International Journal of Personality Psychology
2024, Vol. 10, 9-19
https://doi.org/10.21827/ijpp.10.41366

Because no one wants to die alone: Relationship initiation and dissolution behaviors associated with the fear of being single

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Here we aim to replicate previous work on the fear of being single (FBS), personality, attachment, and relationship-contingent self-esteem, and also examine whether those with high FBS attempt to initiate romantic relationships more frequently and are more motivated by continued romantic attraction to remain friends with ex-partners than others. Adult cisgender participants (N = 265; 212 female) were recruited through the Psychology Subject Pool at a midsized university in the Midwestern United States. They provided demographic information and completed various questionnaires online in a random order to measure their fear of being single, personality, relationship-contingent self-esteem, attachment styles, relationship initiation, the number of ex-partners with whom they have remained friends, and their motivations behind post-relationship friendship. In line with prior work, FBS was positively associated with anxious attachment, relationship-contingent self-esteem, and emotionality. FBS was negatively associated with relationship initiation behaviors. Similarly, single men were more likely to attempt to initiate a romantic relationship with an opposite-sex friend than were single women, particularly if they were low in FBS. Although FBS was not associated with whether or not an individual remains friends with ex-partners, there was an association between FBS and continued romantic attraction as a motivator behind these friendships.

Keywords: fear of being single, post-relationship friendship, continued romantic attraction, anxious attachment, relationship-contingent self-esteem

Humans are a social species (see, e.g., Zeigler-Hill, Welling, & Shackelford, 2015, for review). They develop complex social relationships, including romantic relationships, to assist in survival and mating (Foley, 1995) through forming alliances (e.g., DeScioli & Kurzban, 2009) and through the exchange of resources (e.g., Barclay, 2013; Cropanzano & Mitchell, 2005). Humans require social relationships for mental and physical health, and they have a near universal need to belong (Baumeister & Leary, 1995). Lack of emotional connection is related to hostile and aggressive behavior (Leary, Twenge, & Quinlivan, 2006), to negative affect (Blackheart, Nelson, Knowels, & Baumeister, 2009), and to impaired self-regulation (Baumeister, DeWall, Ciarocco, & Twenge, 2005). In Western societies, adult committed romantic relationships are perceived as the most important relationship to accrue (DePaulo & Morris, 2005). The notion that romantic relationships are the most important form of social relationship may cause fear for some people that they may not be able to find and maintain a romantic partner. *Fear of being single* (FBS) is defined as, "concern, anxiety or distress regarding the current or prospective experience of being without a romantic partner" (Spielmann et al., 2013, p. 1050; see also Cole, 1999). This fear can be felt by anyone, regardless of relationship status. It has implications for relationship dynamics and decisions that people make regarding initiating, maintaining, and ending romantic relationships (Spielmann et al., 2013; Spielmann, MacDonald, Joel, & Impett, 2015). The current work examines relationship initiation efforts associated with the FBS both generally and as indicated by the reported number of attempts to initiate a relationship with cross-sex friends and ex-partners. It also aims to replicate associations found in previous research (detailed further below) and to investigate incidence of post-relationship friendship among those high in FBS.

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The fear of being single

FBS is negatively associated with an intimate connection with a significant other, and it is positively associated with worry over losing a current partner, lacking a family dynamic, growing old alone, judgment and stigmatization by others, lacking financially and sexually, being unable to find a romantic partner, and relationship-contingent self-esteem (Spielmann et al., 2013). Moreover, those higher in FBS, as compared to those lower in FBS, are a more likely to maintain relationships with less satisfying romantic partners (Spielmann et al., 2013). Correspondingly, those with higher FBS are less likely to breakup with a dissatisfying partner, are more attracted to potential dating partners who are less physically attractive and less responsive, and are less selective when choosing a potential dating partner during a speed-dating event (Spielmann et al., 2013). These findings remained when accounting for differences in sex, age, and anxious attachment. However, those high in FBS are not perceived as less attractive at

speed-dating events (Spielmann et al., 2013) or by people viewing their photos (Spielmann et al., 2020).

Social Exchange Theory (see Cropanzano & Mitchell, 2005) describes people's attitudes toward, and decisions involving, relationships as driven by a cost and reward system. As a social species, we are rewarded with comfort and security from our social and romantic relationships (Mikulincer, Shaver, Bar-On, & Ein-Dor, 2010), and social connections help maintain positive psychological and physical well-being (Baumeister & Leary, 1995). In contrast, lacking a romantic partner can evoke feelings of isolation (DePaulo & Morris, 2005). Nonetheless, people tend to leave relationships when the costs (e.g., coping with negative characteristics of your partner) outweigh the rewards (e.g., companionship, intimacy, support; see Cropanzano & Mitchell, 2005) of being in the relationship. However, "exchange rates" are variable and flexible, and they depend on personal preferences, personalities, and relationship goals. In short, people associate with others when they perceive that they are being rewarded for doing so, whether that be with intimacy, connectedness, sex, finances, or any combination of positive factors (Sprecher, 1998). In cases of high FBS, the reward for maintaining a romantic relationship could be to avoid the perceived negative repercussions of not having one, regardless of the actual cost relative to benefits.

Post-relationship friendship

FBS is associated with people "settling for less" with relationship partners (Spielmann et al. 2013), suggesting that high FBS may be related to a higher likelihood of pursuing sub-optimal partners. By extension, the reduced choosiness among those higher in FBS could generalize to a higher likelihood of settling for someone convenient (e.g., someone in close proximity; see Newcomb, 1960). One way in which people may choose to initiate a new sexual relationship is to first begin a cross-sex friendship with a potential romantic partner. Some cross-sex friendships are the result of former romantic partners choosing to remain friends after relationship dissolution. People may remain emotionally connected with their ex-partners by continuing to love and long for them (Frazier & Cook, 1993; Sbarra & Emery, 2005; Spielmann, MacDonald, Joel, & Impett, 2015), and they may want to rekindle the past relationship (Davis, Shaver, & Vernon, 2003; Spielmann, MacDonald, & Tackett, 2012). Yet, little work has been done surrounding motivations for remaining friends with ex-partners. Ex-partners who were friends before the initiation of the relationship are more likely to remain friends after the breakup (Metts, Cupach, & Bejlovec, 1989), particularly if each partner was committed to the other (Tan, Agnew, Vanderdrift, & Harvey, 2014). In addition, breakups are often accompanied by negative affect (Sbarra & Emery, 2005) and depression (Monroe, Rohde, Seeley, & Lewinsohm, 1999), but these feelings are reduced if de-escalation techniques were used by the initiator of the breakup (e.g., Banks, Altendorf, Greene, & Cody, 1987), and remaining friends may mitigate these negative changes. Ex-partners also become friends more often if at least one of the ex-partners was still perceived as desirable (Banks et al., 1987), or if at least one of the ex-partners felt highly satisfied with the relationship as it was (Bullock, Hackathorn, Clark, & Mattingly, 2011). Overall, this work suggests that cross-sex friendships and post-relationship friendships have similar associated behaviors and consequences depending on the value each partner places on the friendship and willingness to maintain the friendship.

Mogilski and Welling (2017) identified seven underlying motivations for remaining friends with an ex-partner: reliability/sentimentality (e.g., "We shared a lot of good memories"), pragmatism (e.g., "They would buy me nice gifts or food"), continued romantic attraction (e.g., "I didn't want them to forget about me"), children and shared resources (e.g., "Me or my ex was pregnant"), diminished romantic attraction (e.g., "We both cheated on each other"), social relationship maintenance (e.g., "To prevent awkwardness in our friend group"), and sexual access (e.g., "The sex was good"; Mogilski & Welling, 2017). They found that reliability/sentimentality scores were rated as the highest motivating factor, pragmatism was found to be the least motivating factor, and that men were more motivated to remain friends with an ex-partner for pragmatic and sexual access reasons as compared to women. Furthermore, certain personality traits were associated with participants' motivational factors. Specifically, antagonism, Honesty–Humility, and extraversion scores predicted participants being motivated to stay friends with an ex-partner for pragmatic reasons and to maintain sexual access. Importantly, these findings suggest that individual differences predict the motivations behind post-relationship friendships.

Subsequent work on FBS from Spielmann et al. (2015) indicated that those high in FBS are more likely to have positive evaluations of, and are more likely to attempt to renew the relationship with, their ex-partners. Regardless of who had initiated the breakup, participants high in FBS felt stronger connections to their ex-partners than did those low in FBS; they longed for their ex-partners more and were more likely to attempt to reconcile than those lower in FBS (Spielmann et al., 2015). Although these findings suggest that people high in FBS may be more motivated to remain friends with their ex-partners, research has yet to establish whether or not FBS predicts the incidence of and motivations behind post-relationship friendships.

Current study and hypotheses

Because research shows that those high in FBS are less selective when choosing romantic relationship partners, and that they are more likely to stay in a less satisfying romantic relationship (Spielmann et al. 2013), here we focus on the relationship initiation behaviors associated with the FBS. First, this study aimed to partially replicate the results of Spielmann et al. (2013) by investigating the relationship between FBS and personality, attachment, and relationship-contingent self-esteem. Replicating previous results in a new context (i.e., with different participants at a later date) is vital to understanding the robustness of observed relationships. We hypothesized that emotionality (i.e., neuroticism), anxious attachment, and relationship-contingent self-esteem would positively predict higher scores on the FBS scale (Hypothesis 1). Second, this study expanded on Spielmann et al.'s (2013) findings that

participants higher in FBS report greater interest in initiating a romantic relationship with a wider variety of potential partners in a speed-dating task by investigating whether those higher in FBS will attempt to initiate a relationship more often in general and with opposite-sex friends than those who are lower in FBS. We hypothesized that those who score higher on FBS will make more efforts to initiate relationships than those who score lower on FBS (Hypothesis 2). Finally, in light of Mogilski and Welling's (2017) work, identifying the underlying motivations behind post-relationship friendships, we investigated whether FBS is associated with the likelihood of post-relationship friendships. We also investigated whether FBS is associated with motivations to begin and maintain friendships with ex-partners. We hypothesized that FBS would relate to relationship dissolution behaviors, whereby those who score higher on FBS would be more likely to remain friends with their ex-partners as compared to those who score lower on FBS (Hypothesis 3). Furthermore, because those high in FBS report greater longing for their ex-partner (Spielmann et al., 2015), we predicted that FBS would be associated with the continued romantic attraction motivation for remaining friends with ex-partners (Hypothesis 4).

METHOD

Recruitment and participants

Participants consisted of 265 (N = 212 female, 53 male) adults recruited through the Psychology Subject Pool at a midsized university in the Midwestern United States. All participants were required to be 18 years of age or older, cisgender, heterosexual, and to have been involved in at least one breakup in the past. Participants ranged in age from 18-59 years (M = 21.17 years, SD = 5.56). One-hundred and ninety-three reported being White/Caucasian (35 others reported being Black/African American, 17 reported being Western Asian/Arabic, 7 reported being Asian, 3 reported being Asian Indian, 1 reported being American Indian/Alaskan Native, 7 reported being "other," and 2 did not report their ethnicity), 17 reported being Hispanic/LatinX, and 148 indicated they were currently in a relationship (116 single, 1 did not report). Ethnicity was only collected for demographic purposes and was not investigated otherwise in relation to FBS.

Materials

In addition to the questionnaires outlined below, participants were required to have responded "yes" when asked if they were 18 years of age or older and were asked to provide demographic information (i.e., age, ethnicity, sex, gender identity, sexual orientation, relationship status, current relationship length in months [if applicable], and whether they had previously been involved in at least one romantic relationship breakup). Participants who did not meet inclusion criteria (i.e., were not cisgender, heterosexual, over age 18 years, and who had not experienced at least one breakup) were thanked for their time and exited out of the study. Their data were not saved. Participants were also asked how many of their friends are ex-partners and how often they have initiated or attempted to initiate a romantic relationship with a friend of the opposite-sex.

Fear of being single

The six-item Fear of Being Single Scale (FBSS; Spielmann et al., 2013) measures a person's discomfort with not being romantically attached. It asks participants to rate how they feel about being single using a 5-point scale (anchors: 1 = not at all true, 5 = very true). Sample items include: "It scares me to think that there might not be anyone out there for me" and "If I end up alone in life, I will probably feel like there is something wrong with me." The FBSS has been shown to have adequate reliability. FBSS scores correlate with related constructs, such as measures of anxious attachment, interpersonal sensitivity, and the need to belong (Spielmann et al., 2013). Scores are averaged to produce a single score out of 5, whereby higher numbers indicate a greater FBS.

Relationship-contingent self-esteem

The 11-item Relationship-Contingent Self-Esteem Scale (Knee et al., 2008) measures participants' self-esteem that is based on the nature and processes of their romantic relationships (e.g., "When my partner and I fight, I feel bad about myself in general") on a 5-point scale (anchors: 1 = not at all like me, 5 = very much like me). This scale has good internal consistency and reliability. Scores are summed and higher scores indicate higher relationship-contingent self-esteem.

Personality

The 60-item HEXACO-PI-R (i.e., the HEXACO-60; Ashton & Lee, 2009) measures similar personality dimensions as the Big-5 Personality Inventory, but also includes an honesty-humility factor, which is negatively associated with potential pathological characteristics (e.g., risk taking, manipulativeness, selfishness; Lee & Ashton, 2004; de Vries, de Vries & Feij, 2009). The HEXACO-60 has adequate reliability for each trait dimension: *Honesty-Humility*, *Emotionality*, *Extraversion*, *Agreeableness*, *Conscientiousness*, and *Openness to Experience* (Ashton & Lee, 2009). Specific items are summed to yield scores for each of the six dimensions, with higher scores indicating higher prevalence of that particular trait.

Attachment

The 36-item Experiences in Close Relationships-Revised (ECR-R) Questionnaire (Fraley et al., 2000) measures individual differences with respect to *attachment-related anxiety* (i.e., insecurity related to the responsiveness and availability of a romantic partner; e.g., "I often worry that my partner doesn't really love me") and *attachment-related avoidance* (i.e., the extent one is uncomfortable being close to others; e.g., "I tell my partner just about everything" [reverse scored]) in intimate relationships. Items are scored on a 7-point scale (anchors: 1 = strongly disagree, 7 = strongly agree). Specific items are averaged for each subscale and higher numbers represent higher attachment-related anxiety and attachment-related avoidance, respectively. Participants

Table 1. Descriptive statistics for each scale

Measures	Mean (SD)	Range	Reliability (α)
Fear of Being Single Scale	1.60 (1.05)	1-5	.87
Relationship-Contingent Self-Esteem Scale	39.60 (8.06)	0-55	.89
HEXACO-PI-R			
Honesty-Humility	36.76 (4.38)	29-50	.82
Emotionality	36.95 (4.78)	25-50	.80
Extraversion	34.76 (4.58)	25-50	.84
Agreeableness	34.74 (4.42)	23-50	.83
Conscientiousness	38.38 (4.10)	28-50	.80
Openness to Experience	36.51 (4.47)	26-50	.84
Experiences in Close Relationships-Revised			
Attachment-related Avoidance subscale	2.93 (1.14)	1-6.11	.91
Attachment-related Anxiety subscale	3.61 (1.24)	1-6.56	.92
Relationship Initiation Effort Measure	4.61 (1.61)	1-7	.92
Reasons for Remaining Friends with an Ex-Partner Questionnaire			
Reliability/sentimentality	3.17 (1.04)	1-5	.97
Pragmatism	1.38 (0.56)	1-3.71	.91
Continued romantic attraction	2.26 (0.87)	1-5	.95
Children and shared resources	2.55 (1.10)	1-5	.92
Diminished romantic attraction	1.87 (0.75)	1-4	.88
Social relationship maintenance	2.43 (0.93)	1-5	.85
Sexual access	1.82 (1.04)	1-5	.87

Note: Means, standard deviations (*SD*), range, and reliabilities (*α*) for each scale. Subscales are listed below the applicable scale and are in italics

were instructed to respond with respect to their current relationship (if partnered) or their relationships in general (if single).

Relationship initiation

The five-item Relationship Initiation Effort Measure (RIEM; MacGregor & Cavallo, 2011) measures how much effort participants use in attempts to initiate romantic relationships. Items are scored on a 7-point scale (anchors: 1 = strongly agree, 7 = strongly disagree). Some example items include: "I am doing all I can possibly do to find a romantic partner" and "I am actively trying to find someone to be in a relationship with." The RIEM has been shown to have high internal validity. Participants currently in a romantic relationship were prompted with the statement, "If you are currently in a relationship, please answer based on your average behavior from when you were single." Scores are averaged and higher scores indicate greater relationship initiation effort.

Post-relationship friendship

The Reasons for Remaining Friends with an Ex-Partner Questionnaire (Mogliski & Welling, 2017) measures the importance of each of seven separate motivations for staying friends with an ex-partner: *reliability/sentimentality* (e.g. "It felt normal to have them around"), *pragmatism* (e.g., "They were a useful social connection), *continued romantic attraction* (e.g., "I was still in love with them"), *children and shared resources* (e.g., "We were living together"), *diminished romantic attraction* (e.g., "There were no left-over romantic feelings"), *social relationship maintenance* (e.g. "Staying friends made life less dramatic"), and *sexual access* (e.g., "They were a possible hook-up buddy"). The 81-item version used in the current study was shortened from the original 153-item questionnaire by using a .60 factor loading criterion.

Participants were given the following instructions: "Below is a list of reasons for why someone might stay friends with an ex-partner. We ask that you please read through this list and use the following scale to indicate how important it would be for you to STAY friends with a romantic partner after a break-up for each reason listed." Participants responded to each item using a 5-point scale (anchors: 1 = unimportant, 5 = extremely important). Dimension scores are calculated by averaging across the items within a given dimension. Higher numbers reflect greater motivation to remain friends with an ex-partner for that given reason (e.g., more motivated by continued romantic attraction).

Procedure

After indicating their consent, participants completed a survey via Qualtrics, an online survey distribution platform. Participants provided demographic information (e.g., age, ethnicity, sex/gender, relationship status) before completing the remaining scales in random order. The Fear of Being Single Scale (FBSS; Spielmann et al., 2013) was used to test all hypotheses. To replicate previous associations of FBS with personality, relationship-contingent self-esteem, and attachment styles (Hypothesis 1), participants completed the HEXACO-PI-R (i.e., the HEXACO-60; Ashton & Lee, 2009), the Relationship-Contingent Self-Esteem Scale (Knee, Canevello, Bush, & Cook, 2008), and the Experiences in Close Relationships-Revised scale (ECR-R; Fraley, Waller, & Brennan, 2000). To test Hypothesis 2 (i.e., that those with high FBSS scores initiate romantic relationships more often than those with low FBSS scores), relationship initiation is operationalized in two different ways: by com-

Table 2. Pearson correlations of all scales

	1.	**2.**	**3.**	**4.**	**5.**	**6.**	**7.**	**8.**	**9.**	**10.**	**11.**	**12.**	**13.**	**14.**	**15.**	**16.**	**17.**
1.	-																
2.	.37**	-															
3.	-.06	.00	-														
4.	.30**	.32**	.12	-													
5.	-.23**	-.04	.23**	-.05	-												
6.	-.01	.01	.39**	.11	.30**	-											
7.	.07	.07	.36**	.16**	.31**	.19**	-										
8.	-.03	.04	.30**	.08	.19**	.32**	.21**	-									
9.	.15*	-.17**	-.05	-.22**	-.27**	-.03	-.14*	-.05	-								
10.	.51**	.29**	.05	.30**	-.25**	.01	-.09	-.04	.40**	-							
11.	-.24**	-.10	.11	.11	.00	.01	.04	.09	-.13*	-.25**	-						
12.	.03	.05	-.03	.04	.06	.18**	.02	.19**	.07	.10	-.04	-					
13.	.02	-.06	-.13*	-.08	.00	-.11	-.18**	-.04	.21**	.14*	-.22**	.15*	-				
14.	.26**	.28**	-.07	.19**	-.01	.08	.03	.06	.03	.33**	-.12	.40**	.30**	-			
15.	.18**	.10	.04	.16	-.15*	-.00	-.00	.09	.05	.10	-.00	.22**	.21**	.35**	-		
16.	.11	-.01	-.02	-.04	-.09	-.04	-.13*	.00	.15*	.12	-.09	.30**	.46**	.38**	.40**	-	
17.	.15*	.16*	.12	.26**	.10	.21**	.09	.22**	-.08	.12	-.02	.46**	.24**	.48**	.53**	.46**	-
18.	.14*	-.01	-.19**	-.03	.04	-.03	-.06	-.00	.15*	.12	-.09	.19**	.46**	.45**	.22**	.36**	.30**

Notes: 1. Fear of Being Single Scale, 2. Relationship-Contingent Self-Esteem, 3. HEXACO Honesty-Humility, 4. HEXACO Emotionality, 5. HEXACO Extraversion, 6. HEXACO Agreeableness, 7. HEXACO Conscientiousness, 8. HEXACO Openness to experience, 9. Experiences in Close Relationships-Revised (ECR-R) Avoidance subscale, 10. ECR-R Anxious subscale, 11. Relationship Initiation Effort Measure, 12. Reliability/Sentimentality friendship motivations, 13. Pragmatism friendship motivations, 14. Continued Romantic Attraction friendship motivations, 15. Children & Shared Resources friendship motivations, 16. Diminished Romantic Attraction friendship motivations, 17. Social Relationship Maintenance friendship motivations, and 18. Sexual Access friendship motivations. * = $p < .05$; ** = $p < .01$

Table 3. Significant test statistics for predictors of the FBSS used to test Hypothesis 1

Predictor	β	t	p
Emotionality	0.276	4.692	<.001
Extraversion	-0.248	-3.930	<.001
Anxious Attachment	0.142	9.167	<.001

Note: Emotionality and anxious attachment positively predicted FBS, whereas extraversion negatively predicted FBS. Honesty-humility, agreeableness, conscientiousness, openness, and avoidant attachment were not significant predictors of FBS

pleting the Relationship Initiation Effort Measure scale (RIEM; MacGregor & Cavallo, 2011, Study 1), which measures relationship initiation behaviors broadly, and by reporting how often they have attempted to initiate a romantic relationship with an opposite-sex friend. To test Hypotheses 3 and 4 (i.e., that those with high FBSS scores will more likely remain friends with ex-partners than those with low FBSS scores and that those high in FBS will report continued romantic attraction as the main motivator for remaining friends with ex-partners), participants were asked how many ex-partners they remained friends with and completed the Reasons for Remaining Friends with an Ex-Partner Questionnaire (Mogilski & Welling, 2017). Once this was completed, debriefing information was provided, the participants were thanked for their time, and they were compensated with course credit. All measures and procedures were approved by the university Institutional Review Board before any data were collected.

Data analysis

A Shapiro-Wilk test for normality revealed that FBSS scores were significantly skewed (W265 = 0.962, p < 0.001). A square root transformation was used on FBSS scores to account for this skew before running the analyses outlined below. Hypotheses were analyzed using a combination of multiple regression, independent-samples t-tests, ANOVA, and hierarchical regression.

RESULTS

Initial processing of data

Means, standard deviations, ranges, and reliabilities for all measures are given in Table 1. Correlations between all measures are given in Table 2. Before completing analyses for the hypotheses of this study, the association between FBS and some demographic variables were investigated. A 2 (relationship status [single, partnered) x 2 (gender [male, female]) ANOVA (dependent variable: FBSS scores) revealed a main effect of relationship status ($F(1,263) = 6.707$, $p = .010$), whereby individuals in relationships scored lower on the FBSS ($M = 1.517$) than those who reported being single ($M = 1.655$). Results also revealed a main effect of gender ($F(1,264) = 5.866$, $p = .016$), whereby men scored lower on the FBSS ($M = 1.490$) than did women ($M = 1.600$). There was no gender × relationship status interaction ($p > .60$). FBS was negatively correlated with both age ($r = -.221$, $p < .001$) and relationship length ($r = -.278$, $p < .001$), indicating that those who score higher in FBS tend to be younger and to have been in their relationships (if applicable) for a shorter time.

Main analyses

To test Hypothesis 1, we used multiple regression analyses to replicate previous research on associations between FBS and personality, attachment, and relationship-contingent self-esteem. The six dimensions of personality as described by the HEXACO-60 (Ashton & Lee, 2009) were entered into a multiple regression as predictor variables, with FBSS entered as the outcome variable (see Table 3 for significant test statistics for predictors of the FBSS). The emotionality dimension of the HEXACO-60 positively predicted FBS, whereas extraversion was negatively associated with FBS. None of the other dimensions (i.e., honesty-humility, agreeableness, conscientiousness, or openness to experience) were significantly associated with FBS (all $p > .056$). Model fit statistics indicated that personality factors account for 15.4% of the variance found in FBS ($R^2 = 0.154$).

To replicate research about the relationship between FBS and attachment style, the two dimensions of the ECR-R (Fraley et al., 2000) were entered into a multiple regression as predictor variables, with FBSS scores as the outcome variable (see Table 3). Anxious attachment was a positive predictor of FBS, whereas avoidant attachment was not ($p > .260$). Attachment accounted for 26.1% of the variance found in FBSS scores ($R^2 = 0.261$). Finally, to replicate previous research about the relationship between FBS and relationship-contingent self-esteem, a bivariate correlation revealed that relationship-contingent self-esteem is a significant positive predictor of FBS ($r = .374$, $p < .001$; see also regression: $\beta = 0.142$, $t = 6.550$, $R^2 = .140$).

To test Hypothesis 2, we split participants into high and low FBS using a median split (due to low variability and range; Median = 1.633) and compared relationship initiation effort using an independent samples t-test and ANOVA. There was a significant difference between high and low scoring FBS participants in initiating romantic relationships, whereby those who were high in FBS reported *fewer* relationship initiation behaviors than those who were low in FBS (see Table 4 for means, standard deviations, and t-test statistics related to Hypotheses 2 and 3). A 2 (FBSS scores [high, low]) × 2 (relationship status [single, in a relationship] × 2 (gender [male, female]) ANOVA (dependent variable: relationship initiation effort) revealed a main effect of FBSS scores ($F(1,263) = 4.370$, $p = .038$), again reflecting those with higher FBS engaging in fewer relationship initiation behaviors than those low in FBS. There were no other main effects of interactions (all $p > .085$). Running these analyses looking at the number of times the participant has attempted to initiate a romantic relationship with an opposite-sex friend as the dependent variable revealed no significant differences in the number of times someone attempted to initiate a romantic relationship with an opposite-sex friend between those high vs. low in FBS ($p > .64$). However, ANOVA revealed a main effect of gender ($F(1,263) = 27.241$, $p < .001$), whereby men attempted to initiate a relationship with an opposite-sex friend more than did women.

Table 4. Means (*M*), standard deviations (*SD*), and *t*-test statistics related to Hypotheses 2 and 3.

Dependent Variable	Comparison	*M (SD)*	*t*	*p*
Relationship initiation effort	High FBS	4.314 (1.588)	$t_{263} = 3.10$	$p = .002$
	Low FBS	4.918 (1.574)		
Attempts to initiate romantic relationships with opposite-sex friends	Men	3.60 (4.33)	$t_{57.85} = 3.218$	$p = .002$
	Women	1.64 (2.03)		
Attempts to initiate romantic relationships with opposite-sex friends	High FBS, in a relationship	2.51 (2.99)	$t_{146} = -2.474$	$p = .019$
	Low FBS, in a relationship	1.51 (1.89)		
Attempts to initiate romantic relationships with opposite-sex friends	High FBS, single	1.74 (1.53)	$t_{113} = 1.705$	$p = .090$
	Low FBS, single	2.72 (4.42)		
Attempts to initiate romantic relationships with opposite-sex friends	Single men, high FBS	2.83 (2.13)	$t_{66} = 2.881$	$p = .005$
	Single women, high FBS	1.50 (1.28)		
Attempts to initiate romantic relationships with opposite-sex friends	Single men, low FBS	5.86 (6.54)	$t_{45} = 3.544$	$p < .001$
	Single women, low FBS	1.39 (2.14)		
Fear of Being Single Scale scores	Friends with ex-partners	1.598 (.339)	$t_{257} = .909$	$p > .360$
	Not friends with ex-partners	1.560 (.325)		

Note: High FBS participants reported fewer relationship initiation behaviors than those low in FBS. Men attempted to initiate a relationship with an opposite-sex friend more than did women, and partnered participants who are low in FBS were less likely to have attempted to initiate a relationship with an opposite-sex friend than partnered participants who are high in FBS. Among singles, those low in FBS were more likely to attempt to initiate a relationship with an opposite-sex friend than those who are high in FBS (although this relationship fell short of significance), and single men high in FBS attempted to initiate a relationship with an opposite-sex friend more often than did single women high in FBS, but this gender difference was stronger among those who were low in FBS. There was no difference in FBSS scores for those who are versus are not friends with ex-partners.

There was a FBS × relationship status interaction ($F(1,263) = 12.713$, $p < .001$). This interaction reflected those in a relationship who are low in FBS being less likely to have attempted to initiate a relationship with an opposite-sex friend than those in a relationship who are high in FBS. Conversely, single people who are low in FBS were more likely to attempt to initiate a relationship with an opposite-sex friend than single people who are high in FBS, but this relationship fell short of significance. Finally, there was a FBS × gender × relationship status interaction ($F(1,262) = 6.035$, $p = .015$). Running separate 2 (FBS [high, low]) × 2 (gender [male, female]) ANOVAs on single vs. partnered participants revealed that there was a FBS × gender interaction that was significant among single participants only ($F(1,114) = 6.370$, $p = .013$; partnered participants $p > .38$). Among single participants, men high in FBS attempted to initiate a relationship with an opposite-sex friend more often than did women high in FBS, but this gender difference was stronger among those who were low in FBS.

To test Hypothesis 3, an independent samples t-test was conducted to determine the association between FBS and the tendency to remain friends with ex-partners (as determined by sorting participants into whether they do [$N = 124$] or do not [$N = 135$] have 1+ friends that are ex-partners). The analysis was non-significant, indicating there is no difference in FBSS scores for those who do and do not have friends that are ex-partners. Next, to test Hypothesis 4, we used multiple regression to investigate whether continued romantic attraction predicts FBS, and also whether any of the remaining 6 motivations for remaining friends with an ex-partner significantly predicted FBS. A multiple regression was conducted with all 7 dimensions of Mogilski and Welling's (2017) Reasons for Remaining Friends with an Ex-Partner Questionnaire as predictor variables, and FBSS scores as the outcome variable. This model accounted for 9.8% of the variance in FBS ($R^2 = .098$, $F(7, 257) = 3.898$, $p < .001$), and resulted in one significant positive association between FBSS scores and the continued romantic attraction dimension of the Reasons for Remaining Friends with an Ex-Partner Questionnaire ($\beta = .257$, $t = 3.360$, $p < .001$). There were no interactions with sex ($p > .62$) or age ($p > .38$) in this model.

Additional analyses

Finally, we conducted an omnibus hierarchical regression analysis that included all significant predictors of FBSS in descending order of variance explained: anxious attachment, relationship-contingent self-esteem, the emotionality dimension of the HEXACO-60, relationship length (if coupled), the continued romantic attraction dimension of the reasons to remain friends with an ex-partner questionnaire, relationship initiation effort, the extraversion dimension of the HEXACO-60, age, relationship status, the children and shared resources and the social relationship maintenance dimensions of the reasons to remain friends with an ex-partner questionnaire, avoidant attachment, the sexual access dimension of the remaining friends with ex-partners questionnaire, and gender (see Table 5 for R^2 values). All models were statistically significant (all $F > 5.452$, all $p < .001$). The first variable in this hierarchical regression (anxious attachment) accounted for 16.0% of the variance in FBSS scores ($R^2 = .160$, $F(1,137) = 25.952$, $p < .001$). Adding relationship-contingent self-esteem to the model significantly increased the variability explained to 23.9% (see Table 6 for model change statistics), but beyond this only the addition of relationship length (model 4) and extraversion (model 7) significantly increased the variance explained, and only anxious attachment ($\beta = .212$, $t = 2.221$, $p = .028$) and relationship-contingent self-esteem ($\beta = .264$, $t = 3.104$, $p =$

Table 5. R^2 values in descending order of variance explained for the omnibus hierarchical regression

Predictor	R^2
Experiences in Close Relationships-Revised (*Anxious attachment*)	0.257
Relationship-Contingent Self-Esteem	0.140
HEXACO-PI-R (*Emotionality*)	0.090
Relationship Length (if coupled)	0.077
Reasons for Remaining Friends with an Ex-Partner Questionnaire (*Continued romantic attraction*)	0.070
Relationship Initiation Effort	0.060
HEXACO-PI-R (Extraversion)	0.054
Age	0.049
Relationship Status	0.043
Reasons for Remaining Friends with an Ex-Partner Questionnaire *(Children and shared resources)*	0.037
Reasons for Remaining Friends with an Ex-Partner Questionnaire *(Social relationship maintenance)*	0.025
Experiences in Close Relationships-Revised (*Avoidant attachment*)	0.023
Reasons for Remaining Friends with an Ex-Partner Questionnaire (*Sexual access*)	0.020
Gender	0.018

Note: All models were statistically significant

.002) were significant predictors in the full model (R^2 = .360, $F(5,126) = 5.453$, $p < .001$). Thus, differences in FBS are best explained by variation in anxious attachment and relationship-contingent self-esteem.

DISCUSSION

In line with previous research (Spielmann et al., 2013) and in support of Hypothesis 1, the current study provides further evidence for the association between FBS and the related constructs of anxious attachment, relationship-contingent self-esteem, and certain personality traits. FBS was positively associated with anxious attachment, relationship-contingent self-esteem, and emotionality (the HEXACO-60 equivalent to neuroticism from the Big 5 model of personality; Ashton & Lee, 2009), as found previously. However, in previous research extraversion was not a significant predictor of FBS when controlling for other personality traits (Spielmann et al., 2013), whereas FBS was significantly negatively associated with extraversion in the current study. This inconsistency may be due to the difference in measuring instrument, as this research used a six-factor personality measure, whereas the Big Five Inventory (John & Srivastava, 1999), a five-factor personality measure, was used previously (Spielmann et al., 2013). In other words, it is possible that differences in the development of these two scales may explain the discrepancy between the current and previous results. It is also possible that specific facets of extraversion that are not measured in either instrument are responsible for the discrepancy. Future research investigating the relationship between FBS and personality traits using multiple personality inventories could better address this possibility. The additional personality factor from the HEXACO-60 (honesty-humility), which is not measured in Big Five models of personality, was not correlated with FBS.

Table 6. Model change statistics for the omnibus hierarchical regression

Model	R^2	ΔR^2	ΔF	*Significant* ΔF
1	0.160	0.160	26.250	$p < .001$
2	0.234	0.074	13.232	$p < .001$
3	0.240	0.006	1.0750	$p > .30$
4	0.267	0.028	5.0760	$p = .026$
5	0.271	0.004	0.660	$p > .41$
6	0.283	0.012	2.213	$p > .13$
7	0.308	0.025	4.752	$p = .031$
8	0.315	0.008	1.457	$p > .23$
9	0.360	0.045	1.756	$p > .12$

Note: After anxious attachment (model 1), only relationship-contingent self-esteem (model 2), relationship length (model 4), and extraversion (model 7) significantly increased the variance explained. Anxious attachment and relationship-contingent self-esteem were the only significant predictors in the full model.

In contrast to Hypothesis 2 (i.e., that those higher in FBS would attempt to initiate a relationship more often than those who are lower in FBS), we found that those who were high in FBS reported fewer relationship initiation behaviors than those who were low in FBS. Also, the RIEM was not associated with any personality traits measured by the HEXACO-PI-R (see Table 2). The RIEM measures how much effort participants use in attempts to initiate romantic relationships, so it may be expected that participants who are more afraid of being single would put more effort into initiating romantic relationships as compared to those who are less afraid of being single. However, the opposite was true here. Although previous work found that those high in FBS were less selective when looking for a potential partner during a speed-dating event and indicated that they would be open to exchanging contact information with more people (Spielmann et al., 2013), speed-dating differs from most other relationship initiation opportunities. In speed-dating, the other party only finds out about a person's interest if they reciprocate that interest, which means that there is less risk of embarrassment when being rejected as a romantic suitor. It is possible that an unmeasured association between FBS and rejection sensitivity explains why those high in FBS attempt to initiate relationships less often. The current and previous (Spielmann et al., 2013) research found an association between FBS and emotionality/neuroticism, the latter of which is positively associated with rejection sensitivity

(Downey & Feldman, 1996). It therefore seems likely that those high in FBS are also more sensitive to rejection and, as a result, may attempt to initiate fewer romantic relationships out of fear of rejection.

Investigating relationship initiation behaviors directed toward opposite-sex friends revealed some interesting findings. Consistent with other work (e.g., Clark, Shaver, & Abrahams, 1999), men reported attempting to initiate a romantic relationship more often than did women. Also, similar to general relationship initiation behaviors, single participants who are low in FBS were more likely to attempt to initiate a relationship with an opposite-sex friend than single people who are high in FBS. These findings interacted such that single men were more likely to attempt to initiate a relationship with an opposite-sex friend than were single women, particularly if they were *low* in FBS. There was no such relationship among partnered participants. That single participants high in FBS were *less* likely to initiate romantic relationship behaviors despite their heightened fear of being single probably relates to differences in personality or other factors. In addition to the previously mentioned possibility that higher neuroticism/emotionality may lead to greater rejection sensitivity and, by extension, fewer relationship initiation behaviors among those high in FBS, both greater emotionality/neuroticism (Le, Dove, Agnew, Korn, & Mutso, 2010) and rejection sensitivity (Downey, Freitas, Michaelis, & Khouri, 1998) predict romantic relationship dissolution. In other words, it is possible that the personality traits underlying FBS make romantic relationship initiation difficult and also increase the chance of relationship dissolution, thereby making it more difficult for those who are especially afraid of not being in a committed relationship to end up in one. Still, this interpretation should be examined in more detail in future work that directly measures rejection sensitivity.

Contrary to Hypothesis 3, FBS was not associated with whether or not an individual tends to remain friends with an ex-partner. It is possible that the relationship between FBS and anxious attachment explains this null finding; focusing on a new partner helps those who are high in anxious attachment let go of previous relationships (Spielmann, MacDonald, & Wilson, 2009). Indeed, more than half of our sample reported currently being in a relationship. Participants may be letting go of their ex-partners altogether or, given previous findings that those with a high FBS have a harder time letting go of an ex-partner after a breakup and report greater longing for their ex-partner (Spielmann et al., 2015), they may choose not to remain friends because longing for their ex is too painful. In line with this reasoning, we found an association between FBS and continued romantic attraction as a motivator to remain friends with an ex-partner, supporting Hypothesis 4. Of the seven dimensions of the Reasons to Remain Friends with an Ex-Partner Questionnaire (i.e., reliability/sentimentality, pragmatism, continued romantic attraction, children and shared resources, diminished attraction, social relationship maintenance, and sexual access; Mogilski & Welling, 2017), continued romantic attraction is the only one to involve items about continued emotional attachment to that person. Moreover, results of the factor analysis used in the creation of the scale indicated that items that are highly loaded onto the continued romantic attraction dimension are specifically about attachment (e.g., "I was still in love with them") relative to the items lower on factor loadings (e.g., "I wanted to make their new partner/romantic interest uncomfortable"). These results complement earlier findings that FBS relates to greater longing for ex-partners (Spielmann et al., 2015) and builds on this work by showing that this longing is the main motivator for maintaining a friendship with an ex-partner among those high in FBS.

Limitations and future directions

The biggest limitation of the current study is that the sample is female skewed, as there were far fewer male than female participants. This limits external validity and could mask or eliminate other possible sex differences. Although the FBSS was created to be gender-neutral (Spielmann et al., 2013), we did find that men scored lower on FBS than did women in the current sample. Possible sex differences should be investigated further with larger, more diverse samples with comparable numbers of male and female participants. Similarly, our sample was limited to cisgender heterosexual adults. These questions should also be investigated among adolescents and people of different sexual orientations and gender identities.

There are several avenues to pursue in future research. In addition to future research directions already noted above, researchers should further delve into the individual difference variables that predict FBS (e.g., optimistic/pessimistic views, inadequate attachment figures during development, submissive/dominant personality traits), and examine whether these characteristics have an impact on the attractiveness/desirability of that individual (e.g., flirtatiousness, mate retention behaviors, attentiveness to physical attractiveness cues). Research into perceptions of those high in FBS could reveal how potential mates view and respond to them and whether or not that perception perpetuates the person being single, which may in turn increase fear of remaining single. Research should also investigate mating behaviors associated with FBS as population dynamics change (e.g., skewed sex ratios), and for those who view themselves as having above/below average potential alternative partner options. Similarly, the avenues through which relationship formation tactics are employed by those high in FBS (e.g., meeting people in person, online, through mutual friends) may also differ from those lower in FBS.

More research into factors that mediate FBS over time is needed. For example, given known associations between hormonal profile and mating-related behaviors (e.g., Gangestad et al., 2016; Gangestad & Thornhill, 1998; Gildersleeve, Haselton & Fales, 2014; Welling & Burriss, 2019; Welling & Puts, 2014), further research should explore the association between hormonal fluctuations and FBS, and should also examine how the probability of attempting to initiate relationships (in general, with an opposite-sex friend, with an ex-partner, or with a less desirable partner) varies across the menstrual cycle in women, or across other biological rhythms (e.g., diurnally) in either sex. Finally, future research should determine more general social, platonic friendship behaviors associated with FBS (e.g., friendship initiation behaviors and motivations) in order to parse apart the impact FBS has on a wider array of social relationships and how these variables interact over time in different populations.

Conclusion

FBS is a relatively new construct that has several implications in terms of initiating, maintaining, and dissolving romantic relationships. The current study replicated previous work and has expanded our knowledge of factors contributing to a FBS outside of already determined correlates (i.e., anxious attachment, relationship-contingent self-esteem, and certain personality traits). The current research is one of the first investigations into how FBS influences relationship initiation behavior. This research is also the first to investigate whether or not individuals high in FBS tend to remain friends with ex-partners and has also provided insight into motivations behind these friendships. This research area has the potential to inform scholars about the ways in which personal relationships may be impacted by FBS. Downstream investigations can build on the current work and potentially apply the information to clinical practice. Certainly, since romantic relationships are important for the majority of adults, research investigating correlates of FBS and its influence on relationship behavior may yield fruitful results.

Declaration of conflicting interest: The Authors declare that there is no conflict of interest and they received no financial support for this research.

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Received December 7, 2023
Accepted April 10, 2024