miller (Eds.), *Mating intelligence: Sex, relationships, and the mind's reproductive system* (pp. 37–75). Mahwah, NJ: Erlbaum.

Plomin, R., DeFries, J. C., & Loehlin, J. C. (1977). Genotype–environment interaction and correlation in the analysis of human behavior. *Psychological Bulletin, 84,* 309–322.

Regan, P. C., & Berscheid, E. (1999). *Lust: What we know about human sexual desire.* Thousand Oaks, CA: Sage.

Rhodes, G., Simmons, L. W., & Peters, M. (2005). Attractiveness and sexual behavior: Does attractiveness enhance mating success? *Evolution and Human Behavior, 26,* 186–201.

Roff, D. A. (1992). *Evolution of life histories: Theory and analysis.* New York: Chapman & Hall.

Schmitt, D. P. (2005a). Is short-term mating the maladaptive result of insecure attachment? A test of competing evolutionary perspectives. *Personality and Social Psychology Bulletin, 31,* 747–768.

Schmitt, D. P. (2005b). Sociosexuality from Argentina to Zimbabwe: A 48-nation study of sex, culture, and strategies of human mating. *Behavioral and Brain Sciences, 28,* 247–275.

Schmitt, D. P., Alcalay, L., Allik, J., Ault, L., Austers, I., Bennett, K. L., et al. (2003). Universal sex differences in the desire for sexual variety: Tests from 52 nations, 6 continents, and 13 islands. *Journal of Personality and Social Psychology, 85,* 85–104.

Simpson, J. A. (1987). The dissolution of romantic relationships: Factors involved in relationship stability and emotional distress. *Journal of Personality and Social Psychology, 53,* 683–692.

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.

Simpson, J. A., & Gangestad, S. W. (1992). Sociosexuality and romantic partner choice. *Journal of Personality, 60,* 31–51.

Simpson, J. A., Gangestad, S. W., & Biek, M. (1993). Personality and nonverbal social behavior: An ethological perspective of relationship initiation. *Journal of Experimental Social Psychology, 29,* 434–461.

Simpson, J. A., Gangestad, S. W., & Nations, C. (1996). Sociosexuality and relationship initiation: An ethological perspective of nonverbal behavior. In G. J. O. Fletcher & J. Fitness (Eds.), *Knowledge structures in close relationships: A social psychological approach* (pp. 121–146). Mahwah, NJ: Erlbaum.

Simpson, J. A., Wilson, C. L., & Winterheld, H. A. (2004). Sociosexuality and romantic relationships. In J. H. Harvey, A. Wenzel, & S. Sprecher (Eds.), *Handbook of sexuality in close relationships* (pp. 87–111). Mahwah, NJ: Erlbaum.

Snyder, M., Simpson, J. A., & Gangestad, S. (1986). Personality and sexual relations. *Journal of Personality and Social Psychology, 51,* 181–190.

Tennov, D. (1979). *Love and limerence. The experience of being in love.* New York: Stein and Day.

Todd, P. M., Penke, L., Fasolo, B., & Lenton, A. P. (2007). Different cognitive processes underlie human mate choices and mate preferences. *Proceedings of the National Academy of Sciences, USA, 104,* 15011–15016.

Townsend, J. M., Kline, J., & Wasserman, T. H. (1995). Low-investment copulation: Sex differences in motivations and emotional reactions. *Ethology and Sociobiology, 16,* 25–51.

Trivers, R. L. (1972). Parental investment and sexual selection. In B. Campbell (Ed.), *Sexual selection and the descent of man* (pp. 136–179). Chicago: Aldine-Atherton.

Voracek, M. (2005). Shortcomings of the Sociosexual Orientation Inventory: Can psychometrics inform evolutionary psychology? *Behavioral and Brain Sciences, 28,* 296–297.

Webster, G. D., & Bryan, A. (2007). Sociosexual attitudes and behaviors: Why two factors are better than one. *Journal of Research in Personality, 41,* 917–922.

Wiederman, M. W. (1997). The truth must be in here somewhere: Examining the gender discrepancy in self-reported lifetime number of sex partners. *Journal of Sex Research, 34,* 375–386.

Wilson, T. D. (2002). *Strangers to ourselves: Discovering the adaptive unconscious.* Cambridge, MA: Harvard University Press.

Zuckerman, M., Eysenck, H. J., & Eysenck, S. B. G. (1978). Sensation seeking in England and America: Cross-cultural, age, and sex comparisons. *Journal of Consulting and Clinical Psychology, 46,* 139–149.

Appendix

The Revised Sociosexual Orientation Inventory (SOI–R)

Please respond honestly to the following questions:

1. With how many different partners have you had sex within the past 12 months?

☐	☐	☐	☐	☐	☐	☐	☐	☐
0	1	2	3	4	5–6	7–9	10–19	20 or more

2. With how many different partners have you had sexual intercourse on *one and only one* occasion?

☐	☐	☐	☐	☐	☐	☐	☐	☐
0	1	2	3	4	5–6	7–9	10–19	20 or more

3. With how many different partners have you had sexual intercourse without having an interest in a long-term committed relationship with this person?

☐	☐	☐	☐	☐	☐	☐	☐	
0	1	2	3	4	5–6	7–9	10–19	20 or more

4. Sex without love is OK.

☐	☐	☐	☐	☐	☐	☐	☐	☐
1	2	3	4	5	6	7	8	9
Strongly disagree								Strongly agree

5. I can imagine myself being comfortable and enjoying "casual" sex with different partners.

☐	☐	☐	☐	☐	☐	☐	☐	☐
1	2	3	4	5	6	7	8	9
Strongly disagree								Strongly agree

6. I do *not* want to have sex with a person until I am sure that we will have a long-term, serious relationship.

☐	☐	☐	☐	☐	☐	☐	☐	☐
1	2	3	4	5	6	7	8	9
Strongly disagree								Strongly agree

7. How often do you have fantasies about having sex with someone with whom you do *not* have a committed romantic relationship?

☐ 1 – never
☐ 2 – very seldom
☐ 3 – about once every two or three months
☐ 4 – about once a month
☐ 5 – about once every two weeks
☐ 6 – about once a week
☐ 7 – several times per week
☐ 8 – nearly every day
☐ 9 – at least once a day

8. How often do you experience sexual arousal when you are in contact with someone with whom you do *not* have a committed romantic relationship?

☐ 1 – never
☐ 2 – very seldom
☐ 3 – about once every two or three months
☐ 4 – about once a month
☐ 5 – about once every two weeks
☐ 6 – about once a week
☐ 7 – several times per week
☐ 8 – nearly every day
☐ 9 – at least once a day

9. In everyday life, how often do you have spontaneous fantasies about having sex with someone you have just met?

☐ 1 – never
☐ 2 – very seldom
☐ 3 – about once every two or three months
☐ 4 – about once a month
☐ 5 – about once every two weeks
☐ 6 – about once a week
☐ 7 – several times per week
☐ 8 – nearly every day
☐ 9 – at least once a day

Items 1–3 should be coded as 0 = 1, 1 = 2, . . . , 10–19 = 8, 20 or more = 9; they can then be aggregated to form the Behavior facet. After Item 6 is reverse coded, Items 4–6 can be aggregated to form the Attitude facet. Aggregating Items 7–9 results in the Desire facet. Finally, all nine items can be aggregated as the total score of global sociosexual orientation.

When Items 1–3 are presented with open response format instead of the rating scales, Items 2, 4, and 7 of the original SOI (Table 1) can be added to the SOI–R to allow for calculating the SOI total score in addition to the SOI–R scores. In this case, the open responses should be recoded to the rating scale format (i.e., 0 = 1, 1 = 2, . . . , 20 to max = 9) before the SOI–R scores are determined.

Alternatively, we also developed a version of the SOI–R with 5-point rating scales, which might be more appropriate for samples with less educated or less test-experienced participants. In this version, the scale alternatives are *0, 1, 2–3, 4–7,* and *8 or more* for the Behavior items, 1 (*strongly disagree*) to 5 (*strongly agree*) for the Attitude items, and *never, very seldom, about once a month, about once a week,* and *nearly every day* for the Desire items. In a large, heterogeneous online sample (*N* = 8,549), the SOI–R with five response alternatives per item achieved good internal consistencies (α = .83, .81, .82, and .85 for the total score and the facets Behavior, Attitude, and Desire, respectively). Further information on the S01-R can be found at www.larspenke.eu/soi-r