International Journal of Sexual Health

ISSN: (Print) (Online) Journal homepage: https://www.tandfonline.com/loi/wijs20

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To cite this article: John K. Coffey, D. Kyle Bond, Jessica A. Stern & Natalie Van Why (2022): Sexual Experiences and Attachment Styles in Online and Offline Dating Contexts, International Journal of Sexual Health, DOI: 10.1080/19317611.2022.2110349

To link to this article: https://doi.org/10.1080/19317611.2022.2110349

Published online: 26 Aug 2022.

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INTERNATIONAL JOURNAL OF SEXUAL HEALTH
https://doi.org/10.1080/19317611.2022.2110349

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Sexual Experiences and Attachment Styles in Online and Offline Dating Contexts

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ABSTRACT

Objective: Nearly 50% of adults under age 29 report using some form of online dating to find sexual partners or romantic relationships. Limited evidence suggests online and offline dating behaviors and experiences can vary. We aimed to expand understanding these differences by examining how attachment styles are associated with online and offline search for partners and emotional responses to sexual experiences. *Methods:* In a sample of single adults ($N = 247$; $M_{age} = 27.34$), we examine how attachment styles relate to individual differences in how people search for partners and respond to sexual experiences with partners met online and offline. *Results:* Individuals high in attachment anxiety reported higher use of online dating apps and more negative experiences (e.g., lower satisfaction, more guilt) following their most recent sexual encounters with partners met online and offline and reported feeling more used after engaging in sexual activity specifically with partners met offline. Individuals high in avoidance also reported more negative experiences following their most recent sexual encounters but only with partners met offline. *Conclusions:* This study moves our understanding by highlighting nuances in how attachment insecurity is associated with differences in online dating app use and emotions following sexual experiences when meeting partners online and offline.

ARTICLE HISTORY
Received 26 May 2022
Revised 16 July 2022
Accepted 29 July 2022

KEYWORDS
Attachment; sexual behaviors; romantic relationships; online dating; emotion; satisfaction

Introduction

Over the last decade, the expansion of internet availability and consumer electronics (e.g., smartphones, smartwatches, tablets, etc.) allowing consistent access has revolutionized the way millions of people seek out romantic and sexual partners, birthing the term "online dating." Online dating involves using internet-based dating applications to facilitate relational experiences ranging from casual sexual encounters to committed romantic relationships (e.g., Finkel et al., 2012; Gatter & Hodkinson, 2016). Prior work affirms widespread adoption of online dating methods more generally; for example, in 2019 as many as 48% of U.S. adults aged 18–29 and 30% of individuals of all ages reported using a dating site or app (Vogels, 2020), with 39% of cross-sex couples reporting that their relationships originated online (Rosenfeld et al., 2019).

Previous research also suggests that online dating represents a novel and unique context, distinct from that of offline dating (e.g., Finkel et al., 2012). For example, online dating allows people to evaluate detailed profiles with expressed dating desires (e.g., relationship, hookup) that may be less evident or salient in offline contexts. In addition, meeting offline (e.g., at a friend's party, at work) often results in greater social connection than meeting online, which may afford a higher degree of anonymity. Despite recognition of significant experiential differences in dating behavior, relatively little is known about how differences in individuals' attachment styles might shape the quality of their sexual and dating experiences within the distinct contexts of online and offline dating. In the current study, we build on previous work exploring the associations among adult attachment style (attachment avoidance and attachment anxiety), romantic relationships, and

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sexual behavior (Fraley & Shaver, 2000; Hazan & Shaver, 1987; Mikulincer & Shaver, 2016) by examining these associations in the novel contexts of both online and offline dating.

Attachment style, romantic relationships, and sexual behavior

Attachment theory (Ainsworth et al., 1978; Bowlby, 1969/1982) offers a unique lens for understanding sources of individual differences in adult romantic experiences (Fraley & Shaver, 2000). The theory posits that individuals' early relational experiences shape their internal working models (IWMs) of the self and others, an enduring cognitive and affective lens through which relationship experiences are interpreted and interpersonal behaviors are expressed across the lifespan (Bowlby, 1969/1982; Fraley & Shaver, 2000; Sroufe, 2005). Originally developed to explain differences in parent-child relationships, attachment theory has been increasingly applied to adult romantic relationships and sexual behaviors for single people and people in relationships (Hazan & Zeifman, 1999; Mikulincer & Shaver, 2016).

A common model for conceptualizing adult attachment uses two factors underlying attachment security or insecurity—attachment anxiety and attachment avoidance (e.g., Hazan & Zeifman, 1999; Mikulincer & Shaver, 2016). *Attachment anxiety* is defined by a profound desire for closeness, concern about the availability and reliability of relationship partners, and hyperactive emotional responses (e.g., exaggerated and more intense expression of emotions). *Attachment avoidance* is characterized by the minimization of attachment needs, a desire for independence, evasion of emotional closeness, and use of deactivating emotional responses, such as emotion suppression (Fraley & Shaver, 2000; Hazan & Shaver, 1987; Mikulincer & Shaver, 2016). In contrast, *attachment security* is represented by low levels of both attachment anxiety and avoidance. Those with secure attachment styles tend to be more comfortable with all (positive and negative) emotions and more adept at regulating them in adaptive ways. They are also comfortable giving and receiving care in close, interdependent relationships—neither overly concerned about their partner's availability nor uncomfortable with emotional closeness and intimacy (Mikulincer & Shaver, 2016).

Previous work demonstrates that differences in individual attachment insecurity (anxiety and avoidance) are related to individual experiences in adult romantic relationships. For example, individuals high in attachment anxiety desire more intimacy within their relationships, have more stringent requirements about what constitutes intimacy (Hudson & Fraley, 2017), interpret neutral information as evidencing rejection (Collins, 1996), and report that their relationships are less satisfying than they would like (Mikulincer & Shaver, 2016). Individuals high in attachment avoidance tend to remain independent from their partners and resist commitment (Birnie et al., 2009; Campbell et al., 2001; Hazan & Shaver, 1987), demonstrate fewer nonverbal closeness and support-seeking behaviors (Collins & Feeney, 2000; Tucker & Anders, 1998), and report less satisfaction within their relationships (Mikulincer & Shaver, 2016). Broadly, higher insecurity—either avoidance, anxiety, or both—has been linked with increased negative emotions and decreased positive emotions within romantic relationships (Simpson, 1990). By contrast, greater attachment security has generally been associated with greater harmony and more positive experiences within close relationships (Brennan & Shaver, 1995; Simpson, 1990).

In the context of dating, attachment theory can also shed light on how individuals search for and evaluate romantic or sexual partners. For example, research suggests that higher attachment anxiety is linked with the need for increased attention and disclosure to feel close (Hudson & Fraley, 2017), induction of jealousy in a partner to draw them closer (Wegner et al., 2018), engagement with dating as a way to mitigate loneliness (McClure et al., 2010), lower selectivity in partner selection (McClure et al., 2010), and increased sharing and bids for attention during relationship formation (Brumbaugh & Fraley, 2010). By contrast, individuals high in attachment avoidance tend to be more averse to perceived increases in closeness (Hudson & Fraley, 2017), and to use touch earlier in a dating relationship (Brumbaugh & Fraley, 2010). Higher avoidance also links with lower

perceived expectations of closeness and intimacy in future relationships, which translates into lower engagement in the dating process (Spielmann et al., 2013). Further, higher avoidance predicts averting entry into committed relationships (Schindler et al., 2010)—and when entry does occur, it is accompanied by an aversion to commitment that contributes to expectations of relationship failure (Birnie et al., 2009).

The associations between individual differences in attachment style and sexual attitudes and behavior are less straightforward, with previous research yielding mixed findings (Birnbaum et al., 2006; Schachner & Shaver, 2004; Snapp et al., 2014). For example, some work indicates that higher attachment avoidance generally links with more open attitudes toward casual sex (e.g., Sprecher, 2013) and a greater number of sexual partners (e.g., Garneau, et al., 2013; Gentzler & Kerns, 2004), whereas other research notes that factors such as elevated self-reliance (a characteristic of avoidant attachment) are linked with fewer sexual partners among college-aged women in particular (Schneider & Katz, 2017). For those high in attachment anxiety, some studies find no link to open attitudes toward casual sex (Sprecher, 2013) or the number of sexual partners (Schneider & Katz, 2017) but instead a partiality toward sexual activity within committed relationships (Gillath & Schachner, 2006); however, other work demonstrates that higher attachment anxiety is related to a greater willingness to engage in sexual activity while single (Cooper et al., 1998) and a higher frequency of having done so (Timmermans & Alexopoulos, 2020).

Individual differences in emotional responses to sexual activity are also linked with attachment style. In some cases, those high in avoidance and anxiety appear similar in their emotional responses—for example, both have been associated with the experience of negative affect and concerns about giving and receiving love during sexual activity, as well as more negative feelings about previous sexual experiences (Birnbaum et al., 2006; Gentzler & Kerns, 2004). Other research highlights differences in how those high in avoidance versus anxiety feel about their sexual activity while dating—for example, individuals higher in avoidance were more likely to engage in consensual but ultimately undesired sexual experiences (Gentzler & Kerns, 2004). Greater anxiety has been related to an increased desire for intimacy and closeness during sexual activity and more destructive post-coital behavioral, including the questioning of relationship compatibility when negative feelings are experienced during sexual activity (Birnbaum et al., 2006). Despite these previous explorations of the connection between individuals' attachment and feelings in response to their sexual behavior, no research has examined whether this link is altered by the different online or offline dating contexts of single individuals.

Online and offline dating contexts

Given that people communicate differently in online and offline contexts (e.g., Young et al., 2019), it is unsurprising that some research supports the notion that online dating and offline dating represent fundamentally different relational contexts (Ciocca et al., 2020; Finkel, 2015; Finkel et al., 2012; Gatter & Hodkinson, 2016). For example, dating and sexual experiences originating in the offline domain may occur within a more interconnected social web (e.g., a romantic pair that meets at work), whereas experiences originating from online platforms may evolve through electronic communication and involve less (or no) social overlap, allowing a more discreet experience. Previous work has generally supported the notion that individuals' real or imagined behavior is often different under conditions of anonymity (e.g., Young et al., 2019), suggesting that the greater degree of behavioral anonymity afforded by and made possible through the use of online platforms may influence or alter individuals' behavioral displays. Likewise, potential partner selection in an online platform involves profiles of key information (e.g., pictures, location, profession, mutual attraction) not likely to be as readily and immediately available in offline experiences (e.g., meeting in a bar). This key difference is important to note in light of previous work demonstrating that individuals feel and behave differently toward others once they become aware of mutual attraction (Luo & Zhang, 2009), or have access to information communicating the presence

of attractive but potentially unobservable characteristics like status (Akbulut & Weger, 2016). Often online sites require a mutual indication of attraction before communication is allowed. Finally, online dating is premised upon the notion that potential partners are abundant, thus providing a context for exploring romantic interest with a lower perceived threat of rejection than may otherwise be present in offline dating experiences (e.g., Chin et al., 2019). In light of previous research demonstrating that one's sensitivity to rejection may influence both one's behavior (e.g., self-disclosure) and emotions (e.g., anxiety) in the process of dating, it remains possible that the less threatening dating experience afforded by online dating may uniquely impact individual experiences in dating when compared with offline dating (Hance et al., 2018).

Given the role of attachment in shaping relationship formation and emotional experiences, one would expect attachment to play a role in shaping individual differences in the ways individuals engage with online dating platforms and how they feel as a result. However, the limited amount of prior explorations of the links between attachment style and online dating platform behaviors have yielded mixed results about use; for example, some studies indicate that attachment style does not significantly predict the use of online dating (Blackhart et al., 2014), while others indicate that higher attachment anxiety is linked with a greater likelihood of online dating (Chin et al., 2019; Jonason & Bulyk, 2019). Concerning the frequency with which individuals contact romantic partners, research has generally supported the notion that individuals higher in attachment anxiety contact potential partners more frequently using electronic means of communication (Goodcase et al., 2018), use online dating sites and applications more frequently (Rochat et al., 2019), have higher numbers of matches and connections on dating sites, and demonstrate a wider variety of motives behind their online dating use (Timmermans & Alexopoulos, 2020). Notably, research suggests that despite a higher frequency of use and matches, individuals higher in attachment anxiety report a lower likelihood of meeting up in person with matches met online (Timmermans & Alexopoulos, 2020).

Previous findings are mixed when it comes to the link between attachment avoidance and online dating, with some studies indicating that higher avoidance links with less frequent electronic romantic communication (Morey et al., 2013) and others failing to find this link (e.g., Goodcase et al., 2018). Likewise, some research suggests that individuals higher in avoidance are more frequent online dating platform users than securely attached individuals (Rochat et al., 2019) and have a higher number of online connections (Timmermans & Alexopoulos, 2020), whereas other work fails to support these connections (e.g., Jonason & Bulyk, 2019).

Given research suggesting that attachment plays a role in adult romantic relationship behaviors and in light of recent studies suggesting that it may play a role in whether individuals choose to use online dating platforms at all (and how they behave if they do), it stands to reason that attachment may also uniquely relate to individuals' emotional responses to dating experiences in the distinct context of online dating. For example, prior work affirms that attachment style plays a role in how individuals feel and behave following a rejection experience in the context of (offline) dating more generally (e.g., Besser & Priel, 2009). That said, in an online dating context, rejection may represent a different level of threat to attachment needs than in-person interactions and rejections, especially given the unique characteristics of online dating related to anonymity, more rapid confirmation of mutual attraction, perception of alternative partner availability, and communication mediums in which rejection cues may be less salient. Despite established differences in online and-offline dating contexts, a significant body of work highlighting the role attachment plays in shaping dating experiences more generally, and recent explorations into how attachment shapes engagement with online dating specifically, prior work has yet to explicitly examine how attachment style and dating context may together associate with the ways individuals feel about their dating experiences.

The current study

In the present study, we aimed to address this gap in the literature by examining whether

associations between attachment style and sexual experiences differed as a function of the context in which they originated (e.g., online or offline dating). Specifically, we sought to focus on two domains: (1) individuals' search for sexual partners and (2) emotional responses to sexual experiences. As we aimed to compare outcomes across these two domains in the context of both online and offline dating, we measured offline dating experiences for all participants, and we measured online dating experiences for those that reported them. In the first domain of searching for partners, we measured individuals' use of online dating sites, frequency of online dating platform use, whether they felt safe using online dating platforms, and whether they were motivated to use online dating sites for uncommitted sexual experiences.

In light of the research reviewed above, we advanced the following hypotheses:

1. Higher attachment anxiety would predict a greater likelihood of online dating use and a higher frequency of use.
2. Higher attachment anxiety would predict lower feelings of safety using online platforms, and a lower likelihood of reporting that current use was motivated by a desire to engage in uncommitted sex (i.e., a hookup).
3. Higher avoidance would predict lower frequency of online dating application use.
4. Higher attachment avoidance would not be associated with feeling unsafe using online platforms.
5. Higher attachment avoidance would predict a greater likelihood of reporting use of online dating platforms as a means to engage in non-committed sex.

Our second domain of outcomes relates to how individuals feel regarding their online and offline sexual experiences, including both negative feelings—such as whether individuals felt like their sexual partner had lost respect for them, as well as whether they felt used or guilty after engaging in uncommitted sexual behavior—and positive feelings—such as satisfaction with their most recent uncommitted sexual experience. Given the limited literature above that has noted that there may be noticeable differences between online and offline dating, we explored these relationships.

6. Higher attachment anxiety would be associated with greater feelings of lost respect, feeling used, and feeling guilty, and lower reported satisfaction.
7. Higher attachment avoidance would be associated with lower reporting of concerns about lost respect, feeling used, and feeling guilty, and higher reported satisfaction regarding their most recent sexual experience.

Method

Participants

In the fall of 2016, participants were recruited via Amazon's Mechanical Turk (MTurk) platform as part of a broader study on adult dating, relationships, and sex. A screening survey was used to restrict participants to be single, between the ages of 18 and 35 years of age, from the United States, and to self-identify as straight or bisexual. All data were collected using a 30-minute online survey. MTurk participants were compensated $0.80. This study was approved by the Sewanee: The University of the South's Institutional Review Board (Approvals #152-40, 16S-11). Notably, Tinder was a newer dating application where users were more direct about looking for sexual encounters along with romantic partners. As such, participants were asked to report on Tinder use (if any), other online dating use (if any), and offline dating. Responses for Tinder and online dating sites were combined into a composite representing all online dating activities for each variable.

Data from 291 qualified participants were inspected for missed attention checks (e.g., "select 'agree' for this answer"). All participants who had 2 or more incorrect attention check answers were removed ($n = 44$). The average age (see Table 1) of the remaining 247 participants was 27.34 years ($SD = 4.47$ years) and 59.51% were males. Reported income ranged from less than $10,000 to more than $150,000, but most participants (96.64%) indicated an income below $60,000 (52.10% reported an income below $30,000;

Table 1. Means and Standard Deviation of Key Study Variables.

	Males			Females			Total		
Variable	*n*	*M*	*SD*	*n*	*M*	*SD*	*n*	*M*	*SD*
Attachment avoidance	144	3.11	1.30	97	3.47	1.30	241	3.25	1.31
Attachment anxiety	144	3.53	1.51	97	3.74	1.47	241	3.62	1.49
Permissiveness	144	3.47	0.96	97	2.76	1.06	241	3.18	1.05
Offline dating experiences									
Loss of respect	123	1.10	0.30	79	1.37	0.49	202	1.20	0.40
Satisfaction	123	3.29	0.75	78	3.06	0.87	201	3.20	0.81
Used	123	1.40	0.78	79	1.82	0.98	202	1.56	0.89
Guilt	122	1.46	0.76	78	1.83	1.01	200	1.61	0.88
Online dating experiences									
Daily app use	77	4.27	5.05	55	3.35	4.37	132	3.89	4.78
Safety	78	5.32	1.37	57	4.65	1.36	135	5.04	1.40
Loss of respect	67	1.34	0.48	38	1.55	0.50	105	1.42	0.50
Satisfaction	67	3.11	0.81	38	2.74	0.88	105	2.98	0.85
Used	67	1.49	0.72	38	2.03	1.09	105	1.69	0.90
Guilt	67	1.49	0.64	38	1.63	0.90	105	1.54	0.74

Note. Attachment style dimensions ranged from 1 to 7, with higher scored indicating less security. Permissiveness ranged from 1 to 5, with higher scored indicating more permissiveness. Safety was rated from 1 to 7, with higher scores indicate more feelings of safety. Loss of respect responses were dichotomous: yes (1) and no (2). Felling of satisfaction, guilt, and being used ranged from 1 to 4, with higher scores indicating higher endorsement of that feeling. Sex was coded as a dichotomous variable (male = 1, female = 2).

21.05% were in college). Participants were geographically diverse (residing in 43 of the 50 states). Most identified as White (70.45%); others identified as African American (8.91%), Asian (8.91%), Hispanic or Latinx (6.88%), and other racial-ethnic identities (1.2%); 3.64% declined to respond.

Procedure

After consenting online, all participants completed measures of their attachment style and sexual attitudes. In the instructions, we defined sex or a hookup as "any experience involving oral sex (giving or receiving), anal sex (penetrating your partner or being penetrated), or vaginal sex." Next, those who reported Tinder use responded to questions about their attitudes and experiences with Tinder. Regardless of their Tinder use, participants who reported using any other online dating sites responded to questions about their attitudes and experiences with online dating sites. Finally, all participants were asked similar questions about offline dating attitudes and experiences, as well as demographic questions. Although questions were generally identical across the different contexts (online and offline dating), some questions were excluded for offline dating to reduce participant burden; questions removed were generally inapplicable to the offline dating context (e.g., details about their online dating profiles). Finally, all participants provided demographic information.

Measures

Demographic covariates

Participants entered their age in years. Participants were asked to identify their sex by selecting male or female, coded as 1 and 2, respectively. Participants reported their average annual income.

Attachment style

To measure adult attachment anxiety and avoidance, participants responded to the widely used Experiences in Close Relationships—Revised questionnaire (Brennan et al., 1998; Fraley et al., 2000). Designed to work with various relationship statuses (e.g., single, dating, committed), this scale directs participants to respond based on how they "generally experience relationships," and items are written such that some ask about relationships or partners more generally. This survey includes 18 items for each of the attachment anxiety (e.g., "I find that my partner(s) don't want to get as close as I would like") and avoidance (e.g., "I find it difficult to allow myself to depend on romantic partners") subscales. Participants responded on a seven-point scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*). In line with prior research (Fraley et al., 2000), Cronbach's alpha was high for attachment anxiety (.96) and avoidance (.93).

Permissiveness

The permissiveness subscale of the Brief Sexual Attitudes Scale (Hendrick et al., 2006) measures individuals' openness to sexual experiences. Participants responded to 10 items about having sex with someone they are not dating (e.g., "Casual sex is acceptable") by indicating their agreement on a 5-point scale ranging from 1 (*strongly disagree*) to (*strongly agree*). Higher scores indicated more permissive attitudes toward sex. Cronbach's alpha was high (.93) in our sample, similar to prior research (Hendrick et al., 2006).

Domain 1: Searching for partners

Use of online dating

Participants were asked if they used Tinder and online dating in separate questions scored 0 for *no* and 1 for *yes*. If yes, they answered specific questions about online experiences respective to their yes answers.

Frequency of use

Participants were asked, "On average, how many times a day do you open or check [dating type] dating profile(s)?" Answers ranged options ranged from 0 to 10+. We summed together Tinder and online dating site totals in calculating the daily frequency of use across all online dating platforms.

Safety

Participants who indicated that they had used either Tinder or online dating platforms were asked if they feel safe using these online dating apps on a 7-point scale from 1 (*strongly disagree*) to (*strongly agree*). If participants used both dating types, their score was averaged.

Looking for a hookup

Participants were asked if they had indicated that they were looking for a hookup on any of their online profiles. Scores were coded with *no* = 0 and *yes* = 1.

Domain 2: Feelings following sexual experiences

Respected less

Participants responded to the question, "Have you ever hooked up with someone from [dating type] and afterward had the feeling the person respected you less because you hooked up with him or her?" Response options were *yes*, *no*, or *I have not hooked up with someone from [dating type]*. Participants indicating no hook up were excluded from this and follow up questions about the experience. Scores were coded with *no* = 0 and *yes* = 1.

Satisfaction

Participants indicating that they had had a sexual encounter stemming from their use of an [dating type] dating platform were asked, "How satisfied were you with your most recent [way of meeting] related sexual encounter?" Response options ranged from 1 (*extremely dissatisfied*) to 4 (*extremely satisfied*).

Negative feelings

Participants indicating a sexual encounter using a platform were asked about feeling guilty ("I felt guilty after my most recent sexual encounter with a [dating type]" and used ("I felt used after my most recent sexual encounter with a [dating type]"). Response options ranged from 1 (*strongly disagree*) to 4 (*strongly agree*).

Data analysis

In preliminary analyses, we examined distributional properties of the data (see Table 2), bivariate correlations, and partial correlations (controlling for age and sex) among study variables. Next, we compared differences in experiences by performing paired *t*-test comparisons between all online and offline experiences. For primary analyses,[1] we conducted hierarchical linear regressions for outcomes with continuous variables and logistic regressions for dichotomized outcomes. Each regression accounted for shared variance in attachment anxiety and avoidance while controlling for four covariates: sex, age, income, and permissiveness. Income and permissiveness tend to increase with age, so all three variables were included as covariates. Although these covariates were not always significantly related to primary outcomes, they were retained for robustness and consistency across regressions. Each regression included two steps: covariates were entered in Step 1 and attachment avoidance and anxiety in Step 2.

Results

Preliminary analyses

Most participants (56.50%) indicated using some form of online dating but only 19.00% reported using both Tinder and online dating platforms. Most participants indicated having a sexual experience with someone met offline (80.57%) but only 41.70% indicated having a sexual experience with someone met through online dating or

Table 2. Full Correlations.

	Variable	1	2	3	4	5	6	7	8	9	10
1	Age										
2	Sex	−.08									
3	Attachment avoidance	.02	.14*								
4	Attachment anxiety	−.04	.07	.42**							
5	Income	.25**	−.02	−.11	−.17**						
6	Permissiveness	.10	−.33**	−.11	.06	.04					
Offline dating experiences											
7	Loss of respect	.03	.33**	.26**	.34**	−.03	−.11				
8	Satisfaction	−.09	−.14	−.31**	−.27**	.11	.12	−.30**			
9	Used	.02	.23**	.27**	.38**	−.11	−.13	.40**	−.30**		
10	Guilt	−.06	.21**	.28**	.29**	−.04	−.11	.28**	−.32**	.61**	
Online dating experiences											
11	Daily app use	−.12	−.10	−.02	.25**	−.12	.06	.10	−.20*	.14	.14
12	Online dating app use	.06	.03	.03	.18**	.08	.16*	.15*	−.05	.14	.14
13	Safety	.06	−.24**	−.16	−.06	−.03	.16	−.15	.11	−.04	−.03
14	Loss of respect	.02	.20*	.19	.38**	.05	−.10	.34**	.02	.24*	.24*
15	Satisfaction	−.10	−.21*	−.25*	−.28**	.03	.19*	−.24*	.31**	−.42**	−.19
16	Used	−.08	.29**	.31**	.25*	−.12	−.28**	.26*	−.18	.67**	.56**
17	Guilt	−.01	.09	.27**	.24*	.09	−.29**	.19	−.16	.48**	.47**

		11	12	13	14	15	16	17
1	Age							
2	Sex							
3	Attachment Avoidance							
4	Attachment Anxiety							
5	Income							
6	Permissiveness							
Offline dating experiences								
7	Loss of respect							
8	Satisfaction							
9	Used							
10	Guilt							
Online dating experiences								
11	Daily App Use							
12	Tinder/Online dating app use	.25**						
13	Safety	.16	.10					
14	Respect loss	.30**	.34**	−.07				
15	Satisfaction	.16	−.12	.22*	−.01			
16	Used	.05	.14	−.06	.30**	−.45**		
17	Guilt	−.04	.27**	−.14	.37**	−.37**	.60**	

Note. Sex was coded as a dichotomous variable (male = 1, female = 2).
*$p < .05$. **$p < .01$.

Tinder. Only 4 (1.62% of the sample) participants reported a sexual experience with someone met online without also having a sexual experience with someone met offline.

Next, we used paired sample *t*-tests to compare meeting offline and to all online sexual experiences for those that reported meeting partners offline and online. Compared to most recent offline experiences, most recent online sexual experiences were less satisfying, $t(92) = -3.20$, 95% *CI* [−.51, −.12], $p = .002$. Sexual experiences originating from online platforms were more likely to result in participants feeling a loss of respect, $t(93) = -2.89$, 95% *CI* [−.27, −05], $p = .005$, as compared to sexual experiences originating offline. There were no differences in guilt $t(93) = -1.26$, $p = .21$, or feeling used, $t(93) = .535$, $p = .59$, after the most recent meeting offline and online sexual experiences.

Domain 1: Search for a partner

In regression analyses controlling for covariates (age, sex, income, and permissiveness), higher attachment anxiety, but not avoidance, was associated with a higher likelihood of using online dating ($\beta = .19$, $p = .009$) and higher frequency of use ($\beta = .28$, $p = .003$). Thus, Hypothesis 1 was supported, but Hypothesis 4 was not. Attachment anxiety and avoidance were not related to feelings of safety using online dating or indications of looking for a hookup. Hypothesis 5 was supported whereas Hypotheses 2, 3, 6 were not.

Domain 2: Feelings following sexual experiences

Controlling for covariates (age, sex, income, and permissiveness), attachment anxiety was related

Table 3. Attachment Style Predicts Feeling a Loss of Respect after A Sexual Encounter.

	Offline		Online	
Loss of respect	*b* (SE)	Wald χ^2(OR)	*b* (SE)	Wald χ^2(OR)
Step 1				
Constant	−5.02 (1.65)**	9.31 (.01)	−1.92 (1.78)	1.16 (.15)
Age	.04 (.05)	.77 (1.04)	.01 (.05)	.07 (1.01)
Sex	1.75 (.42)**	17.61 (5.77)	.89 (.45)	3.85 (2.44)
Income	−.06 (.09)	.43 (.94)	.05 (.09)	.33 (1.05)
Permissiveness	.04 (.19)	.05 (1.05)	−.06 (.23)	.07 (.94)
Step 2				
AVO	.42 (.19)*	4.94 (1.52)	.08 (.22)	.12 (1.08)
ANX	.65 (.17)**	15.12 (1.91)	.56 (.17)**	11.49 (1.76)

Note. AVO = attachment avoidance, ANX = attachment anxiety, OR = odds ratio. Sex was coded as a dichotomous variable (male = 1, female = 2).
*$p < .05$. **$p < .01$.

to feeling a loss of respect from both offline and online sexual experiences (see Table 3). In contrast, attachment avoidance was related to feeling a loss of respect from offline but not online experiences. Higher attachment anxiety was associated with lower satisfaction with most recent sexual partner met offline ($\beta = -.16$, $p = .032$) or online ($\beta = -.23$, $p = .029$), whereas higher attachment avoidance was associated with less satisfaction with most recent sexual encounter met offline ($\beta = -.21$, $p = .006$), but not online (see Table 4). Higher anxiety was associated with a higher likelihood of feeling used after the most recent sexual experience with a partner met offline ($\beta = .33$, $p < .001$) but not online. Higher attachment avoidance was not related to feeling used when meeting offline or online. Higher anxiety was associated with higher guilt following the most recent sexual experience with a partner met offline ($\beta = .22$, $p = .005$) and online ($\beta = .23$, $p = .027$). Higher attachment avoidance was related to more guilt for the most recent offline ($\beta = .18$, $p = .019$) sexual experience but not related to guilt with the most recent partner met online.[2] Thus, partial support was found for Hypotheses 7 and 8.

Discussion

The present study contributes to the novel and growing body of work examining the link between attachment style and sexual experiences of single adults in online and offline dating contexts. We found that adult attachment style meaningfully associated with individual differences in two

Table 4. Attachment Style Predicts Sexual Experiences Based on Way of Meeting.

	Offline		Online	
	b (SE)	95% *CI*	*b* (SE)	95% *CI*
Satisfied				
Step 1 ΔR^2	.05*		.08	
Constant	3.78 (.47)**	2.86, 4.70	3.56 (.71)**	2.16, 4.96
Age	−.03 (.01)	−0.05, 0.00	−.03 (.02)	−0.07, 0.01
Sex	−.20 (.13)	−0.44, 0.05	−.28 (.18)	−0.64, 0.09
Income	.05 (.03)	0.00, 0.10	.01 (.04)	−0.06, 0.08
Permissiveness	.06 (.06)	−0.06, 0.18	.13 (.09)	−0.05, 0.32
Step 2 ΔR^2	.09**		.09**	
AVO	−.13 (.05)**	−0.22, −0.04	−.09 (.08)	−0.23, 0.06
ANX	−.09 (.04)*	−0.16, −0.01	−.12 (.06)*	−0.24, −0.01
Used				
Step 1 ΔR^2	.07**		.13**	
Constant	.99 (.51)	0.00, 1.99	1.92 (.73)*	0.48, 3.37
Age	.01 (.01)	−0.02, 0.04	0.00 (.02)	−0.04, 0.04
Sex	.40 (.13)**	0.13, 0.66	0.42 (.19)*	0.04, 0.79
Income	−.05 (.03)	−0.11, 0.01	−0.03 (.04)	−0.10, 0.04
Permissiveness	−.05 (.07)	−0.18, 0.08	−0.17 (.10)	−0.36, 0.02
Step 2 ΔR^2	.14**		.07*	
AVO	.07 (.05)	−0.03, 0.17	.14 (.08)	−0.01, 0.30
ANX	.19 (.04)**	0.11, 0.27	.08 (.06)	−0.04, 0.19
Guilt				
Step 1 ΔR^2	.05*		.10*	
Constant	1.51 (.51)**	0.50, 2.52	2.28 (.61)**	1.07, 3.50
Age	−.01 (.01)	−0.04, 0.02	.00 (.02)	−0.03, 0.03
Sex	.34 (.14)*	0.08, 0.61	−.02 (.16)	−0.34, 0.29
Income	−.01 (.03)	−0.07, 0.04	.04 (.03)	−0.02, 0.10
Permissiveness	−.03 (.07)	−0.16, 0.10	−.24 (.08)**	−0.40, −0.08
Step 2 ΔR^2	.10**		.09**	
AVO	.12 (.05)*	0.02, 0.22	.08 (.07)	−0.05, 0.21
ANX	.12 (.04)**	0.04, 0.21	.11 (.05)*	0.01, 0.21

Note. AVO = attachment avoidance, ANX = attachment anxiety. Sex was coded as a dichotomous variable (male = 1, female = 2).
*$p < .05$. **$p < .01$.

domains: (1) how individuals search for partners and (2) their emotional responses to sexual encounters with sexual partners met online and offline. Generally, greater attachment security (i.e., lower anxiety and avoidance) was associated with more positive sexual experiences across dating contexts. Individuals high in attachment anxiety reported higher use of online dating apps; further, in both online and offline dating contexts, they experienced more negative emotions following their most recent "hookup," including lower satisfaction and greater feelings of guilt. In contrast, attachment avoidance was unrelated to dating app use; however, individuals high in avoidance also experienced less satisfaction and more guilt following their most recent sexual encounter, but only when meeting offline. The role of attachment in participants' feelings of being used varied by context (online vs. offline). We discuss these findings in terms of attachment theory and previous research, consider the limitations of the present study, and outline avenues for future work in this rapidly changing new area of relationship research.

The search for a partner

When examining differences in online dating use, our finding that adult attachment anxiety was associated with a higher likelihood of using online dating and using these platforms more frequently aligns with previous research reporting that attachment-anxious individuals are more active users of online dating platforms (Chin et al., 2019; Jonason & Bulyk, 2019; Rochat et al., 2019). According to attachment theory, adult attachment anxiety represents a hyperactivating strategy for regulating social relationships that includes heightened signals of emotional need and desire for closeness (Mikulincer & Shaver, 2008, 2016). Thus, use of online dating may provide one medium for signaling one's desire for connection. However, such signaling may become dysregulated; evidence shows that anxious attachment is associated with a cluster of dating app characteristics that the authors' term "unregulated and highly motivated" (Rochat et al., 2019), suggesting that anxious attachment may increase the likelihood that they use the app in ways beyond what they originally intended.

Contrary to hypotheses, attachment avoidance was unrelated to use of online dating. This is consistent with some previous null results (Jonason & Bulyk, 2019) but contrasts with one study that found avoidance to be related to lower dating app use (Chin et al., 2019). Theory suggests that attachment avoidance represents a deactivating strategy for regulating social relationships that includes minimizing needs for closeness and connection and shying away from emotional intimacy (Mikulincer & Shaver, 2008, 2016). On one hand, such a strategy may motivate disengagement with dating apps; on the other hand, for some individuals (e.g., those with high sexual desire), an avoidant strategy may motivate moderate engagement with dating platforms to engage in noncommittal sex (e.g., Gentzler & Kerns, 2004; Rochat et al., 2019). The present findings may reflect the fact that these competing factors—to avoid engagement but also to seek uncommitted sexual contact—may come into conflict with each other and cancel out in predicting dating platform use.

Unexpectedly, neither attachment anxiety nor avoidance was significantly related to explicitly looking for a hookup. This may be due, in part, to our more conservative test of this link by controlling for permissive attitudes toward sex. Notably, other research found that avoidance is related to more open attitudes about casual sex (e.g., Sprecher, 2013), but we did not find this same pattern suggesting that it might be that they are more open but may not be listing it on their profiles. Future research should further examine these nuances. For attachment-anxious individuals, the present null findings may reflect ambivalence regarding noncommittal sex—indeed, attachment-anxious individuals report a preference for sexual activity within committed relationships (Gillath & Schachner, 2006) but also are more willing to hookup when the opportunity arises (Cooper et al., 1998) or under circumstances where sexual contact is perceived as a potential route for the facilitating desired closeness and intimacy (Snapp et al., 2014).

Feelings following sexual experiences

We found support that attachment insecurity was associated with negative feelings about their most recent sexual encounter. As predicted, individuals higher in attachment anxiety were more likely to feel a loss of respect, less satisfaction, and greater guilt following sexual experiences in both online and offline contexts, as well as greater feelings of being used after their most recent experience with partners met offline (but not online). Given that expectations might be clearer when meeting online than offline, fear of abandonment that is associated with anxious attachment might be lower when meeting online. Thus, anxious individuals may be more likely to feel used when meeting offline compared to online. Beyond this nuance, this general pattern of heightened negative affect in the wake of sexual encounters is consistent with previous work linking attachment anxiety with negative emotions regarding sexual experiences (Birnbaum et al., 2006; Gentzler & Kerns, 2004), dissatisfaction both relationally and sexually (Brennan et al., 1998), and hypervigilance toward relationship threats (Mikulincer & Shaver, 2016). Importantly, the present study suggests that these negative emotions may extend to specific feelings related to degraded views of the self (i.e., feeling guilty, used, and less respected).

Thus, attachment-anxious individuals may experience sexual encounters more negatively in part because such encounters—especially outside the context of a committed, loving relationship—have the potential to activate internal working models of the self as unworthy of love, care, and respect (Bretherton, 1991; Main et al., 1985).

Findings regarding attachment avoidance and feelings after their most recent sexual encounter varied by dating context. Specifically, avoidance was associated with *less* satisfaction and more guilt following one's most recent sexual encounter with a partner met offline but not online. Findings linking avoidance to more negative affect are consistent with previous research linking avoidance to negative affect in romantic and sexual relationships (e.g., Gentzler & Kerns, 2004). In contrast to the results for anxiety, avoidance was not related to feeling used. Thus, for individuals higher in attachment avoidance, feelings following sexual encounters may depend to a greater extent on the context in which such encounters occur. Previous research has demonstrated that individuals high in attachment avoidance tend to experience greater post-coital negative emotions in relationships perceived to be more intimate (Birnie-Porter & Hunt, 2015) and tend to be more vigilant about increases in intimacy (Hudson & Fraley, 2017); thus, contextual differences in perceptions of intimacy around sexual encounters may increase the likelihood of experiencing post-coital negative emotions like guilt and reduced satisfaction. The design of online platforms (having members indicate their use preferences) may induce avoidant individuals to be more direct about their intentions than they typically are in offline situations. This induced directness may explain why online encounters are linked with less negative experiences (e.g., less guilt) than offline experiences.

Strengths, limitations, and directions for future research

Strengths of this study include focusing on individual differences in attachment and looking at their experiences with both online and offline contexts. In addition, we examined differences in how people use online dating apps and looked at a number of different indicators of past sexual experiences.

The present findings, although illuminating in many respects, should be regarded as preliminary considering the limitations of the study. Although participants represented a wide range of geographic regions and socioeconomic strata, the sample was recruited online from the United States, identified as majority (70%) White, excluded gay participants (because of the platforms being studied at the time of data collection), and included only small proportion of bisexual participants. We also did not ask about gender identity. Further, our online recruitment probably included people that were more likely to date online and to have internet access. Thus, it is not yet known whether attachment style plays a role in the dating experiences of these underrepresented groups. Future research should seek to better understand the unique as well as common experience of non-U.S., Black, Indigenous, and People of Color, and bisexual and gay individuals (e.g., experiences of discrimination in dating contexts), with attention to the intersections of these identities as they relate to online and offline dating.

Second, the study relied exclusively on self-report, raising potential issues of reporter bias and shared method variance. Research suggests that women who are higher in attachment avoidance and men who are higher in attachment anxiety may over-report levels of romantic conflict relative to their partners (Ehrlich et al., 2019). We did not find sex differences but that might be related to the smaller sample size in certain cells (e.g., online users reporting hookups). Thus, future work should use larger samples and combine self-report with reports of behavior by romantic partners, user data from the app itself, and laboratory tasks that allow for controlled observations of social behavior (e.g., behavior patterns and physiological responses to interactions on a mock dating site). Future work should replicate and examine additional outcomes, such as behaviors following sexual experiences (e.g., quality of communication, degree of self-disclosure, "ghosting," sexual harassment), as well as other dimensions of feelings (e.g., anxiety, or depressive symptoms; feelings of regret).

Conclusions

In an era where sexual partners are increasingly met online, the present findings highlight some ways individual differences such as attachment style may be consequential for how adults search for partners, as well as the quality of their emotional experiences in online and offline dating contexts. Broadly, and consistent with attachment theory, greater security (i.e., lower anxiety and avoidance) was associated with more positive experiences across dating contexts. More specifically, individuals high in attachment anxiety reported higher use of online dating apps and reported more negative emotions following their most recent hookup in online and offline contexts; those high in avoidance also experienced such negative emotions post-hookup, but only in the context of offline dating. This work points to the importance of considering individual differences like attachment style within the rapidly evolving online contexts in which modern sexual encounters and romantic relationships often unfold.

Notes

1. Analyses were run with and without participants who identified as bisexual ($n = 8$). All bisexual participants indicated they were looking for cross-sex relationships in their online dating profile. There were no significant differences between the results of these analyses, so results are presented for analyses that include bisexual participants.
2. Given that sex differences are common, we ran exploratory moderation analyses with Sex × Attachment Style interactions entered in a third regression step. These revealed no significant interactions between sex and attachment style dimensions for feelings of safety, respect, satisfaction, guilt, satisfied, or used, but they were also generally underpowered.

Disclosure statement

The authors report no conflict of interest. The authors alone are responsible for the content and writing of the paper.

Funding

Preparation of this manuscript was supported by the Eunice Kennedy Shriver National Institute of Child Health & Human Development of the National Institutes of Health under Award Number F32HD102119 to J. Stern. The content is solely the responsibility of the authors and does not necessarily represent the official views of the National Institutes of Health. This study was reviewed and approved by The University of the South Internal Review Board and all participants provided consent.

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References

Ainsworth, M. D. S., Blehar, M. C., Waters, E., & Wall, S. (1978). *Patterns of attachment: A psychological study of the Strange Situation*. Erlbaum.

Akbulut, V., Jr., & Weger, H. Jr.(2016). Predicting responses to bids for sexual and romantic escalation in cross-sex friendships. *The Journal of Social Psychology*, *156*(1), 98–114. https://doi.org/10.1080/00224545.2015.1066296

Besser, A., & Priel, B. (2009). Emotional responses to a romantic partner's imaginary rejection: The roles of attachment anxiety, covert narcissism, and self-evaluation. *Journal of Personality*, *77*(1), 287–325. https://doi.org/10.1111/j.1467-6494.2008.00546.x

Birnbaum, G. E., Reis, H. T., Mikulincer, M., Gillath, O., & Orpaz, A. (2006). When sex is more than just sex: Attachment orientations, sexual experience, and relationship quality. *Journal of Personality and Social Psychology*, *91*(5), 929–943. https://doi.org/10.1037/0022-3514.91.5.929

Birnie, C., Joy McClure, M., Lydon, J. E., & Holmberg, D. (2009). Attachment avoidance and commitment aversion: A script for relationship failure. *Personal Relationships*, *16*(1), 79–97. https://doi.org/10.1111/j.1475-6811.2009.01211.x

Birnie-Porter, C., & Hunt, M. (2015). Does relationship status matter for sexual satisfaction? The roles of intimacy and attachment avoidance in sexual satisfaction across five types of ongoing sexual relationships. *The Canadian Journal of Human Sexuality*, *24*(2), 174–183. https://doi.org/10.3138/cjhs.242-A5

Blackhart, G. C., Fitzpatrick, J., & Williamson, J. (2014). Dispositional factors predicting use of online dating sites and behaviors related to online dating. *Computers in Human Behavior*, *33*, 113–118. http://doi.org/10.1016/j.chb.2014.01.022

Bowlby, J. (1982). *Attachment and loss*, Vol. *1. Attachment* (Original ed. 1969; 2nd ed. 1982). Basic Books. (Original work published 1969)

Brennan, K. A., Clark, C. L., & Shaver, P. R. (1998). Self-report measurement of adult attachment: An integrative overview. In J. A. Simpson & W. S. Rholes (Eds.), *Attachment theory and close relationships* (pp. 46–76) Guilford Press.

Brennan, K. A., & Shaver, P. R. (1995). Dimensions of adult attachment, affect regulation, and romantic relationship functioning. *Personality and Social Psychology Bulletin*, *21*(3), 267–283. https://doi.org/10.1177/0146167295213008

Bretherton, I. (1991). Pouring new wine into old bottles: The social self as internal working model. In M. Gunnar & L. A. Sroufe (Eds.), *Minnesota symposia in child psychology: Self processes in development* (pp. 1–41). Erlbaum.

Brumbaugh, C. C., & Fraley, R. C. (2010). Adult attachment and dating strategies: How do insecure people attract mates? *Personal Relationships*, *17*(4), 599–614. https://doi.org/10.1111/j.1475-6811.2010.01304.x

Campbell, L., Simpson, J. A., Kashy, D. A., & Rholes, W. S. (2001). Attachment orientations, dependence, and behavior in a stressful situation: An application of the actor-partner interdependence model. *Journal of Social and Personal Relationships*, *18*(6), 821–843. https://doi.org/10.1177/0265407501186005

Chin, K., Edelstein, R. S., & Vernon, P. A. (2019). Attached to dating apps: Attachment orientations and preferences for dating apps. *Mobile Media & Communication*, *7*(1), 41–59. https://doi.org/10.1177/2F2050157918770696

Ciocca, G., Robilotta, A., Fontanesi, L., Sansone, A., D'Antuono, L., Limoncin, E., Nimbi, F., Simonelli, C., Di Lorenzo, G., Siracusano, A., & Jannini, E. A. (2020). Sexological aspects related to tinder use: A comprehensive review of the literature. *Sexual Medicine Reviews*, *8*(3), 367–378. https://doi.org/10.1016/j.sxmr.2019.12.004

Collins, N. L. (1996). Working models of attachment: Implications for explanation, emotion, and behavior. *Journal of Personality and Social Psychology*, *71*(4), 810–832. https://doi.org/10.1037/0022-3514.71.4.810

Collins, N. L., & Feeney, B. C. (2000). A safe haven: An attachment theory perspective on support seeking and caregiving in intimate relationships. *Journal of Personality and Social Psychology*, *78*(6), 1053–1073. https://doi.org/10.1037/0022-3514.78.6.1053

Cooper, M. L., Shaver, P. R., & Collins, N. L. (1998). Attachment styles, emotion regulation, and adjustment in adolescence. *Journal of Personality and Social Psychology*, *74*(5), 1380–1397. https://doi.org/10.1037//0022-3514.74.5.1380

Ehrlich, K. B., vanDellen, M. R., Felton, J. W., Lejuez, C. W., & Cassidy, J. (2019). Perceptions about marital conflict: Individual, dyadic, and family level effects. *Journal of Social and Personal Relationships*, *36*(11–12), 3537–3553. https://doi.org/10.1177/0265407519829846

Finkel, E. J. (2015). In defense of Tinder. *New York Times*. Retrieved from http://www.nytimes.com/2015/02/08/opinion/sunday/in-defense-of-tinder.html

Finkel, E. J., Eastwick, P. W., Karney, B. R., Reis, H. T., & Sprecher, S. (2012). Online dating: A critical analysis from the perspective of psychological science. *Psychological Science in the Public Interest*, *13*(1), 3–66. https://doi.org/10.1177/1529100612436522

Fraley, R. C., & Shaver, P. R. (2000). Adult romantic attachment: Theoretical developments, emerging controversies, and unanswered questions. *Review of General Psychology*, *4*(2), 132–154. https://doi.org/10.1037/1089-2680.4.2.132

Fraley, R. C., Waller, N. G., & Brennan, K. A. (2000). An item response theory analysis of self-report measures of adult attachment. *Journal of Personality and Social Psychology*, *78*(2), 350–365. https://doi.org/10.1037/0022-3514.78.2.350

Garneau, C., Olmstead, S. B., Pasley, K., & Fincham, F. D. (2013). The role of family structure and attachment in college student hookups. *Archives of Sexual Behavior*, *42*(8), 1473–1486. https://doi.org/10.1007/s10508-013-0118-9

Gatter, K., & Hodkinson, K. (2016). On the differences between Tinder™ versus online dating agencies: Questioning a myth. An exploratory study. *Cogent Psychology*, *3*(1), 1162414. https://doi.org/10.1080/23311908.2016.1162414

Gentzler, A. L., & Kerns, K. A. (2004). Associations between insecure attachment and sexual experiences. *Personal Relationships*, *11*(2), 249–265. https://doi.org/10.1111/j.1475-6811.2004.00081.x

Gillath, O., & Schachner, D. A. (2006). How do sexuality and attachment interrelate?: Goals, motives, and strategies. In M. Mikulincer & G. S. Goodman (Eds.), *Dynamics of romantic love: Attachment, caregiving, and sex* (p. 337–355). Guilford Press.

Goodcase, E. T., Nalbone, D. P., Hecker, L. L., & Latty, C. (2018). The role of attachment anxiety and avoidance in communication modality and relationship quality of romantic relationships initiated online. *The American Journal of Family Therapy*, *46*(2), 168–183. https://doi.org/10.1080/01926187.2018.1461032

Hance, M. A., Blackhart, G. C., & Dew, M. (2018). Free to be me: The relationship between the true self, rejection sensitivity, and use of online dating sites. *The Journal of Social Psychology*, *158*(4), 421–429. https://doi.org/10.1080/00224545.2017.1389684

Hazan, C., & Shaver, P. (1987). Romantic love conceptualized as an attachment process. *Journal of Personality and Social Psychology*, *52*(3), 511–524. https://doi.org/10.1037/0022-3514.52.3.511

Hazan, C., & Zeifman, D. (1999). Pair bonds as attachments: Evaluating the evidence. In J. Cassidy & P. R. Shaver (Eds.), *Handbook of attachment: Theory, research, and clinical applications* (p. 336–354). Guilford Press.

Hendrick, C., Hendrick, S. S., & Reich, D. A. (2006). The brief sexual attitudes scale. *Journal of Sex Research*, *43*(1), 76–86. https://doi.org/10.1080/00224490609552301

Hudson, N. W., & Fraley, R. C. (2017). Adult attachment and perceptions of closeness. *Personal Relationships*, *24*(1), 17–26. https://doi.org/10.1111/pere.12166

Jonason, P. K., & Bulyk, R. A. (2019). Who uses Tinder?: The Dark Triad traits, attachment, and mate value. *Studia Psychologica*, *19*(1), 5–15. https://doi.org/10.21697/sp.2019.19.1.01

Luo, S., & Zhang, G. (2009). What leads to romantic attraction: Similarity, reciprocity, security, or beauty? Evidence from a speed-dating study. *Journal of Personality*, *77*(4), 933–964. https://doi.org/10.1111/j.1467-6494.2009.00570.x

Main, M., Kaplan, N., & Cassidy, J. (1985). Security in infancy, childhood, and adulthood: A move to the level of representation. *Monographs of the Society for Research*

in Child Development, *50*(1/2), 66–104. https://doi.org/10.2307/3333827

McClure, M. J., Lydon, J. E., Baccus, J. R., & Baldwin, M. W. (2010). A signal detection analysis of chronic attachment anxiety at speed dating: Being unpopular is only the first part of the problem. *Personality & Social Psychology Bulletin*, *36*(8), 1024–1036. https://doi.org/10.1177/0146167210374238

Mikulincer, M., & Shaver, P. R. (2008). Adult attachment and affect regulation. In J. Cassidy, & P. R. Shaver, J. (Eds.), *Handbook of attachment: Theory, research, and clinical applications* (2nd ed., pp. 503–531). Guilford Press.

Mikulincer, M., & Shaver, P. R. (2016). *Attachment in adulthood: Structure, dynamics, and change*. (2nd ed.). Guilford Press.

Morey, J. N., Gentzler, A. L., Creasy, B., Oberhauser, A. M., & Westerman, D. (2013). Young adults' use of communication technology within their romantic relationships and associations with attachment style. *Computers in Human Behavior*, *29*(4), 1771–1778. https://doi.org/10.1016/j.chb.2013.02.019

Rochat, L., Bianchi-Demicheli, F., Aboujaoude, E., & Khazaal, Y. (2019). The psychology of "swiping": A cluster analysis of the mobile dating app Tinder. *Journal of Behavioral Addictions*, *8*(4), 804–813. https://doi.org/10.1556/2006.8.2019.58

Rosenfeld, M. J., Thomas, R. J., & Hausen, S. (2019). Disintermediating your friends: How online dating in the United States displaces other ways of meeting. *Proceedings of the National Academy of Sciences of the United States of America*, *116*(36), 17753–17758. https://doi.org/10.1073/pnas.1908630116

Schachner, D. A., & Shaver, P. R. (2004). Attachment dimensions and sexual motives. *Personal Relationships*, *11*(2), 179–195. https://doi.org/10.1111/j.1475-6811.2004.00077.x

Schindler, I., Fagundes, C. P., & Murdock, K. W. (2010). Predictors of romantic relationship formation: Attachment style, prior relationships, and dating goals. *Personal Relationships*, *17*(1), 97–105. https://doi.org/10.1111/j.1475-6811.2010.01255.x

Schneider, M. E., & Katz, J. (2017). Adult attachment and heterosexual college women's hookup behaviors: Mediating effects of sexual motives. *Sex Roles*, *77*(5–6), 419–429. https://doi.org/10.1007/s11199-016-0726-7

Simpson, J. A. (1990). Influence of attachment styles on romantic relationships. *Journal of Personality and Social Psychology*, *59*(5), 971–980. https://doi.org/10.1037/0022-3514.59.5.971

Snapp, S., Lento, R., Ryu, E., & Rosen, K. S. (2014). Why do they hook up? Attachment style and motives of college students. *Personal Relationships*, *21*(3), 468–481. https://doi.org/10.1111/pere.12043

Spielmann, S. S., Joel, S., MacDonald, G., & Kogan, A. (2013). Ex appeal: Current relationship quality and emotional attachment to ex-partners. *Social Psychological and Personality Science*, *4*(2), 175–180. https://doi.org/10.1177/1948550612448198

Sprecher, S. (2013). Attachment style and sexual permissiveness: The moderating role of gender. *Personality and Individual Differences*, *55*(4), 428–432. https://doi.org/10.1016/j.paid.2013.04.005

Sroufe, L. A. (2005). Attachment and development: A prospective, longitudinal study from birth to adulthood. *Attachment & Human Development*, *7*(4), 349–367. https://doi.org/10.1080/14616730500365928

Timmermans, E., & Alexopoulos, C. (2020). Anxiously searching for love (among other things): Attachment orientation and mobile dating application users' motives and outcomes. *Cyberpsychology, Behavior and Social Networking*, *23*(7), 447–452. https://doi.org/10.1089/cyber.2019.0542

Tucker, J. S., & Anders, S. L. (1998). Adult attachment style and nonverbal closeness in dating couples. *Journal of Nonverbal Behavior*, *22*(2), 109–124. https://doi.org/10.1023/A:1022980231204

Vogels, E. A. (2020). 10 facts about Americans and online dating. *Pew Research Center*. Retrieved from https://www.pewresearch.org/fact-tank/2020/02/06/10-facts-about-americans-and-online-dating

Wegner, R., Roy, A. R., Gorman, K. R., & Ferguson, K. (2018). Attachment, relationship communication style and the use of jealousy induction techniques in romantic relationships. *Personality and Individual Differences*, *129*, 6–11. https://doi.org/10.1016/j.paid.2018.02.033

Young, E. S., Simpson, J. A., Griskevicius, V., Huelsnitz, C. O., & Fleck, C. (2019). Childhood attachment and adult personality: A life history perspective. *Self and Identity*, *18*(1), 22–38. https://doi.org/10.1080/15298868.2017.1353540