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*Pers Soc Psychol Bull* 2011 37: 1398 originally published online 6 July 2011

DOI: 10.1177/0146167211410986

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# In and Out of a Daydream: Attachment Orientations, Daily Couple Interactions, and Sexual Fantasies

Personality and Social Psychology Bulletin  
37(10) 1398–1410  
© 2011 by the Society for  
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DOI: 10.1177/0146167211410986  
http://pspb.sagepub.com  


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## Abstract

In this study, the authors examined the contribution of attachment orientations to the content of daily sexual fantasies. The two partners of 48 couples independently reported on their attachment orientations and provided daily reports on relationship interactions and sexual fantasies for a period of 21 days. Results showed that attachment anxiety was associated with wishes for intimacy and representations of others as more affectionate in sexual fantasies. Conversely, avoidant attachment was associated with avoidance-related wishes and representations of the self and others as more aggressive and alienated. Negative couple interactions increased habitual attachment-related wishes and self-representations. Specifically, during days characterized by negative couple interactions (relationship-damaging behaviors), attachment anxiety was associated with portrayal of the self as more helpless and avoidant attachment was associated with the expression of more avoidant wishes and portrayal of the self as less helpless. The discussion focuses on the manifestations of attachment-related interpersonal goals in sexual fantasies.

## Keywords

attachment, daily experience methods, gender differences, romantic relationships, sexual fantasy

Received September 16, 2010; revision accepted April 11, 2011

Sexual fantasies are experienced privately in a virtual world; thus, they may provide a window through which to view desires that may not always be acted on. The obscure nature of sexual fantasies has generated two related questions: What are the underlying functions of sexual fantasies? And what guides their content? For example, do sexual fantasies compensate for unsatisfied wishes or merely reflect current relational and sexual concerns? Are they triggered by sexual and relational dissatisfaction or just another manifestation of spontaneous sexual urges? Most of the studies addressing these questions have mainly focused on variables associated with frequency of sexual fantasy, showing that people with more active and satisfying sex lives report more frequent sexual fantasies (see Leitenberg & Henning, 1995, for a broad review of empirical work on sexual fantasy).

Relatively less is known about the factors that contribute to the content of sexual fantasies. It is therefore not clear whether and how personality, relational quality, and other contextual factors (e.g., daily life events, daily couple interactions) determine the content of sexual fantasies. For example, do relationship-threatening interactions promote “investment” in the object of fantasies? What might differentiate individuals who experience fantasies involving intimacy themes from those who distance themselves from the objects of their

fantasies? This relative lack of research is quite surprising, given that sexual fantasies appear to be an integral component of adult life that do not usually occur in a “relational vacuum.” Using attachment theory (Bowlby, 1969/1982) as an organizing framework, we designed the present diary study to fill these empirical gaps. Specifically, we examined (a) the associations between attachment orientations and the content of daily sexual fantasies over a period of 21 consecutive days among young adults involved in a meaningful romantic relationship and (b) the potential role of daily quality of couple interactions in moderating these associations.

## *Attachment and Sex in Close Relationships*

According to Bowlby’s (1969/1982) attachment theory, when attachment figures are not reliably available, a sense of attachment security is not attained and serious doubts about

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self-worth and others' goodwill prevail. These recurrent failures to attain the goal of "felt security" foster the development of two alternative regulatory strategies that replace the primary strategy of proximity seeking: hyperactivation, characterizing anxious attachment, and deactivation, characterizing avoidant attachment. Each of these two defensive attachment strategies is associated with particular constellations of interpersonal goals and mental representations of self and others ("working models"). Attachment anxiety is associated with strong abandonment fears, intense wishes for closeness, negative models of the self as needy and helpless, and positive, hopeful expectations of others as warm and affectionate (Bartholomew & Horowitz, 1991; Mikulincer & Shaver, 2007). In contrast, avoidant attachment is associated with wishes for distance, self-reliance, and control in close relationships, negative models of others as nonsupportive and hostile, and positive models of self as strong and controlling (Bartholomew & Horowitz, 1991; Mikulincer & Shaver, 2007). These early-developing working models guide interpersonal interactions over the entire life span. As such, they shape the regulatory functioning of the later-developing sexual system (Shaver, Hazan, & Bradshaw, 1988).

Indeed, past research has shown that attachment-related differences in interpersonal goals help to explain variations in the construal of sexual interactions in close relationships (see reviews by Birnbaum, 2010; Mikulincer & Shaver, 2007). More anxiously attached people use sex to meet their insatiate attachment needs for security. This tendency takes many forms, such as engaging in sex for a variety of attachment-related reasons (e.g., achieving emotional intimacy) and experiencing enhanced sexual motivation under conditions that pose a threat to the relationship and call for proximity seeking (e.g., Davis, Shaver, & Vernon, 2003, 2004). More avoidant individuals, in contrast, are threatened by the closeness implied by sexual interactions and, therefore, tend to detach sex from intimacy. This detached stance may account for diverse avoidance-related sexual motives and behaviors, such as having sex for self-enhancing reasons, engagement in emotion-free sex with casual partners, and experiencing relatively strong aversive feelings of alienation during sex (e.g., Birnbaum, 2007a; Birnbaum, Hirschberger, & Goldenberg, 2011; Birnbaum, Reis, Mikulincer, Gillath, & Orpaz, 2006; Mikulincer & Shaver, 2007).

The research reviewed above indicates that attachment-related goals and strategies are associated with theoretically predictable patterns of sexual motives, cognitions, and behaviors. These findings raise the question of whether these patterns are paralleled in the fantasy realm, a unique and elusive component of sexuality. In an attempt to address this question, Birnbaum (2007b) conducted cross-sectional, correlational research examining the associations between attachment orientations and the frequency and content of sexual fantasies. Individuals scoring high on attachment anxiety reported the highest frequency of sexual fantasies and were more likely than their less anxious counterparts to

experience sexual fantasies involving attachment-related themes (e.g., representing self as needy and helpless and others as warm and affectionate). More avoidant people were especially likely to report sexual fantasies in which they and the object of their fantasies were represented as interpersonally distant and alienated. These initial findings imply that the content of sexual fantasies indeed reflects the interpersonal goals and mental representations associated with attachment orientations.

### *The Present Research*

Although Birnbaum's (2007b) findings revealed that attachment orientations are correlated with the frequency and content of sexual fantasies, these correlations may be a result of one-time recording biases (e.g., motivated construal processes, sentiment override; Reis & Gable, 2000). Furthermore, they might have resulted from the failure to take into account contextual variables that moderate the attachment–fantasy linkage. One moderator, for example, may be the quality of couple interactions. Indeed, a recent experimental study has indicated that the attachment–fantasy link is most evident within the context of a hypothetical relationship-threatening scenario (Birnbaum, Svitelman, Bar-Shalom, & Porat, 2008). The present study was designed to examine whether the documented attachment–fantasy link would replicate in everyday sexual fantasies experienced in their natural dyadic context. This research also aimed to explore the possible role of daily quality of couple interactions in moderating these associations, thereby shedding additional light on the debate about the underlying functions of sexual fantasies.

Freud (1908/1962) argued that unsatisfied wishes are the underlying motives of sexual fantasizing. In contrast to this "deficiency view" of fantasizing, other theorists have proposed that sexual fantasies constitute a component of healthy sexuality (e.g., Klinger, 1971; Singer, 1966). As such, sexual fantasies may be a direct reflection of an individual's current sexual concerns (Klinger, 1971) and be habitually used to promote sexual enjoyment (e.g., Singer, 1966). Growing empirical evidence has indicated that, contrary to Freud's assertion, more frequent fantasizing is associated with more frequent orgasms as well as greater sexual desire, arousal, and satisfaction (Leitenberg & Henning, 1995).

Although these findings imply that sexual fantasizing does not necessarily compensate for lack of sexual enjoyment, they cannot rule out the possibility that the content of sexual fantasies serves unmet needs. This possibility is supported by findings showing that fantasizing about extradyadic sex is positively associated with relationship length (Hicks & Leitenberg, 2001) and negatively associated with both sexual satisfaction and marital functioning (Trudel, 2002). These fantasies may compensate for relationship burnout and sexual boredom. Furthermore, both frequency and content of fantasizing may reflect overall relational distress

rather than purely sexual dissatisfaction. For example, women in distressed marriage were found to fantasize more frequently than happily married women (Davidson & Hoffman, 1986). Indeed, mental imagery may be one of the common sustaining strategies employed by people to handle distressing events. Sustaining fantasies may create an alternative “reality” (e.g., experiencing one’s own attractiveness, being in a powerful position) that may counter the original stress-provoking event, reduce related distress, and restore self-esteem (e.g., Harder et al., 1984; Zelin et al., 1983). These fantasies are typically consistent with both self-reported daydreams (i.e., fantasies experienced during less stressful circumstances) and behavioral coping style (e.g., Greenwald & Harder, 1995, 2003).

These one-time, retrospective surveys have focused, however, on fantasizing in general rather than on sexual themes. In addition, although they illustrated the type of fantasies people use in time of stress to protect their selves, they did not examine the dynamic interplay of distressful events and sexual fantasizing in their natural dyadic context, thereby overlooking important sources of variability (e.g., changes in context). In the case of couple relationships, this context includes not only fluctuations in the quality of couple interactions but also partner’s characteristics, such as his or her attachment orientations, that are known to affect the other partner’s relational and sexual experiences (e.g., Birnbaum et al., 2006).

The methodological limitations of the studies reviewed above preclude drawing valid conclusions as to whether certain sexual fantasies are more likely to be experienced by some people regardless of context, whether specific contexts lead to experiencing certain sexual fantasies, and whether individual differences in the likelihood of specific sexual fantasies are moderated by specific contexts. Putting sexual fantasies within a relational context may therefore shed light on individual differences in the occurrence of specific content of sexual fantasies and elucidate psychological mechanisms regulating the cognitive expressions of sexuality in romantic relationships. These unanswered questions highlight the lack of a coherent theoretical framework explaining the functional significance of sexual fantasies in ongoing relationships as well as the need for a compatible methodology capable of addressing them.

In the present study, we examined the associations between perceived quality of couple interactions and sexual fantasies from an attachment-theoretical perspective while relying on a daily experience methodology and dyadic perspective and addressing the limitations of single-time, retrospective studies. Our research simultaneously examined between- and within-person processes and systematically explored the fantasmatic consequences of everyday couple interactions, thereby providing the first empirical test of how individual differences in attachment orientations of both partners of young couples and the quality of daily couple interactions contribute to each partner’s sexual fantasies, assessed in their natural dyadic context.

Based on attachment theory and research, we expected that the content of sexual fantasies would reflect the relational goals and mental representations of self and others associated with attachment anxiety and avoidance. More anxiously attached individuals’ tendency to be preoccupied with relational concerns, coupled with the subordination of sexuality to attachment (e.g., Birnbaum et al., 2006; Davis et al., 2004), should fuel frequent sexual fantasizing that reflects their habitual attachment-related goals and working models—wishes for intimacy, models of others as affectionate and supportive, models of the self as needy and helpless. In contrast, more avoidant individuals’ tendency to use sex to maximize distance and to serve nonattachment, self-enhancing needs should fuel sexual fantasies that involve themes of interpersonal distance and alienation, such as avoidant wishes and views of others as distant and hostile, and models of the self as strong, controlling, and distant. Because attachment-related goals and strategies are most pronounced under conditions that pose a threat to the relationship (e.g., Davis et al., 2003, 2004), we predicted that the associations between attachment orientations and sexual fantasizing would be amplified by daily negative couple interactions. That is, more anxiously attached individuals would be particularly likely to report sexual fantasies that serve attachment-related goals (e.g., maintaining closeness) in the context of troubled interactions. More avoidant individuals, by comparison, would react to the same troubled interactions with the experience of nonintimate sexual fantasies, emphasizing a sense of self-assurance.

In the present research, we asked both members of heterosexual couples to report on their attachment orientations (anxiety, avoidance) and then to provide daily diary measures of their relationship interactions for a period of 21 consecutive days. In addition, immediately after every occasion in which they experienced a sexual fantasy during the 21-day study period, participants were asked to describe it in narrative form. We examined the main and interactive effects of a participant’s own and his or her partner’s dispositional attachment orientations and perceived quality of the couple’s interactions during a given day on the contents of daily sexual fantasies. The main and interactive effects of gender were also examined because although the attachment literature generally shows few gender differences, attachment insecurities do display some sex-differentiated effects when it comes to sexual fantasizing (Birnbaum, 2007b; Birnbaum et al., 2008). Our specific predictions were as follows:

1. Attachment anxiety will be associated with more closeness-related wishes, models of others as warm and affectionate, and models of self as helpless in fantasy narratives.
2. Avoidant attachment will be associated with more distance-related wishes, models of others as hostile and alienated, and models of self as strong and distant in fantasy narratives.

3. The associations between attachment insecurities and the specific constellations of interpersonal wishes and representations of self and others in fantasy narratives will be stronger during days characterized by negative couple interactions.

We also explored the potential contribution of gender and partner's attachment orientations to the contents of sexual fantasy. However, we did not present ad hoc predictions concerning these issues because of a lack of empirical knowledge.

## Method

### Participants

In exchange for 350 NIS (about US\$98), 48 heterosexual cohabiting Israeli couples participated in this study. All participants were recruited via flyers or by word of mouth from universities, colleges, community centers, and sport clubs in the central area of Israel. Potential study participants were included in the sample if they (a) were in a steady monogamous relationship of longer than 6 months, (b) agreed to report on their daily relationship behaviors each evening for a period of 21 days, (c) agreed to report on their sexual fantasies during the 21-day study period, and (d) were currently sexually active (defined as having had vaginal sex at least once a week in the 2 months preceding the study).

Women ranged in age from 19 to 32 years ( $M = 24.92$ ,  $SD = 4.18$ ) and in education from 10 to 16 years of schooling ( $M = 13.35$ ,  $SD = 3.56$ ). Men ranged in age from 20 to 35 years ( $M = 26.87$ ,  $SD = 2.90$ ) and in education from 12 to 19 years of schooling ( $M = 13.72$ ,  $SD = 3.32$ ). Of the couples, 76% were cohabiting and 24% were married. None had children. Relationship length ranged from 9 to 60 months ( $M = 37.42$ ,  $SD = 29.92$ ).<sup>1</sup> Number of reported sexual fantasies during the 21-day study period ranged from 6 to 21 ( $M = 13.31$ ,  $SD = 4.92$ ) among women and from 7 to 21 ( $M = 13.37$ ,  $SD = 4.81$ ) among men. Overall, the two members of the 48 couples had sexual fantasies on 32% of the days. In 68% of the days, one partner reported having experienced sexual fantasies and the other did not.

### Measures and Procedure

Couples who fulfilled the inclusion criteria were invited to the laboratory, filled out a background questionnaire, and were trained to complete the diary questionnaires. Participants were instructed to fill out forms independently and to refrain from discussing responses with their partner until completion of the study. They took the entire package of diaries to their home, and every evening for 21 days reported on the behaviors that characterized their relationship on that day. In addition, immediately after every occasion in which they experienced a sexual fantasy, participants described it in narrative form. We contacted couples by telephone every 2 days

to improve compliance with the diary protocol. Participants reported full compliance with the protocol while explicitly telling us that they reported all the instances of sexual fantasies that they had had. At the end of each week, we collected completed forms from each participant. At the end of the study, participants were debriefed and thanked for their participation. They did not comment during the debriefing as to whether they had increased or decreased sexual fantasizing as a result of participating in the study.

**Person-level measure.** Attachment orientations were assessed with the 36-item Experience in Close Relationships Scale (Brennan, Clark, & Shaver, 1998), tapping variations in attachment anxiety and attachment avoidance (18 items per dimension). Participants rated the extent to which each item described their feelings in close relationships on a 7-point scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*). In the current sample, Cronbach's alphas were high for both anxiety (.86 for women, .90 for men) and avoidance items (.87 for women, .88 for men). On this basis, two global attachment scores were computed for each participant by averaging the relevant items. Pearson correlations between anxiety and avoidance scores were not significant among both women and men,  $r$ s of .19 and .07, respectively. Correlations between couple members in attachment anxiety and avoidance were not significant,  $r$ s of  $-.06$  and .15. Attachment anxiety was significantly higher among women ( $M = 3.85$ ,  $SD = 0.93$ ) than among men ( $M = 3.06$ ,  $SD = 0.83$ ),  $t(46) = 3.60$ ,  $p < .01$ . No significant difference between partners was found in attachment avoidance.

**Daily relationship measures.** Participants reported whether or not they had enacted each of 19 specific behaviors toward their partner on a given day and, with a parallel item, whether their partner had enacted each of the same 19 behaviors toward them. The list included 10 relationship-enhancing behaviors (e.g., "I told my partner I loved him/her—My partner told me he/she loved me") and 9 relationship-damaging behaviors (e.g., "My partner criticized me—I criticized my partner"). These behaviors were used in a previous diary study examining couple interactions (Birnbaum et al., 2006). Participants indicated a behavior's occurrence by checking a box next to the item.

In scoring participants' answers to the daily questionnaire, we made the following computational steps. First, we counted the number of participants' own and perceived partners' relationship-enhancing behaviors reported on a given day (scores ranged from 0 to 14,  $M = 7.48$  for women,  $M = 8.02$  for men). The sample means of within-person variance for daily reports of relationship-enhancing behaviors were 8.12 for women and 7.69 for men. Second, we counted the number of participants' own and perceived partners' relationship-damaging behaviors reported on a given day (scores ranged from 0 to 8,  $M = 2.17$  for women,  $M = 2.91$  for men). The sample means of within-person variance for daily reports of relationship-damaging behaviors were 4.55 for women and 3.90 for men. Third, for each type of behavior (enhancing,

damaging), we collapsed a participant's reports of what he or she did in the relationship and what he or she reported having received from his or her partner into a single score because these two scores were highly correlated,  $r(46) = .71$  for relationship-enhancing behaviors,  $r(46) = .65$  for relationship-damaging behaviors.

The dyadic correlations between men's daily score and women's daily score across the study period were strong for both enhancing and damaging behaviors,  $r$ s of .64 and .77,  $p$ s < .01. No significant difference between partners was found in these scores. More important, the within-participant (intra-class) correlations of the relationship-damaging behaviors score and the relationship-enhancing behavior score were strong for both men and women,  $r$ s of  $-.58$  and  $-.66$ ,  $p$  < .01. Therefore, *simultaneously introducing these two scores as predictors of the contents of daily sexual fantasies* into the statistical analyses would create problems of multicollinearity and interpretation difficulties. On this basis, we decided to enter only one of the two scores as a predictor into the analyses. Because we are arguing that threats to security should be particularly relevant to eliciting sexual fantasies (Birnbaum et al., 2008), we decided to use only the daily relationship-damaging behaviors score as a predictor of the contents of sexual fantasies. Conceptually similar findings were obtained when we used as a predictor either (a) the daily relationship-enhancing behaviors score or (b) the difference between daily relationship-damaging behaviors and daily relationship-enhancing behaviors score.

**Daily sexual fantasies.** Couples were presented with the following definition of the term *sexual fantasy*, adapted from Leitenberg and Henning (1995, p. 470):

Sexual fantasies refer to any mental imagery that is sexually arousing or erotic to the individual. A sexual fantasy can be an elaborate story, or it can be a fleeting thought of some romantic or sexual activity. It can involve bizarre imagery, or it can be quite realistic. It can involve memories of past events, or it can be a completely imaginary experience.

Then, participants were given the following instructions:

Please write about a sexual fantasy as soon as it comes to mind in the space below. Please describe in detail the specific scene, series of events, the figures, wishes, sensations, feelings, and thoughts that were experienced by you and the other figures in your fantasy.

On average, participants reported sexual fantasies in 13 of the 21 study days (59%), with men reporting sexual fantasies in 59% of the days and women reporting these fantasies in 60% of the days. On an average, participants fantasized about their relationship partner in 66% of their reported fantasies, with men fantasizing about their female

relationship partner in 50% of the cases and women fantasizing about their male relationship partner in 83% of the cases.

Two judges (psychology graduate research assistants) used a fantasy checklist to analyze the contents of the reported sexual fantasies. The 25-item fantasy checklist was developed by Birnbaum (2007b) and was based on the Core Conflictual Relationship Theme measure (Luborsky, 1977; Luborsky & Crits-Christoph, 1998), a system applied for identifying the central patterns of interpersonal relationships in both dreams and waking narratives. Fantasies were evaluated according to three categories of relationship schemas: (a) 6 wishes expressed in the sexual fantasy (W), (b) 9 responses from others to the participant (RO), and (c) 10 responses of the self to others (RS). The two judges, who were trained to perform the coding, used this checklist to score fantasies for the different W, RO, and RS items. These judges independently rated the extent to which each item described the expressed wishes and representations of self and others in each sexual fantasy on a 5-point Likert-type scale ranging from 1 (*not at all*) to 5 (*very much*). Cronbach's alpha coefficients computed between the scoring of both judges for the W, RO, and RS items yielded reliability coefficients of .91 on the average, reflecting high agreement between judges. Accordingly, we averaged the scores of the two judges.

For the purpose of the current study, we used six scores as the main outcome variables in the statistical analyses. Three scores represented the most characteristic wishes and models of self and others of anxiously attached people: (a) anxiety-related wishes: judges' rating of the item "desire for intimacy and closeness" in the sexual fantasy; (b) anxiety-related self-representation: an average of three RS items representing the self as humiliated and helpless (perception of the self as weak, humiliated, and helpless in the sexual fantasy; Cronbach's  $\alpha = .79$ ), and (c) anxiety-related representation of others: an average of three RO items representing others as affectionate and pleasing (perception of the objects of the fantasy as affectionate, pleasing, and supportive; Cronbach's  $\alpha = .76$ ). The remaining three scores represented the most characteristic wishes and models of self and others of avoidant people: (a) avoidance-related wishes: judges' rating of the item "desire to escape reality" in the sexual fantasy; (b) avoidance-related self-representation: an average of three RS items representing the self as aggressive (perception of the self as aggressive, abusive, and alienated; Cronbach's  $\alpha = .75$ ); and (c) avoidance-related representation of others: an average of three RO items representing others as aggressive and alienated (perception of the objects of the fantasy as aggressive, abusive, and alienated; Cronbach's  $\alpha = .73$ ). The choice of these six scores was based on previous theoretical descriptions of wishes and models of self and others that characterize anxiously attached and avoidant people in romantic and sexual relationships (Mikulincer & Shaver, 2007).

## Results

### Data Analysis

Data were analyzed by multilevel models using the Hierarchical Linear Modeling package (Bryk & Raudenbush, 2002). In these analyses, we examined the main and interactive contributions of dispositional attachment orientations (anxiety and avoidance) and reports of relationship-damaging behaviors during a given day to the contents of daily sexual fantasies. The dependent variables were (a) anxiety-related wishes and representations of the self and others expressed in daily sexual fantasies and (b) avoidance-related wishes and representations of the self and others expressed in daily sexual fantasies.

These multilevel models were both between participants (attachment anxiety and avoidance) and within participants (daily reports of relationship-damaging behaviors and sexual fantasies). Our main research questions were (a) whether a participant's own and his or her partner's dispositional attachment orientations were associated with the contents of his or her own sexual fantasies across the 21-day study period, (b) whether reports of relationship-damaging behaviors on a given day were associated with the content of sexual fantasies on that day, and (c) whether the associations between dispositional attachment orientations and the contents of sexual fantasies were moderated by relationship-damaging behaviors on a given day.

Because male and female partners' responses were necessarily dependent on each other, we included both the male partner and the female partner in the same multilevel analysis (for fuller description of the application of two-level nested models for couples' research, see Barnett, Marshall, Raudenbush, & Brennan, 1993; Bolger, Davis, & Rafaeli, 2003). This procedure provides separate estimates of the contributions of daily reports of relationship-damaging behaviors on the contents of sexual fantasy for men and women, but the estimates are determined simultaneously and take into account nonindependence of the couple members.<sup>2</sup> In addition, this procedure simultaneously estimates the unique contribution of each participant's (men or women) attachment orientations and his or her partner's attachment orientations to the contents of sexual fantasy. This procedure required two new dummy variables, one representing the male partner (where 1 = *male* and 0 = *female*) and the other representing the female partner (where 1 = *female* and 0 = *male*), and their introduction into the model resulted in two intercepts, one representing men's responses on the outcome variable and the other representing women's responses. To facilitate interpretation, each partner's attachment anxiety and avoidance and variables at the lower, or day, level were centered around the sample grand mean.

The equations for the Level 1 model were as follows ( $y$  = intercept,  $\beta$  = Level 1 slope,  $R$  = Level 1 residual error):

$$y_{ij} = \beta_{10} * (\text{male partner}) + \beta_{20} * (\text{female partner}) + \beta_{30} * (\text{men's daily report of relationship-damaging behaviors}) + \beta_{40} * (\text{women's daily report of relationship-damaging behaviors}) + R$$

The level 2 model was ( $\gamma$  = Level-2 slope;  $U$  = Level-2 residual error):

$$\begin{aligned} \beta_{10} &= \gamma_{10} + \gamma_{11} * (\text{men's anxiety}) + \gamma_{12} * (\text{men's avoidance}) + \gamma_{13} * (\text{women's anxiety}) + \gamma_{14} * (\text{women's avoidance}) + U_2 \\ \beta_{20} &= \gamma_{20} + \gamma_{21} * (\text{women's anxiety}) + \gamma_{22} * (\text{women's avoidance}) + \gamma_{23} * (\text{men's anxiety}) + \gamma_{24} * (\text{men's avoidance}) + U_2 \\ \beta_{30} &= \gamma_{30} + \gamma_{31} * (\text{men's anxiety}) + \gamma_{32} * (\text{men's avoidance}) + \gamma_{33} * (\text{women's anxiety}) + \gamma_{34} * (\text{women's avoidance}) + U_2 \\ \beta_{40} &= \gamma_{40} + \gamma_{41} * (\text{women's anxiety}) + \gamma_{42} * (\text{women's avoidance}) + \gamma_{43} * (\text{men's anxiety}) + \gamma_{44} * (\text{men's avoidance}) + U_2 \end{aligned}$$

Coefficients  $\gamma_{10}$  and  $\gamma_{20}$  represent the grand mean of men and women, respectively, on the dependent measure (e.g., particular sexual fantasy content). Coefficient  $\gamma_{30}$  represents the contribution of men's reports of relationship-damaging behaviors on a given day to their own sexual fantasy on that day, and coefficient  $\gamma_{40}$  represents the contribution of women's reports of relationship-damaging behaviors on a given day to their own sexual fantasy on that day. Coefficients  $\gamma_{11}$  and  $\gamma_{12}$  represent the contribution of men's attachment orientations (anxiety, avoidance) to their own sexual fantasies across the 21 study days, and coefficients  $\gamma_{21}$  and  $\gamma_{22}$  represent the contribution of women's attachment orientations to their sexual fantasies across the entire study period. Coefficients  $\gamma_{13}$  and  $\gamma_{14}$  represent the contribution of women's attachment orientations (anxiety, avoidance) to their male partner's sexual fantasies, and coefficients  $\gamma_{23}$  and  $\gamma_{24}$  represent the contribution of men's attachment orientations to their female partner's sexual fantasies. Coefficients  $\gamma_{31}$ – $\gamma_{34}$  represent interactive contributions of men's reports of relationship-damaging behaviors on a given day and their own or their female partner's attachment orientations to their sexual fantasy on that day. Coefficients  $\gamma_{41}$ – $\gamma_{44}$  represent interactive contributions of women's reports of relationship-damaging behaviors on a given day and their own or their male partner's attachment orientations to their sexual fantasy on that day.

Within-participant coefficients are represented by  $\gamma_{11}$ ,  $\gamma_{12}$ ,  $\gamma_{31}$ , and  $\gamma_{32}$  (the unique and interactive contributions of a male participant's attachment anxiety and avoidance on his sexual fantasies) and by  $\gamma_{21}$ ,  $\gamma_{22}$ ,  $\gamma_{41}$ , and  $\gamma_{42}$  (the unique and interactive contributions of a female participant's attachment anxiety and avoidance on her sexual fantasies). Dyadic coefficients are represented by  $\gamma_{13}$ ,  $\gamma_{14}$ ,  $\gamma_{33}$ , and

**Table 1.** Hierarchical Linear Modeling Coefficients Predicting Daily Fluctuations in Anxiety-Related Wishes and Representations of Self and Others From Relationship-Damaging Behaviors on a Given Day and Dispositional Attachment Orientations

Effects	Desire for intimacy		Self as humiliated and helpless		Others as affectionate	
	Women	Men	Women	Men	Women	Men
Dispositional attachment orientations						
Participant's anxiety	.13*	.15**	.03	.03	.07*	.10**
Participant's avoidance	-.10*	.02	-.03	-.02	.05	.01
Partner's anxiety	-.11*	.02	-.01	-.03	.08**	-.01
Partner's avoidance	.05	.13*	.01	-.02	.03	-.03
Relationship-damaging behaviors	-.02	-.01	.09**	.08**	.01	.02
Interactions of relationship-damaging behaviors with attachment orientations						
Participant's anxiety	.02	.05	.06*	.05*	-.02	.02
Participant's avoidance	-.01	-.04	-.06*	-.05*	.01	.01
Partner's anxiety	.01	-.01	.02	-.06*	-.02	-.03
Partner's avoidance	.03	-.01	-.01	-.06*	-.02	.01

Coefficients in bold show a significant difference ( $p < .05$ ) between men's and women's fantasy scores.

\* $p < .05$ . \*\* $p < .01$ .

$\gamma_{34}$  (the unique and interactive contributions of a female participant's attachment anxiety and avoidance on her male partner's sexual fantasies) and by  $\gamma_{23}$ ,  $\gamma_{24}$ ,  $\gamma_{43}$ , and  $\gamma_{44}$  (the unique and interactive contributions of a male participant's attachment anxiety and avoidance on his female sexual fantasies).

### Anxiety-Related Wishes and Representations of Self and Others in Sexual Fantasies

In this section, we report results from multilevel analyses examining contributions of attachment orientations and reports of daily relationship-damaging behavior on the wishes and representations of self and others that tend to characterize anxiously attached people in romantic and sexual relationships—desire for intimacy, self as humiliated and helpless, others as affectionate and pleasing. Preliminary multilevel analyses revealed no significant gender differences in the desire for intimacy. However, significant gender differences were found on the representation of the self as humiliated and helpless,  $\gamma = .07$ ,  $p < .05$ , and others as affectionate and pleasing,  $\gamma = .25$ ,  $p < .01$ . Women were more likely than men to represent the self as humiliated and helpless and others as affectionate and pleasing in sexual fantasies.

**Desire for intimacy.** Examination of the within-participant effects of attachment orientations across the 21 study days revealed that attachment anxiety was significantly associated with more expression of desire for intimacy in both men and women (see Table 1). Moreover, attachment avoidance was significantly associated with less expression of desire for intimacy among women but not among men. Examination of dyadic effects of attachment orientations across the 21 study

days revealed that (a) men's attachment anxiety was significantly associated with less women's expression of the desire for intimacy and (b) women's attachment avoidance was significantly associated with more men's expression of the desire for intimacy in their sexual fantasies (see Table 1). Other dyadic effects were not significant. In addition, the main effects for relationship-damaging behavior and their interactive effects with attachment orientations were not significant (see Table 1).

In line with our hypotheses, more anxiously attached men and women expressed more wishes for intimacy in their daily sexual fantasies. In addition, more avoidant women and women whose partner was more anxiously attached expressed fewer wishes for intimacy in daily sexual fantasies and men whose partner was more avoidant expressed more wishes for intimacy in these fantasies. All these associations were not moderated by daily reports of relationship-damaging behaviors.

**Self as humiliated and helpless.** All the within-participant and dyadic effects of attachment orientations across the 21 study days were not significant (see Table 1). However, relationship-damaging behaviors on a given day had a significant effect on the appraisal of the self as humiliated and helpless in the sexual fantasies of that day among both men and women: The more relationship-damaging behaviors participants reported on a given day, the higher the portrayal of self as humiliated and helpless in the sexual fantasies of that day.

The analyses also revealed within-participant interactive effects (see Table 1). For both women and men, participants' attachment anxiety and avoidance interacted with daily reports of relationship-damaging behaviors in predicting

representation of the self as humiliated and helpless. The simple slope relating participants' attachment anxiety to their representation of the self as humiliated and helpless was significant during days in which the amount of reported relationship-damaging behaviors was 1 *SD* above the mean ( $\gamma$ s of .09 and .08,  $ps < .01$ , for women and men, respectively), but not when the amount of reported relationship-damaging behaviors was 1 *SD* below the mean ( $\gamma$ s of -.03 and -.02). That is, more attachment-anxious men or women were more likely to represent the self as humiliated and helpless in the sexual fantasies of a given day mainly when they reported more relationship-damaging behaviors during that day.

The simple slope relating participants' attachment avoidance to their representation of the self as humiliated and helpless was significant during days in which the amount of reported relationship-damaging behaviors was 1 *SD* above the mean ( $\gamma$ s of -.09 and -.07,  $ps < .01$ , for women and men, respectively), but not when the amount of reported relationship-damaging behaviors was 1 *SD* below the mean ( $\gamma$ s of .03). That is, more avoidant men or women were less likely to represent the self as humiliated and helpless in sexual fantasies of a given day mainly when they reported more relationship-damaging behaviors during that day.

For men, the analyses also revealed that their female partner's attachment anxiety and avoidance interacted with daily reports of relationship-damaging behaviors in predicting representation of the self as humiliated and helpless. The simple slopes relating women's attachment anxiety or avoidance to men's representation of the self as humiliated and helpless were significant during days in which the amount of reported relationship-damaging behaviors was 1 *SD* above the mean ( $\gamma$ s of -.09 and -.08,  $ps < .01$ , for partner's attachment anxiety and avoidance, respectively), but not when the amount of reported relationship-damaging behaviors was 1 *SD* below the mean ( $\gamma$ s of .03 and .04). That is, men whose partner was more anxious or avoidant were less likely to represent the self as humiliated and helpless in sexual fantasies of a given day mainly when they reported more relationship-damaging behaviors during that day. These dyadic effects were not significant among women.

Overall, our hypothesis that more anxious men and women would be more likely to portray their self as humiliated and helpless in sexual fantasies was valid only during days when they reported more relationship-damaging behaviors. During days in which these behaviors were less frequent, attachment anxiety was not significantly associated with the portrayal of the self as humiliated and helpless in sexual fantasies. Additional findings also showed that more avoidant men as well as women and men whose partner was highly anxious or avoidant were less likely to portray their self as humiliated and helpless in sexual fantasies during days in which participants reported a high amount of relationship-damaging behaviors.

*Others as affectionate and pleasing.* Examination of the within-participant effects of attachment orientations across

the 21 study days revealed that attachment anxiety was significantly associated with more portrayal of others as affectionate and pleasing in the sexual fantasies of both men and women (see Table 1). Avoidant attachment was not significantly associated with the portrayal of others as affectionate and pleasing in sexual fantasies. Examination of dyadic effects of attachment orientations across the 21 study days revealed that men's attachment anxiety was significantly associated with more women's portrayal of others as affectionate and pleasing in their sexual fantasies (see Table 1). Other dyadic effects were not significant. In addition, the main effects for relationship-damaging behaviors and their interactive effects with attachment orientations were not significant (see Table 1).

In line with our hypotheses, more anxiously attached men and women were more likely to portray others as affectionate and pleasing in their daily sexual fantasies. In addition, women whose partner was more anxiously attached were more likely to portray others as affectionate and pleasing in sexual fantasies. Importantly, these associations were not moderated by daily reports of relationship-damaging behaviors.

### *Avoidance-Related Wishes and Representations of Self and Others in Sexual Fantasies*

In this section, we report results from multilevel analyses examining effects of attachment orientations and daily relationship-damaging behavior on the wishes and representations of self and others that tend to characterize avoidant people in romantic and sexual relationships—desire to escape from reality, self as aggressive and alienated, others as aggressive and alienated. Preliminary multilevel analyses revealed no significant gender effect on the desire to escape from reality. However, significant gender effects were found on the representation of the self as aggressive and alienated,  $\gamma = -.22$ ,  $p < .01$ , and others as aggressive and alienated,  $\gamma = -.09$ ,  $p < .01$ . Men were more likely than women to represent the self and others as aggressive and alienated in sexual fantasies.

*Desire to escape from reality.* Examination of the within-participant effects of attachment orientations across the 21 study days revealed that attachment avoidance was significantly associated with more expression of desire to escape reality in the sexual fantasies of both men and women (see Table 2). Moreover, attachment anxiety was significantly associated with less expression of desire to escape reality among women but not among men. Examination of dyadic effects of attachment orientations across the 21 study days revealed that (a) women's attachment anxiety was significantly associated with less men's expression of the desire to escape reality and (b) women's attachment avoidance was significantly associated with more men's expression of the

**Table 2.** Hierarchical Linear Modeling Coefficients Predicting Daily Fluctuations in Avoidance-Related Wishes and Representations of Self and Others From Relationship-Damaging Behaviors on a Given Day and Dispositional Attachment Orientations

Effects	Desire to escape from reality		Self as aggressive		Others as aggressive	
	Women	Men	Women	Men	Women	Men
Dispositional attachment orientations						
Participant's anxiety	<b>-.18**</b>	<b>-.05</b>	-.04*	-.05**	-.04*	-.04*
Participant's avoidance	.18**	.23**	.07**	.06**	.08**	.05**
Partner's anxiety	<b>-.05</b>	<b>-.20**</b>	-.01	-.02	-.01	-.03
Partner's avoidance	<b>.03</b>	<b>.16**</b>	-.01	-.01	-.01	-.01
Relationship-damaging behaviors	.01	.03	.04	.04	.02	.04
Interactions of relationship-damaging behaviors with attachment orientations						
Participant's anxiety	-.04	-.06	-.01	-.02	.01	.01
Participant's avoidance	.11*	.09*	-.02	.03	.03	.02
Partner's anxiety	-.04	-.06	.03	-.01	.02	.02
Partner's avoidance	.04	-.05	.02	.03	.02	.03

Coefficients in bold show a significant difference ( $p < .05$ ) between men's and women's fantasy scores.

\* $p < .05$ . \*\* $p < .01$ .

desire to escape from reality in their sexual fantasies (see Table 2). Other dyadic effects were not significant.

The main effects for relationship-damaging behaviors were not significant (see Table 2). However, the analysis revealed a significant within-participant interactive effect between attachment avoidance and relationship-damaging behaviors in both women and men (see Table 2). The simple slope relating participants' attachment avoidance to the expression of the desire to escape reality in sexual fantasies was stronger during days in which the amount of reported relationship-damaging behaviors was 1 *SD* above the mean ( $\gamma$ s of .29 and .32,  $ps < .01$ , for women and men, respectively) than during days in which the amount of reported relationship-damaging behaviors was 1 *SD* below the mean ( $\gamma$ s of .09 and .14,  $ps < .05$ , for women and men, respectively). That is, more avoidant men or women were more likely to express a desire to escape reality in the sexual fantasies of a given day mainly when they reported more relationship-damaging behaviors during that day. Other interactive effects were not significant (see Table 2).

In line with our hypotheses, more avoidant men and women expressed more wishes to escape from reality in daily sexual fantasies. However, this association was particularly strong during days in which participants reported a relatively high amount of damaging behaviors in their relationship. In addition, more anxious women expressed fewer desires to escape from reality in daily sexual fantasies. Moreover, whereas men whose partner was more anxiously attached expressed fewer desires to escape from reality in daily sexual fantasies, men whose partner was more avoidant expressed more desires to escape from reality in these fantasies.

*Self as aggressive and alienated.* Examination of the within-participant effects of attachment orientations across the 21 study

days revealed that attachment avoidance was significantly associated with portrayal of the self as more aggressive and alienated in the sexual fantasies of both men and women (see Table 2). In contrast, attachment anxiety was significantly associated with portrayal of the self as less aggressive and alienated in the sexual fantasies of both men and women (see Table 2). All the dyadic effects were not significant. In addition, the main effects for relationship-damaging behaviors and their interactive effects with attachment orientations were not significant (see Table 1).

In line with our hypotheses, more avoidant men and women were more likely to portray the self as aggressive and alienated. In addition, more anxiously attached men and women were less likely to portray the self as aggressive and alienated in these fantasies. Importantly, these associations were not moderated by daily reports of relationship-damaging behaviors.

*Others as aggressive and alienated.* Examination of the within-participant effects of attachment orientations across the 21 study days revealed that attachment avoidance was significantly associated with portrayal of others as more aggressive and alienated in the sexual fantasies of both men and women (see Table 2). In contrast, attachment anxiety was significantly associated with portrayal of others as less aggressive and alienated in the sexual fantasies of both men and women (see Table 2). All the dyadic effects were not significant. In addition, the main effects for relationship-damaging behaviors and their interactive effects with attachment orientations were not significant (see Table 1).

In line with our hypotheses, more avoidant men and women were more likely to portray others as aggressive and alienated. In addition, more anxiously attached men and women were less likely to portray others as aggressive and alienated in these fantasies. Importantly, these associations

were not moderated by daily reports of relationship-damaging behaviors.

## Discussion

The present study provides insights into the motives underlying sexual fantasies within romantic relationships by examining the role played by attachment orientations and daily reports of negative couple interactions (relationship-damaging behaviors) in shaping the thematic content of daily sexual fantasies. Findings indicated that attachment anxiety predicted wishes for interpersonal closeness and models of others as affectionate and pleasing in sexual fantasies. In contrast, attachment avoidance predicted distance-related wishes and models of the self and others as aggressive and alienated. Negative couple interactions increased habitual attachment-related wishes and self-representations. Specifically, during days in which couple interactions were perceived as relatively negative, attachment anxiety was associated with representations of the self as more weak and helpless and attachment avoidance was associated with the expression of more avoidant wishes and fewer representations of the self as weak and helpless. These findings were partially mirrored in the sexual fantasies reported by partners of insecurely attached people, possibly reflecting the current sex life of these couples.

As predicted, attachment anxiety was associated with sexual fantasies that reflected attachment-related goals. In particular, more anxiously attached people were more likely than those low in attachment anxiety to express wishes for intimacy and to represent others as affectionate, supportive, and pleasing. They were also less likely than less anxiously attached people to portray the self as aggressive and alienated in their fantasies. Experiencing fantasies that involve mutually nurturing themes (e.g., giving and receiving affection during sexual activity) is an integral part of healthy romantic relationships, as romantic partners typically function simultaneously as sexual partners, attachment figures, and care recipients (Hazan & Zeifman, 1994). The occurrence of this specific thematic content, however, was associated with attachment anxiety, such that the higher the attachment anxiety, the greater the romanticization of sexual fantasies. These findings fit previous findings showing that highly anxious people tend to conflate sex and love (e.g., Birnbaum et al., 2006; Davis et al., 2004) and imply that romanticization of sexual interactions may compensate for unmet needs for acceptance and closeness.

Alternatively, highly anxious people's world of fantasies may merely reflect their yearning for love and care, which is normally channeled into the sexual route. As such, it represents their positive, hopeful attitudes toward relationships and relationship partners (e.g., Bartholomew & Horowitz, 1991; Mikulincer & Shaver, 2007). In this wishful thinking world, highly anxious people's habitual negative self-representations (e.g., Bartholomew & Horowitz, 1991) are generally less

accessible. Nevertheless, negative couple interactions seem to shatter highly anxious people's world of fantasies and heighten the availability of habitual views of the self as weak and helpless. This fantasmatic pattern suggests that negative couple interactions may lead anxiously attached individuals to shift from fantasizing about mutually nurturing themes to engaging in fantasies that emphasize their neediness even at the expense of humiliating themselves. Such fantasies may serve the need for experiencing the power of their partner and eliciting caregiving (Davis et al., 2004). To be sure, this "dependent stance" is also manifested in real-world sexual behavior, and its detrimental consequences have been widely documented (e.g., engaging in unwanted but consensual sex; Feeney, Peterson, Gallois, & Terry, 2000; Gentzler & Kerns, 2004; Impett & Peplau, 2002).

The alienated nature of avoidant individuals' fantasies may reflect the underlying action of distancing strategies that minimize the intimacy implied by sex and emphasize a desire for escapism, which may be driven by dissatisfaction with current relational circumstances (e.g., Collins & Read, 1990; Kirkpatrick & Davis, 1994). Indeed, highly avoidant people's desire to escape reality was amplified during days characterized by negative couple interactions. Notably, despite their desire to escape reality, negative core beliefs about others apparently remained active in avoidant individuals' fantasies in the form of representations of others as alienated and abusive. This pattern of findings raises the question of why sexual fantasies, with their potential for joy and pleasure, might involve so distress-provoking themes among avoidant individuals. It is possible that negative representations of others may be so deep-rooted in avoidant individuals' cognitive makeup that they keep "haunting" them even in the world of fantasies, thereby making fantasizing a less enjoyable experience. Alternatively, extending aversive feelings of hostility and detachment into the fantasy realm may serve the goal of self-reliance in close relationships and paradoxically be gratifying to more avoidant people.

Highly avoidant people's emphasis on self-sufficiency and independence within their sexual fantasies was particularly pronounced in the context of troubled couple interactions. In this context, avoidant people not only were especially likely to desire to escape reality but also were particularly unlikely to represent themselves as weak, humiliated, and helpless. The thematic content of highly avoidant people's sexual fantasies during distress-eliciting days may reflect their typical withdrawal from sources of distress that can endanger defensive self-enhancement (e.g., Mikulincer & Shaver, 2007). Such thematic content suggests that negative couple interactions may be particularly threatening to avoidant people's self-image and therefore elicit protective sexual fantasies in which the self is perceived as less dependent on the potentially rejecting partner. Whether this fantasmatic expression helps avoidant people sustain their self-esteem in the face of relationship stress, facilitates corresponding coping behavior, or is merely another reflection of attachment strategies is a question for future research.

Although fantasies are experienced in a virtual world, the real world has its grip on their content. Indeed, as our results insinuate, not only the daily relational context of the fantasy but also partner characteristics contribute to the fantasy's thematic content. For example, men whose female partner was more insecurely attached were particularly unlikely to represent themselves as weak and helpless in their sexual fantasies during days characterized by negative couple interactions. This association may be fueled by perceptions of a partner's lack of responsiveness during relationship-distressing events that are channeled by gender-specific construal of sex. In particular, an insecure person's relationship-destructive behavior during troubled interactions (e.g., Simpson, Rholes, & Phillips, 1996) may threaten his or her partner's self-image and consequently elicit protective responses in which the self is represented as sexually potent (Birnbaum et al., 2008; Birnbaum, Weisberg, & Simpson, 2011). This fantasmatic reaction is more marked in men than in women because men are more likely than women to respond to distressing interactions from a more individualistic perspective (e.g., use compensatory self-enhancement; Berman & Frazier, 2005; Gagné & Lydon, 2003). Such findings demonstrate the value of adopting a dyadic perspective and suggest that the content of sexual fantasies may reflect couples' shared attachment dynamics.

This research is not without its limitations. For one, given the nonexperimental nature of this research, causal inferences cannot be made. We do not know, for example, whether negative couple interactions have negative effects on representations of the self among more anxiously attached people or whether individuals who have negative representations of the self tend to be less responsive partners and to elicit relationship-damaging behaviors from their partners. In addition, the present study did not take into consideration sexual variables that are known to affect sexual fantasizing (e.g., sexual desire, sex guilt, sexual satisfaction; Leitenberg & Henning, 1995). Consequently, the associations between attachment orientations and sexual fantasies might reflect unmeasured individual differences in these variables. For example, people who report relatively high sexual desire are more likely to fantasize than people who report lower levels of sexual desire (e.g., Nutter & Condon, 1985). Sexual desire may thus account for the association between attachment orientations and occurrence of diverse sexual fantasies. Furthermore, the present research included individuals who experienced relatively frequent sexual fantasies, and it is therefore unclear how generally applicable the findings would be to more diverse populations (e.g., people with clinically diagnosed desire disorder). Finally, we did not collect information on whether or not fantasies were shared with the partner and the extent to which couples acted out their fantasies. For example, sharing fantasies with one's partner may partially explain fantasmatic similarities between partners rather than attachment dynamic per se.

On the whole, our findings indicate that the role played by sexual fantasies cannot be fully understood without taking into account their relational context, the fantasizer's attachment goals, and the couple's shared attachment dynamics. The results suggest that the content of sexual fantasies reflects attachment-based needs and habitual representations of the self and others, colored by perceptions of the current partner's responsiveness to one's needs. The fantasmatic manifestations of defensive attachment strategies seem to be particularly pronounced during relationship-distressing days, when attachment-based needs, concerns, and worries become salient (e.g., Mikulincer, Gillath, & Shaver, 2002; Simpson et al., 1996). In the context of fewer negative couple interactions, however, sexual fantasies appear to have a wishful thinking quality to them, primarily among more anxiously attached people. This interpretation implies a possible compensatory process by which expressed wishes for closeness are fulfilled in fantasies of those who desire it the most.

This research raises additional key questions about the functional significance of sexual fantasies in romantic relationships. For example, what are the relational consequences of sexual fantasizing? Do sexual fantasies help maintain sexual desire within the context of current relationships, intensify frustration with current relationship and encourage infidelity, or merely reflect the current sex lives of couples? Does "reprogramming" a person's fantasies affect the relationship dynamic? Do nonsexual relational fantasies and sexual fantasies show similar themes in the same dyadic context? Although the present research is an important step toward shedding light on the elusive nature of sexual fantasizing, much more research is needed to elucidate its contextual determinants, the psychological mechanisms regulating this distinctive sexual expression, and its implications for personal and relationship well-being.

### Acknowledgments

We would like to thank John Nezelek and Yaniv Kanat-Maymon for providing valuable suggestions for analyzing the data.

### Declaration of Conflicting Interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

### Funding

The author(s) received no financial support for the research, authorship, and/or publication of this article.

### Notes

1. Preliminary statistical analyses revealed that relationship status (cohabitating, married) and relationship length did not significantly contribute to the frequency and content of daily sexual fantasies and did not significantly interact with attachment orientations and daily couple interactions. We therefore dropped these variables from the final analyses.

2. To test for gender differences, we used a no-intercept model at Level 1 as follows:

$$y = \beta_1 * (\text{female partner}) + \beta_2 * (\text{male partner}) + r.$$

We then included partners' variables at Level 2 as follows in the example below and compared the  $\gamma_{11}$  and  $\gamma_{21}$  coefficients with tests of fixed effects:

$$\beta_1 = \gamma_{10} + \gamma_{11} * (\text{female partner's attachment orientation}) + U_{1j}$$

$$\beta_2 = \gamma_{20} + \gamma_{21} * (\text{male partner's attachment orientation}) + U_{2j}$$

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