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Unrestricted sexuality promotes distinctive short- and long-term mate preferences in women

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ABSTRACT

The *dual-sexual strategy* hypothesis claims that women select different men for short- and long-term relationships. In short-term relationships, women are attracted to good genes (e.g., masculinity, attractiveness); in long-term relationships, material traits (e.g., good income, patient) are favoured. A potential predictor of women's mating strategy is *sociosexuality*, a measure of an individual's willingness to engage in casual, uncommitted sex. We asked whether women high in sociosexuality (i.e., unrestricted sexuality) would demonstrate greater distinctiveness between short- and long-term mate preferences. In an online study, participants ($N = 459$) from India and the USA were apportioned a 'mate budget' to construct their ideal short- and long-term partners. Mate Dollars could be spent on either genetic or material traits. As expected, genetic traits were favoured for short-term relationships; material traits were favoured for long-term relationships. However, women with a more restricted sexuality preferred short-term mates who closely resembled their long-term preferences. Women from the USA (with typically less restricted sexuality) showed more distinctive preferences than women from India (with typically more restricted sexuality). Overall, a woman's sociosexuality influences the distinctiveness of her short- and long-term mate preferences.

1. Introduction

When choosing a romantic partner, humans may encounter potential suiters who can differ, among other traits, in physical attractiveness, personality, social status and health. Rather than mating at random, women's mate preferences reflect a sophisticated suite of strategies, which function to obtain high quality males (Gangestad & Simpson, 2000). However, women's perception of what constitutes a "high quality mate" can differ across individuals (Havlicek & Roberts, 2009; Jonason, Valentine, Li, & Harbeson, 2011) and relationship context (e.g., one-night stand, marriage, 'friends with benefits', cuckoldry; Buss et al., 1990).

1.1. Dual-sexual strategy

Across populations, genetic variation can mean that individuals differ in heritable fitness (i.e., the *genetic benefits* that are inherited by offspring from parents). Among men, indicators of good genes include masculinity, symmetry, social dominance and sense of humour (Gangestad, Garver, Simpson, & Cousins, 2007). In addition to good genes, women are also attracted to men with access to material resources. Men who offer *material benefits*, such as wealth, high status, emotional stability and maturity, are better equipped to provide resources necessary for the production of reproductively successful offspring, making them more attractive in the mating market (Lu, Zhu, & Chang, 2015).

Although women typically favour males who offer both genetic and material benefits, most find that they cannot "have it all" (Buss & Shackelford, 2008). For example, men with good genes can access multiple high quality mates without investing greatly in time or the provisioning of material goods (Faurie, Pontier, & Raymond, 2004), meaning they are more likely to favour short-term mating. Further, women's ability to attract a high-quality, long-term partner is constrained by the availability of mates (Stone, Shackelford, & Buss, 2007) and her own mate value (Buss & Shackelford, 2008).

In response to these trade-offs, women adopt a *dual-sexual strategy*, such that they prioritise different male characteristics when choosing either a short- or long-term mate. Men who can offer material benefits are best equipped to provide parental investment, making these attributes particularly valuable for long-term relationships (Gangestad & Simpson, 2000). However, women can additionally access genetic benefits from males with good genes, via short-term mating (e.g., one-night stand, cuckoldry; Pillsworth & Haselton, 2006). In this way, women who adopt the dual-sexual strategy can gain long-term benefits from men

Abbreviations: SOI-R, Revised Sociosexual Orientation Inventory (Penke & Asendorpf, 2008); WMPQ, Women's Mate Preference Questionnaire (Lu, Zhu, & Chang, 2015).

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who offer material benefits, while good genes can be accessed sporadically via short-term mating. Nonetheless, in some contexts female promiscuity can be costly, resulting in "slut-shaming", malicious gossip, "honour killings" or a lower brideprice (Ghanim, 2015; Hartung, 2012; Mayeda & Vijaykumar, 2016).

1.2. Sexual strategies and sociosexuality

Whereas most women can enact a dual-sexual strategy (Li, Valentine, & Patel, 2011), the extent to which women prioritise short- (vs. long-) term mating is moderated by individual differences in traits possessed by the chooser, such as intelligence, personality traits and sociosexuality (Schmitt & Shackelford, 2008; Simpson & Gangestad, 1992; Stanik & Ellsworth, 2010). Sociosexuality is a personality construct that measures one's willingness to engage in casual, non-committed sex. *Sexually unrestricted* individuals have sex earlier in relationships, are more open to uncommitted relationships (e.g., 'friends with benefits') and are more likely to have multiple partners at one time (Simpson & Gangestad, 1991), or cuckold their partner (Gangestad, Simpson, Cousins, Garver-Apgar, & Christensen, 2004). Unrestricted women are particularly attracted to good genes traits, such as physical attractiveness and masculinity, as a means to gain heritable benefits for offspring via short-term mating (Gangestad et al., 2004; Waynforth, Delwadia, & Camm, 2005). Alternatively, sexually restricted women typically prioritise material traits via long-term mating with investing males (O'Connor et al., 2014).

Taken together, these studies indicate that women's mating strategies are influenced by their sociosexuality. However, to our knowledge, the question of whether women's sociosexuality can predict the distinctiveness of their preferences for short vs. long-term mates has not been addressed. We suggest three key reasons why sociosexuality could moderate the distinctiveness of women's short- and long-term mate preferences.

First, sexual experience could amplify relationship preferences. Sexually unrestricted individuals are, by definition, more experienced in choosing a short-term mate than more restricted women. This experience could translate into a greater success at choosing short-term mates who offer heritable benefits for offspring. Some research has indicated that those high in sociosexuality are more successful at identifying facial cues of good genes, such as symmetry (Quist et al., 2012) and masculinity (Provost, Kormos, Kosakoski, & Quinsey, 2006; Sacco, Jones, Debruine, & Hugenberg, 2012). However, some researchers have failed to replicate this finding (Glassenberg, Feinberg, Jones, Little, & Debruine, 2010; Sacco, Hugenberg, & Sefcek, 2009).

The second argument speaks to the cognitive mechanisms that maintain sexual strategies. As we have seen, rather than possessing one universal mating tactic, women differ with respect to their optimal sexual strategy. From this perspective, those who demonstrate unrestricted sexuality can benefit from a dual approach, by choosing investing males for long-term mating, and ad hoc short-term mating with good genes males. Restricted women, however, benefit from engaging in a targeted, long-term strategy, inducing men to invest prior to sexual access (Baumeister, Catanese, & Wallace, 2002). This raises the question of how such strategies are maintained. We propose that sexually restricted women are predisposed to choosing an investing male, even in contexts where prioritising good genes could be viewed as beneficial (e.g., for short-term mating). In doing so, restricted women can increase their likelihood of attracting (and being attracted to) a mate who possesses material attributes. Alternatively, unrestricted women can benefit from both material and genetic traits by differentiating between their short- and long-term sexual strategy.

Third, sociosexuality could moderate an individual's objectives within the domain of short-term mating. In this view, for unrestricted women, short-term mating is a tool to obtain genetic benefits for offspring. Alternatively, restricted women may use short-term mating to evaluate and attract long-term mates (Buss & Schmitt, 1993). Therefore, selecting short-term mates who could be suitable husbands would be an adaptive strategy for restricted women.

1.3. The present research

The purpose of the current study was to investigate whether unrestricted women are more prone to adopting a dual-sexual strategy. We propose that sexually unrestricted women make a greater distinction between their ideal short- and long-term mate. From this, three hypotheses emerge. First, we predicted an interaction between sociosexuality and relationship context (short-, long-term), such that women high in sociosexuality possess more distinctive mate preferences than do women with low sociosexuality. That is, as women become more conservative in their sexual behaviour, their short- and long-term preferences should converge (Hypothesis 1).

To test the cross-cultural validity of our claims, we focussed our recruitment on two contrasting cultures: India and the USA ($N = 459$). Relative to the USA, Indians report having had fewer sexual partners (3.0 vs. 10.7) and one-night stands (13% of Indians vs. 50% of Americans). Indians are also more likely to encourage young people to abstain from premarital sex (49% vs. 14%) (Durex Sexuality Study, 2005). Consequently, we predicted that women from India would be sexually restricted, relative to women from the USA (Hypothesis 2), resulting in more similar short- and long-term preferences among Indian women, relative to USA women (Hypothesis 3).

Following the measurement of individual differences in sociosexuality, women were apportioned a budget in Mate Dollars to construct their ideal short- and long-term partners. Mate Dollars could be spent on a menu of six genetic (= good genes) and six material traits. We examined whether the proportion of dollars spent on genetic and material traits for short- and long-term mates is predicted by sociosexuality.

2. Method

2.1. Participants

Participants were 459 women (India = 230; USA = 229) recruited in an Amazon Mechanical Turk study. All participants were aged 18–44, heterosexual and reported that they were fluent in English. The age distribution was 18–24 (9%), 25–34 (56%), or 35–44 (33%). Fifty-nine percent were married, 19% were in committed relationships, 16% were single, and the rest were engaged or widowed. Participants were financially reimbursed for their time (USA: 2.25 USD; India: 1.50 USD).

2.2. Design

In a three-factor, mixed factorial design, Nationality (USA, India) was the between-subjects factor, and Context (Short-, Long-Term) the within-subject factor. Our third independent variable was the participant's Sociosexuality score. The dependent variable was the proportion of Mate Dollars spent on Genetic (vs. Material) traits.

2.3. Procedure

To measure sociosexuality, participants completed the 9-item revised Sociosexual Orientation Inventory (SOI-R; Penke & Asendorpf, 2008), a Likert-type scale that measures sociosexual *behaviour* (e.g., "With how many different partners have you had sex within the past 12 months?"), *attitudes* (e.g., "Sex without love is OK") and *desire* (e.g., "In everyday life, how often do you have spontaneous fantasies about having sex with someone you have just met?"). Consistent with previous studies, the three subscales were aggregated prior to analysis (Brown & Sacco, 2017; Kandrik, Jones, & DeBruine, 2015; Lewis, Al-Shawaf, Conroy-Beam, Asao, & Buss, 2012). Higher scores are associated with less restricted sexuality.

Participants were then asked to construct their ideal romantic partner by spending 30 Mate Dollars on twelve male traits (see below). Instructions indicated that each dollar spent was equivalent to 10 percentile points. For example, a $5 spend on the trait 'athletic' was equivalent to 'buying' a mate who is more athletic than 50% of the male population.

At the start of each trial, participants were told to construct both their ideal "short-term partner (i.e., one-night stand)" or "long-term partner (i.e., husband)". The presentation order of the relationship context variable was counterbalanced across women.

To measure women's mate preferences, we presented participants with 12 male traits. Of these, six were associated with genetic benefits; the remaining six were associated with material benefits. Traits were based on those identified in the Women's Mate Preference Questionnaire (WMPQ; Lu et al., 2015). Lu et al. (2015) conducted a principal component analysis to identify items that best conceptualised genetic (*Good Genes*) and material (*Good Father*, *Good Provider*) traits. Following the authors' recommendations, items with the highest factor loadings were selected for each trait category.[1] The six Genetic traits were: *sense of humour*, *masculine*, *good body*, *athletic*, *good voice*, and *good-looking*; the six Material traits were: *stays at home*, *considerate*, *patient, good income*, *high social status*, *successful career*.

After data collection, the Mate Dollars were summed to give a total amount spent on Genetic traits and a total for Material traits for each participant. From this, we calculated the proportion of the $30 budget that was spent on Genetic traits. Hence, if a participant spent $10 on Genetic traits and $20 on Material traits, the proportion spent on Genetic traits was 0.33. No specific action was taken in cases where participants spent either $30 on Genetic or Material traits. Participants chose to spend $30 on Genetic traits in 8.2% of cases, and $30 on Material traits in 1.7% of cases.

3. Results

3.1. Statistical analysis

Do sociosexuality and nationality predict distinctiveness between women's ideal short- and long-term mate? Overall, sociosexuality (SOI-R) scores were higher in the USA ($M = 27.42$) than India ($M = 18.72$), $t(457) = -7.58$, $p < 0.001$, $d = 0.71$.[2] To avoid issues surrounding multicollinearity, we sought to demonstrate that SOI-R captures unique aspects of mate preference not mediated by Nationality. To resolve potential issues, we conducted a series of hierarchical regression analyses on the predictor variables of SOI-R, Nationality and Relationship Context. For Model 1, SOI-R score and Context (short-term, long-term) were entered as predictor variables. For Model 2, the predictor variables were SOI-R score and Nationality (India, USA). For Model 3, all three predictors were entered. Partial *F*-tests showed whether Model 3 accounted for additional variance in the outcome (proportion spent on Genetic traits), relative to Models 1 and 2.

3.2. Model 1: sociosexuality and mate preference

Do sexually unrestricted women display more distinctive short- and long-term mate preferences than restricted women? Fig. 1 plots the proportion spent on Genetic traits as a function of SOI-R separately for the short- and long-term Contexts. We observed a positive relationship between SOI-R score and spend on Genetic traits, $F(1, 914) = 24.85$, $p < 0.001$, $\eta_p^2 = 0.03$. The main effect of Context was also significant, $F(1, 914) = 324.34$, $p < 0.001$, $\eta_p^2 = 0.26$, with women spending more on Genetic traits in the short-term Context. The interaction between SOI-R and Context was significant, $F(1, 914) = 11.50$, $p < 0.001$, $\eta_p^2 = 0.01$, with women high in SOI-R showing more distinctive short- and long-term preferences, relative to women with low SOI-R scores.

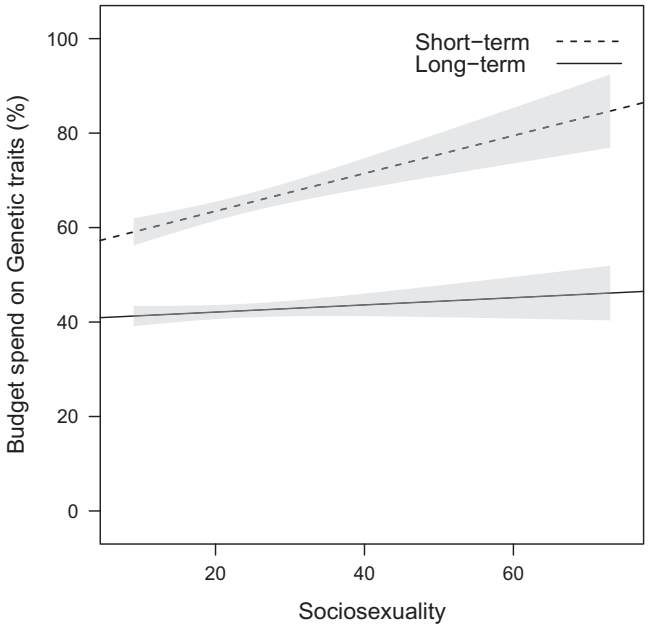

Fig. 1. Proportion of budget spent by women on their ideal male partner's Genetic (vs. Material) traits, as a function of Sociosexuality (higher values are less restricted sexuality) and Relationship Context. As Sociosexuality increases, preferences significantly diverge, $p < 0.001$. Note: Shading denotes 95% confidence intervals.

Regression slope tests revealed that SOI-R predicted the proportion spent on genetic traits in the short-term context, $t(457) = 5.23$, $p < 0.001$, indicating that women high in SOI-R particularly favour genetic traits in one-night stand partners. However, SOI-R did not predict preferences in the long-term Context, $t(457) = 1.33$, $p > 0.05$. Relative to restricted women, those with unrestricted sexuality particularly favoured genetic traits when choosing a one-night stand, but not when choosing a husband.

3.3. Model 2: nationality and mate preference

Next, we asked whether women from the USA display more distinctive short- and long-term mate preferences than Indian women (Model 2). The Nationality × Context interaction yielded the predicted main effect for Context, $F(1, 914) = 340.39$, $p < 0.001$, $\eta_p^2 = 0.27$, with women spending proportionally more on Genetic (vs. Material) traits in the short-term context (Fig. 2). The main effect for Nationality was significant, $F(1, 914) = 35.41$, $p < 0.001$, $\eta_p^2 = 0.04$, with those from the USA spending proportionally more on Genetic traits. As predicted, the Nationality × Context interaction was significant, $F(1, 914) = 47.96$, $p < 0.001$, $\eta_p^2 = 0.05$, indicating that women's preferences for short- and long-term mates were more distinctive in the USA, relative to India.

Regression slope tests showed that women from the USA (relative to India) spent particularly more on Genetic traits in the short-term Context, $t(457) = 8.15$, $p < 0.001$, but that Indian and USA spend were matched in the long-term Context, $t(457) = -0.79$, $p > 0.05$. Relative to Indian women, participants in the USA particularly favoured genetic traits when choosing a one-night stand, but not when choosing a husband.

[1] Items with the highest factor loading were selected, with the exception of *Creative* (Good Genes). Creative was omitted because of potential cross-over with material traits. Creativity has been associated with measures of intelligence (Osler et al., 2003), and previous studies have indicated that the association between intelligence and good genes measures may be tenuous (summarised in Gangestad, Thornhill, Quinlan and Flinn, 2007), as intelligence could also indicate one's ability to provide material resource (Gottfredson, 2002). As such, *Creative* was replaced with the next best-fitting item, *Good-looking*.

[2] The addition of Relationship Status and Age did not predict the proportion spent on Genetic traits (*ps* > 0.05). As well, the interactions Relationship Status × Context and Age × Context did not significantly predict the proportion spent on Genetic traits (*ps* > 0.05).

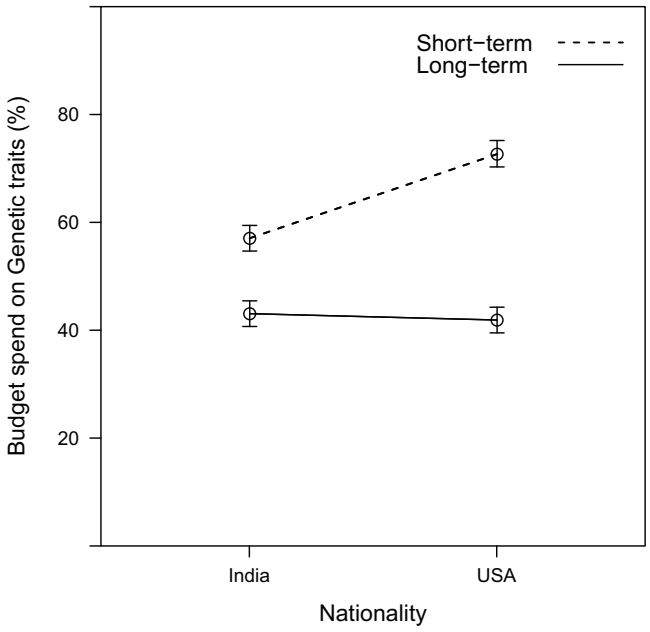

Fig. 2. Proportion of budget spent by women on their ideal partner's Genetic (vs. Material) traits, as a function of Nationality and Relationship Context. Short- and long-term spend is more distinctive in the USA, relative to India, $p < 0.001$. Note: Error bars denote 95% confidence intervals.

3.4. Model 3: sociosexuality, nationality and mate preference

With Model 3, we observed a significant main effect for SOI-R, Nationality and Context (all Fs > 20, ps < 0.001). Further, the SOI-R × Context and Nationality × Context interactions were also significant (all Fs > 12, ps < 0.001). However, we did not observe an interaction between SOI-R × Nationality, $F(1, 910) = 3.64$, $p > 0.05$, or SOI-R × Nationality × Context, $F(1, 910) = 2.07$, $p > 0.05$.

Partial F-tests showed that Model 3 explained additional variance in proportion spent on Genetic traits, relative to Model 1, $\Delta R^2 = 0.05$, $F(4, 910) = 16.07$, $p < 0.001$, and Model 2, $\Delta R^2 = 0.01$, $F(4, 910) = 4.59$, $p = 0.001$. Hence, SOI-R and Nationality are statistically independent in predicting mate preference.

4. Discussion

The primary motivation of this study was to investigate whether women high in sociosexuality display more distinctive preferences for short- and long-term mates. An additional aim was to examine cross-cultural differences between women from India (i.e., relatively low in sociosexuality) and the USA (i.e., relatively high in sociosexuality).

4.1. Sociosexuality and mate preference

Consistent with Hypothesis 1, we observed that sexually unrestricted women demonstrated more distinctive short- and long-term mate preferences than did those who were restricted. That is, as women's sociosexuality scores increased, the ideal short-term partner began to look considerably *less* like the ideal long-term partner. Sexually unrestricted women appear to engage in long-term mating to gain material advantages, such as parental investment and social status, and engage in short-term mating to access heritable genetic benefits for offspring. In contrast, sexually restricted women were more likely to use a blended approach when choosing a mate, such that preferences for material *and* genetic traits are more closely matched across short- and long-term relationships.

These findings provide insight into the role of personality traits in moderating women's sexual strategies. Women who are sexually unrestricted may adopt a dual-sexual strategy, and profit from engaging in a combination of short- and long-term mating. Restricted women, however, demonstrated a targeted, long-term strategy, by spending a higher proportion on social status and paternal investment for both mating contexts. Our findings are consistent with prior research which found that unrestricted women are more successful at differentiating between cues of good genes (Provost et al., 2006; Quist et al., 2012; Sacco et al., 2012). However, the present study extends these claims, by demonstrating that women's ideal long-term mate is not moderated by individual differences in sociosexuality.

The finding that sociosexuality predicts attraction to genetic traits in short-, but not long-term, mating can be viewed as an adaptive strategy. Good genes males are less likely to confer parental investment than men high on material traits (Faurie et al., 2004), making attraction to such men suboptimal in the long-term context. For unrestricted women, a better approach would be to favour material traits in long-term mating, and to engage in short-term mating with good genes males (Gangestad & Simpson, 2000).

4.2. Mate preferences in India and the USA

An additional aim of the present study was to test whether women's mate preferences differed in regions where women's behaviours are sexually restricted (India), versus unrestricted (USA). Consistent with Hypothesis 2, women in India exhibited restricted sexuality, relative to women in the USA. We also found that women from the USA possessed more distinctive short- and long-term preferences than did women from India (Hypothesis 3).

It is noteworthy that this effect does not merely reflect sociosexual differences between India and the USA. That is, Model 3 showed that sociosexuality and nationality were independent predictors of mate dollar spend. This raises the question of what additional factors (besides sociosexuality) cause cross-cultural differences in mate preference. From a cultural learning perspective, these preferences could be adaptive. Women in sexually restricted cultures may face a greater pressure to conform to norms surrounding chastity and sexual innocence. As such, a cognitive bias that promotes the socially desired norm (i.e., long-term mating) could serve to minimise social ostracism and harmful punishment. Alternatively, women in sexually unrestricted regions can benefit from pursuing different strategies for short- and long-term mating. Future research should seek to understand what motivates women from different cultures to possess distinctive mate preferences.

4.3. Limitations and future directions

There are several limitations to consider when evaluating the present study. First, mate preference was measured using Lu et al.'s (2015) Women's Mate Preference Questionnaire (WMPQ), a 12-item measurement that was translated to English from Chinese. As such, it is possible that the essential meaning of some items changed during the translation process. For example, the term *gù jiā*, which was used in the WMPQ, is ambiguous in English, and could be translated as *stays at home* (as translated in the present report), but also as *staying around home*, *being home a lot*, or *stay and care about home* (Lei Chang, personal communication). Second, the WMPQ was validated among a Chinese (and not an Indian or American) sample. An important next step would be to validate Lu et al.'s (2015) questionnaire in a non-Chinese sample. Despite these limitations in measuring mate preference, the findings nonetheless replicate previous observations that genetic traits are typically favoured in short-term mating, while material traits are favoured in long-term mating (e.g., Li, 2007), thus supporting the validity of the WMPQ.

It is also worth noting that the observed effect sizes for sociosexuality and nationality, plus the interaction with relationship

context, are small to medium (with η_p^2 ranging from 0.01 to 0.05). As with many observations within the mating literature, this supports the claim that multiple factors, such as intelligence (Stanik & Ellsworth, 2010), personality traits (Quist et al., 2012) and ecological factors (Kandrik et al., 2015), interact to form an individual's mate preference.

Another caveat to the study is the uncertainty with respect to the mechanisms underlying cultural differences in sociosexuality. Although not within the scope of this article, we speculate that one possible explanation for the findings is that imbalanced sex ratios, ecological pressures and cultural norms surrounding sexual behaviour foster relatively restricted sexual behaviour in India (Kandrik et al., 2015; Schmitt, 2005).

Finally, the present findings raise the question of what drives the observed differences in short-term mate preference between restricted and unrestricted women. Further research is needed to identify whether these strategic differences emerge from variation in sexual experience, or whether unrestricted women systematically bias their mating behaviour in favour of short-term mating. If sexual experience is driving the observed effect, this would suggest that successful mating strategies are learned via trial and error in the mating market. Alternatively, it is possible that it is *beneficial* for some (i.e., restricted) women to possess similar short- and long-term mate preferences, potentially to increase their own attraction to high investing males.

5. Conclusions

These findings demonstrate the role of sociosexuality in predicting women's mating strategies. As sociosexuality increases, preferences for short- and long-term mates diverge. This suggests that sexual openness promotes a dual-sexual strategy, which is an optimal approach to accessing both material and genetic benefits. In contrast, sexual restrictiveness could function to promote attraction to males who are likely to invest in long-term relationships.

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