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Abstract

In sexually monogamous relationships (SMR), sociosexuality, or the predisposition to engage in extradyadic casual sex, is negatively associated with relationship outcomes. However, mutually consenting to sexually non-monogamous relationships (SNMR) does not hinder relationship outcomes. Recent research has extended these findings to the phenomenon of online extradyadic sexual behavior. The aim of this study was to examine whether this sexual agreement moderates the association between sociosexuality and relationship satisfaction in a sample of romantically involved heterosexuals registered on a dating website directed at other romantically involved heterosexuals – Second Love. A sample of 329 Portuguese heterosexuals (66% men) aged 18 to 68 ($M = 41.47, SD = 10.19$) completed a web survey. A bootstrapped moderation analysis showed the expected negative association between sociosexuality and satisfaction, $b = -0.18, p = .013$. However, this was moderated by sexual agreement, $b = 1.12, p < .001$. Whereas individuals in SMR showed the negative association, $b_{women} = -0.46, p < .001$, $b_{men} = -0.67, p < .001$, for those in SNMR the association between unrestricted sociosexuality and satisfaction was positive, $b_{women} = 0.63, p = .002$, $b_{men} = 0.46$, $p = .006$. Gender did not moderate these results. The current study suggests that dating websites for romantically involved heterosexuals are not necessarily negative for relationship outcomes as long as there is a consensual agreement for sexual non-monogamy. This adds to the growing body of literature examining online sexual behavior and sexual infidelity.
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With the increased availability of Internet services, online interactions became an important part of interpersonal relationships\(^1\)\(^-\)\(^4\) and a popular way to pursue sex or initiate romantic relationships.\(^5\)\(^,\)\(^6\) For instance, more than one-third of Americans have met their spouse online.\(^7\) Social networking sites have also an important role in the maintenance of romantic relationships.\(^8\) Publicly announcing a romantic relationship in these sites is indicative of greater commitment.\(^9\) However, these sites can also have a negative influence in relationship outcomes. Greater use of Twitter and Facebook leads to more relational conflict, which increases the likelihood of infidelity.\(^10\)\(^,\)\(^11\) Also, online extradyadic sex is associated with lower relationship satisfaction.\(^12\) Sociosexuality, defined as a personal disposition to engage in casual sex,\(^13\) may help understand these results. Compared to sociosexually restricted individuals, those with an unrestricted sociosexuality have more sexual partners\(^14\) and are more likely to engage in extradyadic sex.\(^15\) These findings are independent of gender.\(^16\)\(^,\)\(^17\)

As most of these investigations referred to individuals in sexually monogamous relationships (SMR), our study focused on differences based in the sexual agreement within the couple. We defined sexually non-monogamous relationships (SNMR) as those in which individuals are each other’s primary partners and have consensually agreed upon extradyadic sex.\(^18\)\(^,\)\(^19\) Individuals in SNMR (vs. SMR) are more sociosexually unrestricted, report greater sexual frequency, greater relationship quality and greater personal happiness.\(^20\)\(^-\)\(^22\) Whereas individuals in SMR perceive extradyadic sex as a transgressive behavior,\(^23\)\(^,\)\(^24\) those in SNMR do not hold such perception.\(^18\)\(^,\)\(^25\) Therefore, it is important to examine whether the association between sociosexuality and relationship satisfaction is moderated by sexual agreement.

We departed from the typical young adults sample and examined individuals in a long lasting romantic relationship that were registered in a dating website that promotes interactions with other romantically involved individuals – Second Love. News reported as
much as 32 million users worldwide in a recent scandal with one of these websites. Research with these specific samples is scarce in the literature and is relevant for two main reasons. First, online infidelity is considered a severe form of infidelity. Although online interactions can remain exclusively in technology-mediated exchanges (e.g., cybersex), they can also lead to face-to-face encounters (e.g., offline sexual intercourse). Second, by paying for their registration on Second Love, individuals are motivated to engage in (at least) online extradyadic interactions. As such, individuals are reporting their current interests in extradyadic partners and not distal past interests.

Individuals in unfulfilled relationships view online interactions as a means to feel understood, share personal feelings, and express their sexual selves. This allows them to reach an emotional intimacy level that is not being met with the primary relationship. For instance, one study found better communication and higher levels of relationship satisfaction in an intimate relationship in Second Life than in a real-life romantic relationship. Within committed relationships, engaging in online sexual and/or emotional interactions can result in a crisis or intensify pre-existing relationship problems. For instance, the compulsive use of Internet has been associated with lower relationship quality (e.g., greater conflicts and lower commitment and intimacy). Nonetheless, not all online interactions are detrimental to romantic relationships. For example, Grov and colleagues showed that moderate or light amounts of online sexual activities can yield relationship benefits, including increases in the quality and frequency of sex, and greater intimacy with the primary partner. This seems to depend on the agreements conveyed in the relationship and on what role technology-mediated behaviors play in the relationship.

Individuals implicitly or explicitly establish an agreement for sexual monogamy in their relationship that emphasizes sexual and emotional exclusivity. This helps prevent infidelity, perceived to be a violation of commitment and trust. When entering a new
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relationship, individuals become more sociosexually restricted, which is associated with lesser likelihood of face-to-face and online extradyadic sex and with greater relationship quality. Presumably individuals focus on their romantic relationship, rather than their predisposition for casual sex, and decide not to engage in infidelity. Still, infidelity sometimes occur. In these cases an unrestricted sociosexuality might be determinant given its association with lower relationship satisfaction. For instance, Rodrigues and colleagues showed that individuals in SMR who had (vs. had not) engaged in extradyadic sex were more sociosexually unrestricted and less romantically committed, and this was associated with more permissive attitudes towards online and sexual infidelity.

However, individuals can maintain a healthy romantic relationship without following the typical sexual monogamy agreement. In fact, individuals in SNMR report happy and fulfilling relationships, granted partners are mutually honest and establish boundaries for this agreement. Indeed, when partner have a mutual agreement to have online extradyadic interactions within pre-agreed boundaries (e.g., online contact only), they report greater relational growth. A possible explanation for this is that individuals in SNMR hold permissive perceptions of infidelity within those established boundaries and do not consider online or face-to-face extradyadic sex as infidelity. Therefore, engaging in such behaviors does not impair relationship quality. Recently Fleckenstein and Cox even showed an increment in personal happiness and health among individuals in SNMR, presumably due to a greater sexual frequency. The fact that individuals in SNMR are more sociosexually unrestricted and have more extradyadic sex than those in SMR suggests a positive association between sociosexuality and relationship satisfaction for these individuals.
**Current study and hypotheses**

As individuals in SNMR establish boundaries in their agreement\(^{18,42}\) behaviors that fall outside these boundaries should be considered as infidelity. Therefore, we hypothesize that individuals in SMR and in SNMR should consider deceptive behaviors (e.g., lying to the partner) as indicative of infidelity. Moreover, as the sexual agreement influences the engagement in extradyadic sex,\(^{19}\) we hypothesized that this variable would moderate the typical negative association between sociosexuality and relationship satisfaction.\(^{39}\) Specifically, previous research with individuals in SMR has indicated that unrestricted sociosexuality is associated with lower relationship commitment and satisfaction.\(^{12,15}\) Thus, we expected sociosexuality and relationship satisfaction to be negatively associated for these individuals. However, previous research has also shown that individuals in SNMR do not perceive extradyadic sex within mutually consented boundaries as infidelity,\(^{18}\) and that engaging in such behaviors can improve personal happiness.\(^{21}\) As happiness is associated with relationship quality,\(^{44}\) we expected a positive association between sociosexuality and relationship satisfaction for these individuals. Based on recent findings on infidelity, we predicted no gender differences in these associations.\(^{12,15,16}\)

**Method**

**Participants**

Participants were 329 Portuguese self-identified heterosexuals (65.96% men) with ages ranging from 18 to 68 (\(M = 41.47, SD = 10.19\)). Individuals completed high school education (36.78%), minor or major degrees (40.73%), or had a Masters or PhD (14.59%). Half the sample reported residing primarily in metropolitan areas (48.30%). All participants have paid for their registration on Second Love, reported prior extradyadic sex in their current relationship and were not looking for a new romantic relationship.
Most individuals (n = 207; 61.85% men; \(M_{\text{age}} = 41.72, SD = 10.29\)) were in a self-reported SMR (53.14% married; 24.64% dating; 22.22% registered partnership) for a mean length of 155.60 months (SD = 114.72). The remaining participants (n = 122; 72.95% men; \(M_{\text{age}} = 41.04, SD = 10.04\)) reported to be in a SNMR (50.82% married; 32.79% dating; 16.39% registered partnership), on average for 131.22 months (SD = 117.96).

No differences according to sexual agreement (SMR vs. SNMR) emerged in regards to gender, \(\chi^2(1) = 2.11, p = 0.178\), type of relationship, \(\chi^2(2) = 3.22, p = 0.200\), age, \(t(327) = 0.58, p = .563\), or relationship length, \(t(435) = 1.84, p = 0.066\).

**Measures**

**Demographic and control questions.** Individuals were asked to indicate their gender, age, sexual orientation, education and area of residence. They were also asked to indicate which type of romantic relationship they had (Dating/Registered partnership/Married) and the length of such relationship (in months and years). To assess sexual agreement participants were asked: “What type of relationship do you have with your partner?” (Sexually monogamous/Consensual sexually open). As control questions, participants were additionally asked: “Have you engaged in extradyadic sex during your current relationship?” (Yes/No) and “Are you currently looking for a new romantic relationship?” (Yes/No).

**Revised Sociosexual Orientation Inventory (SOI-R).** This measure was developed by Penke and Asendorpf and comprises nine items that assess the willingness to engage in uncommitted sexual encounters. The items refer to sexual behavior (3 items; \(\alpha = .85\); e.g., “With how many different partners have you had sex within the past 12 months?”), attitudes towards uncommitted sex (3 items; \(\alpha = .87\); e.g., “Sex without love is OK”) and desire for another person (3 items; \(\alpha = .86\); e.g., “How often do you have fantasies about having sex with someone with whom you do not have a committed romantic relationship?”). Responses
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were given on 7-point scales (scale anchors depend on the item). The average of all item scores resulted in a global index of sociosexuality. Higher mean scores indicate more unrestricted sociosexuality, that is, greater predisposition to engage in casual sex.

**Satisfaction Scale.** This measure was retrieved from the Investment Model Scale proposed by Rusbult and colleagues\(^45,46\) and comprises five items that assess the positive affect experience in the relationship (\(\alpha = .92\); e.g., “Our relationship makes me very happy”). Responses were given on 7-point scales (1 = *Do not agree at all*, 7 = *Agree completely*). Higher mean scores indicate greater relationship satisfaction.

**Perceptions of Dating Infidelity Scale.** Two items from the original measure\(^47,15\) assess the extent to which individuals perceive deceptive behaviors as indicative of infidelity (two items; \(\alpha = .75\), e.g., “Lying to one’s partner”). Responses are given on 7-point scales (1 = *Extremely low level of infidelity*, 7 = *Extremely high level of infidelity*). Higher mean scores signify that behaviors are more indicative of infidelity.

**Procedure**

This study was in agreement with the Ethics Guidelines issued by the Scientific Commission of the hosting institution. The study involved healthy adult volunteers, was noninvasive, results were analyzed anonymously, and participants were not paid nor given other incentives to participate in the study. A web survey hosted on Second Love was made available to all registered users. When users logged in to their personal area, a popup window informed that a web survey on interpersonal relationships was active. Users interested to participate had to click on the hyperlink, which redirected them to the study itself. At the beginning of the web survey participants were given a full description of the ethical considerations. Specifically, participants were informed about the general purpose of the study, that participation was voluntary and confidential, and that they could withdraw from
the study at any time without their responses being considered for analysis. After clicking on the “I agree” button, participants were directed to the first part of the survey that included demographic and control questions. The second part of the survey included the remaining measures. At the end, participants were debriefed and provided with contact information (average completion time: 11 minutes). No Internet protocol address corresponded to more than one questionnaire.

Results

Preliminary Analyses

Overall, men reported more unrestricted sociosexuality ($M = 4.43, SD = 1.10$) than women ($M = 3.51, SD = 1.53$), $t(327) = 6.30, p < .001, d = 0.70$. Individuals in SNMR reported more unrestricted sociosexuality ($M = 4.59, SD = 1.09$) than those in SMR ($M = 3.84, SD = 1.38$), $t(327) = 5.11, p < .001, d = 0.57$. No differences emerged in relationship satisfaction according to gender (men: $M = 4.12, SD = 1.60$; women: $M = 4.14, SD = 1.75$), $t(327) = 0.13, p = .898$, or sexual agreement (SNMR: $M = 4.04, SD = 1.59$; SMR: $M = 4.18, SD = 1.68$), $t(327) = 0.73, p = .463$.

In addition, no differences in perceptions of infidelity emerged. $t(327) = 1.57, p = .117$. Deceptive behaviors were perceived as equally indicative of infidelity by individuals in SMR ($M = 4.91, SD = 1.75$) and those in SNMR ($M = 5.22, SD = 1.66$).

Sociosexuality, Satisfaction and Sexual Agreement

Zero-order correlations show sociosexuality to be negatively associated with satisfaction for men, $r = -.19, p = .005$, and women, $r = -.21, p = .026$, indicating that more restricted individuals reported being less satisfied with their relationship. To test our hypothesis that this association was moderated by sexual agreement and gender, we ran a
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Moderated moderation analysis (Model 3) using PROCESS macro for SPSS. Sociosexuality was the independent variable (X). Sexual agreement (dummy coded: 0 [SMR] or 1 [SNMR]) and gender (dummy coded: 0 [women] or 1 [men]) were the moderator variables (M and W, respectively). Relationship satisfaction was the criterion variable (Y). Relationship length entered as control variable. All variables were centered prior to the analysis.

Results of the model using 5,000 bootstrap simulations, \( R^2 = .18 \), showed that satisfaction was negatively associated with sociosexuality, \( b = -0.18, SE = .07, t(320) = -2.49, p = .013 \), 95% CI [-0.33, -0.04], but not with sexual agreement, \( b = -0.28, SE = .19, t(320) = -1.47, p = .143 \), 95% CI [-0.66, 0.10]. Moreover, the interaction between these variables was significant, \( b = 1.12, SE = .16, t(320) = 7.11, p < .001 \), 95% CI [0.81, 1.43]. Results for gender and its interaction with the remaining variables were non-significant, all \( p > .176 \). Similarly, the interaction between the independent and both moderator variables was non-significant, \( b = 0.03, SE = .31, t(320) = 0.10, p = .917 \), 95% CI [-0.58, 0.65] (Figure 1).

A more detailed analysis of the results show that unrestricted sociosexuality was negatively associated with satisfaction in SMR for both women, \( b = -0.46, SE = .11, t(320) = -4.22, p < .001 \), 95% CI [-0.68, -0.25], and men, \( b = -0.67, SE = .12, t(320) = -5.59, p < .001 \), 95% CI [-0.90, -0.43]. For individuals SNMR, however, unrestricted sociosexuality was positively associated with satisfaction both for women, \( b = 0.63, SE = .21, t(320) = 3.06, p = .002 \), 95% CI [0.23, 1.04], and men, \( b = 0.46, SE = .17, t(320) = 2.75, p = .006 \), 95% CI [0.13, 0.79] (Figure 2).

-- figure 1 --

-- figure 2 --
Discussion

We examined a sample of heterosexual individuals registered on Second Love website and actively engaged in online infidelity. We found support for our hypothesis that deceptive behaviors are similarly perceived as infidelity by individuals in SMR and SNMR. This converges with evidence showing that SNMR have an agreement within predefined boundaries.\(^{18,42}\) We also found support for the hypothesis that sexual agreement influence relationship satisfaction. Our results showed that unrestricted sociosexuality was negatively associated with relationship satisfaction in SMR. Individuals in these relationships that indicated a greater predisposition for casual sex, and that engaged in extradyadic sex, reported less satisfaction with their relationship. This is consistent with previous evidence showing that extradyadic online interactions might amplify pre-existing problems in the couple\(^{13}\) and that engaging in extradyadic sex requires motivation\(^{40}\) associated with lack of relationship quality.\(^{12,15}\)

For individuals in SNMR, on the contrary, unrestricted sociosexuality was associated with increases in relationship satisfaction. This finding converges with recent evidence showing that individuals in these relationships do not view extradyadic interactions as infidelity, nor as a sign of less relationship quality.\(^{18,25}\) These individuals may not establish intimacy with the extradyadic partner and protect their satisfaction in the primary relationship.\(^{49}\) Therefore, being registered on Second Love and engaging in extradyadic sex is not perceived as a sign of relationship problems, or as a need for intimacy that is not being met within the primary relationship. Having such agreement with the partner, extradyadic sex can increase personal well-being and happiness\(^{21}\) and increase relationship satisfaction. Converging evidence can be found in male same-sex relationships, such that sexual agreements do not impair relationship quality.\(^{50,51}\) To the best of our knowledge, our study was one of the first to extend these findings to heterosexual couples and to show that the
positive influence of extradyadic sex in SNMR goes beyond subjective well-being and is positively associated with relationship satisfaction.

Consistent with well-established findings, men reported more unrestricted sociosexuality than women. Regardless, both genders had similar associations between sociosexuality and relationship satisfaction. The fact that no gender differences were found converges with research showing that such differences are becoming less pronounced, particularly in what regards to extradyadic sex.\textsuperscript{12,15-17}

\textit{Limitations and future research}

Given the cross-sectional design of this study, no causal associations can be inferred. Future research should employ a longitudinal design, for instance examining whether increases in online interactions, the nature of these interactions or the amount of time spent in dating websites influence relationship satisfaction, according to sexual agreement. Also, this study did not distinguish between different types of SNMR.\textsuperscript{18,19} For instance, online interactions with an extradyadic person may be perceived as infidelity if the couple has established that casual sex can only occur between the couple and a third party. Similarly, online sex can lead to negative relationship feelings in couples to which casual sex is only allowed in particular settings (e.g., swingers). In both cases, repeated online interactions with another person can lead to greater intimacy and feelings of love towards that person, which could lower the satisfaction with the primary relationship and increase jealousy towards the primary partner. However, this should not be the case of polyamorous individuals, to whom there are agreements of intimate romantic relationships with more than one person. Future research should seek to further examine these differences.

\textit{Implications}
There are two main implications of the findings reported herein. There is evidence that sexual infidelity in SMR is associated with occurrences of risky behaviors or sexually transmitted infections\textsuperscript{19} and partner violence.\textsuperscript{52} For these relationships, online interactions in dating websites open the possibility of cyberbullying or blackmail that threaten to disclose the infidelity, or even cyberstalking.\textsuperscript{53} All of these situations have negative impacts on psychological well-being,\textsuperscript{54} and consequently on the relationship well-being. Hence, researchers should seek to have a more complete account of extradyadic sexual behaviors and of its modality (i.e., face-to-face, online, on which websites) in order to better understand its consequences for relationship quality. Our findings are also important to help deconstruct the stigma surrounding SNMR and the negative perceptions associated with individuals that deliberately agree on alternative forms of romantic relationships.\textsuperscript{55,56}

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Author Disclosure Statement

No competing financial interests exist.
References


Figure 1. Moderated moderation model diagram (Model 3). Path coefficients are presented for the direct association of sociosexuality (X) on relationship satisfaction (Y), for the moderating effect of sexual agreement on this association (M; SMR = sexually monogamous relationships; SNMR = Sexually non-monogamous relationships), and for the moderating effect of gender (W) on this moderation. *p < .05; ***p < .001.
Figure 2. Simple slope analyses for the association between sociosexuality and relationship satisfaction according to sexual agreement (SMR = sexually monogamous relationships vs. SNMR = Sexually non-monogamous relationships) for each gender. **p < .01; ***p < .001.