

The Relationship Between Sociosexuality and Aspects of Body Image in Men and Women: A Structural Equation Modeling Approach

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Abstract The present study investigated the association between individual differences in sociosexual orientation and four aspects of body image in 156 male and 136 female students. While men were characterized by a less restricted sociosexual orientation, higher self-perceived physical attractiveness, and more pronounced self-rated physical assertiveness, women placed more emphasis on accentuation of body presentation. Structural equation modeling revealed significant positive relationships between sociosexual attitudes and physical attractiveness and accentuation of body presentation as well as between sociosexual behavior and physical attractiveness for the total sample. When introducing sex as a grouping variable, the attitudinal and behavioral components of sociosexuality were reliably related to both physical attractiveness and accentuation of body presentation as two aspects of body image in men, but not in women. Furthermore, our findings suggest that accentuation of body presentation represents a goal-directed behavior in men to increase the likelihood of having uncommitted sex but serves additional functions widely unrelated to unrestrictive sociosexual behavior in women.

Keywords Body image · Sociosexual orientation · Gender differences · Structural equation modeling

Introduction

Self-rated body image and sociosexuality are assumed to be linked (cf. Clark, 2004; Reise & Wright, 1996; Simpson,

Wilson, & Winterheld, 2004; Wiederman & Hurst, 1998) but there are only very few studies which have examined their association in both men and women. Body image represents the multitude of perceptions, feelings, attitudes, and behaviors directed toward or associated with an individual's own body (Cash, 2002). Sociosexuality reflects "individual differences in willingness to engage in uncommitted sexual relations" (Simpson & Gangestad, 1991, p. 870). As a global measure of sociosexuality, Simpson and Gangestad introduced the Sociosexual Orientation Inventory (SOI). Individuals with high scores on the SOI typically require little or no commitment before engaging in a sexual relationship whereas individuals scoring low on the SOI require a relatively high level of commitment.

From an evolutionary psychology perspective, an unrestricted sociosexual orientation, indicated by high SOI scores, can be equated with a short-term mating strategy, and a restricted sociosexual orientation, indicated by low SOI scores, can be equated with a long-term mating strategy (Gangestad & Simpson, 2000; Klusmann, 2002; Schmitt, 2005). While a short-term mating strategy is characterized by brief relationships with numerous sexual partners, long-lasting and exclusive relationships are indicative of a long-term mating strategy. Furthermore, attractive individuals are assumed to more successfully pursue a short-term mating strategy than less attractive ones (cf. Buss & Schmitt, 1993; Wiederman & Dubois, 1998). This is because, according to evolutionary theory, good looks tend to be cues for fertility, reproductive health, and good genes (Greiling & Buss, 2000; Li & Kenrick, 2006). Based on these considerations, a positive relation between SOI score and self-perceived physical attractiveness or body esteem should be the expected outcome. A major challenge to this rather simplistic view represents the fact that individual differences in both sociosexual orientation and body image are influenced by gender as an effective moderating variable.

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Numerous studies on gender differences in sociosexuality documented that men generally have less restricted sociosexual orientations than women (cf. Oliver & Hyde, 1993; Petersen & Hyde, 2010; Schmitt, 2005). Similarly, in a comprehensive meta-analysis of gender differences in body image based on 222 studies from the past 50 years, Feingold and Mazzella (1998) found that men were more satisfied with their bodies than women. Similarly, more recent studies reported higher levels of self-perceived physical attractiveness and less body dissatisfaction in men compared to women (e.g., Ålgars, Santtila, & Sandnabba, 2010; Cash, Morrow, Hrabosky, & Perry, 2004; Gillen & Lefkowitz, 2012).

Given the large number of studies on gender differences in sociosexual orientation and body image, research on the relation between both these variables seems to be extremely scant and largely confined to female samples. In addition, while the concept of body image is multidimensional, complex, and quite broad (Ackard, Kearney-Cook, & Peterson, 2000; Cash, 2002; Cash et al., 2004; Wiederman & Hurst, 1998), previous research has focused primarily on body image as self-perceived physical attractiveness. There are several studies on the connection between women's body appreciation and sexual functioning (Satinsky, Reece, Dennis, Sanders, & Bardzell, 2012; Weaver & Byers, 2006), sexual assertiveness (e.g., Auslander, Baker, & Short, 2012), and risky sexual behavior and attitudes (e.g., Gillen, Lefkowitz, & Shearer, 2006). Although some of these behavioral and attitudinal variables can be related to some specific aspects of sociosexuality, the functional relationship between body image and individual differences in sociosexual orientation is still to be explored.

The few available data on the relation between individual SOI scores as a direct measure of sociosexuality and facets of body image are rather inconsistent. While Reise and Wright (1996) found a positive correlation between a woman's SOI score and her propensity to describe herself as attractive, Wiederman and Hurst (1998) failed to confirm a correlational relationship between "casual sex attitudes" derived from SOI items and aspects of body image in women.

A study of particular importance was conducted by Weeden and Sabini (2007). This study was designed to examine associations between subjective as well as objective measures of attractiveness and sexual behavior and attitudes in male and female university students. Weeden and Sabini created a measure of sociosexuality from four items, including (1) the participant's number of intercourse partners expected over the next five years, (2) whether the participant needed emotional closeness for sex, (3) whether he/she found the idea of an orgy appealing, and (4) whether he/she found the idea of an illicit sex affair appealing. A statistically significant positive relationship between sociosexuality and gender indicated a less restricted sociosexual orientation for men compared to women. Both self-rated and objectively measured attractiveness were uncorrelated with gender. Most interestingly, however, while objective

attractiveness was uncorrelated with sociosexuality, there was a highly significant correlation between subjective attractiveness and sociosexuality in the total sample. Thus, Weeden and Sabini's study provided first direct evidence for a positive relationship between self-rated physical attractiveness and the individual level of sociosexuality. Unfortunately, Weeden and Sabini did not investigate whether this relationship also held for the male and female subsample, respectively, and whether it was effectively moderated by gender.

The present study, therefore, was designed to further explore gender-related differences in the association between sociosexuality and body image. Because body image can be segmented into smaller, distinct concepts (Thompson, Heinberg, Altabe, & Tantleff-Dunn, 1999; Wiederman & Hurst, 1998), in addition to the commonly used measure of self-perceived attractiveness, individual levels of (1) accentuation of body presentation, (2) physical unassertiveness, and (3) physical-sexual misgivings associated with body experiences were assessed as three further aspects of body image. Although evolutionary theory does not seem to speak to a hypothesized relationship between these latter three aspects of body image, they, nevertheless, may be linked to sociosexuality. For example, high levels of accentuation of body presentation may lead to greater opportunities for sexual involvement, whereas high levels of physical unassertiveness or physical-sexual discomfort associated with body experiences may decrease the likelihood of sexual interactions.

In addition to a traditional correlational approach, a structural equation modeling (SEM) approach was applied. This approach enabled us to examine whether sociosexuality can be considered to be a unitary construct as indicated by Simpson and Gangestad (1991) or whether attitudinal and behavioral components of sociosexuality should be differentiated as suggested by Webster and Bryan (2007). In case that two components of sociosexuality should be differentiated, it will be of particular interest to examine whether the relation between sociosexuality and aspects of body image can be found for both or only one of those two components of sociosexuality. Furthermore, the SEM approach also facilitates the investigation of measurement invariance between men's and women's SOI scores, which is essential for a statistical comparison of the association between sociosexuality and aspects of body image in men and women.

Method

Participants

Participants were 156 male and 136 female undergraduate psychology students ranging in age from 19 to 30 years. The mean age (\pm SD) of the male participants was 24.1 ± 2.5 years and the mean age of the female group was 22.7 ± 2.1 years. All participants were asked about their sexual orientation using a visual analogue scale ranging from 0 ("exclusive sexual

interest in members of the opposite sex”) to 100 (“exclusive sexual interest in members of the same sex”). Only heterosexuals, i.e., participants who answered 0–20 on this scale, were included in the study. All data were collected at the beginning of an introductory psychology course. Participants provided informed consent and received partial course credit for their participation.

Measures

Aspects of Body Image

For assessing individual differences in body image, the Questionnaire for Assessment of One’s Own Body (QAOB) (Strauss & Richter-Appelt, 1996) was applied. The QAOB is an established measure of attitudinal body image that consists of four scales: (1) *Attractiveness* with regard to one’s own body (15 items; Cronbach’s $\alpha = .85$; sample item: “*I am happy with my physical appearance*”), (2) *Accentuation of Body Presentation* with special emphasis on good looks (12 items; Cronbach’s $\alpha = .72$; sample item: “*My appearance is important to me*”), (3) *Physical Unassertiveness*, i.e., insecurity or worry about body events and feelings of lost self-control over one’s body (13 items; Cronbach’s $\alpha = .69$; sample item: “*I cope well with physical strain*”), and (4) *Physical-Sexual Discomfort* associated with body experiences (6 items; Cronbach’s $\alpha = .72$; sample item: “*I am happy with my sex life*”). Items had to be answered either with “correct” (0) or “incorrect” (1). Scale values were computed in a way that, on Scales 1 and 2, a high value corresponded to a positive body image, whereas on Scales 3 and 4, a high value was indicative of negative body image.

Sociosexuality

The SOI is a seven-item questionnaire assessing past sexual history: Item 1: “With how many different partners have you had sex (sexual intercourse) within the past year?”. Item 2: “How many different partners do you foresee yourself having sex with during the next five years? (Please give a *specific, realistic* estimate).” Item 3: “With how many different partners have you had sex on *one and only one* occasion?”. Item 4: “How often do you fantasize about having sex with someone other than your current dating partner?” (numerical anchor points: 1 = never, 8 = at least once a day). Item 5: “Sex without love is ok.” Item 6: “I can imagine myself being comfortable and enjoying ‘casual’ sex with different partners.” Item 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” (numerical anchor points for Items 5–7: 1 = I strongly disagree, 9 = I strongly agree). As suggested by Simpson and Gangestad (1991), we unit-weighted SOI items by transforming them to z scores prior to aggregation. With this

index, high and low scores reflected unrestricted and restricted sociosexual orientation, respectively.

Data Analysis

For confirmatory factor analysis and SEM analyses, Muthén and Muthén’s (2009) Mplus software and maximum likelihood methods were applied.

Results

Table 1 shows the mean scores on the four aspects of body image as well as the global SOI score for men and women, respectively. As can also be seen from Table 1, t tests revealed that men were characterized by more subjective attractiveness and less physical unassertiveness compared to women. At the same time, women placed more emphasis on accentuation of body presentation. There was no indication of a gender difference in the level of physical-sexual discomfort. With regard to sociosexuality, men showed a less restricted sociosexual orientation than women as indicated by men’s reliably higher global SOI score. Correlational analysis revealed a statistically significant positive relationship between global SOI score and subjective attractiveness and accentuation of body presentation as two aspects of body image for the total sample (see Table 2). Additional correlational analyses within the male and female subsamples yielded a differential result. While the positive relationship between global SOI score and subjective attractiveness and accentuation of body presentation observed for the total sample also held for men, no statistically significant association between global SOI score and any aspect of body image was found for women (see Table 2). It should be noted, however, that none of these correlations differed significantly between men and women.

To provide a better understanding of the relationship between individual differences in sociosexuality and aspects of body image, in a first step, confirmatory factor analyses and SEM were employed to examine this relationship in our total sample. Consistent with Webster and Bryan’s (2007) results, a single-factor solution of the seven SOI items fitted the data less well, $\chi^2(14) = 109.65$, $p < .001$; CFI = .81; AIC = 5404.83; RMSEA = .15; SRMR = .08, compared to a dual-factor solution consisting of a behavioral (Items 1–3) and an attitudinal (Items 4–7) SOI component, $\chi^2(13) = 24.37$, $p = .03$; CFI = .98; AIC = 5321.55; RMSEA = .06; SRMR = .04. The difference between the two model fits was statistically significant, $\Delta\chi^2(1) = 85.28$, $p < .001$. In contrast to Webster and Bryan’s study, the model only converged when the loading of Item 2 on the attitudinal SOI component was constrained to zero.

Proceeding from the dual-factor structure of sociosexuality, we calculated correlations between the behavioral and

Table 1 Means and SEM for four aspects of body image (QAOB scale scores) and z standardized global SOI score for men ($n = 156$) and women ($n = 136$)

Dependent variable	Men		Women		t	d
	M	SEM	M	SEM		
Attractiveness ^a	12.1	.22	10.6	.29	4.09***	.48
Accentuation of body presentation ^b	6.4	.22	7.5	.19	-4.03***	-.47
Physical unassertiveness ^c	3.5	.21	4.6	.21	-3.56***	-.42
Physical-sexual discomfort ^d	1.5	.10	1.5	.11	<1	.00
SOI	.14	.06	-.16	.05	3.85***	.45

Absolute range of QAOB scale scores: ^a0–15; ^b0–12; ^c0–13; ^d0–6

*** $p < .001$ (two-tailed)

Table 2 Correlations between aspects of body image and global SOI score in the total sample and in the male ($n = 156$) and female ($n = 136$) subsamples

Aspects of body image	Total sample	Men	Women
Attractiveness	.17**	.19*	.05
Accentuation of body presentation	.18**	.30***	.13
Physical unassertiveness	-.08	-.08	.01
Physical-sexual discomfort	.02	-.07	.14

* $p < .05$; ** $p < .01$; *** $p < .001$ (two-tailed)

attitudinal SOI components, on the one hand, and the four scales of the QAOB, on the other hand. Both SOI components did not correlate significantly with Physical Unassertiveness and Physical-Sexual Discomfort so that these correlations were fixed to zero. This model, depicted in Fig. 1a, described the data well, $\chi^2(39) = 68.29$, $p = .003$; CFI = .96; AIC = 10410.07; RMSEA = .05; SRMR = .05. The correlations between the attitudinal SOI component and Attractiveness, $r = .13$; $z = 2.30$, $p < .05$, and Accentuation of Body Presentation, $r = .22$; $z = 3.10$, $p < .01$, yielded statistical significance. The behavioral SOI component correlated significantly with Accentuation of Body Presentation, $r = .19$, $z = 2.81$, $p < .01$, while the correlation with Attractiveness just failed to reach the 5 % level of statistical significance, $r = .10$, $z = 1.82$, $p = .07$.

In a next step, we probed whether this pattern of results held for both sexes. Introducing sex as grouping variable led to a fit for the SOI measurement model of $\chi^2(26) = 38.90$, $p = .05$. When factor loadings were constrained to be equal between men and women the model fit was $\chi^2(32) = 42.51$, $p = .10$. The non-significant improvement of the model fit by constraining the factor loadings, $\Delta\chi^2(6) = 3.61$, indicated invariance of the SOI measurement model for men and women, respectively, which is in line with Webster and Bryan's (2007) results. Unlike in the present study, Webster and Bryan identified a

larger correlation between the behavioral and the attitudinal SOI component for women compared to men.

The intercorrelations among the four aspects of body image were also invariant between men and women. When the correlations were estimated separately for men and women without constrains, the model fit was good, $\chi^2(4) = 1.05$; CFI = 1.00; AIC = 5056.99; RMSEA = .00; SRMR = .02. There was no significant increase in χ^2 value when the correlations were restricted to be equal in men and women, $\Delta\chi^2(4) = 2.71$.

Thus, measurement invariance could be assumed for both the measurement of sociosexuality as well as body image. Therefore, we again calculated the SEM model on the relations between SOI components and aspects of body image but this time with sex as a grouping variable (see Fig. 1b). The model fit was quite satisfying, $\chi^2(83) = 105.31$, $p = .05$; CFI = .97; AIC = 10403.81; RMSEA = .04; SRMR = .06. None of the correlations between the two SOI components and Attractiveness and Accentuation of Body Presentation were significant in women. In men, however, both SOI components were significantly correlated with Accentuation of Body Presentation and the attitudinal SOI component also with Attractiveness.

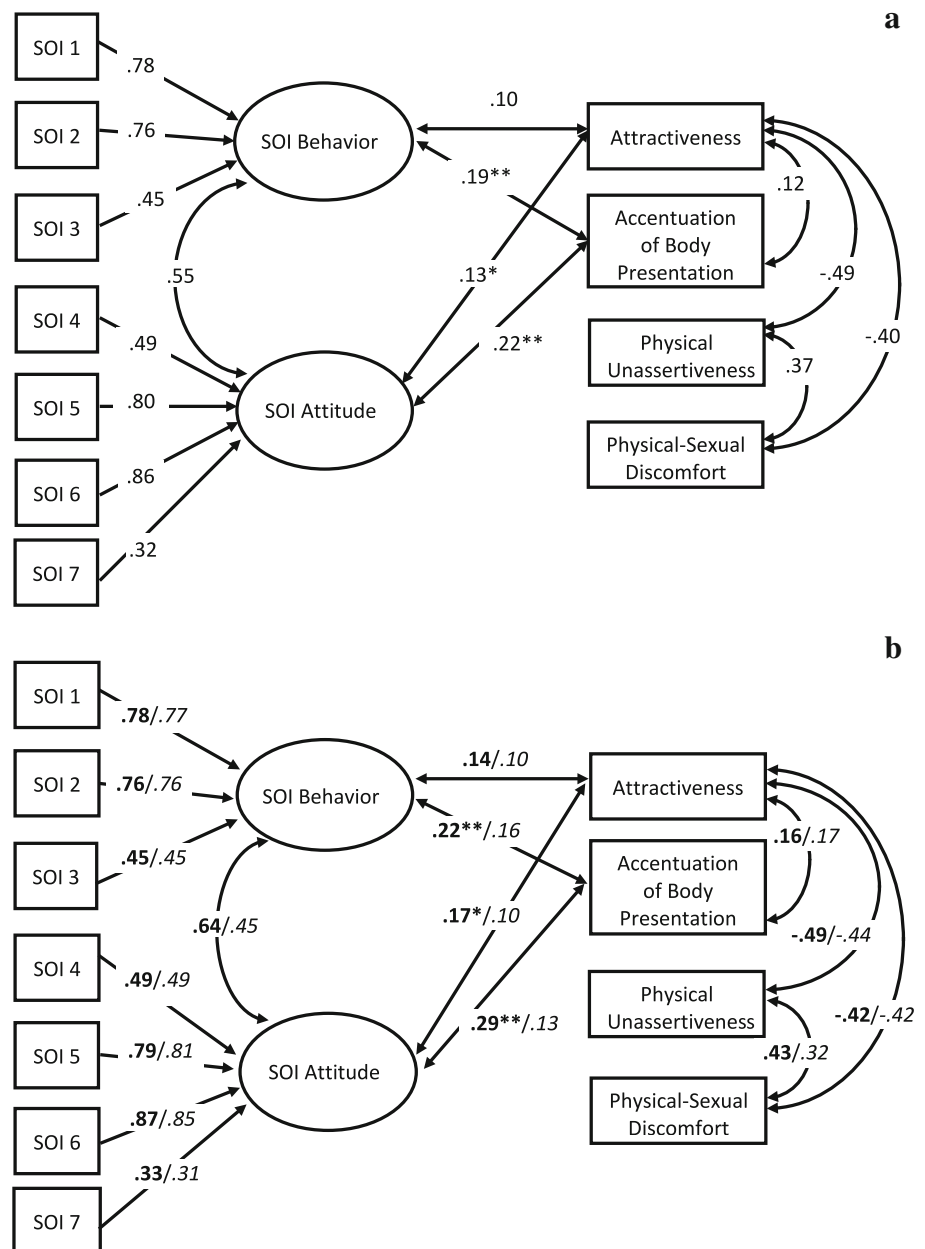
To further investigate gender differences in the relationship among SOI components and aspects of body image, we compared the correlations of the two SOI components with Attractiveness and Accentuation of Body Presentation, respectively. None of the partial correlations between the two SOI components and the two aspects of body image (see Fig. 1b) differed significantly between men and women. Similar results were obtained when the correlations were not controlled for the influence by the corresponding other SOI component and aspect of body image, respectively.

Discussion

The aim of the present study was to examine gender differences in sociosexual orientation and aspects of body image as well as the relationship among these variables. For this latter purpose, an SEM approach was applied. In line with numerous earlier studies, men were found to have a more unrestricted sociosexual orientation than women (Oliver & Hyde, 1993; Schmitt, 2005). Similarly, with regard to body image, our data were consistent with previous findings of a less positive appearance evaluation and a greater appearance orientation in women compared to men (e.g., Cash et al., 2004; Feingold & Mazzella, 1998; Gillen & Lefkowitz, 2012). More specifically, in the present study, men rated themselves as more physically attractive than did women, whereas women reported more accentuation of body presentation and greater physical unassertiveness compared to men.

In a previous study, Weeden and Sabini (2007) examined associations between objective as well as subjective measures of physical attractiveness and sociosexuality in male and female undergraduate students. While self-rated attractiveness

Fig. 1 Structural equation model on the relationship among the behavioral and the attitudinal SOI components and four aspects of body image in the total sample (a) and in men (coefficients shown in *bold*) and women (coefficients shown in *italics*), respectively (b). * $p < .05$; ** $p < .01$



was positively related to a measure of sociosexuality, objectively measured attractiveness was uncorrelated with sociosexuality. Because self-rated attractiveness may be influenced by a person's objective attractiveness, Weeden and Sabini also computed a so-called residual component of subjective attractiveness that controlled for objective attractiveness. This residual attractiveness was also significantly correlated with sociosexuality. These findings indicate that it is the subjectively experienced aspect of attractiveness, rather than objective attractiveness, that constitutes the functional relationship between physical attractiveness and sociosexuality. From this perspective, individuals with greater interest in casual sex, as assessed by the four items that underlie Weeden and Sabini's sociosexuality measure, may "end up with more partners, and

then in turn overestimate their own attractiveness" (p. 87). It should be noted that Weeden and Sabini did not investigate whether this relationship between sociosexuality and subjective attractiveness was moderated by gender. Our finding of a statistically significant positive relationship between global SOI score and self-rated physical attractiveness in the total sample supported Weeden and Sabini's data. However, when we analyzed this association for the male and female subsamples separately, it became evident that such a functional relationship held for men but not for women.

Structural equation modeling revealed that sociosexuality is not a unitary construct but that an attitudinal and a behavioral component should be differentiated. This outcome is in line with previous research on the internal structure of

sociosexuality (Penke & Asendorpf, 2008; Webster & Bryan, 2007). Furthermore, the relations of these two SOI components to aspects of body image differed from each other. For the entire sample, the relations between the attitudinal SOI component and self-perceived attractiveness and accentuation of body presentation yielded statistical significance. This finding indicated a more positive attitude toward uncommitted sex coming along with higher levels of self-perceived physical attractiveness and a more pronounced accentuation of body presentation with special emphasis on good looks. The accentuation-related aspect of body image was also related to the behavioral SOI component: Participants who reported to have uncommitted sex more frequently showed more accentuation of body presentation than participants who specified to have uncommitted sex only seldom or never. At the same time, there was no reliable association between sociosexual behavior and perceived physical attractiveness.

No indication could be observed for an association between the two SOI components and either Physical Unassertiveness or Physical-Sexual Discomfort as additional aspects of body image. This latter finding was consistent with Simpson and Gangestad's (1991) notion that individual levels of sociosexual orientation can be considered largely independent of sexual satisfaction, sex-related anxiety, and sex-related guilt.

The dissociation between the attitudinal and the behavioral SOI component enabled a much closer examination and, thus, a more in-depth insight into gender-related differences in the functional relationship between sociosexuality and aspects of body image. The associations between both SOI components and perceived attractiveness and accentuation of body presentation as two aspects of body image were statistically significant in men but failed to reach statistical significance in women. Due to the finding of SOI measurement invariance between men and women, it is unlikely that gender differences *within* the construct of sociosexuality account for the higher correlations between sociosexuality and aspects of body image in men compared to women. Rather, it is the relation *between* sociosexuality and these two aspects of body image which shows gender differences. Furthermore, the lack of a reliable association between sociosexuality and aspects of body image in women was mirrored by the inconsistent findings reported in previous studies on the relation between sociosexuality and self-rated bodily (Reise & Wright, 1996; Wiederman & Hurst, 1998) and facial attractiveness (Clark, 2004).

The absence of a statistically significant relationship between individual levels of sociosexuality and aspects of body image in women does not necessarily imply a reliably stronger functional relationship between SOI components and aspects of body image in men compared to women. As a matter of fact, statistical comparisons of the correlation coefficients failed to reveal gender-related differences in the relations between the SOI components and aspects of body image. Nevertheless, there is accumulating evidence converging on

the conclusion that the relation between sociosexuality and aspects of body image may be functionally different in men and women. For example, in a previous study, Li and Kenrick (2006) found that women prioritized male attractiveness in short-term potential mates. Hence, for men who pursue a short-term mating strategy, accentuation of body presentation could represent a highly effective goal-directed behavior to increase the likelihood of having uncommitted sex. Furthermore, Li and Kenrick showed that, unlike women, men prioritized attractiveness in both short-term and long-term mates. From this perspective, a woman's accentuation of body presentation may serve additional functions widely unrelated to unrestricted sociosexual behavior. For example, accentuation of body presentation could be used by a woman as a means to maintain physical attractiveness for her long-term partner and, thus, strengthen their relationship (Li & Kenrick, 2006). In addition, good looks may help to enhance a woman's self-esteem and to increase her reputation among friends or consensuals (cf. Breines, Crocker, & Garcia, 2008). Alternatively, the lower correlation between the behavioral SOI component and accentuation of body presentation in women may simply reflect the fact that women can more easily engage in short-term sexual relationships than men even without accentuating their bodies because of higher demand for short-term sexual relationships by men. Eventually, as another possible explanation, the link between men's accentuation of body presentation and the behavioral SOI component could be mediated by male dominance (as perceived by other males) rather than by attractiveness to women alone. These diverse functions of accentuation of body presentation in women compared to men may represent a possible cause for the relatively weak association between sociosexual behavior and accentuation of body presentation in women.

The present study was exploratory in nature and, thus, affords future research. Penke and Asendorpf (2008) introduced a revised version of the applied self-report measure for the assessment of sociosexual orientation which allows for the separate assessment of three sociosexuality facets: behavior, attitude, and desire. As these three facets often show very distinct associations with other variables (e.g., Confer, Perilloux, & Buss, 2010; Penke & Asendorpf, 2008; Quist et al., 2012), it would be interesting to see if the present results would replicate for the revised SOI questionnaire. Furthermore, both groups of variables, sociosexual orientation and body image, were only assessed with self-report measures. This does not enable to disentangle valid and biased aspects of people's body images. For example, results might be partly due to "people's tendencies to view themselves in general or their appearance in particular overly negatively or positively" (Weeden & Sabini, 2007, p. 80). Future studies, therefore, should investigate (1) how much self-reported physical attractiveness and accentuation of body representation relate to objectively measured criteria, (2) how much these objective measures relate to sociosexual orientation, and (3) how much subjective measures

not shared by objective measurement relate to sociosexual orientation (cf. Weeden & Sabini, 2007).

Taken together, the current study, for the first time, investigated the relationship between sociosexuality, as assessed by Simpson and Gangestad's (1991) SOI, and aspects of body image not only in women but also in men. Aspects of body image, such as physical unassertiveness and sexual-physical discomfort, were shown to be unrelated to sociosexual orientation in both sexes. A reliable positive relation between the behavioral and the attitudinal SOI components and physical attractiveness and accentuation of body presentation, respectively, as two aspects of body image, could be established for men, while no such associations appear to exist in women. These findings constitute a modest but important first step toward better understanding of the functional relationship between aspects of body image and individual differences in sociosexuality in men and women.

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