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Satisfaction–Adaptation Principles in Sexual Desire: Exploring Gender Differences Across the Life Span

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Abstract

Sexual desire may change according to two principles: the satisfaction principle (high sexual opportunity/frequency decreases sexual desire) and the adaptation principle (high sexual opportunity/frequency increases sexual desire). We explore the workings of these opposing principles separately for both genders across the adult life span. Two tests within a large ($N = 181,546$) and cross-cultural (11 countries) data set revealed that the satisfaction principle accounts for sexual desire in men throughout the entire life and it accounts for sexual desire in women until their mid-30s. From that point onward, however, the pattern of female sexual desire becomes increasingly consistent with the adaptation principle. What sets older women apart from younger women and men of all ages? We discuss several mechanisms, with a focus on the satisfaction principle's evolutionary value in life phases of high reproductive capacity and the adaptation principle's evolutionary value in life phases of low reproductive capacity.

Keywords

sexual desire, satisfaction principle, adaptation principle, gender differences, life span

Motivation can change according to two opposing principles. One is the *satisfaction principle*: Motivation will decrease based on recent or frequent satisfaction, and it will increase when opportunities for satisfaction are sparse. The second is the *adaptation principle*: Motivation will adjust to opportunities, increasing when opportunities are plentiful and decreasing when prospects for satisfaction are poor. In operational terms, the satisfaction principle predicts a *negative relation* between opportunity and motivation, whereas the adaptation principle predicts a *positive relation* between opportunity and motivation. At present, the field lacks theory and evidence about how, when, and why either of those principles prevails over the other. The present investigation was undertaken to provide some evidence about their respective operation in human sexual behavior.

Evidence from other domains has provided suggestive insights about the two principles (Baumeister, 2007). Attachment motivation provides relevant findings. Consistent with the satisfaction principle, the desire for contact with an attachment figure typically increases as the time since the previous contact increases (Bowlby, 1976). Yet when closeness is unattainable, such as because of emotionally distant attachment figures, the desire for contact diminishes, consistent with the adaptation principle (Ainsworth, 1979). Smokers likewise exhibit both patterns. The desire for a cigarette typically increases with increasing time to the last cigarette, consistent with the satisfaction principle (Sayette, Martin, Wertz, Shiffman, & Perrott, 2001). Yet when the smoking goal is unattainable, such as for flight attendants on long flights, the desire for a cigarette subsides, consistent with the

adaptation principle (Gur, Rosen-Korakin, Shapira, Gottlieb, & Frenk, 2010). As a third example, the desire to eat typically increases with increasing time to the last meal, consistent with the satisfaction principle. But when the eating goal is temporarily unattainable, the desire to eat diminishes, consistent with the adaptation principle (Sedikides & Gregg, 2008).

Little is known about the role of the satisfaction versus adaptation principles in *sexual desire*. When and why do these opposing principles drive sexual desire? We examined how these two principles operate in the two genders across the adult life span. We included gender because sexuality is one basis for gender and because ample evidence exists of gender differences in strength and plasticity of sexual motivation (for reviews, see Baumeister, 2000; Baumeister, Catanese, & Vohs, 2001). We included age because age-related changes in sexual desire are well established (e.g., female sexual desire peaks shortly before the reproductive phase closes; Easton, Confer, Goetz, & Buss, 2010) and also because the function of sex

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changes across the life span (e.g., in later life, female sexuality loses its reproductive function but may still be useful for relationship maintenance; Abramson & Pinkerton, 2002).

To examine the competing satisfaction and adaptation principles, we sought a large data set of women and men across the full range of the adult life span. Committed relationships complicate sexual motivation (Klusmann, 2006), so ideally we would need a sample of people who were single and looking for partners. To maximize generality, we sought people with a diversity of social and cultural backgrounds. Finally, because self-reports of sexual desire may be affected by social desirability and self-presentational concerns (and differentially so by gender and age cohort), we considered it best to find a data set that minimized such sources of report bias. We were fortunate to find a data set that met these criteria.

Specifically, we capitalized on the *eDarling data set* (Gebauer, Sedikides, & Neberich, 2012). This data set contains a large sample of 96,660 heterosexual men and 84,886 heterosexual women aged 18–75. It contains only individuals of the same relationship status, namely singles searching for a serious relationship (*eDarling* is an online dating site). Participants come from a broad range of socioeconomic backgrounds across 11 diverse European countries. Moreover, participants completed questionnaires knowing that their responses would be used to match them with their ideal partners. Hence, they had reason to be truthful about their sexual desire (and other factors), so as to facilitate the matching process (Gebauer, Leary, & Neberich, 2012).

One drawback of our data set, however, is that it was not explicitly designed to test our research question (although this rules out researcher expectations as a validity threat). In particular, the data set did not ask people how frequently they had sex. But indirect factors enabled us to estimate broad differences in opportunity. Such an approach avoids certain problems associated with self-reported sexual activity. Numerous studies have shown that gender-specific social norms (Oliver & Hyde, 1993) pressure men to overreport their sexual frequency and women to underreport theirs (Alexander & Fisher, 2003; Pedersen, Miller, Putcha-Bhagavatula, & Yang, 2002). Thus, self-reported sexual frequency can be problematic, and so indirectly inferring sexual frequency has methodological advantages (Meston, Heiman, Trapnell, & Paulhus, 1998).

In the present article, we report two tests of the sexual satisfaction versus adaptation principles as explanations for sexual desire. Each test used a different indirect proxy measure of sexual opportunity/frequency. The first test used country-wide gender ratios (Pedersen, 1991) on the mating market. The second test used countrywide sociosexuality levels (Simpson & Gangestad, 1991) of the other gender. Convergent evidence across these two indicators of sexual opportunity/frequency would buttress the suitability of our methodological approach.

Test 1: Gender Ratio

High gender ratios indicate high numbers of men relative to women within the mating market. Shortages of either gender pose problems for the majority gender (Pedersen, 1991;

Secord, 1983). In countries with a high gender ratio, single men have few opportunities for finding eligible women for sex, given the relative scarcity of women. Single women in such countries, conversely, have abundant opportunities for finding eligible men, given the relative surplus of men. Barber's (2000a, 2000b) research program has provided support for these claims. Thus, a high gender ratio can serve as an indicator of low sexual opportunity/frequency for single men and high sexual opportunity/frequency for single women. A low gender ratio yields the opposite.

Method

Participants

The *eDarling data set* contains 181,546 heterosexual online dating participants aged 18–75 (47% female, age [M/SD] = 37.47/12.04). Individuals from the following 11 European countries took part: Austria ($N = 16,612$), France ($N = 17,359$), Germany ($N = 18,516$), Italy ($N = 13,418$), the Netherlands ($N = 12,840$), Poland ($N = 18,326$), Russia ($N = 19,359$), Spain ($N = 16,475$), Sweden ($N = 18,828$), Switzerland ($N = 10,812$), and Turkey ($N = 19,001$).

Procedure and Measures

Participants consented to using their data for scientific research and filled out questionnaires in the process of setting up their online dating profile. They completed measures of gender, age, country of residence, and sexual desire (in this order).

Sexual Desire. Participants responded to the single item "I have a high desire for sexual activity" (1 = *not at all*, 7 = *very much*). Single-item measures of sexual desire are common (Lippa, 2006). An online validation study revealed that our measure correlated highly with Lippa's (2006; $\alpha = .86$) well-established 5-item sex drive index, $r(341) = .86, p < .001$.

Sexual Opportunities. Traditionally, gender ratios are computed at the country level, by dividing the number of marriage-age men by the number of marriage-age women, with marriage age being defined as 15–49 years of age (Schmitt, 2005). We capitalized on the *eDarling* participant ratios to derive a gender ratio. For our purposes, this is a more suitable indicator of sexual opportunities than counts of all people in that age span, given that the *eDarling* ratio is specific to individuals who are active on the mating market. (It also measures a highly relevant population, insofar as presumably all the participants have been using *eDarling* to find partners.) To increase the predictive utility of the measure further, we utilized the country-level gender ratio within participants' age decade. This was desirable, because gender ratios can vary across age cohorts (Secord, 1983). Usually, gender ratios are calculated such that high values denote relatively more men than women and thus denote relatively high sexual opportunities for women but relatively low sexual opportunities for men (Barber, 2000a, 2000b). We partly deviated from this convention, as we intended for high

scores to denote high sexual opportunities for *both* sexes, for simplicity of presentation and understanding. Therefore, we reverse-scored gender ratio scores among men. That way, high scores on our sexual opportunity measure indicate an abundance of the opposite gender and, by extension, a relative abundance of potential sexual partners.

Results

Given that participants were nested in countries, we evaluated the necessity for using multilevel modeling. This evaluation suggested that multilevel modeling was unnecessary: The intraclass correlations (ICCs) within each age decade were low ($.04 \leq ICC \leq .08$), and single-level and multilevel result patterns were similar. Therefore, for simplicity, we report the single-level results.

Our overall analytic strategy was to examine the interactive effect of Gender \times Countrywide Gender Ratio on sexual desire for each of the six most relevant adult age decades. This clustering in six age decades followed recommendations by Davison, Bell, Donath, Montalto, and Davis (2005): 18–24 ($N = 29,474$), 25–34 ($N = 52,768$), 35–44 ($N = 45,812$), 45–54 ($N = 36,173$), 55–64 ($N = 14,721$), 65–75 ($N = 2,598$). Figure 1 displays these results.

To begin with, Figure 1 suggests that the sexual satisfaction principle accounts for sexual desire among 18- to 34-year-old men and women. Specifically, 18- to 34-year-old participants from both genders reported relatively high sexual desire when there was a relative shortage of eligible partners (i.e., when sexual opportunities were low), and they reported relatively low sexual desire when there was a relative surplus of eligible partners (i.e., when sexual opportunities were high), $-.15 \leq \beta_s \leq -.08$, $-24.85 \leq ts \leq -11.10$, $ps \leq .001$ (Figure 1A and B; simple slopes; Aiken & West, 1991).

From age 35 onward, however, male and female slopes diverged. Specifically, male slopes remained roughly the same throughout life: Men continued reporting relatively high sexual desire when there was a relative shortage of eligible partners (i.e., when sexual opportunities were low), and they reported relatively low sexual desire when there was a relative surplus of eligible partners (i.e., when sexual opportunities were high), $-.13 \leq \beta_s \leq -.08$, $-20.58 \leq ts \leq -3.29$, $ps \leq .001$ (Figure 1C–F). These findings suggest that male sexual desire follows the satisfaction principle not only between ages 18 and 34, but throughout the whole adult male life.

Among women, however, the explanatory potential of the satisfaction principle appears restricted to ages 18–34. Specifically, in the 35–44 age group, women's reported level of sexual desire was unrelated to whether there was a surplus or shortage of eligible partners, $\beta = .005$, $t = .64$, $p = .53$ (Figure 1C). In the 45–54 age group and all older groups, the women's pattern was the opposite of the men's pattern: Women reported more desire when more partners were available and less desire when opportunities were rare, $.05 \leq \beta_s \leq .09$, $2.83 \leq ts \leq 5.58$, $ps \leq .005$ (Figure 1D–F). Thus, starting in the mid-40s,

female sexual desire corresponded to the adaptation principle rather than the satisfaction principle.

There is a different way of statistically describing our results. Specifically, Figure 1 suggests a significant three-way interaction between Gender Ratio \times Age Decade \times Gender on sexual desire. This interaction should be caused by two distinct two-way interactions for each gender. For men, there should be a comparatively weak two-way interaction between Gender Ratio \times Age Decade, indicating little change of the relation between sexual opportunity and sexual desire across the male life span. For women, there should be a stronger two-way interaction between Gender Ratio \times Age Decade, indicating comparatively large changes of the relation between sexual opportunity and sexual desire across the female life span. Consistent with these predictions, the relevant three-way interaction was significant, $b = -.22$, $SE = .009$, $t = -24.99$, $p < .001$, and decomposing it revealed that the relevant two-way interaction was comparatively small for men, $b = -.08$, $SE = .005$, $t = -16.83$, $p < .001$, and stronger for women, $b = .13$, $SE = .007$, $t = 18.78$, $p < .001$ (West, Aiken, & Krull, 1996).

Test 2: Sociosexuality

High sociosexuality reflects willingness and motivation to engage in casual sex (Penke & Asendorpf, 2008; Simpson & Gangstead, 1991). Differences in sociosexuality exist at the gender level and at the country level (Schmitt, 2005). It follows that single men have relatively plenty of opportunities to find eligible, willing partners for sex in countries where female sociosexuality is high. Conversely, single women have relatively plenty of opportunities to find eligible, willing partners for sex in countries where male sociosexuality is high. We calculated a sociosexuality index based on Schmitt's (2005) norm list of country-level sociosexuality for each gender. Given that this norm list only provides information for 9 of our 11 countries (norms for Russia and Sweden were unavailable), we conducted this second test on the smaller 9-country sample. We predicted that sexual desire would manifest the same patterns as in Test 1, which would provide valuable converging evidence.

Method

We examined 143,359 heterosexual online dating participants (45% female, age [M/SD] = 37.14/11.87) from nine European countries. Procedure and measures were the same as in Test 1 with the exception of the sexual opportunities indicator, which follows.

Sexual Opportunities

Each man was assorted to his country's female sociosexuality mean, and each woman to her country's male sociosexuality mean, as derived from Schmitt's (2005) norm list. This sociosexuality-based indicator of sexual opportunities was positively correlated with the gender ratio-based indicator from

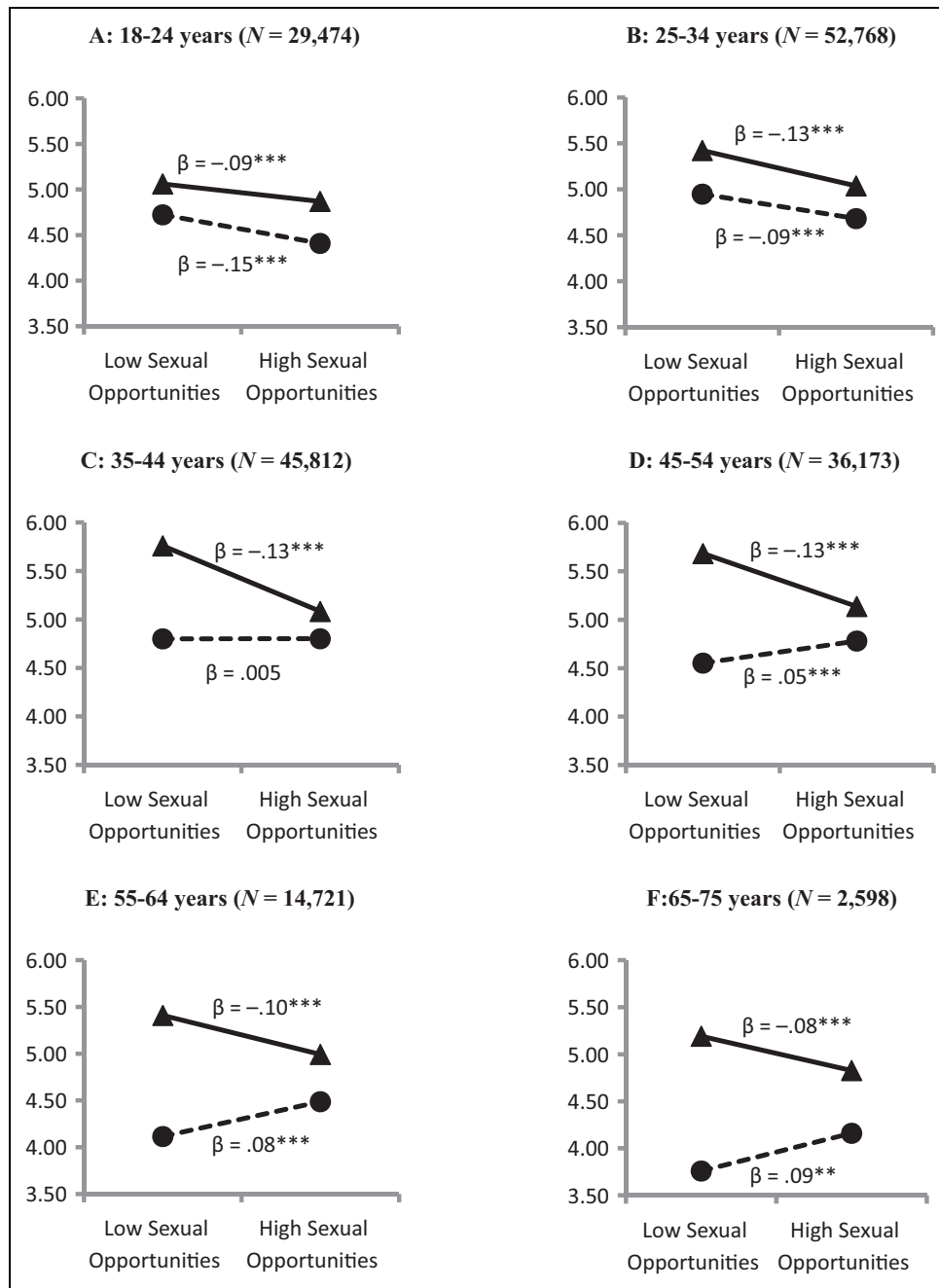


Figure 1. (A–F) Gender × Sexual Opportunities (gender ratio; reversed for men) on sexual desire. Note. Solid line = male slope, dashed line = female slope. ** $p \leq .01$. *** $p \leq .001$.

Test 1, $r(\text{men}) = .56$, $r(\text{women}) = .48$. The size of these relations is consistent with our assumption that the two sexual opportunity indicators are nonredundant proxies for sexual frequency.

Results

Our overall data analytic strategy was identical to that of Test 1. Figure 2 displays the results. Young adult (18–34 years old) participants from both genders reported relatively high sexual desire when other gender sociosexuality was low (i.e., when

sexual opportunities were low), and they reported relatively low sexual desire when other gender sociosexuality was high (i.e., when sexual opportunities were high), $-.33 \leq \beta_s \leq -.14$, $-27.23 \leq t_s \leq -5.29$, $p_s < .001$ (Figure 2A and B). Thus, as in Test 1, both male and female sexual desire followed the satisfaction principle in young adulthood.

From age 35 onward, men continued reporting relatively high sexual desire when other gender sociosexuality was low (i.e., when sexual opportunities were low), and they reported relatively low sexual desire when other gender sociosexuality was high (i.e., when sexual opportunities were high), $-.24 \leq$

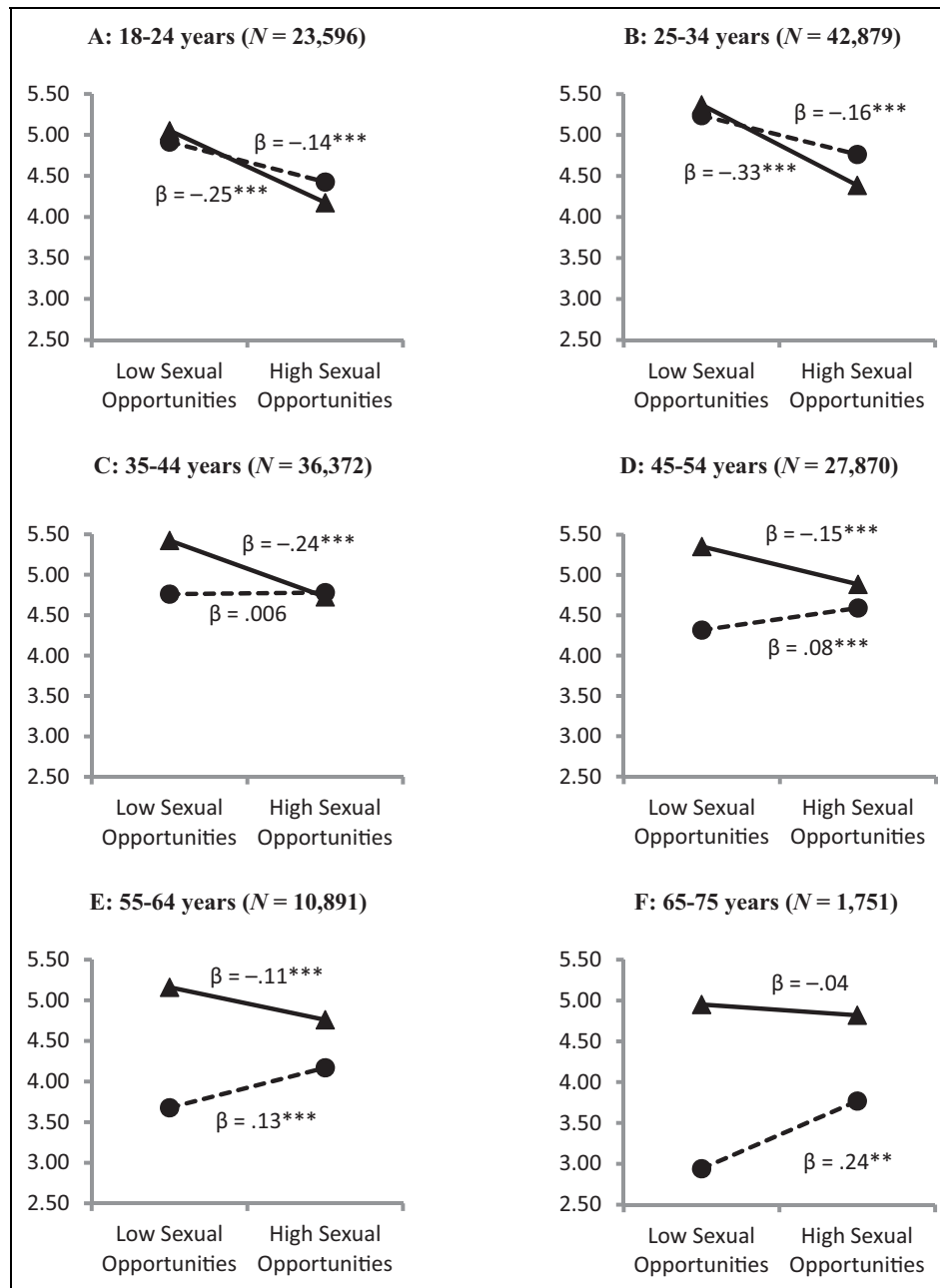


Figure 2. (A–F) Gender \times Sexual Opportunities (other gender sociosexuality) on sexual desire. Note. Solid line = male slope, dashed line = female slope. $^{***}p \leq .01$. $^{**}p \leq .001$.

$\beta_s \leq -.11$, $-17.96 \leq t_s \leq -5.01$, $p_s \leq .001$ (Figure 2B–E). This too was consistent with Test 1's finding that male sexual desire conforms to the satisfaction principle throughout life. The only discrepancy between the two sets of analyses involved the oldest males (age 65–75). In Test 2, this fell short of significance, albeit remaining in the same direction as all the other male slopes, $\beta = -.04$, $t = -.64$, $p = .52$ (Figure 2F).

The results on women's sexual desire fully replicated those of Test 1. The young women (18–34 years old) followed the satisfaction principle (Figures 2A and 3B), as already noted. For ages 35–44, again, there was no relationship between sexual desire and sexual opportunities, $\beta = .006$, $t = .30$, $p = .77$ (Figure 2C).

Starting with the 45- to 54-year-old cohort and continuing into old age, female desire conformed to the adaptation principle. Women reported higher desire when their country's men were open to having plenty of sex, and they reported lower sexual desire insofar as their male compatriots were low in sociosexuality, $.08 \leq \beta_s \leq .24$, $2.69 \leq t_s \leq 3.69$, $p_s \leq .007$ (Figure 2D–F).

Following our previous analysis strategy, we complemented these analyses by probing for a significant three-way interaction between Other Gender Sociosexuality \times Age Decade \times Gender on Sexual Desire. This interaction should be caused by a comparatively weak Other Gender Sociosexuality \times Age Decade interaction among men and a stronger Other Gender

Sociosexuality \times Age Decade Interaction among women. Consistent with these predictions, the relevant three-way interaction was significant, $b = -.07$, $SE = .02$, $t = -3.37$, $p = .001$, and decomposing it revealed that the relevant two-way interaction was comparatively small for men, $b = .08$, $SE = .01$, $t = 7.37$, $p < .001$, and stronger for women, $b = .14$, $SE = .02$, $t = 8.59$, $p < .001$.

Finally, we derived one additional sociosexuality index from Schmitt's (2005) norm list (see Method section). For this "same-gender" sociosexuality index, each male participant was assorted to his country's male sociosexuality mean, whereas each female participant was assorted to her country's female sociosexuality mean. We expected that our results should *not* replicate with this additional sociosexuality index, and such a finding would suggest that our other gender sociosexuality index does not simply capture general cross-cultural differences in permissiveness. Supporting the unique predictive validity of our original other gender sociosexuality index, results did not replicate with the additional index. Specifically, we found no effect of Same Gender Sociosexuality \times Age Decade \times Gender on Sexual Desire, $b = -.04$, $SE = .02$, $t = -1.95$, $p = .05$, and the simple slopes, as depicted in Figures 1 and 2, did not replicate.

General Discussion

Across two tests, we explored the workings of the satisfaction and adaptation principles in sexual desire, and we did so separately for men and women across the adult life span. The two tests yielded convergent results. First, young adult men and women (18–34 years old) expressed more sexual desire when they had fewer opportunities for satisfaction than when they had many. These opportunities were assessed by sex ratio (i.e., a relative shortage or surplus of eligible single members of the opposite sex; Test 1) and again by other gender sociosexuality (i.e., the average openness to frequent, low-cost sex among members of the opposite sex in one's country; Test 2).

Second, men's sexual desire continued to conform to the satisfaction principle throughout life, though the effect became progressively weaker with age, and, on one measure, it ceased to be significant among the oldest men (see below for possible reasons). Third, women's sexual desire ceased to follow the satisfaction principle in their 30s, and, by the mid-40s, it reversed direction to fit the adaptation principle.

Perhaps the most economical way of describing these results is to sort our huge sample into four broad groups, three of which showed roughly the same pattern with minor variations, with the other being quite different. The satisfaction principle fit the patterns of sexual desire for young adult men, young adult women, and older men. Among older women, in contrast, the adaptation principle was the best fit. Next, we offer three explanations for these results.

Explanations

Reproductive Capacity. Figures 1 and 2 show that the strength of the satisfaction principle coincides remarkably with

reproductive capacity, and this is the case for men as well as for women. Specifically, men's reproductive capacity declines only after their 60s, and it hardly ever reaches 0 (Menken, Trussell, & Larsen, 1986). We found that processes associated with the satisfaction principle governed male sexual desire throughout adult life, only growing noticeably weaker around 60 years of age (Figures 1 and 2). In contrast, women's reproductive capacity starts declining considerably in their mid-30s and comes close to 0 at 50 years (Menken et al., 1986). We found that the influence on female sexual desire of processes associated with the satisfaction principle started declining considerably in the mid-30s and vanished around age 50. At that age, the first evidence for the adaptation principle emerged (Figures 1 and 2).

Is it merely a coincidence that the life span trajectories of the sexual satisfaction principle and reproductive capacity correspond so closely for both genders? Evolutionary theory provides a basis for speculating that reproductive capacity would guide the operation of the satisfaction principle. Motivational processes presumably evolved to help initiate behaviors that ultimately foster gene transmission (Cosmides & Tooby, 1987). From this perspective, the sexual satisfaction principle should govern sexual desire strongly when sex is most beneficial for gene transmission, and this is the case during the most reproductive life period. To put it more prosaically, when one has plenty of sex, one's sexual desire is satiated, and one can turn attention to other things. But when opportunities are scarce, the individual remains highly motivated to find sex, and so efforts are directed toward searching for the few chances for sex that are available. These contingencies change when one's reproductive capacity declines. At that point, the person has less reason to orient toward sex, and the adaptation principle may be more effective for maintaining relationships and living harmoniously. More precisely, when opportunities are available for sex, the person may feel the appropriate desire, but, when opportunities are lacking, the person may cease to feel much in the way of desire and can instead focus on other goals, such as taking care of offspring and grandchildren or transmitting knowledge to younger members of the group (Abramson & Pinkerton, 2002).

Self-Perceived Mate Value. Compared to male mate value, female mate value is strongly determined by physical attractiveness (Gebauer, Leary, et al., 2012). Furthermore, physical attractiveness decreases across the life span, and this decrease is evident somewhat earlier in women than in men (Thornhill & Gangestad, 1999). As a result, compared to men, women's self-perceived mate value may well drop more precipitously with increasing age (Buss, 1998). Yet, this drop may be buffered in countries where sexual opportunities for older women are abundant, because male attention makes them feel desired and attractive despite their age. If low levels of self-perceived mate value lead to low sexual desire (rather than boosting it in a compensatory manner; see Easton et al., 2010), sexual desire should drop among older women—but only in countries where male interest is low. Male sexual desire should be less affected by

aging, insofar as men's self-perceived mate value does not decline so much with age, and indeed any drop in physical attractiveness could be offset by rising status and achievements, at least until old age. Together, these gender-specific processes may explain the emerging difference between men's and women's sexual desire with increasing age.

Still, these processes are not sufficient to explain why both younger men and women report higher sexual desire when sexual opportunities are low rather than high (Figures 1 and 2A–B). We must also explain why men report higher sexual desire throughout much of their adult life when sexual opportunities are low rather than high (Figures 1 and 2A–F). One parsimonious perspective would assume that the sexual satisfaction principle is generally dominant, so that most people's sexual desire rises in times of scarcity and dwindles when opportunities are abundant. The dominance of the satisfaction principle ceases only when reproduction is no longer possible and self-perceived mate value is low.

Other Processes. Additional processes beyond the satisfaction and adaptation principles deserve mention as possibly having contributed to our findings. Men in our sample may have reported low sexual desire when sexual opportunities were high, not because their desires were satisfied but because they perceived that other men around them were having plenty of sex. This knowledge may have reduced the sexual desire of the sampled men via at least two processes. First, reminiscent of the sour grapes effect (Hammock & Brehm, 1966), some single men may have concluded that they were having less sex than other men and self-protectively disengaged from sexual motivation so as not to feel disappointed and inadequate (Sedikides, 2012). Second, consistent with self-perception theory (Bem, 1967), single men may have noticed that they had less sex than other men in high-opportunity countries and may have thus surmised that their own sexual desire must be low.

However, neither self-protection nor self-perception theories provide a parsimonious explanation for why the age trajectories of sexual desire for men and women differ so distinctively. To be sure, additional processes may always be at work, perhaps synergistically with self-protection and self-perception mechanisms, to explain the result pattern depicted in Figures 1 and 2. By definition, however, such multiple process accounts would lack parsimony. In contrast, the reproductive capacity explanation, with its proposal that sex loses its biological function among older women who reach the end of their reproductive period, is parsimonious. Increased desire for sex when opportunities are scarce would serve no reproductive function for older women. Apart from subjective pleasure (for which, presumably, nature and natural selection care naught unless it contributes to reproduction), the functions of sex would be to improve romantic relationships and keep a partner happy, and so this pattern would be best served by wanting sex when it is easily available and not missing it when it is not. For the reproductively capable, however, the satisfaction principle remains ascendant. Wanting sex when opportunities are scarce would presumably motivate individuals to work

harder to find it, and today's humankind is probably descended from ancestry who did just that more than ancestry who reacted to a scarcity of sexual opportunity by settling for celibacy.

Broader Implications

Several other contributions to sexuality theory are worth mentioning. Across this large sample of single persons looking for mates, men generally reported higher sexual desire than women (Figures 1 and 2). This finding was largely consistent across cultures and age cohorts. It fits the weight of evidence that men desire sex more than women (Baumeister et al., 2001). However, we did find one exception: In countries with very high male sociosexuality, single women aged 18–34 did report higher levels of sexual desire than their male counterparts (Figure 2A and B). One explanation is that casual sex is less satisfying to women than to men (Conley, 2011), so that, even if there is plenty of casual sex available, young women remain somewhat unsatisfied and therefore desire more sex. Another explanation for the high sexual desire of young women in countries with many sexually eager men is that the adaptation principle already shows some effect among the young women, as it does in the older women. Thus, even though the satisfaction principle is dominant among young women, some young women do respond to highly available sex with high desire, as the adaptation principle suggests. We hesitate to put too much weight on this one finding, but it is noteworthy simply because past work has hardly ever found female sexual desire to exceed male desire under any circumstances.

Our findings also shed new light on the greater erotic plasticity of women. Evidence suggests that female sexuality is more changeable than male sexuality (Baumeister, 2000). The fact that female sexuality is governed by both satisfaction and adaptation principles could contribute to its greater plasticity. Indeed, the adaptation principle itself suggests a major benefit of plasticity, as in ceasing to desire what one is unlikely to get.

We found that age-based peaks in female sexual desire depend on country-level gender ratios and male sociosexuality. Independent of this, our overall results buttress recent research showing that the highest average levels of female sexual desire occur when women are in their mid-30s (Figures 1 and 2). Easton, Confer, Goetz, and Buss (2010) labeled this peak the “reproduction expediting phase.” They believed that peak to be evolutionarily adaptive for women, because it may help them to spread their genes in the face of declining reproductive capacity. The results of our large cross-cultural data set are consistent with their findings and theory.

Our findings also have broad implications for motivation theory in general. The satisfaction principle is widely understood to be a model for all motivation: Desire increases until it is satisfied and decreases when the animal gets what it wants. The adaptation principle is less well appreciated, although, as we noted in the introduction, there are many suggestive patterns in various literatures (Baumeister, 2007).

Sex is one of the most basic, innate, and powerful motivations. The finding that sexual desire follows not one but two

principles, which yield very different patterns of waxing and waning, suggests important avenues for advancing not just our understanding of human sexual behavior but of motivation in general. Sometimes, apparently, desire rises when opportunities are rife and dwindles when prospects are dim. One may speculate that such a pattern would be adaptive. If nothing else, however, to want only what one can actually have seems like a great blessing.

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