

The psychology of breakup sex: Exploring the motivational factors and affective consequences of post-breakup sexual activity

James B. Moran¹ , T. Joel Wade², and Damian R. Murray¹

Abstract

Popular culture has recently publicized a seemingly new postbreakup behavior called breakup sex. While the media expresses the benefits of participating in breakup sex, there is no research to support these claimed benefits. The current research was designed to begin to better understand this postbreakup behavior. In the first study, we examined how past breakup sex experiences made the individuals feel and how people predict they would feel in the future ($n = 212$). Results suggested that men are more likely than women to have felt better about themselves, while women tend to state they felt better about the relationship after breakup sex. The second study ($n = 585$) investigated why men and women engage in breakup sex. Results revealed that most breakup sex appears to be motivated by three factors: relationship maintenance, hedonism, and ambivalence. Men tended to support hedonistic and ambivalent reasons for having breakup sex more often than women. The two studies revealed that breakup sex may be differentially motivated (and may have different psychological consequences) for men and women and may not be as beneficial as the media suggests.

Keywords

breakup sex, sexual strategy theory, fiery limbo, postbreakup behavior, ex-sex, gender differences

Date received: May 31, 2020; Accepted: May 31, 2020

Engaging in sexual contact with an ex-partner can have diverse consequences. The individuals in the ex-relationship could experience heartbreak and want to get back with one another. On the other hand, the members in the relationship could experience a positive situation where they rekindle their relationship. Thus, deciding to engage in sexual contact with an ex seems to be paradoxical, and for several years, researchers have begun to further understand why this might be occurring.

Sexual Contact With an Ex-Romantic Partner

Individuals experience adverse outcomes from a breakup which can lead to a decrease in self-esteem and an increase in emotional distress (Slotter et al., 2010). However, gender differences exist in the psychological experience of a breakup. For example, women tend to report fewer negative feelings relative to men do after a breakup occurs (Choo et al., 1996; Hill et al., 1976) and report being happier with their breakup (DeLecce & Weisfeld, 2015). However, women are also more

likely to initiate a breakup compared to men (DeLecce & Weisfeld, 2015). When men experience a breakup, they report feelings of sadness and grief more often than women (Rubin et al., 1981). Besides experiencing negative effects of a breakup, men are also more likely to experience more sexual frustration from breakups than women because of the loss of sexual access (DeLecce & Weisfeld, 2015). These emotional experiences of a breakup should be of particular interest to social scientists. If an individual is feeling grief or happiness about breaking up with their romantic partner, then why do individuals stay in contact with them? Research suggests that many ex-couples

¹ Department of Psychology, Tulane University, New Orleans, LA, USA

² Department of Psychology, Bucknell University, Lewisburg, PA, USA

Corresponding Author:

James B. Moran, Department of Psychology, 2007 Percival Stern Hall, Tulane University, New Orleans, LA 70118, USA.

Email: jamesmoran320@gmail.com



both continue communication and continue their sexual contact with one another. In particular, staying friends with an ex is motivated by wanting sexual access (Mogilski & Welling, 2017).

The research detailed above indicates that breakups produce various emotions for men and women, which may lead people to want to rekindle their relationship. Continued sexual contact is not a gender-specific behavior; both men and women report attempting to contact their ex partners for sex (Perilloux & Buss, 2008). Neither gender nor whether or not one is the initiator of the breakup predicts solicitations for sex with an ex. Both men and women, rejectors and rejectees, are equally likely to contact an ex for sexual contact (DeLecce & Weisfeld, 2015).

Continued sexual contact is a behavior that both men and women—rejectors and rejectees—report requesting of their ex. In fact, 27% of 17- to 24-year-olds report having sex with an ex within a 2-year period (Halpern-Meekin et al., 2012), and 14% of individuals reported that their most recent casual sex partner was an ex (Lewis et al., 2012). Besides college students, 22% of people who were separated from their married partner reported having sex with their separated partner within the last 4 months (Mason et al., 2012). Although sexual contact has been extensively studied, a new term has entered the human lexicon known as breakup sex.

Breakup sex. The term “breakup sex” has recently gained popularity. Articles from *Women’s Health*, *Buzzfeed*, and *Bustle* all proclaim the importance of breakup sex and assert that *everyone* should participate in this activity (Emery, 2016; Miller, 2015; Moore, 2015). These popular press articles define breakup sex as a decision between a romantic couple to terminate their relationship but engage in sex after their breakup.

Thus, the information presented to the general public suggests that breakup sex could be a beneficial postbreakup behavior. However, there is little to no scientific evidence regarding what breakup sex is, how it affects individuals, and why individuals agree to participate in breakup sex in the first place.

Here, we define breakup sex as sexual intercourse with an ex-romantic partner with whom the individual was in a long-term committed relationship, with this sexual activity occurring *within 2 weeks of the termination of the relationship*. This 2-week window is informed by prior research detailing the effects of an individual’s experiences after a breakup and post-breakup behavior (e.g., Sbarra & Emery, 2005).

Breakup sex versus ex-sex. Ex-sex is not always breakup sex, but breakup sex is always ex-sex. This distinction between the two is that breakup sex can fall under the category of ex-sex, but not vice versa because of the temporal restrictions used to operationalize breakup sex.

This 2-week period is informed by research suggesting that psychological sadness postbreakup is highest in 2-weeks post-breakup but then decreases 4–6 weeks after the breakup (Sbarra & Emery, 2005). This period of sadness thus establishes a boundary where sadness has yet to be experienced. Therefore,

limiting the breakup sex definition to a period of 2 weeks or earlier does not make sadness the driving motivator for why men and women have breakup sex. This time period distinction is crucial because it allows researchers to determine that engaging in breakup sex was not mediated by emotional distress after a breakup because research suggests that individuals with higher breakup emotional distress have more frequent intrusive thoughts of their relationships, which could affect the desire to have breakup sex (Field et al., 2009). Specifically, if a person is experiencing sadness, that might motivate them to have breakup sex more due to emotional closeness than due to a desire for closure.

Besides sadness, an individual’s behavior must also be considered when one establishes the duration of breakup sex. Specifically, individuals tend to report having sex with a new person an average 4 weeks after breaking up (Barber & Cooper, 2014). Therefore, limiting breakup sex to 2 weeks allows one to focus on a stage in the breakup before sadness occurs and before individuals are likely to have had sex with a new partner.

In a recent longitudinal study, Spielmann et al. (2018) investigated breakup recovery after engaging in ex-sex. The research team recruited participants an average of 8.55 days after the participants’ romantic relationship had ended and tracked the participants’ pursuit of sex with their ex-partner for 2 months and found that engaging in sexual contact with their ex at various time points did not influence their well-being. Although there seems not to be adverse reactions toward one’s well-being, deciding to have sex with an ex-romantic partner can be complicated. But, the timing of when an individual has sexual contact with an ex-romantic partner compared to ex-sex is driven by different mechanisms. For example, when individuals in new relationships still have unresolved feelings for their ex, it can negatively affect their relationship quality with their current partner (Spielmann et al., 2013); thus, sexual contact with an ex may be functional. However, what if the breakup occurred over 2 days versus 2 months? The individuals in the couple are certainly experiencing different levels of upset at those time points.

Furthermore, ex-sex may be a strategy used to rekindle the relationship with their romantic partner. For example, research suggests that individuals may hold on to a second optional mate known as a “back burner.” These back burner relationships suggest that men and women tend to place a potential romantic partner to the side, when already in a committed relationship (Dibble et al., 2015). This may be a strategy used with ex-sex, engaging in sexual intercourse with an ex, to keep them in one’s life, for the future, which is highlighted in research on the “on-again-off-again” literature. Specifically, individuals may be unsure if a romantic relationship is what they want; therefore, engaging in ex-sex helps them deal with the uncertainty of this relationship maintenance (Dailey et al., 2010). However, there is no data to verify this. Thus, an examination using evolutionary perspectives can assist in the understanding of this postbreakup behavior.

The Adaptive Function of Breakup Sex

Evidence suggests that in many nonindustrialized cultures (the !Kung San of the Kalahari and the Ache of Paraguay) breaking up was common in romantic relationships (Hill & Hurtado, 1996; Howell, 1976). This is not surprising, given the potential adaptive benefits of terminating untenable relationships (Wade, 2012; Wade & Mogilski, 2018). However, breaking up with a romantic partner also poses problems (Perilloux & Buss, 2008). Engaging in breakup sex with a partner who was in the recently terminated relationship can be a beneficial adaptive tool. Specifically, some of the problems that arise with ending a relationship may have been solved by engaging in sexual contact with an ex.

A mate retention tool. First, engaging in breakup sex may have been used as a mate retention tactic to re-form the terminated relationship. Prior research suggests that both men and women engage in mate retention tactics (Buss, 1988a). Interest in mate re-retention after a breakup may result from loss of resource provisioning, loss of social status or access, or both. However, research suggests gender differences in these tactics, such that men high in mate value tend to utilize more benefit-provisioning (e.g., public signals of possession) mate retention tools (Miner et al., 2009; Starratt, & Shackelford, 2012). Furthermore, both women and men may perform a variety of sexual activities associated with love and benefit-provisioning mate retention tactics (Kaestle, & Halpern, 2007; Pham, & Shackelford, 2013; Sela et al., 2015). Such actions could stimulate an ex-partner to reenter a relationship.

A mate-copying strategy. Breakup sex may also be beneficial to the extent that it enhances one's status and, in turn, increases one's attractiveness to other potential partners via mate-choice copying (Hill & Buss, 2008). Mate-choice copying, or mate copying, is a form of nondependent mating, where individuals selectively learn who would be a beneficial mate based on emulating the mate choices of people who are similar to themselves and held in high esteem (Place et al., 2010; Pruett-Jones, 1992). For example, research suggests that women who are partnered with a man who is attractive tend to be seen as a more desirable mate by other men (Moran & Wade, 2019). The evidence that women are mate-copied is much stronger. When a man is paired with a woman who is labeled as their romantic partner, other women tend to rate that man as more attractive, an effect also known as the desirability enhancement effect (Rodeheffer et al., 2016). Thus, people who engage in breakup sex with their ex may signal to others their quality as a potential partner.

Ultimate Versus Proximate Explanations of Breakup Sex

Sexual strategy theory (SST). One framework that may help explain why men and women engage in sexual contact with their ex-partner is SST (Buss & Schmitt, 1993), which posits that men and women differ in certain aspects of their mating

psychology due to the different recurrent adaptive problems faced by each sex (Trivers, 1972).

Long-term mating tends to be highly incorporated with parental investment. Long-term, committed relationships may be beneficial for both a man and woman because individuals can secure resources and increase survival of offspring (Buss & Schmitt, 1993). This similarity is furthermore exemplified in mate preferences, where men and women tend to be similar in preferences for long-term partners (Kenrick et al., 1990).

However, short-term mating orientations function differently. For example, because men do not have to carry a child for 9 months in utero, it may behoove them to follow a short-term mating orientation. Besides, men having a smaller amount of time investment, differences exist in preferences for short-term mating behaviors such that men express more favorable attitudes toward uncommitted sexual encounters—a difference, according to sexual strategies theory, that emerged due to sex differences in minimum obligatory parental investment (see., Trivers, 1972). Consistent with this, men also indicate preferences for more sexual partners than women and report needing to spend less time with a potential partner before being comfortable engaging in casual sex (Buss & Schmitt, 1993; Schmitt et al., 2001).

Men's greater preference for short-term mating does not imply that women do not benefit from, or prefer, short-term mating as well. Unlike men, however, women tend to especially favor quality over quantity when evaluating men as potential short-term mates (Greiling & Buss, 2000; Thornhill & Gangestad, 2008). Women throughout human evolutionary history have benefited from engaging in short-term mating in the forms of not just "good genes" from high-quality extra-pair mates but resource provisioning and social access (e.g., Scelza, 2011, 2013, 2014). Thus, women can similarly maintain short-term mating and long-term mating simultaneously.

Consequently, SST indicates that human mating strategies are pluralistic and can fluctuate through different contexts (Schmitt, 2015). In the context of breakup sex, distal explanations for this behavior suggest that its adaptive value may arise from sexual variety benefits, from uncommitted "good genes" benefits, for resource or status benefits, or any combination of these.

Proximate explanations. More proximate reasons also exist for engaging in breakup sex (which need not be mutually exclusive from the ultimate perspective above). One possible explanation for why men and women engage in sexual contact after a breakup is that it fulfills a desire for hedonistic excitement and sexual contact, a framework known as the "fiery limbo." An individual's fiery limbo is a stage where ex-partners may still experience sexual desire for one another (Birnbau & Finkel, 2015). This sexual desire is caused by the individual experiencing uncertainty in their sexual access and uncertainty with their ex-romantic partner, which could be causing their sexual desire (Birnbau, 2018). The relationship stage model of sexual desire posits five different stages of desire. The first stage is the unilateral awareness stage, where both people in the

relationship are aware of one another but not connected. The second stage is known as the surface contact that suggests that this is where participants begin to interact with one another. The third stage is known as the emerging relationship, where they begin to start their relationship. The fourth stage is known as the establish relationship, where partners in the relationship begin to maintain and start building intimacy. The fifth stage is known as the fiery limbo. This is the stage where sexual desire is unpredictable. Both partners are attracted to one another; however, they are no longer together. It is in the fiery limbo stage where sexual contact may appear.

This fiery limbo stage is exemplified when people try to pursue sex with an ex-romantic partner and tend to have success and report that the pursuit did not affect how well they recovered from the breakup (Spielmann et al., 2018). These findings parallel relational goal pursuit theory and suggests that an individual may link one's relationship with their partner with themselves. Thus, when a breakup occurs, they believe they can rekindle the relationship via sex or use sex to get over their partner (Cupach et al., 2011). The aforementioned research explicates that people tend to want to reach out to their ex for sex. These reasons expressed above suggest that the uncertainty and desire for a connection are proximate reasons for why men and women may contact their ex. Therefore, the reasons people are engaging in breakup sex and sex with an ex could be because they are uncertain of the future or that they miss being in a romantic relationship. Having sex with an ex and wanting to be with the person has been explored (see, Birnbaum & Finkel, 2015); however, these proximate and ultimate reasons mentioned above have yet to be explored in breakup sex research.

The Current Studies

The literature described above indicates that men and women come into contact with their exes for various reasons. However, there has yet to be an investigation on the specific postbreakup behavior known as breakup sex. Thus, this current set of studies investigated the motivating factors underlying breakup sex. Study 1 was an exploratory study that investigated participants who reported that they had previously engaged in breakup sex. In particular, Study 1 focused on how participants felt about their relationships before and after they had participated in breakup sex and how they felt about themselves. They were also asked to predict how they would feel and if they would have breakup sex in the future based on various scenarios (i.e., breakup initiator, the attractiveness of partner, and love). Study 2 was conducted to further understand the motivations underlying breakup sex and whether these motivations differed between men and women.

Study 1

Hypotheses

Sexual strategies theory (Buss & Schmitt, 1993) informed the hypotheses pertaining to how men and women might differ in

their retrospective and prospective breakup sex attitudes. For men, it was hypothesized that men would (1) be more likely to report feeling better about themselves after engaging in breakup sex. This hypothesis is based on men's desire for more mates and which in turn boosts their self-esteem (Hill & Preston, 1996; Leary & Downs, 1995; Meston & Buss, 2007).

Additionally, it was hypothesized that men would engage in breakup sex in the future regardless of whether (2) their partner was not attractive, (3) their partner terminated the relationship, (4) the termination of the relationship was mutual, (5) they broke up with their partner.

For women, it was hypothesized that breakup sex would be a tool for relationship maintenance based on the desire for emotional support (Buss & Schmitt, 1993), and thus (6) they would engage in breakup sex if they still loved their partner. This hypothesis is based on literature suggesting that women experience more sexual regret from sexual acts with the wrong person, whereas men have sexual regret for not engaging in sex (Galperin et al., 2013). Thus, women may believe that their ex-partner represents a suboptimal sexual choice, which may be a reason why they experience negative emotions. Consequently, it was also hypothesized that (7) women may engage in behaviors that they normally would not do during sex as a mate retention strategy and (8) use breakup sex to show their partner what he could be missing (Sela et al., 2015).

Study 1: Method

Participants

Participants were 212 college students from a private northeastern university, who—based on our definition of breakup sex—had engaged in breakup sex (male = 77, female = 135) ages 18–58, $M = 21.12$, $SD = 5.07$. Participants identified as 87.4% White, 3.3% as Black, 2.3% as Asian, 3.7% as Latinx, and 1.4% identified as Other. All of the participants reported having engaged in sexual intercourse. When asked if the participant was in a long-term committed relationship, over half of the sample reported being single (59.5%), and 40.5% were currently in a committed long-term relationship. Ninety-five percent of our sample identified as heterosexual while 4.5% identified as homosexual and 0.5% as other. All of the participants reported having participated in breakup sex.

Materials and Procedure

This study was carried out in accordance with the university's institutional review board. All subjects were given an informed consent and could end the experiment at any time. An email was randomly sent to 250 students of a private northeastern university. The email asked the undergraduate student if they would like to participate in a voluntary short psychology survey about sexual relationships. The email contained a link to a Qualtrics survey. After clicking on the link and reading the consent form, the participants were given our definition of

Table 1. Gender Differences for 11 Breakup Sex Questions.

Questions	Men M (SD)	Women M (SD)
1. How was your relationship before you had breakup sex	3.52 (1.29)	3.41 (1.37)
2. How was your relationship after you had breakup sex	3.04 (1.27)	3.58 (1.38)**
3. How did you feel after	4.88 (1.75)***	3.51 (1.68)
4. I would have breakup sex with someone less attractive than me	4.51 (1.98)*	3.95 (1.67)
5. I would have breakup sex if my partner broke up with me	4.69(1.76)***	3.78 (1.83)
6. I would have breakup sex if it was mutual	5.55 (1.38)**	4.88 (1.63)
7. I would have breakup sex if I broke up with my partner	4.71 (1.77)**	3.97 (1.77)
8. I would have breakup sex if I still loved my partner	5.81 (1.55)	5.60 (1.51)
9. I would partake in sexual behaviors I normally wouldn't	4.08 (1.80)***	3.07 (1.74)
10. I would use breakup sex a tool to show them what they were missing	3.91 (2.24)	4.04 (2.03)
11. I would feel bad after having breakup sex	3.34 (1.83)	4.41 (1.73)***

* $p < .05$. ** $p < .005$. *** $p < .001$.

breakup sex. Participants were asked to respond yes, no, or I am not sure to the following question:

Have you ever engaged in breakup sex, with an ex-romantic partner? We define breakup sex as sexual intercourse with an ex-romantic partner who the individual was in a long-term committed relationship with. However, the relationship was terminated and sexual intercourse happened after the termination, but no longer than 2 weeks after the termination.

If they responded that they hadn't participated in breakup sex, they were directed to the end of the survey and thanked for their time. If they responded yes, they were then instructed to fill out the survey.

This survey was created by the research team in order to begin to understand the psychology of breakup sex. This study was strictly exploratory in nature, and the 11 items were developed by the research team to investigate whether men and women differ in their experiences of breakup sex. The 11 items were separated into a retrospective portion, which consisted of 3 items, and a prospective portion which consisted of 8 items. The validity of the items was established, via face validity, by focusing on prior research examining how men and women might differ in their past experiences in their last relationships in which they had breakup sex. Thus, the research team created 11 items with the hope that they could paint a more global picture of how people are affected by breakup sex. Once participants completed the 11 items, they were presented with the Marlowe–Crowne Social Desirability Scale Short Form (MCSD-SF) and a demographic questionnaire. They were then debriefed.

Retrospective items. Once participants agreed to the consent form, they were instructed to “Please think of the last relationship in which you had breakup sex. We are interested in how the relationship was and how you felt after participating in breakup sex.” After reading the directions, the participants were presented with 3 items, which used a 1 (*not at all good*) to 7 (*very good*) Likert-type scale to evaluate how participants felt in previous relationships when they had breakup sex. An

example of an item is, “How was your relationship after you had breakup sex.” Table 1 displays a list of the questions. These items were generated by the authors to gain an understanding of whether there are sex differences present in the perception of the relationship before engaging in breakup sex and whether men and women differ in their feelings after engaging in breakup sex.

Prospective items. After answering questions about their previous feelings regarding engaging in breakup sex, participants were directed to items—that were generated by the researcher team—to understand other situations that would lead participants to have breakup sex. These items represented certain scenarios that may occur (i.e., having breakup sex if my partner broke up with me). Specifically, the participants were instructed to “Please answer the following items in regard to your future involvement in breakup sex.” After reading the directions, the participants were presented with 8 items which used a 1 (*strongly disagree*) to 7 (*strongly agree*) Likert-type scale. An example of an item is, “I would have breakup sex if I still loved my partner.” Table 1 displays a list of the questions.

MCSD-SF. The MCSD-SF is designed to control for socially desirable response biases. The scale is a 10-item survey that ask participants to respond to items using a true or false item response. Items include “It is sometimes hard for me to go on with my work if I am not encouraged” and “I sometimes feel resentful when I don't get my own way” (Strahan & Gerbasi, 1972).

Study 1: Results

A 2 (Long-term Relationship History) \times 11 (Breakups Sex Questions) mixed-model repeated measures multivariate analysis of covariance (MANCOVA) was performed with the social desirability score included as a covariate. The MANCOVA was not significant, $F(11, 119) = .847, p = .584, \eta^2 = .041$, and revealed that social desirability did not have an effect, $F(11, 119) = .979, p = .463, \eta^2 = .047$.

A 2 (Current Relationship Status) \times 11 (Breakup Sex Questions) mixed-model repeated measures MANCOVA revealed no significant effects, $F(11, 119) = .678, p = .759, \eta^2 = .036$, and social desirability, $F(11, 119) = .766, p = .671, \eta^2 = .041$, played no role.

Last, a 2 (Gender) \times 11 (Breakup Sex Questions) mixed-model repeated measures MANCOVA with the social desirability score included as the covariate revealed a significant multivariate effect for gender, $F(11, 199) = 5.91, p = .001, \eta^2 = .25$. Once again, the social desirability covariate was not significant, $F(11, 199) = .713, p = .725, \eta^2 = .04$. Univariate effects associated with the overall multivariate effect for gender revealed significant gender effects for 8 of the 11 questions. The three questions that did not show gender differences were as follows: "How was your relationship before breakup sex," $F(1, 212) = .411, p = .522, \eta^2 = .002$, "I would have breakup sex if still loved them," $F(1, 212) = .918, p = .339, \eta^2 = .004$, and "I would have breakup sex to show the person what they are missing," $F(1, 212) = .263, p = .608, \eta^2 = .001$.

The eight questions that showed significant gender differences were as follows: "How was your relationship after breakup sex occurred," $F(1, 212) = 8.394, p = .004, \eta^2 = .04$, "How did you feel after breakup sex," $F(1, 212) = 31.344, p = .001, \eta^2 = .13$, "I would have breakup sex with someone who was less attractive than me," $F(1, 212) = 4.781, p = .030, \eta^2 = .022$, "I would have breakup sex with someone who broke up with me," $F(1, 212) = 12.385, p = .001, \eta^2 = .056$, "I would have breakup sex with someone if the breakup was mutual," $F(1, 212) = 8.712, p = .004, \eta^2 = .040$, "I would have breakup sex if I broke up with my partner," $F(1, 212) = 8.397, p = .004, \eta^2 = .039$, "I would participate in sexual behaviors I normally wouldn't," $F(1, 212) = 15.268, p = .001, \eta^2 = .068$, and "I would feel bad about myself after having breakup sex," $F(1, 212) = 17.503, p = .001, \eta^2 = .077$ (see Table 1). Table 1 displays the means and standard deviations for the aforementioned questions for men and women. As can be seen from the table, men tend to be receptive to breakup sex regardless of the relevant factors involved (i.e., partner attractiveness or who initiated the breakup), whereas women tend to report that they feel worse after engaging in breakup sex.

Study 1: Discussion

Study 1 was conducted to understand how individuals feel when they have engaged in breakup sex and to understand how they might feel about it in the future. The 11 items were further used to assess whether there were gender differences between men and women. Results revealed that men, more than women, reported greater receptivity to breakup sex regardless of the extraneous factors in the relationship (e.g., differences in mate value, who initiated the breakup).

There was no gender difference regarding whether individuals would have breakup sex if they loved their partner. However, unexpectedly, men more than women reported that they would participate in sexual behaviors they normally would not engage in. This engagement in atypical/less frequent sexual

behavior may reflect a mate retention tactic since research indicates that men perform oral sex as a benefit-provisioning mate retention tactic (Pham & Shackelford, 2013). Thus, performing sexual behaviors they normally would not do could be an indicator of mate retentive behaviors.

The hypotheses that women would rate feeling bad about themselves was supported. This finding could be due to women's sexual regret when participating in a one-time sexual encounter (Eshbaugh & Gute, 2008; Galperin et al., 2013). These findings are contrary to the popular media idea that breakup sex is good for both men and women. These results suggest that between men and women, men feel best after breakup sex and would have breakup sex for some different reasons than women would.

Study 2

The second study was conducted to understand why men and women engage in breakup sex and to further understand this postbreakup behavior. An act nomination procedure was employed, asking participants why would they participate in breakup sex. This methodology has been used in prior research to ascertain the many reasons why men and women have sex (Meston & Buss, 2007). This type of methodology has also been used to understand sexual behaviors in previous studies focusing on love acts, mate poaching, flirting, and reconciliation (Buss, 1988; Moran & Wade, 2017; Wade et al., 2009, 2017). We hypothesized that the most popular reasons for having breakup sex would have to do with missing the ex-partner, missing sexual activity more generally, and obtaining closure.

Method: Phase I

Participants

Participants ($N = 92$, 58 women) ages 18–34, $M = 19.94, SD = 2.07$, were recruited from a northeastern university. The sample was 91.0% White, 3.0% Black, 4.0% Latinx, and 1.0% Asian. A majority of the sample had been in long-term relationships (88.0%), and 92.4% had sexual intercourse before. All of the participants identified as heterosexual.

Materials and Procedure

This study was carried out in accordance with the university's institutional review board. All subjects were given an informed consent and could end the experiment at any time. An email was sent to students at a private northeastern university. The email contained a link to a Qualtrics survey. After clicking on the link and reading the consent form, the participants were given our definition of breakup sex. Via an online questionnaire, participants were instructed to

Please list all the reasons you can think of why you, or someone you have known, engaged in breakup sex in the past. We define breakup sex as sexual intercourse with an ex-romantic partner who the individual was in a long-term committed relationship

with. However, the relationship was terminated and sexual intercourse happened after the termination, but no longer than 2 weeks after the termination. Please list as many reasons as possible.

Participants then answered a demographic questionnaire about their age, gender, race, and sexual orientation. Once that was completed, they were debriefed.

Phase I: Results

A total of 292 reasons were nominated. Two undergraduate research assistants, who were blind to the goal of the study, were instructed to condense the list separately. The reasons given that were similar were combined, and the initial list was narrowed down to 52 reasons, which is standard practice in act nomination methodology (see Buss, 2016). The research assistants were instructed to include all reasons that were nominated based on Meston and Buss's (2007) methodology. Table 2 presents the reasons nominated by participants. The top three nominated reasons were "sex is fun" (29 nominations), while "I miss sex" was second with 26 nominations and "want to get back together" was third with 23 nominations. These nominations were largely consistent with initial hypotheses. Surprisingly, closure was not ranked among the top reasons for engaging in breakup sex. "I wanted closure" instead ranked 10th with only 11 nominations.

Informed by this act nomination, a survey was created to assess the perceived likelihood that the nominated acts would be used (i.e., are reasons for having breakup sex). For this second phase of this study, it was hypothesized that men and women would differ on the reasons for having breakup sex.

Hypotheses

It was hypothesized that men would rate items that are due to physical attraction and the ease of sex as higher due to their desire for sexual access, following SST (Buss & Schmitt, 1993), while women would rate items regarding love and emotional connections higher, also consistent with SST (Buss & Schmitt, 1993), and prior research (Buss, 1989; Haselton & Buss, 2000).

Method: Phase 2

Participants

Participants were recruited through Amazon's Mechanical Turk during the fall of 2017 and were paid US\$0.25. A total of 700 participants were recruited; however, the final analytical sample consisted of 585 (women = 311) participants because some failed to complete the survey, failed the attention check, or did not identify as heterosexual. The ages ranged from 18 to 76, $M = 32$, $SD = 9.55$. Participants identified as 75.0% White, 9.6% as Black, 8.4% as Asian, 4.6% as Latinx, 0.5% as Native American, and 1% identified as Other. The sample consisted of 98% of people who had sexual intercourse before and 97.6%

Table 2. Nominated Reasons for Participating in Breakup Sex in Study 2, Phase I.

No.	Reasons to Have Breakup Sex	Frequency
1.	Sex is fun	29
2.	Miss Sex	26
3.	Want to get back together	23
4.	You miss them/miss each other	14
5.	Lonely	12
6.	Still have feelings	12
7.	Knows what the other likes	11
8.	Drunk	11
9.	Still in love	11
10.	Closure	11
11.	You're comfortable with the ex	11
12.	Sexual tension	10
13.	Show them what they are going to be missing	10
14.	Can't move on	8
15.	Final goodbye	8
16.	Passion	6
17.	Bored	6
18.	To feel better/sadness/fill emotional void	6
19.	Try to get over the person	5
20.	Don't want to add to body count	5
21.	Hatred/anger	5
22.	It is easy	4
23.	Have sex for the last time	4
24.	Broke up for reasons other than feelings	3
25.	See if there are still feelings	3
26.	Because you can	3
27.	Stress	3
28.	Regret the breakup	3
29.	View them sexually/physical relationship now	2
30.	Longing	2
31.	Needy/satisfy needs	2
32.	Get back on the market	2
33.	Exciting/thrilling	2
34.	To take back power in situation	1
35.	Curiosity	1
36.	To tell people that you did	1
37.	Didn't mutually end relationship	1
38.	Needs attention	1
39.	Other people do it	1
40.	No STD risk	1
41.	Confidence	1
42.	Think they are your best option	1
43.	Opportunity came up	1
44.	Feel connection again	1
45.	Feel love	1
46.	Desperate	1
47.	Forget about breaking up	1
48.	Afraid to seek out new relationship	1
49.	Confusion about breakup	1
50.	Better than before	1
51.	They act like they miss you	1
52.	No idea	1

Note. Higher numbers mean that the action was nominated more often.

who stated that they had been in a long-term relationship. About third of the sample identified as single (30.4%). All of the participants were heterosexual, and 81.5% of the sample had participated in breakup sex in the past.

Materials and Procedure

After participants filled out a demographic survey, they were instructed to do as follows:

People have breakup sex (i.e., sexual intercourse with an ex-romantic partner) for many reasons. We define breakup sex as sexual intercourse with an ex-romantic partner that occurred no more than 2 weeks after the termination of the relationship. Please indicate how frequently each of the following reasons led you to have breakup sex in the past. For example, if about half of the times you engaged in breakup sex you did so because “you were bored,” then you would choose “3.” *If you have not had breakup sex in the past, use the following scale to indicate what the likelihood that each of the following reasons would lead you to have breakup sex.*

The items were rated on scale of 1–5. These instructions are similar to the second phase of Meston and Buss’ (2007) research investigating men and women’s reasons for having sex. After participants rated the reasons, they were compensated and debriefed.

Phase 2: Results

An exploratory factor analysis (EFA) was conducted to investigate the latent factor structure of the survey items. This initial EFA (using maximum likelihood extraction and a nonrotated solution) of the 52 “why breakup sex” items yielded nine factors with eigenvalues greater than 1; however, visual examination of the scree plot implied a clear three-factor solution, accounting for 44.2% of the variance in reasons for having breakup sex. After the decision to limit the factors to three, a three-factor solution with a final maximum likelihood EFA and direct oblimin rotation to ensure the items were not orthogonal was forced. The Kaiser–Meyer–Olkin test revealed final EFA was 0.94 and the Bartlett’s test of sphericity was significant, $\chi^2(1,326) = 12,569.46, p < .001$. The restriction to three factors revealed a significantly better model fit than a one-factor solution: $\chi^2(1,173) = 2,543.26, p < .001$. However, not all items loaded onto one of these three factors. We thus dropped 6 items (see Table 3, also see the Supplemental Material for a table showing scores for men and women on each individual item). Table 3 displays the factor loadings of the 52 items. The criterion to omit items was based on previous research that suggests that in order for items to be considered similar, their loadings must be larger than .32 (Tabachnick & Fidell, 2007).

Inspecting the items differentially loading onto each of the three extracted factors revealed that they each captured unique underlying motivations for engaging in breakup sex (see Table 3). The first factor—labeled relationship maintenance—was comprised of 18 items that assess the emotional aspect of having breakup sex and the need for their ex-partner. The second factor—labeled hedonistic—was comprised of 12 items pertaining to the physical characteristics of having breakup sex. The third factor—labeled ambivalent feelings—was comprised of 16 items that represented mixed feelings and

contradictory views of participating in breakup sex. The reliabilities for each of these composites were as follows: relationship maintenance $\alpha = .97$, hedonistic $\alpha = .88$, and for ambivalence $\alpha = .88$. Creating mean composites for each of the factors revealed that they were only modestly correlated: The correlation between relationship maintenance and hedonism was $r = .26$, the correlation between relationship maintenance and ambivalence was $r = .32$, and the correlation between hedonism and ambivalence was $r = .36$.

These three mean composites were next entered as outcome variables in a MANCOVA. Participant gender and participation in breakup sex (yes/no) and their interaction were entered as predictors, and long-term relationship history and current relationship status were entered as covariates. Results of this analysis revealed that the covariates were not significant: long-term relationship status of the participant, $F(3, 574) = .483, p = .694, \eta^2 = .003$, and current relationship status, $F(3, 574) = 1.33, p = .263, \eta^2 = .007$. The 2 (Gender) \times 2 (Participated in Breakup Sex) interaction was also nonsignificant, $F(3, 572) = 1.61, p = .187, \eta^2 = .008$. However, a multivariate main effect of gender emerged, $F(3, 572) = 8.40, p < .001, \eta^2 = .042$. Investigating the univariate main effects of gender revealed two significant effects: hedonistic, $F(1, 574) = 21.30, p < .001, \eta^2 = .036$, and ambivalent, $F(1, 574) = 8.42, p = .004, \eta^2 = .014$. There was no significant main effect of gender on the Relationship Maintenance subscale, $F(1, 574) = .576, p = .41, \eta^2 = .001$. Full details of these analyses are shown in Table 4. Table 4 also shows that these significant main effects were due to men giving higher ratings than women.

A multivariate main effect for whether or not the participant engaged in breakup sex also emerged, $F(3, 572) = 30.66, p < .001, \eta^2 = .139$. This effect was driven by significant univariate main effects on each of the scales: Relationship Maintenance, $F(1, 574) = 6.32, p = .012, \eta^2 = .011$, Hedonistic, $F(1, 574) = 84.76, p < .001, \eta^2 = .129$, and Ambivalent, $F(1, 574) = 7.27, p = .077, \eta^2 = .013$. As shown in Table 4, people who had engaged in breakup sex gave higher ratings for each of the subscales.

Study 2: Discussion

Study 2 was designed to begin to better understand why individuals engage in breakup sex. Unsurprisingly, individuals who had participated in breakup sex more favorably rated the reasons to have breakup sex relative to those who had not participated in breakup sex. This hypothesis was supported. These findings may be highlighting a confirmation bias (Nickerson, 1998), where the participants who had engaged in breakup sex are endorsing their past behavior to otherwise make themselves feel better.

Our main hypotheses pertained to differences between men and women in reasons for engaging in breakup sex. It was hypothesized that men would be more likely to indicate reasons pertaining to hedonism and ambivalence relative to women. This hypothesis was supported and is consistent with prior research indicating that men tend to desire quantity of sex over

Table 3. Factor Loadings for the Items in the Why Breakup Sex Scale.

No.	Reasons to Have Breakup Sex	Factor 1: Relationship Maintenance	Factor 2: Hedonistic	Factor 3: Ambivalence
1.	Still in love	.86	-.04	-.10
2.	Still have feelings	.84	.04	-.15
3.	Miss them	.82	.10	-.14
4.	Wanted to get back together	.80	-.10	.00
5.	Regret the breakup	.77	-.10	.06
6.	Feel a connection again	.74	.14	-.01
7.	Feel love	.71	-.02	.09
8.	Can't move on	.70	-.06	.10
9.	See if there are still feelings	.63	.04	.09
10.	There was a longing	.56	.38	-.09
11.	There was passion	.51	.45	-.22
12.	Confusion about breakup	.49	-.09	.26
13.	I am lonely	.47	.10	.21
14.	Didn't mutually end relationship	.46	-.06	.29
15.	They act like they miss me	.46	.28	.04
16.	To feel better	.40	.35	.14
17.	I need attention	.40	.16	.27
18.	Afraid to seek out new relationship	.40	.00	.26
19.	Miss sex	-.11	.76	.00
20.	Opportunity came up	.00	.75	-.00
21.	Satisfy my needs	-.04	.74	.01
22.	It is easy	-.15	.70	.04
23.	Because I could	-.21	.68	.18
24.	It is exciting	.15	.64	-.02
25.	Comfortable with my ex	.28	.55	-.20
26.	Knows what the other likes	.20	.52	.05
27.	No STD risks	-.08	.48	.12
28.	Sexual tension	.27	.45	.03
29.	Sex is fun	.15	.45	.16
30.	Better than before	.13	.36	.27
31.	Other people do it	-.07	.00	.69
32.	To tell people I did it	-.01	-.13	.68
33.	Get back on the dating market	-.03	.04	.65
34.	To have hate sex	-.07	.12	.64
35.	Trying to get over the ex	.02	.07	.57
36.	I was bored	-.20	.27	.53
37.	I was desperate	.20	-.01	.51
38.	I was curious about breakup sex	.02	.29	.49
39.	To forget about the breakup	.31	-.03	.48
40.	Only view my ex sexually	-.32	.25	.47
41.	I wanted to take power back from the breakup	.20	.07	.46
42.	I wanted confidence	.28	.10	.42
43.	Show the ex what they were missing	.18	.19	.40
44.	I have no idea	.03	-.10	.39
45.	I was stressed	.27	.17	.38
46.	Didn't want to add to my body count (sex count)	.20	-.02	.35
Reason with no loading				
47.	I was drunk	.05	.12	.32
48.	I wanted closure	.34	.03	.30
49.	It was a final goodbye	.03	.22	.29
50.	Have sex one last time	.09	.29	.24
51.	Broke up for other reasons than feelings	.27	-.08	.28
52.	Think they are the best option	.31	.26	.19

Note. Item loadings along with their corresponding factor. An item was considered to be loaded on one factor if its loading was .32 or higher. Values in bold represent factor with which the item was included.

Table 4. Gender Differences and Previous Breakup Sex Experiences Means.

	Men M (SD)	Women M(SD)	Have Had Breakup Sex M(SD)	Have not Had Breakup Sex M(SD)
Relationship Maintenance	2.81 (.90)	2.83 (.99)	2.87 (.91)*	2.58 (1.1)
Hedonism	3.43 (.76)***	3.10 (.94)	3.41 (.75)***	2.56 (1.1)
Ambivalence	2.30 (.82)**	2.10 (.72)	2.23 (.74)**	1.99 (.84)

Note. Higher numbers mean more higher ratings for that subscale, standard deviations in parentheses.

* $p < .05$. ** $p < .010$. *** $p < .001$.

quality in a potential mate (Buss & Schmitt, 1993). Specifically, reporting higher instances of having breakup sex based on hedonistic or ambivalent reasons might highlight a short-term sexual attitude.

Men rated items pertaining to hedonism higher than women did. This is consistent with previous research suggesting that cross-culturally, men tend to place higher priority on hedonistic-type values relative to women (Schwartz & Rubel, 2005). Although men and women rate enjoying sex equally (Baumeister et al., 2001), sexual strategies theory and parental investment perspectives suggest that engaging in breakup sex for purely hedonistic reasons may be more costly for women than men (Buss, 1995).

Men also rated ambivalence as a reason to have breakup sex higher than women did. The items that loaded on this subscale do not represent “not wanting to have sex,” rather they reflect reasons that have no effect on the individual and represent a *laissez-faire* attitude toward sex. Thus, men more often than women rate having sex to increase their reproductive success. Men’s *laissez-faire* attitude would facilitate their ability to have sex with multiple partners. This ambivalence is also reflected in men’s condom use. When men are ambivalent toward sex, there is a negative relationship between using condoms and planning to have sex (MacDonald & Hynie, 2008). Research also suggests that men are less attracted to their partner after sexual intercourse (Haselton & Buss, 2001), which could also contribute to this ambivalent feeling. This ambivalence also reflects the asymmetries in men and women’s reproduction. Women need to be the choosier sex because if they were to not care whom they were having sex with, they may end up pregnant with and by an unsuitable mate (Trivers, 1972). Ultimately, this “do not care” attitude toward having breakup sex reflects men’s short-term mating psychology.

Furthermore, it was also hypothesized that women would rate relationship maintenance reasons as motivating factors more frequently than men. This prediction was not supported. It was also hypothesized that women would have breakup sex due to emotional aspects because women tend to value emotional aspects of a relationship (Buss, 1989; Haselton & Buss, 2000). Since emotional support and intimacy tend to predict sexual satisfaction for women, we hypothesized that the relationship maintenance aspects would also lead to women’s desire to have breakup sex (Yoo et al., 2014). However, the results did not support that hypothesis. This could be due to the fact that both men and women experience psychological

distress during a breakup. Both individuals may perceive that having breakup sex due to a drive to be connected to one another and for emotional intimacy may make them feel better. This null gender difference is consistent with theoretical motivations for engaging in rebound sex, where having sex makes individuals’ well-being increase (Barber & Cooper, 2014). Rebound or revenge sex occurs when an individual who recently broke up with a partner has sex with another individual after that breakup as a coping strategy. Individuals who have been broken up with tend to report feeling better about themselves after having rebound or revenge sex and report that having sex with someone else allowed them to cope (Barber & Cooper, 2014). Thus, men and women may have similar emotional mechanisms motivating the choice to engage in breakup sex.

This nonsignificant finding for the relationship maintenance factor could also be explained by SST (Buss & Schmitt, 1993). Because men and women can have pluralistic mating strategies—utilizing both a long- and a short-term mating strategy—men and women might both feel that engaging in breakup sex could be a way to rekindle their relationship. That action could assist the continuation of their long-term mating opportunity. The gender difference between men and women regarding why they engage in breakup sex sheds information on their evolved mating strategies; however, there may be other evolutionary reasons for why men and women engage in breakup sex.

Other Evolutionary Explanations of Breakup Sex

In this study, the framework of SST was utilized to help explain why men and women engage in breakup sex. However, some other evolutionary-inspired hypotheses or frameworks might also be useful to understand this postbreakup behavior further.

Mate switching. An additional evolutionary framework that may predict why men and women engage in having sexual contact with an ex could involve the potential for mate switching (Buss et al., 2017). The mate switching hypothesis deals with individuals leaving one mate and beginning to enter into another relationship. This decision to end the relationship could be due to the fact a member of the relationship has lost interest in the other and thus has no sexual desire for that individual which could function as a way to detach from the partner (Birnbbaum, 2018; Buss et al., 2017). Thus, engaging in sexual contact with an ex and engaging in breakup sex could be the first step of a

mate switching strategy, where a man or woman has lost interest and ended a relationship but before switching with to a new partner engages in sex one last time.

Under this mate switching strategy, breakup sex could function as a way for men and women to sequester their mate before they begin a new relationship (Buss et al., 2017). This line of thinking needs empirical verification, but a study investigating motives for engaging in breakup sex to keep someone occupied while one finds a new mate could be a fruitful line of research.

By-product perspectives. A more mundane explanation could simply be that engaging in breakup sex is psychologically represented in the same way as any other type of sexual activity and is thus a by-product of typical sexual intercourse. For example, Meston and Buss (2007) provide researchers with a catalog of reasons why men and women engage in sexual intercourse. Many of their top reasons coincide with the reasons listed in why men and women engage in breakup sex (e.g., It's fun, I wanted to feel connected to my partner [again]). Thus, breakup sex could simply be couples enjoying sex with one another. Although using the operationalized definition of breakup sex in the current research, one could argue that there may be more negative emotions when engaging in sexual intercourse with someone who ended the relationship. Future work should begin to investigate how sexual intercourse within a relationship, breakup sex, and ex-sex are similar and different from one another and how the experiences of these different types of relationships are similar and different.

Another nonadaptively based explanation for the current pattern of results is that they are at least partly due to environmental mismatch. Goetz and colleagues (2019) explain that when studying human mating, understanding the environmental mismatch of today's society and our ancestral past is important to understanding mating motives. For example, a feature of current human mating is the possibility of transient relationships, wherein men and women can engage in sexual intercourse and can never come into contact with their partner ever again (Goetz et al., 2019). Thus, the current environment may promote this postbreakup behavior because the couple may never come into contact with each other again, thus engaging in breakup sex may be less costly. This hypothesis may be supported by the gender difference obtained for the hedonistic factor of engagement in breakup sex. Men's evolved various short-term mating strategies and the environmental mismatch with temporary relationships might be the two forces driving this motive to engage in breakup sex (Buss & Schmitt, 1993).

A proximate explanation. Engaging in breakup sex could be the result of ending a relationship. For example, the relationship stage model of sexual desire (Birnbaum & Finkel, 2015) suggests that sometimes couples enter into a fiery limbo where uncertainty might mediate the desire to engage in sex. When a couple terminates their relationship and experiences uncertainty, this uncertainty could lead to them to engage in breakup sex. One of the factors that men scored higher on was the

ambivalent factor. This motivation to engage in breakup sex which aligns with this fiery limbo stage could result in breakup sex being a by-product of ending a relationship. There is limited research on whether men and women differ during this fiery limbo stage of a relationship. Thus, future work should begin to focus on how this proximate explanation may also produce motives for breakup sex.

Future Directions and Limitations

The present studies were conducted to investigate an unexplored avenue of research within ex-sex research, specifically to understand how individuals feel about and why they engage in, breakup sex. Although these findings are novel, there are several issues that should be addressed in future research. First, participants were mainly White individuals from the United States. Future research should begin to examine whether this postbreakup behavior is an American phenomenon, and the extent to which other cultures throughout the world engage in this postbreakup behavior. Understanding this postbreakup in non-WEIRD (Western, Educated, Industrialized, Rich, and Democratic) societies is of particular importance. Although traditional societies like the !Kung San and the Ache broke up with romantic partners (Hill & Hurtado, 1996; Howell, 1976), in other societies, where individuals having multiple committed partners is culturally sanctioned, people may be more likely to simply turn attention to a different mate instead of breaking up (Henrich et al., 2012). Future research should attempt to further understand these differences to gain a more nuanced understanding of the influence of culture on human mating psychology.

The current samples were also disproportionately comprised of women. Although this is common in psychological research using college students (Dickinson et al., 2012), the results may look differently if there were more men in the sample which might have led to greater variation in the men's responses. It should be noted that much of human mating research focuses on how men and women differ in the ways they attract and compete for mates (Puts, 2016); therefore, future work on breakup should try to obtain a balanced sample of men and women in order to truly understand how men and women differ.

Next, future studies should further empirically differentiate the difference between breakup sex and ex-sex. In this current set of studies, the research team decided the temporal difference between breakup sex and ex-sex; however, this time period may not be the most adequate for capturing the difference between breakup sex and ex-sex. However, there must be a difference because of the time ex-partners spend apart and the feelings they may be experiencing when engaging in breakup sex or ex-sex. Relationship scientists should begin to try to understand if the motivations between break up sex and ex-sex function similarly.

A more diverse suite of individual differences should also be assessed in regard to understanding when and for whom breakup sex occurs. For example, researchers should

investigate the personality correlates of participation in breakup sex (John & Srivastava, 1999). Future work can also focus on how the perceived (or implicit) costs and benefits of engaging in breakup sex lead men and women to participate in breakup sex. It is well-documented that men and women assess costs and benefits when engaging in short-term and long-term relationships. Thus, men and women may be assessing these costs and benefits of breakup sex as well (Buss & Schmitt, 1993). An additional study should also look at the individuals' well-being after breakup sex and the stress that it may cause since research suggests that hookups may affect well-being (Vrangalova, 2015). Although Study 1 investigated how the individuals felt before and after breakup sex occurred, we did not measure the well-being of the participants nor did we measure the stress that the participants experienced.

Conclusion

Breakup sex has recently been publicized by the popular media as a beneficial behavior. However, understanding this post-breakup behavior scientifically is important and opens up several avenues for further research. Researchers interested in romantic relationships and postbreakup behavior should begin to further examine breakup sex. Due to its popularity in the media, individuals may believe that breakup sex is something they should participate in. However, the present results suggest otherwise. Deciding to engage in breakup sex involves a complicated stage in one's relationship and may disproportionately benefit men. Future research should further to investigate the nuances of how and why this postbreakup behavior occurs.


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.

ORCID iD

James B. Moran  <https://orcid.org/0000-0002-2707-0477>

Supplemental Material

Supplemental material for this article is available online.

References

- Barber, L. L., & Cooper, M. L. (2014). Rebound sex: Sexual motives and behaviors following a relationship breakup. *Archives of Sexual Behavior, 43*(2), 251–265.
- Baumeister, R. F., Catanese, K. R., & Vohs, K. D. (2001). Is there a gender difference in strength of sex drive? Theoretical views, conceptual distinctions, and a review of relevant evidence. *Personality and Social Psychology Review, 5*, 242–273.
- Birnbaum, G. E. (2018). The fragile spell of desire: A functional perspective on changes in sexual desire across relationship development. *Personality and Social Psychology Review, 22*(2), 101–127.
- Birnbaum, G. E., & Finkel, E. J. (2015). The magnetism that holds us together: Sexuality and relationship maintenance across relationship development. *Current Opinion in Psychology, 1*, 29–33.
- Buss, D. M. (1988a). From vigilance to violence: Tactics of mate retention in American undergraduates. *Ethology and Sociobiology, 9*(5), 291–317.
- Buss, D. M. (1988b). Love acts: The evolutionary biology of love. In R. J. Sternberg & M. L. Barnes (Eds.), *The psychology of love* (pp. 100–118). Yale University Press.
- Buss, D. M. (1989). Sex differences in human mate preferences: Evolutionary hypotheses tested in 37 cultures. *Behavioral and Brain Sciences, 12*(1), 1–14.
- Buss, D. M. (1995). Psychological sex differences: Origins through sexual selection. *American Psychologist, 50*, 164–168.
- Buss, D. M. (2016). Act nomination method. In *Encyclopedia of Evolutionary Psychological Science* (1–3).
- Buss, D. M., Goetz, C., Duntley, J. D., Asao, K., & Conroy-Beam, D. (2017). The mate switching hypothesis. In T. K. Shackelford & V. A. Weekes-Shackelford (Eds.), *Personality and Individual Differences* (Vol. 104, pp. 143–149).
- Buss, D. M., & Schmitt, D. P. (1993). Sexual strategies theory: An evolutionary perspective on human mating. *Psychological Review, 100*(2), 204–232.
- Choo, P., Levine, T., & Hatfield, E. (1996). Gender, love schemas, and reactions to romantic break-ups. *Journal of Social Behavior and Personality, 11*(5), 143–160.
- Cupach, W. R., Spitzberg, B. H., Bolingbroke, C. M., & Tellitocci, B. S. (2011). Persistence of attempts to reconcile a terminated romantic relationship: A partial test of relational goal pursuit theory. *Communication Reports, 24*(2), 99–115.
- Dailey, R. M., Hampel, A. D., & Roberts, J. B. (2010). Relational maintenance in on-again/off-again relationships: An assessment of how relational maintenance, uncertainty, and commitment vary by relationship type and status. *Communication Monographs, 77*(1), 75–101.
- DeLecce, T., & Weisfeld, G. (2015). An evolutionary explanation for sex differences in nonmarital breakup experiences. *Adaptive Human Behavior and Physiology, 2*, 234–251.
- Dibble, J. L., Drouin, M., Aune, K. S., & Boller, R. R. (2015). Simmering on the back burner: Communication with and disclosure of relationship alternatives. *Communication Quarterly, 63*, 329–344.
- Dickinson, E. R., Adelson, J. L., & Owen, J. (2012). Gender balance, representativeness, and statistical power in sexuality research using undergraduate student samples. *Archives of Sexual Behavior, 41*(2), 325–327.
- Emery, L. R. (2016, January 22). *6 Things no one tells you about breakup sex*. *Bustle*. <https://www.bustle.com/articles/136993-6-things-no-one-tells-you-about-breakup-sex>
- Eshbaugh, E. M., & Gute, G. (2008). Hookups and sexual regret among college women. *The Journal of Social Psychology, 148*(1), 77–90.
- Field, T., Diego, M., Pelaez, M., Deeds, O., & Delgado, J. (2009). Breakup distress in university students. *Adolescence, 44*(176), 705–727.

- Galperin, A., Haselton, M. G., Frederick, D. A., Poore, J., von Hippel, W., Buss, D. M., & Gonzaga, G. C. (2013). Sexual regret: Evidence for evolved sex differences. *Archives of Sexual Behavior, 42*(7), 1145–1161.
- Goetz, C. D., Pillsworth, E. G., Buss, D. M., & Conroy-Beam, D. (2019). Evolutionary mismatch in mating. *Frontiers in Psychology, 10*. <https://doi.org/10.3389/fpsyg.2019.02709>
- Greiling, H., & Buss, D. M. (2000). “Women’s sexual strategies: The hidden dimension of short-term mating.” *Personality and Individual Differences, 28*, 929–963.
- Halpern-Meekin, S., Manning, W. D., Giordano, P. C., & Longmore, M. A. (2012). Relationship churning in emerging adulthood: On/off relationships and sex with an ex. *Journal of Adolescent Research, 27*. <https://doi.org/10.1177/0743558412464524>
- Haselton, M. G., & Buss, D. M. (2000). Error management theory: A new perspective on biases in cross-sex mind reading. *Journal of Personality and Social Psychology, 78*(1), 81–91.
- Haselton, M. G., & Buss, D. M. (2001). The affective shift hypothesis: The functions of emotional changes following sexual intercourse. *Personal Relationships, 8*, 357–369.
- Henrich, J., Boyd, R., & Richerson, P. J. (2012). The puzzle of monogamous marriage. *Philosophical Transactions of the Royal Society B: Biological Sciences, 367*(1589), 657–669.
- Hill, C. A., & Preston, L. K. (1996). Individual differences in the experience of sexual motivation: Theory and measurement of dispositional sexual motives. *Journal of Sex Research, 33*(1), 27–45.
- Hill, C. T., Rubin, Z., & Peplau, L. A. (1976). Breakups before marriage: The end of 103 affairs. *Journal of Social Issues, 32*(1), 147–168.
- Hill, K., & Hurtado, A. M. (1996). *Ache life history*. Aldine De Gruyter.
- Hill, S. E., & Buss, D. M. (2008). The mere presence of opposite-sex others on judgments of sexual and romantic desirability: Opposite effects for men and women. *Personality and Social Psychology Bulletin, 34*(5), 635–647.
- Howell, N. (1976). The population of the Dobe area !Kung. In R. B. Lee & I. DeVore (Eds.), *Kalahari hunter-gatherers: Studies of the !Kung San and their Neighbors* (pp. 137–151). Harvard University Press.
- John, O. P., & Srivastava, S. (1999). The big five trait taxonomy: History, measurement, and theoretical perspectives. *Handbook of Personality: Theory and Research, 2*(1999), 102–138.
- Kaestle, C. E., & Halpern, C. T. (2007). What’s love got to do with it? Sexual behaviors of opposite-sex couples through emerging adulthood. *Perspectives on Sexual and Reproductive Health, 39*(3), 134–140.
- Kenrick, D. T., Sadalla, E. K., Groth, G., & Trost, M. R. (1990). Evolution, traits, and the stages of human courtship: Qualifying the parental investment model. *Journal of Personality, 58*(1), 97–116.
- Leary, M. R., & Downs, D. L. (1995). Interpersonal functions of the self-esteem motive. In *Efficacy, agency, and self-esteem* (pp. 123–144). Springer.
- Lewis, M. A., Granato, H., Blayney, J. A., Lostutter, T. W., & Kilmer, J. R. (2012). Predictors of hooking up sexual behaviors and emotional reactions among US college students. *Archives of Sexual Behavior, 41*(5), 1219–1229.
- MacDonald, T. K., & Hynie, M. (2008). Ambivalence and unprotected sex: Failure to predict sexual activity and decreased condom use. *Journal of Applied Social Psychology, 38*(4), 1092–1107.
- Mason, A. E., Sbarra, D. A., Bryan, A. E., & Lee, L. A. (2012). Staying connected when coming apart: The psychological correlates of contact and sex with an ex-partner. *Journal of Social and Clinical Psychology, 31*(5), 488–507.
- Meston, C. M., & Buss, D. M. (2007). Why humans have sex. *Archives of Sexual Behavior, 36*(4), 477–507.
- Miller, K. (2015, December 14). 8 Reasons why breakup sex is the best kind of sex. *Women’s health*. <http://www.womenshealthmag.com/sex-and-love/how-to-have-breakup-sex>
- Miner, E. J., Starratt, V. G., & Shackelford, T. K. (2009). It’s not all about her: Men’s mate value and mate retention. *Personality and Individual Differences, 47*(3), 214–218.
- Mogilski, J. K., & Welling, L. L. (2017). Staying friends with an ex: Sex and dark personality traits predict motivations for post-relationship friendship. *Personality and Individual Differences, 115*, 114–119.
- Moore, L. (2015, December 15). 10 Very real moments that happen during breakup sex. *Cosmopolitan*. <http://www.cosmopolitan.com/sex-love/news/a50853/things-that-happen-during-breakup-sex/>
- Moran, J. B., & Wade, T. J. (2017). Sex and perceived effectiveness of short term mate poaching acts in college aged men. *Human Ethology Bulletin, 3*, 109–128.
- Moran, J. B., & Wade, T. J. (2019). Perceptions of a mismatched couple: The role of attractiveness on mate poaching and copying. *Evolutionary Behavioral Sciences*. Advance online publication. <http://dx.doi.org/10.1037/ebs0000187>
- Nickerson, R. S. (1998). Confirmation bias: A ubiquitous phenomenon in many guises. *Review of General Psychology, 2*(2), 175–220.
- Perilloux, C., & Buss, D. M. (2008). Breaking up romantic relationships: Costs experienced and coping strategies deployed. *Evolutionary Psychology, 6*(1), 164–181.
- Pham, M. N., & Shackelford, T. K. (2013). Oral sex as mate retention behavior. *Personality and Individual Differences, 55*(2), 185–188.
- Place, S. S., Todd, P. M., Penke, L., & Asendorpf, J. B. (2010). Humans show mate copying after observing real mate choices. *Evolution and Human Behavior, 31*(5), 320–325.
- Pruett-Jones, S. (1992). Independent versus nonindependent mate choice: Do females copy each other? *The American Naturalist, 140*(6), 1000–1009.
- Puts, D. (2016). Human sexual selection. *Current Opinion in Psychology, 7*, 28–32.
- Rodeheffer, C. D., Proffitt Leyva, R. P., & Hill, S. E. (2016). Attractive female romantic partners provide a proxy for unobservable male qualities: The when and why behind human female mate choice copying. *Evolutionary Psychology, 14*(2). <https://doi.org/10.1177/1474704916652144>
- Rubin, Z., Peplau, L. A., & Hill, C. T. (1981). Loving and leaving: Sex differences in romantic attachments. *Sex Roles, 7*(8), 821–835.
- Sbarra, D. A., & Emery, R. E. (2005). The emotional sequelae of nonmarital relationship dissolution: Analysis of change and intraindividual variability over time. *Personal Relationships, 12*(2), 213–232.

- Scelza, B. A. (2011). Female choice and extra-pair paternity in a traditional human population. *Biology Letters*, 7(6), 889–891.
- Scelza, B. A. (2013). Choosy but not chaste: Multiple mating in human females. *Evolutionary Anthropology: Issues, News, and Reviews*, 22(5), 259–269.
- Scelza, B. A. (2014). Jealousy in a small-scale, natural fertility population: The roles of paternity, investment and love in jealous response. *Evolution and Human Behavior*, 35(2), 103–108.
- Schmitt, D. P. (2015). Fundamentals of human mating strategies. In D. M. Buss (Ed.), *The handbook of evolutionary psychology* (pp. 1–23). John Wiley & Sons.
- Schmitt, D. P., Shackelford, T. K., & Buss, D. M. (2001). Are men really more “oriented” toward short-term mating than women? A critical review of theory and research. *Psychology, Evolution & Gender*, 3(3), 211–239.
- Schwartz, S. H., & Rubel, T. (2005). Sex differences in value priorities: Cross-cultural and multimethod studies. *Journal of Personality and Social Psychology*, 89(6), 1010–1028.
- Sela, Y., Shackelford, T. K., Pham, M. N., & Euler, H. A. (2015). Do women perform fellatio as a mate retention behavior? *Personality and Individual Differences*, 73, 61–66.
- Slotter, E. B., Gardner, W. L., & Finkel, E. J. (2010). Who am I without you? The influence of romantic breakup on the self-concept. *Personality and Social Psychology Bulletin*, 36(2), 147–160.
- Spielmann, S. S., Joel, S., & Impett, E. A. (2018). Pursuing sex with an ex: Does it hinder breakup recovery? *Archives of Sexual Behavior*, 48(3): 1–12.
- 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.
- Starratt, V. G., & Shackelford, T. K. (2012). He said, she said: Men’s reports of mate value and mate retention behaviors in intimate relationships. *Personality and Individual Differences*, 53(4), 459–462.
- Strahan, R., & Gerbasi, K. C. (1972). Short, homogeneous versions of the Marlowe Crowne social desirability scale. *Journal of Clinical Psychology*, 28, 191–193.
- Tabachnick, B. G., & Fidell, L. S. (2007). *Using multivariate statistics* (5th ed.). Allyn & Bacon/Pearson Education.
- Thornhill, R., & Gangestad, S. W. (2008). *The evolutionary biology of human female sexuality*. Oxford University Press.
- Trivers, R. L. (1972). Parental investment and sexual selection. In B. Campbell (Ed.), *Sexual Selection and the Descent of Man, 1871-1971* (pp. 136–179). Aldine.
- Vrangalova, Z. (2015). Hooking up and psychological well-being in college students: Short-term prospective links across different hookup definitions. *Journal of Sex Research*, 52(5), 485–498.
- Wade, T. J. (2012). Mate expulsion and sexual conflict. In T. Shackelford & A. Goetz (Eds.), *The Oxford handbook of sexual conflict in humans*. Oxford University Press.
- Wade, T. J., Auer, G., & Roth, T. M. (2009). What is love: Further investigation of love acts. *Journal of Social, Evolutionary, and Cultural Psychology*, 3(4), 290–304.
- Wade, T. J., & Mogilski, J. (2018). Emotional accessibility is more important than sexual accessibility in evaluating romantic relationships—Especially for women: A conjoint analysis. *Frontiers in Psychology*, 9, 632.
- Wade, T. J., Mogilski, J., & Schoenberg, R. (2017). Sex differences in reconciliation behavior after romantic conflict. *Evolutionary Psychological Science*, 3, 1–7.
- Yoo, H., Bartle-Haring, S., Day, R. D., & Gangamma, R. (2014). Couple communication, emotional and sexual intimacy, and relationship satisfaction. *Journal of Sex & Marital Therapy*, 40(4), 275–293.