

Individual and relational differences in desire for touch in romantic relationships

Journal of Social and Personal Relationships
2021, Vol. 38(7) 2029–2052
© The Author(s) 2021
Article reuse guidelines:
sagepub.com/journals-permissions
DOI: 10.1177/02654075211003331
journals.sagepub.com/home/spr



Brett K. Jakubiak¹ , Julian D. Fuentes¹ ,
and Brooke C. Feeney²

Abstract

Although touch is common in romantic relationships and is generally beneficial, people differ in the extent to which they desire to give and receive touch. The current research identified individual and relationship characteristics that predict overall desire for touch and unique desire for overtly affectionate versus indirectly affectionate forms of touch. In both a sample of dating, engaged, and married individuals (Study 1) and a dyadic sample of married couples (Study 2), the strongest predictors of overall desire for touch were sex (being female) and high relationship quality (actor and partner). Attachment avoidance also predicted lower desire for touch overall (Study 1), and actor and partner attachment avoidance predicted lower desire for indirectly affectionate touch, in particular (Study 2). Finally, greater psychological distress predicted greater desire for indirectly affectionate touch in both studies. This novel descriptive information about desire for touch provides a foundation for future intervention work.

Keywords

Affection, attachment, individual differences, romantic relationships, touch

¹ Syracuse University, USA

² Carnegie Mellon University, USA

Corresponding author:

Brett K. Jakubiak, Department of Psychology, Syracuse University, 900 South Crouse Ave, Syracuse, NY 13244, USA.

Email: bkjakubi@syr.edu

Interpersonal touch is a universal social behavior (Suvilehto et al., 2019) and a primary mode of nonverbal communication across the lifespan (Thayer, 1986). Touch is especially prevalent in romantic relationships where couple-members touch to convey emotions like love and gratitude (Hertenstein et al., 2006), to provide support during stress (Robinson et al., 2015), and to enhance intimacy (Debrot et al., 2013). Touch is not only prevalent; research suggests that it is also beneficial (Jakubiak & Feeney, 2017). Receiving touch from a romantic partner is linked with improved mood, lower stress-reactivity, increased relationship quality, and better health (Debrot et al., 2013; Ditzén et al., 2008; Gullidge et al., 2003; Jakubiak & Feeney, 2018a; Stadler et al., 2012). Touch interventions also benefit individuals and their relationships: People assigned to receive touch are buffered from personal stressors and relationship threats, feel more secure, and behave more constructively during conflict (Ditzén et al., 2007; Holt-Lunstad et al., 2008; Jakubiak & Feeney, 2016, 2018b; Kim et al., 2018).

Given that touch is beneficial and considered “a defining feature of intimate relationships” (Chopik et al., 2014, p. 212), we may be tempted to assume that people uniformly desire touch. Initial evidence suggests, however, that people vary in the extent to which they desire (i.e., would ideally like to give and receive) touch, even in romantic relationships (e.g., Brennan et al., 1998b; Carmichael et al., 2020). This heterogeneity is especially important to consider given broad recommendations for people to increase their touch behavior such as: “Do it. That’s right; do it. Physical affection is good for you, and it’s good for your close relationships” (Gullidge et al., 2007, p. 371). Although touch provides benefits, researchers should consider individual and relational differences in desire for touch to effectively target and tailor touch interventions. Indeed, touch is more rewarding for people who desire touch (Ebisch et al., 2014), and touch’s benefits may be most pronounced in people who value closeness (Jakubiak & Feeney, 2016). Thus, the purpose of the current research is to identify predictors of desire for touch in romantic relationships.

Attachment and other extant predictors

Although several individual and relational factors could contribute to desire to give and receive touch, the limited research on this topic has primarily focused on attachment orientation: relatively stable expectations and preferences (working models) regarding interactions with close others (e.g., Fraley, 2019). People form attachment orientations based on early experiences, including touch experiences, with caregivers (Ainsworth et al., 1978; Anisfeld et al., 1990). Children who receive warm and responsive touch are more likely to develop secure attachments (i.e., believe they are worthy of love, trust others to be responsive), whereas children who receive less responsive caregiving may develop high attachment anxiety (i.e., concerns about abandonment and worthiness; extreme desire for closeness) and/or high attachment avoidance (i.e., discomfort with closeness, self-protective preference for independence).

People carry these working models into adult relationships where they guide behavior and preferences, including preferences for touch (Hazan & Shaver, 1987). For example, desire for more touch (e.g., “I sometimes wish my partner would touch me more”) was highest in people with high attachment anxiety, and touch aversion (e.g., “I sometimes

find my partner's touch intolerable") was highest in people with high attachment avoidance (Brennan et al., 1998b). More recently, Carmichael et al. (2020) found that higher attachment anxiety predicted greater desire to engage in touch, whereas higher attachment avoidance predicted less desire to engage in touch (both relative to actual touch behavior).

In addition to attachment, two other predictors—sex and relationship status—have been linked to desire for touch in romantic relationships. Chopik and colleagues (2014) reported that women like cuddling more than men, and Hanzal and colleagues (2008) found that women report touch to be more pleasant than men, but only in married relationships. In dating relationships, men rated touch as more pleasant than women, suggesting that the link between sex and desire for touch may depend on relationship status. Finally, touch avoidance (the opposite of desire for touch) is higher in less established relationships (Guerrero & Andersen, 1991). In sum, past research suggests that ideal touch preferences can be explained by individual differences (i.e., attachment orientation, sex) and relationship characteristics (i.e., relationship status). The current research builds on this past research in several ways.

Advances in the current research

A primary limitation of past research predicting touch preferences is the treatment of touch as a unitary construct. Some forms of touch are overtly affectionate (i.e., clearly intended to show love, care, and support; e.g. a kiss or hug), whereas other forms of touch are more indirectly affectionate (e.g., a casual touch in the process of doing something else; a playful tap; Jones & Yarbrough, 1985; Nguyen et al., 1975). This distinction is comparable to the distinction between overtly and indirectly supportive behaviors (e.g., Girme et al., 2013). Although people may preferentially desire overtly affectionate or indirectly affectionate forms of touch, past research has often viewed all touch as equivalent or exclusively assessed overtly affectionate touch. For example, Carmichael et al. (2020) assessed only overtly affectionate forms of touch (e.g., caressing, cuddling), and Brennan et al. (1998b) found that avoidantly attached people reported the least desire for (overtly) affectionate and supportive touch. Therefore, it is unclear whether preferences for other forms of touch follow the same pattern. The directness of a touch behavior is consequential because people may be more or less comfortable with direct versus ambiguous displays of affection based on individual characteristics and characteristics of the relationship.

The current research also advances past research by considering a broader set of individual and relationship characteristics as potential predictors of desire for touch. Several key potential predictors have been overlooked including one's own relationship quality (satisfaction, commitment, conflict), one's own chronic psychological distress (stress and psychological symptoms over the past month), and characteristics of the partner (attachment orientation, relationship quality, psychological distress), each of which may uniquely contribute to desire to give and receive touch. One's own relationship quality and partner characteristics are especially relevant because touch is an interpersonal behavior, meaning desire for touch almost certainly differs based on the relationship context. By testing novel predictors along with established predictors of

desire for touch simultaneously, we aim to identify the key factors driving desire to give and receive touch in romantic relationships. Understanding these factors is an essential step in designing and targeting touch interventions.

Hypothesized predictors of desire for touch

We expected to replicate past research linking attachment orientation and sex with desire for touch, and we aimed to establish novel individual and relationship characteristics that independently predict desire for touch. Additionally, we made theory-driven hypotheses about how attachment orientation and relationship quality may predict desire for overtly and indirectly affectionate touch differently, though we also explored whether others predictors were differentially associated with desire for these two forms of touch.

Individual characteristics

Consistent with past research, we expected that sex (moderated by relationship status) and attachment orientation would predict desire for touch. Specifically, we expected men to desire more touch in dating relationships and women to desire more touch in marital/engaged relationships (H1), and we hypothesized that greater attachment anxiety will be associated with greater desire for touch (H2) whereas greater attachment avoidance will be associated with lower desire for touch (H3).

We also made the novel prediction that a person's attachment orientation will predict desire for overtly and indirectly affectionate forms of touch differently. For anxiously attached people, overtly affectionate touch may be particularly desired because its direct communication of affection may assuage chronic concerns about abandonment and provide reassurance that the relationship is safe (e.g., Kim et al., 2018). Therefore, we hypothesized that the positive link between attachment anxiety and desire for touch would be particularly strong for overtly affectionate forms of touch (i.e., that greater attachment anxiety will predict a relatively greater desire for overtly affectionate compared to indirectly affectionate touch; H4).

For attachment avoidance, there are two competing hypotheses. One possibility is that avoidantly attached individuals will report a greater desire for overt compared to indirectly affectionate touch because avoidantly attached individuals experience better outcomes when their partners' support behaviors are overtly and unambiguously supportive (Girme et al., 2015). Specifically, Girme and colleagues (2015) argued (with regard to social support) that "providing clear and irrefutable evidence of the partner's supportive presence may be the only way in which avoidance recipients can let their guard down and receive help from their partners" (p. 451). Therefore, avoidantly attached individuals may uniquely desire to receive overtly affectionate touches because they unambiguously show care and may counteract concerns that others are not available and responsive. However, an alternative possibility is that avoidantly attached individuals may be especially averse to overtly affectionate touch due to their desire to avoid intimacy and dependence (Bartholomew, 1990). They may instead deem indirectly affectionate touch more acceptable because playful and casual touches are less intimate and therefore less threatening. Because there is rationale for both possibilities, we

hypothesized that the association between attachment avoidance and desire for touch would differ for overtly and indirectly affectionate touch but we did not predict a specific pattern of results (H5).

Next, we aimed to extend past research to assess whether chronic psychological distress independently predicts desire for touch, above and beyond established predictors. We hypothesized that psychological distress would predict less desire to give and receive touch (H6) because people who are distressed may experience narrowed attention and increased self-focus that would interfere with interpersonal behavior (Driskell et al., 1999). Considered oppositely, people with greater psychological well-being may report the greatest desire for touch in their relationships because people who are experiencing positive emotions broaden their attention to focus outward, invest in building social relationships, and are motivated to enact behaviors they have previously enjoyed (Fredrickson, 2013; Fredrickson & Joiner, 2018). We also tested participants' age as one additional individual predictor of desire for touch, as it is possible that relationship preferences change across the lifespan, but we did not make an a priori prediction.

Relationship characteristics

In addition to the impact of relationship status (in concert with sex), described above, we made two novel predictions regarding relational predictors for desire for touch. First, we predicted that people with greater relationship quality will report greater desire for touch overall (H7) because people who trust their partners and are happy in their relationships are likely to desire close interactions more than people who are experiencing conflict and dissatisfaction. Second, we expected that greater relationship quality would be more strongly related to desire for overtly affectionate than indirectly affectionate touch because people with high relationship quality may be especially motivated to interact in overtly affectionate ways (H8).

Finally, we tested whether several other relationship characteristics predict desire for touch in an exploratory manner. Given the scarcity of touch in long-distance relationships, we tested whether being in a long-distance relationship predicts desire for touch. People who maintain long-distance relationships may be able to do so because they have less desire for touch than others. We also expected that one's partner's characteristics would predict desire for touch, above and beyond one's own characteristics. Specifically, people may have greater desire for touch when their partners are lower in attachment anxiety, attachment avoidance, and psychological distress because partners with these characteristics may be more warm and responsive in their touch behavior. Another possibility is that people accommodate their partners' desire for touch and adjust their own preferences accordingly. In that case, people with more anxiously attached partners may desire more touch, whereas people with more avoidant partners may desire less touch. Relatedly, people may experience greater desire for touch when their partners report greater relationship quality, as that may make giving and receiving touch more rewarding or because they accommodate their partners' touch preferences. Given these possibilities, we assessed partner effects in an exploratory manner.

Research overview

We tested these hypothesized and exploratory predictors of desire for touch in two studies. Study 1 included romantically-involved individuals of any relationship status (dating, engaged, married), and Study 2 sampled married couples. In both studies, we measured desire for touch by asking participants how much they would ideally like to touch and be touched by their romantic partners, distinguishing between overtly affectionate (i.e., affectionate, supportive) and indirectly affectionate (casual, playful) forms of touch. Because touch is typically a dyadic exchange that includes giving and receiving touch simultaneously, we anticipated that desire to give and receive each form of touch would be highly correlated and therefore focused our predictions on desire for touch overall (provision and receipt).

Study 1

Method

Participants

Participants were 752 individuals recruited from a university participant pool ($M = 471$) and Amazon's Mechanical Turk (MTurk; $N = 281$). We used two sampling strategies to increase generalizability. Participants had to be in a romantic relationship for at least 3 months. Nine participants were excluded because they were in a relationship for less than 3 months, and an additional 100 participants were excluded because they answered the attention check incorrectly. The final sample consisted of 643 participants (56.4% female). Participants ranged from 18 to 71 years old ($M = 24.9$, $SD = 10.4$), and most participants reported that they were White (74.5%), Asian (13.2%), Black (8.9%), and/or Hispanic (7.9%). Participants' relationships were, on average, 3.8 years long ($SD = 6.3$, range 12–616 mo.), and participants were dating (72.8%), engaged (8.6%), and married (18.6%). Nearly half of the sample (45.6%) classified their relationship as long-distance.

Procedure and measures

All participants recruited through MTurk completed the survey remotely, as did the majority (81.7%) of participants recruited through the participant pool. The remaining participants completed the survey in person.

Desire for touch. Participants read definitions of several forms of touch and rated their actual and ideal touch in their romantic relationship for each form. For the purposes of this study, we focused on two overtly affectionate forms of touch—affectionate and supportive/comforting touch—and two indirectly affectionate forms of touch—casual and playful touch (see Table 1).¹ Each participant rated actual receipt (how much their partner actually touches them in that way), desired receipt (how much they would ideally like their partner to touch them in that way), actual provision (how much they actually touch their partner in that way), and desired provision (how much they would ideally like

Table 1. Definitions of forms of touch.

Touch Form	Definition
Overtly affectionate	
Affectionate	Touch intended to show caring, affection, and positive regard (hug, kiss, caress, etc.)
Supportive/comforting	Touch intended to provide support and reassurance during difficult times
Indirectly affectionate	
Casual	Touch that has no specific intention but occurs in the process of doing something else (resting arm or leg on partner while watching TV, touch in the process of reaching for something else, etc.)
Playful	Playful affection or aggression (play-tickling, play-wrestling, etc. not intended to hurt)

to touch their partner in that way) on a 7-points scale ($1/4$ not at all; $7\frac{1}{4}$ a great deal). For the purposes of this study, we focused on desired receipt and desired provision only. Actual touch likely has unique predictors and is therefore outside of the scope of this investigation. Descriptive information and zero-order correlations for specific items are provided in online supplemental materials (OSM).

Individual characteristics. Participants completed a 26-item version of the Experiences in Close Relationships scale (ECR; Brennan et al., 1998a) on a 7-point scale. Thirteen items assessed *attachment anxiety* (e.g., “I worry a lot about my relationships,” a $1/4$.93, $M \frac{1}{4} 3.33$, $SD \frac{1}{4} 1.34$) and 13 items assessed *attachment avoidance* (e.g., “I prefer not to show others how I feel deep down,” a $1/4$.89, $M \frac{1}{4} 3.37$, $SD \frac{1}{4} 1.13$).

Participants completed two scales to form the *psychological distress composite*. They completed the 10-item Perceived Stress Scale (PSS; Cohen et al., 1983) plus one additional item (i.e., “In the past month, how often have you felt overwhelmed by demands at home, school, or work?”) on a scale from 1 (*never*) to 5 (*fairly often*) ($M \frac{1}{4} 2.72$, $SD \frac{1}{4} 0.70$). Participants also completed 18 items from the Brief Symptom Inventory (BSI; Derogatis & Melisaratos, 1983) to measure psychological symptoms over the past month (e.g., “feeling tense or keyed up,” “feeling blue”) on a scale from 1 (*never*) to 5 (*extremely*), ($M \frac{1}{4} 1.95$, $SD \frac{1}{4} 0.82$). The psychological distress composite was the mean of all PSS and BSI items (a $1/4$.95).²

Relationship characteristics. Participants completed 19 items that assessed relationship satisfaction (e.g., “All things considered, how satisfied do you feel with your relationship?”, $M \frac{1}{4} 6.35$, $SD \frac{1}{4} 1.37$), commitment (e.g., “Do you feel committed to maintaining your relationship with your partner?”, $M \frac{1}{4} 6.15$, $SD \frac{1}{4} 1.68$), and conflict (e.g., “How often do you and your partner get on each other’s nerves?”, $M \frac{1}{4} 2.82$, $SD \frac{1}{4} 1.50$), all on a 9-point scale (Collins & Read, 1990; Van Lange et al., 1997). Participants also completed an 8-item measure of trust (Rempel et al., 1985, e.g. “I am confident that my partner will always love me”) on a 7-point scale (1 $\frac{1}{4}$ *strongly disagree*, 7 $\frac{1}{4}$ *strongly agree*, $M \frac{1}{4} 5.27$, $SD \frac{1}{4} 1.20$). To calculate *composite relationship quality*, we reverse-

scored negatively-valenced items, standardized all 27 items, and computed a mean (a $\bar{x} = .94$).³ Participants also reported their relationship status, relationship length, and whether their relationship was long-distance or proximal.

Data analytic strategy

To predict overall desire for touch as well as unique desire for overtly and indirectly affectionate forms of touch, we restructured the data to a long format in which responses to the touch items are nested within participants. In the restructured dataset, each participant had 8 rows of data (i.e., a row for desired receipt and a row for desired provision for each of the four touch forms). Thus, responses to the individual touch items (Level 1, desire for touch) were nested within participant (Level 2). Additionally, because all participants responded to the same 8 items, each response could also simultaneously be modeled within-item (Level 2). We modeled this crossed structure by including random intercepts for person and item (Baayen et al., 2008).

To assess how individual and relational differences independently predict desire for touch, we included all standardized participant-level fixed effects for our hypothesized predictors in the same model (sex coded $.5 \bar{x} = .5$ male, $.5 \bar{x} = .5$ female; relationship status coded $.5 \bar{x} = .5$ married or engaged, $.5 \bar{x} = .5$ dating; long distance relationship coded $.5 \bar{x} = .5$ no, $.5 \bar{x} = .5$ yes). Desire for touch was also standardized so that regression coefficients can be interpreted like Cohen's d . To assess how the type of touch predicts desire for touch, we included an item-level predictor representing *touch form* (indirectly affectionate $.5 \bar{x} = .5$, overtly affectionate $.5 \bar{x} = .5$).⁴ Finally, to test whether individual and relationship factors predict desire for each touch form differently, we included interactions between the touch form indicator and all individual and relationship predictors. Whereas a multiple regression approach would require separate models to predict the overtly and indirectly affectionate touch subscales with no way to directly compare between models, this approach allows for direct comparison of the associations between a predictor and desire for each form of touch. We conducted all analyses in R; see OSM for syntax. Zero-order correlations among predictor variables are presented in Table 2.

Results and discussion

Participants reported greater desire for overtly affectionate touch than indirectly affectionate touch, overall (see Table 3 for all results).

Individual characteristics

Sex (H1). Women reported greater desire for touch than men, and people who were dating reported greater desire for touch than people who were engaged or married. We did, however, not observe the hypothesized interaction between sex and relationship status (H1). We considered that the failure to replicate Hanzal et al. (2008) may be due to the small proportion of married participants in this sample. However, follow-up analyses on the subset of married and dating participants separately confirmed that married women

Table 2. Zero-order correlations among predictor variables.

Variable	1	2	3	4	5	6	7	8	9
Study 1									
1. Sex	—								
2. Relationship stage	-.04	—							
3. Long-distance	.02	.40**	—						
4. Age	.02	-.67**	-.43**	—					
5. Attachment anxiety	.06	.10*	.07	-.21**	—				
6. Attachment avoidance	.01	.04	.04	-.05	.49**	—			
7. Psychological distress	.04	.11**	.13**	-.21**	.69**	.49**	—	8.	
Relationship quality	.12**	-.07	-.01	.10**	-.47**	-.41**	-.54**		
Study 2									
1. Actor sex	—								
2. Actor age	-.10	—							
3. Actor attachment anxiety	.02	-.05	—						
4. Actor attachment avoidance	-.20**	.01	.41**	—					
5. Actor psychological distress	.10	-.07	.52**	.33**	—				
6. Actor relationship quality	.00	-.09	-.35**	-.26**	-.33**	—			
7. Partner attachment anxiety	-.02	-.16*	.11	.11	.12	-.12	—		
8. Partner attachment avoidance	.20**	-.11	.11	.06	.14	-.07	.41**	—	
9. Partner psychological distress	-.10	-.09	.12	.14	.37**	-.23**	.52**	.33**	—
10. Partner relationship quality	-.00	-.05	-.12	-.07	-.23**	.44**	-.35**	-.26**	-.33**

Note. Correlations were estimated in the original (wide) datasets so that sample size was not artificially increased due to repeated measurements within individuals. Sex is coded male 1/0, female 1/1; relationship status is coded married or engaged 1/0, dating 1/1; long-distance is coded proximal 1/0, long-distance 1/1.

*indicates $p < .05$. **indicates $p < .01$.

Table 3. Full model results predicting desire for touch in relationships.

Predictor	Study 1		Study 2	
	Estimate	95% CI	Estimate	95% CI
Actor variables				
Intercept	-0.08 0.42*	[-.24, .07] [.13, .71]	0.02 0.77***	[-.10, .13] [.71, .84]
Touch form				
Sex	0.24***	[.13, .35]	0.14**	[.04, .24]
Dating (relationship status)	0.17*	[.02, .31]	—	—
Long-distance	0.01	[-.09, .12]	—	—
Age	0.03	[-.04, .10]	0.01	[-.07, .10]
Attachment anxiety	0.09*	[.02, .16]	0.03	[-.07, .13]
Attachment avoidance	-0.10***	[-.16, -.05]	-0.08 ^b	[-.17, .01]
Psychological distress	0.03	[-.04, .10]	-0.05	[-.05, .14]
Relationship quality	0.25***	[.19, .31]	0.15***	[.06, .24]
Sex*dating (relationship status)	0.01	[-.21, .11]	—	—
Attachment anxiety*attachment avoidance	0.07**	[.02, .12]	-0.05	[-.13, .02]
Touch form*sex	-0.07	[-.15, .01]	0.05	[-.15, .25]
Touch form*dating	-0.04	[-.16, .08]	—	—
Touch form*long-distance	0.04	[-.05, .13]	—	—
Touch form*age	-0.01	[-.07, .04]	-0.02	[-.09, .06]
Touch form*attachment anxiety	0.03	[-.03, .08]	0.02	[-.08, .13]
Touch form*attachment avoidance	-0.02	[-.07, .03]	0.12**	[.03, .22]
Touch form*psychological distress	0.10***	[-.16, -.04]	-0.13*	[-.25, -.02]
Touch form*relationship quality	0.07**	[.02, .12]	-0.03	[-.14, .08]
Partner variables				
Attachment anxiety	—	—	-0.04	[-.15, .06]
Attachment avoidance	—	—	-0.06	[-.15, .02]
Psychological distress	—	—	0.02	[-.07, .12]
Relationship quality	—	—	0.09*	[.01, .18]
Attachment anxiety*attachment avoidance	—	—	0.03	[-.05, .10]
Touch form*attachment anxiety	—	—	-0.07	[.47, .03]
Touch form*attachment avoidance	—	—	0.12**	[.03, .21]
Touch form*psychological distress	—	—	0.07	[-.04, .19]
Touch form*relationship quality	—	—	-0.02	[-.13, .09]

Note. Coefficients are standardized. Touch form coded -.5 ¼ indirectly affectionate, .5 ¼ overtly affectionate; sex coded -.5 ¼ male, .5 ¼ female; dating coded -.5 ¼ no, .5 ¼ yes; long distance relationship coded -.5 ¼ no, .5 ¼ yes.

^b $p < .08$, * $p < .05$, ** $p < .01$, *** $p < .001$

($B = .28$, $p = .032$) and dating women ($B = .24$, $p < .001$) reported greater desire for touch than their male counterparts.

Attachment. Consistent with Hypotheses 2 and 3, greater attachment anxiety was associated with greater desire for touch, and greater attachment avoidance was associated with less desire for touch overall. We also observed an interaction between attachment anxiety and avoidance predicting desire for touch. The positive association

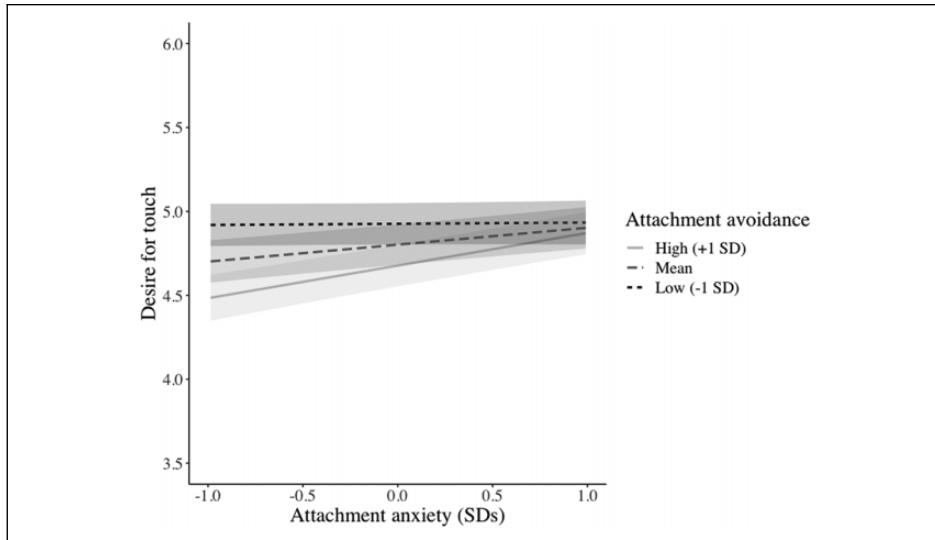


Figure 1. Attachment anxiety and attachment avoidance predicting desire for touch (Study 1).
Note. Error bars represent standard errors.

between attachment anxiety and desire for touch was present for people high ($+1 SD$) in attachment avoidance ($B = .46, p < .001$) but not for people low ($-1 SD$) in attachment avoidance ($B = .02, p = .626$). As shown in Figure 1, the lowest desire for touch was reported by people who scored low in attachment anxiety and high in attachment avoidance (the dismissing avoidant profile). Although we expected that the links between attachment orientations and desire for touch would differ for overtly and indirectly affectionate forms of touch (H4, H5), we found no evidence for these hypotheses.⁵ Instead, the overall negative association between attachment avoidance and desire for touch replicates past work on enjoyment of cuddling and touch aversion, and the overall positive association between attachment anxiety and desire for touch supports past theoretical claims that anxiously attached people may desire touch even if they fail to enjoy it (Brennan et al., 1998a; Chopik et al., 2014). In this sample, the same patterns emerged for both forms of touch, suggesting that past research on overtly affectionate touch extends to indirectly affectionate touch as well.

Psychological distress. We did not observe the predicted negative association between psychological distress and desire to give and receive touch (H6). Instead, we observed an interaction between psychological distress and touch form to predict desire for touch. As shown in Figure 2, greater psychological distress predicted greater desire for indirectly affectionate touch ($B = .08, p = .034$), but psychological distress was unrelated to desire for overtly affectionate touch ($B = -.02, p = .631$), which remained relatively high regardless of distress. People higher in chronic psychological distress may report greater desire for indirectly affectionate touch (casual, playful touch) than people with

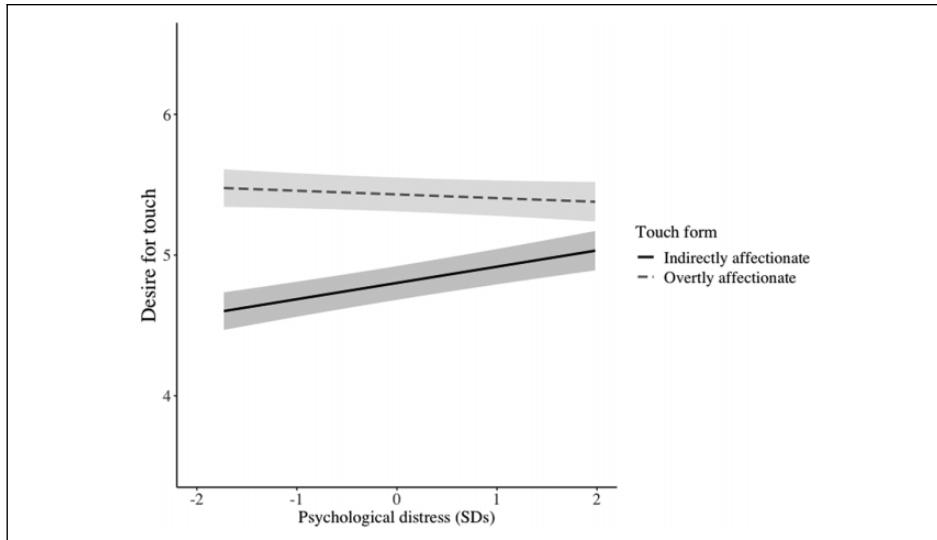


Figure 2. Psychological distress and touch form predicting desire for touch (Study 1). Note. Error bars represent standard errors.

greater psychological well-being because those forms of touch offer a welcome distraction from stressors or worries.

Age. Participants' age did not predict desire for touch, suggesting that desire for touch does not differ across the lifespan.

Relationship characteristics

Relationship quality. We observed a strong positive association between relationship quality and desire for touch, supporting Hypotheses 7 and 8. As shown in Figure 3, this association was even stronger for overtly affectionate ($B/0.28, p < .001$) than indirectly affectionate touch ($B/0.21, p < .001$). These results suggest that people in high-functioning relationships may especially desire overtly affectionate touch. Of course, we cannot rule out that this relationship is bidirectional; it could be the case that people who desire greater touch subsequently experience better relationships, perhaps as a result of engaging in desired touch.

Long-distance. Desire for touch did not differ for those in proximal and long-distance relationships, suggesting that desire to give and receive touch does not differ based on proximity to one's partner. Perhaps some people are able to maintain long-distance relationships because they have lower desire for touch, whereas other people have even greater desire for touch because it is unattainable.

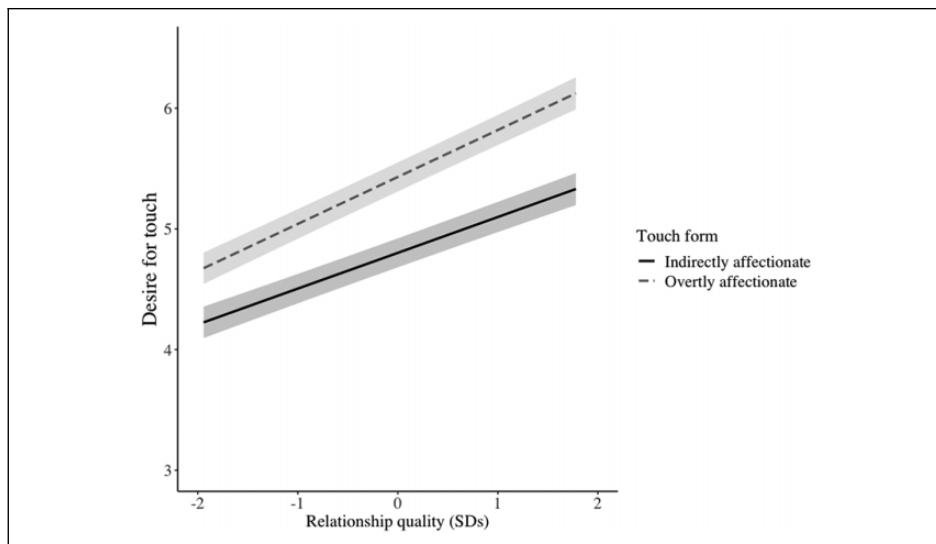


Figure 3. Participant relationship quality and touch form predicting desire for touch (Study 1).
Note. Error bars represent standard errors.

Study 2

In Study 2, we aimed to replicate and extend Study 1 in a dyadic sample of couples who had been married for over 10 years. We assessed the same individual and relationship characteristics as in Study 1, and we extended Study 1 by testing whether partner characteristics independently contributed to one's desire to give and receive touch.

Method

Participants

Participants were recruited as part of a follow-up to an earlier research study 12–13 years prior when participants were newlyweds (within the first 2 years of their first marriage, $N \approx 229$ couples). In total, 111 couples participated in the follow-up (both partners provided data), and 33 individuals participated without their partner. For this study, we used data from the 100 couples (200 participants, 50% female) who reported that they were still married to the same partner (participants who were no longer married completed different surveys) and whose partner also participated. Participants' ages ranged from 31 to 52 years old ($M \approx 39.7$, $SD \approx 4.17$), and most participants reported that they were White/Caucasian (90.0%), Black/African American (5.0%), Hispanic (3.5%), and/or Asian (2.5%). Participants were married for 13.1 years, on average, ($SD \approx 0.9$), and all but one couple reported that they were living together.

Procedure and measures

Only data from the follow-up assessment was included in this study. Participants completed surveys in the laboratory ($N \approx 152$) or online ($N \approx 48$). Although participants

completed a comprehensive battery of questionnaires, we report only those relevant to the current investigation.⁶

Desire for touch. Participants completed the same measures described in Study 1 to assess desire for overtly and indirectly affectionate forms of touch. Descriptive information and zero-order correlations for individual items are provided in OSM.

Individual characteristics. Participants completed the same ECR measure described in Study 1 (Brennan et al., 1998a) to assess attachment anxiety ($M = 4.82$, $SD = 1.08$; a $\alpha = .90$) and attachment avoidance ($M = 3.04$, $SD = 1.07$, a $\alpha = .90$). As in Study 1, participants completed the PSS (Cohen et al., 1983; $M = 2.44$, $SD = 0.63$, a $\alpha = .92$) and a modified version of the BSI (Derogatis & Melisaratos, 1983; $M = 4.62$, $SD = 0.47$, a $\alpha = .89$) to assess psychological distress. In this study, participants also completed the short-form health survey's (SF-36) 5-item subscale of emotional well-being (Ware & Sherbourne, 1992; e.g. "Have you felt so down in the dumps that nothing could cheer you up?"), which is scored from 1 (poor emotional well-being) to 100 (excellent emotional well-being; $M = 72.38$, $SD = 16.22$; a $\alpha = .82$). To form an overall *psychological distress composite*, we standardized the individual items from each scale (reversing the emotional well-being items), and calculated the mean (a $\alpha = .95$).⁷

Relationship characteristics. Participants completed the same measures of relationship satisfaction ($M = 6.54$, $SD = 1.18$), commitment ($M = 6.72$, $SD = 0.99$), conflict ($M = 2.66$, $SD = 1.42$; Collins & Read, 1990; Van Lange et al., 1997) and trust ($M = 6.00$, $SD = 1.00$; Rempel et al., 1985) described in Study 1. To calculate composite relationship quality, we reverse-scored where appropriate, standardized all 27 items, and computed a mean (a $\alpha = .96$).⁸

Partner effects. Both couple-members completed the same individual and relationship measures described above. Partner characteristics (i.e., attachment, psychological well-being, relationship quality) were assessed by linking one's partner's reports to one's own desire for touch.

Data analytic strategy

We analyzed these data in a way that accounts for the non-independence of dyadic data. First, we restructured the data to a pairwise format (Kenny et al., 2006). Then, we restructured further so that responses to the touch items were nested within participants, as in Study 1. In the restructured dataset, each participant had 8 rows of data, and each row contained the individual's own as well as their partner's responses. This dataset is comparable to a person period pairwise dataset (common for longitudinal data). Considering touch items as nested within person creates an error structure in which the residuals may be correlated across dyad-members and for each touch item. We modeled this two-level crossed structure in R by including a random intercept for each couple (making couple the unit of analysis). Additionally, the model accounted for non-independence by correlating couple-members' error for each touch item (each observation). See OSM for syntax.

Consistent with Study 1, we included all predictor variables (standardized or effect-coded) in the same model, and we standardized desire for touch so that regression coefficients can be interpreted like Cohen's d .⁹ Additionally, we included an item-level predictor representing *touch form* (indirectly affectionate $\beta = .54$, overtly affectionate $\beta = .14$) to assess whether desire for touch differs by form, and we included interactions between all predictors and touch form to assess whether individual and relational factors predict overtly and indirectly affectionate forms of touch differently. Zero-order correlations among predictor variables are presented in Table 2.

Results and discussion

Consistent with Study 1, participants reported greater desire for overtly affectionate touch than indirectly affectionate touch, overall (see Table 3 for all results).

Individual characteristics

Sex. Consistent with Hypothesis 1 and the results of Study 1, women reported greater desire for touch than men in this married sample. This finding confirms past research showing that married women rate touch as more pleasant than married men (Hanzal et al., 2008), and it extends this gender difference to indirectly affectionate and overtly affectionate touch.

Attachment. In this married sample, one's own attachment anxiety was not associated with the desire to give and receive touch (in contrast to H2), but one's own attachment avoidance was associated with marginally lower desire for touch (H3). Unlike Study 1, we did not observe an interaction between attachment anxiety and avoidance to predict desire for touch. However, we observed an interaction between attachment avoidance and touch form, consistent with the prediction that the relationship between attachment avoidance and desire for touch would depend on touch form (H5). As shown in Figure 4A, participants with greater avoidance reported lower desire for indirectly affectionate touch ($B = -0.14$, $p = .045$), but actor avoidance was unrelated to overtly affectionate touch ($B = 0.02$, $p = .714$). These results fit with and extend the results of Study 1: we again observed that people with greater attachment avoidance report lower desire for touch in their romantic relationships, and we see that in married couples the desire for less touch is specific to indirectly affectionate touch. Considered in light of past research, this finding suggests that people high in attachment avoidance may desire "all or nothing" when it comes to touch in established relationships (Girme et al., 2015). Whereas overtly affectionate touch demonstrates care unambiguously, giving and receiving indirectly affectionate touch may be less desired because it activates avoidantly attached individuals' chronic concerns about others' responsiveness.

The hypothesized interaction between actor attachment anxiety and touch form was not observed (H4). Although greater attachment anxiety predicted greater desire for touch in Study 1, attachment anxiety did not predict desire for touch in Study 2, in a sample of couples who have remained married for over a decade. Failure to replicate this

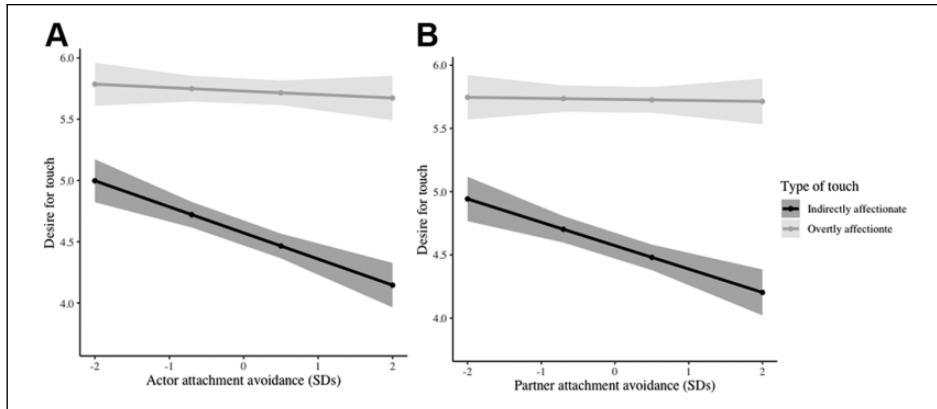


Figure 4. Attachment avoidance predicting desire for indirectly affectionate and overtly-affectionate touch (Study 2). A. Actor attachment avoidance (actor effect). B. Partner attachment avoidance (partner effect). Note. Error bars represent standard errors.

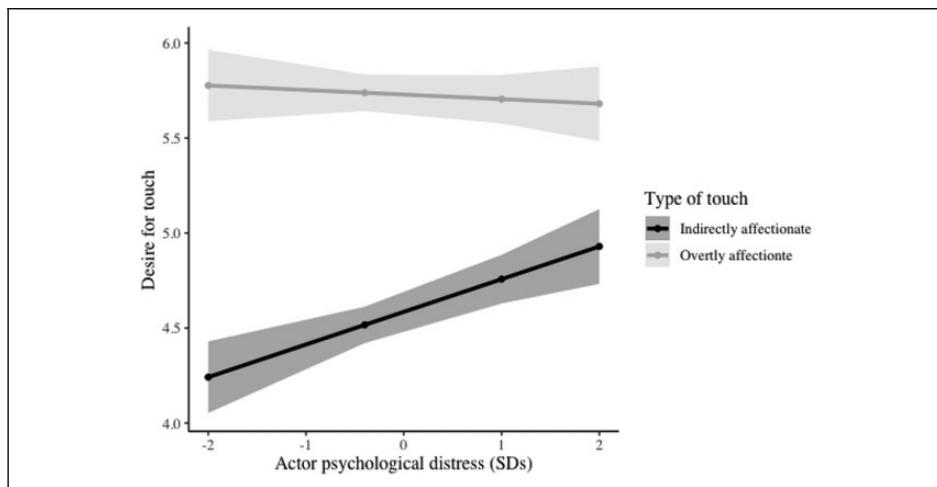


Figure 5. Psychological distress predicting desire for indirectly affectionate and overtly affectionate touch (Study 2). Note. Error bars represent standard errors.

finding may be due to low overall attachment anxiety in Study 2, or it may indicate that people in long-term, committed relationships no longer desire touch as a way to assuage their anxious concerns.

Psychological distress. Consistent with Study 1, actor psychological distress was unrelated to overall desire for touch (inconsistent with H6) but was related to desire for each form of touch differently (see Figure 5). As in Study 1, psychological distress was related to

greater desire for indirectly affectionate touch ($B = 0.12, p = .042$) but was unrelated to desire for overtly affectionate touch ($B = -0.06, p = .287$), which remained high regardless of distress. This unexpected, though consistent, finding suggests that people who are experiencing psychological distress may not turn inward, but may instead seek additional social contact that perhaps offers a distraction.

Age. Age did not predict desire for touch in this sample, consistent with Study 1.

Relationship characteristics

Relationship quality. Regarding relationship quality, results were consistent with Study 1 (and H7 and H8): participants reported greater desire for touch when they rated their relationships more favorably. This actor effect was not moderated by touch form, which suggests that relationship quality predicts desire for touch similarly for overtly and indirectly affectionate touch.¹⁰

Partner characteristics. Partner effects followed a similar pattern as individual characteristics. Although partner attachment anxiety and avoidance were each unrelated to participants' overall desire for touch, we observed an interaction between partner attachment avoidance and touch form. As shown in Figure 4B, when partners reported greater attachment avoidance, participants themselves reported lower desire for indirectly affectionate touch ($B = -0.12, p = .046$) but no less desire for overtly affectionate touch ($B = 0.01, p = .915$).¹¹ Partner psychological distress was unrelated to desire for touch, but participants reported greater desire to give and receive touch when their partners reported better relationship quality. Like actor relationship quality, partner relationship quality predicted desire for overtly and indirectly affectionate touch similarly. These partner effects mirror actor effects: people have greater desire for touch when they and their partners report greater relationship quality, and they have greater desire for indirectly affectionate touch when they and their partners report lower attachment avoidance.

General discussion

In two studies, we investigated individual and relational predictors of the desire to give and receive touch in romantic relationships, and we assessed whether desire for overtly affectionate and indirectly affectionate forms of touch differed. Of note, we assessed absolute desire for touch (i.e., how much touch participants would ideally like to give and receive) rather than desire for touch relative to actual touch. Therefore, desire for touch does not reflect a perceived touch deficit. Comparing across predictors, sex (being female) and higher relationship quality were most strongly associated with desire for touch. Additionally, despite touch's many functions in relationships (e.g., play, proximity maintenance, support-seeking/provision), participants generally reported stronger desire for the overtly affectionate forms of touch overall.

Regarding additional demographic predictors, dating participants reported greater desire for touch than married/engaged participants, though neither age nor long-distance

relationship status predicted desire for touch. These findings suggest that sex and relationship status are the key demographic predictors of desire for touch, consistent with past research, though we found independent rather than interactive effects (Hanzal et al., 2008). Women may experience stronger desire for touch because women perceive touch to be more pleasant, as shown in a recent meta-analysis (Russo et al., 2020).

The current research also replicated and extended the finding that desire for touch varies as a function of attachment orientation (e.g., Brennan et al., 1998b; Carmichael et al., 2020). Above and beyond all other predictors, participants' attachment avoidance was associated with lower overall desire for touch in Study 1 and predicted less desire for indirectly affectionate (casual and playful) touch in Study 2. These findings are consistent with the theory that avoidantly attached people aim to maintain relational distance, but they also highlight that this preference may depend on the form of touch, at least in long-term relationships. Overtly affectionate touch may be desired by more and less avoidant people because it is an unambiguous communication of the strength of the emotional bond and may therefore allow avoidantly attached people to "let their guards down" (Girme et al., 2015). Indeed, recent research showed positive associations between overtly affectionate touch and well-being regardless of attachment avoidance level (Debrot et al., 2020). Accordingly, overtly affectionate touch interventions may be more beneficial for avoidantly attached people than casual/playful touch interventions. Avoidantly attached individuals have, in fact, been shown to benefit from engaging in overt intimacy-building activities (Stanton et al., 2017).

Regarding attachment anxiety, findings were mixed. Above and beyond all other predictors, attachment anxiety was associated with greater desire for touch in Study 1, but this hypothesized pattern did not replicate in Study 2's married sample (where attachment anxiety also tended to be lower and less variable). Anxiously attached people may desire greater levels of touch than others in contexts where commitment is ambiguous (i.e., when dating) but not when commitment is relatively more stable (i.e., in marriage). Involvement in a long-term marriage itself may reduce attachment anxiety or mitigate the consequences of attachment anxiety, making touch a less essential reassurance strategy in that context.

We tested psychological distress as another potential predictor of desire for touch and found that greater psychological distress was associated with greater desire for indirectly affectionate touch in both studies. This finding suggests—contrary to predictions—that people who are experiencing psychological distress desire to give and receive casual and playful touch rather than turning inward and desiring less touch. Indirectly affectionate touch may offer a lighthearted distraction for people who are chronically distressed.

Finally, a primary contribution of this work is evidence for relationship characteristics (one's own relationship quality and one's partner's characteristics) predicting desire for touch. One's own relationship quality was associated with greater desire for touch in general (Studies 1 and 2) and greater desire for overtly affectionate touch, in particular (Study 1). Additionally, one's partner's relationship quality was associated with greater desire for touch overall, and partner attachment avoidance predicted less desire for indirectly affectionate touch, consistent with the actor attachment avoidance results. These findings highlight the importance of considering the relational context and suggest that an individual's touch preferences may shift from one romantic relationship to

another (due to different partner characteristics) or over time in the same relationship (as their own and partner relationship quality changes).

One goal of this descriptive research was to identify individual and relational differences in touch preferences as a foundation to help future researchers target and tailor touch interventions. Our results suggest that touch interventions may be most acceptable (i.e., individuals will participate voluntarily and remain in the intervention) when participants and their partners already have relatively high relationship quality and relatively low attachment avoidance. Therefore, touch interventions may be more suitable to help couples maintain individual well-being and relationship quality than to improve poor functioning. These results also suggest that overtly affectionate forms of touch may be more effectively adapted for interventions than indirectly affectionate forms of touch, even for (and perhaps especially for) people with higher attachment avoidance.

This research has several strengths as well as limitations that provide opportunities for future research. One strength is the use of both a dyadic sample and an individual sample; dyadic samples enable testing of partner characteristics, whereas individual samples tend to be more diverse, especially regarding relationship quality (Barton et al., 2020). Another strength is the inclusion of several predictors simultaneously to identify the unique predictors of desire for touch. Because predictors are correlated, it is critical to assess predictors simultaneously. Though we assessed a diverse set of predictors, future investigations could explore additional factors that may contribute to desire for touch (e.g., cultural context, self-esteem) as well as situational factors that predict fluctuations in touch preferences (e.g., daily stress). Future research could also assess the extent to which desire for touch predicts actual touch behavior and whether that link itself depends on individual and relationship characteristics.

One final limitation of note is the correlational design of this research, which limits our ability to make causal inferences. Touch preferences may covary with individual and relationship characteristics because these characteristics drive desire for touch as well as because touch preferences (and actual touch) drive some modifiable individual and relationship characteristics.

In conclusion, we believe that these studies provide useful descriptive information about how desire for touch varies based on individual and relational characteristics. We encourage other researchers to consider heterogeneity in desire for touch when designing interventions and providing recommendations for people to touch in their romantic relationships.

Funding

The author(s) disclosed receipt of the following financial support for the research, authorship, and/or publication of this article: This research (Study 2) was supported by a grant from the National Science Foundation (BCS1650477) awarded to the third author.

ORCID iD

Brett K. Jakubiak  <https://orcid.org/0000-0002-1943-076X>

Julian D. Fuentes  <https://orcid.org/0000-0001-7332-3650>

Open research statement

As part of IARR's encouragement of open research practices, the authors have provided the following information: This research was not pre-registered. The data used in the research are available. The data can be obtained by emailing bkjakubi@syr.edu. The materials used in the research are available. The materials can be obtained by emailing bkjakubi@syr.edu.

Supplemental material

Supplemental material for this article is available online.

Notes

1. Participants separately reported sexual/flirtatious touch ("touch intended to show sexual attraction or flirtation, including touch during sex"), so the report of affectionate touch does not include sexual touch.
2. Participants also completed the Flourishing Scale (Diener et al., 2010) as a measure of *psychological well-being*. For results pertaining to this measure or for results for individual distress measures, see the OSM.
3. For results for individual relationship quality measures, see the OSM.
4. To test whether there are differences between desire to provide and receive touch, we included an item-level (Level 2) categorical predictor representing *touch direction* (provide $\frac{1}{4}$ 0; receive $\frac{1}{4}$ 1), and we allowed this variable to interact with predictors, touch form, and their interactions. Touch direction did not moderate any effects.
5. We tested the three-way interaction between attachment anxiety, avoidance, and touch form, but it was not significant.
6. Participants completed measures in this order, with several other measures interspersed between them: personal demographics, attachment, relationship demographics, relationship quality, desire for touch, psychological distress.
7. Participants also completed the Satisfaction with Life Scale (Diener et al., 1985) as a measure of *psychological well-being*. For results pertaining to this measure, individual psychological distress measures, or a distress composite that includes the same subscales used in Study 1, see the OSM.
8. For results for individual relationship quality measures, see the OSM.
9. Results without partner effects are provided in OSM.
10. Given inconsistencies between some Study 1 and Study 2 results, we tested whether relationship length moderated the reported associations for attachment and relationship quality in both studies. See OSM.
11. We tested for two-way interactions between actor and partner attachment as well as three-way interactions including touch form, none of which were significant.

References

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

Anisfeld, E., Casper, V., Nozyce, M., & Cunningham, N. (1990). Does infant carrying promote attachment? An experimental study of the effects of increased physical contact on the development of attachment. *Child Development*, 61, 1617–1627.

Baayen, R. H., Davidson, D. J., & Bates, D. M. (2008). Mixed-effects modeling with crossed random effects for subjects and items. *Journal of Memory and Language*, 59(4), 390–412. <https://doi.org/10.1016/j.jml.2007.12.005>

Bartholomew, K. (1990). Avoidance of intimacy: An attachment perspective. *Journal of Social and Personal Relationships*, 7, 147–178.

Barton, A. W., Lavner, J. A., Stanley, S. M., Johnson, M. D., & Rhoades, G. K. (2020). “Will you complete this survey too?” Differences between individual versus dyadic samples in relationship research. *Journal of Family Psychology*, 34, 196–203. <https://doi.org/10.1037/fam0000583>

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

Brennan, K. A., Wu, S., & Loev, J. (1998b). Adult romantic attachment and individual differences in attitudes toward physical contact in the context of adult romantic relationships. In J. A. Simpson & W. S. Rholes (Eds.), *Attachment theory and close relationships* (pp. 394–428). Guilford Press.

Carmichael, C. L., Goldberg, M. H., & Coyle, M. A. (2020). Security-based differences in touch behavior and its relational benefits. *Social Psychological and Personality Science*, 1–11. <https://doi.org/10.1177/1948550620929164>

Chopik, W. J., Edelstein, R. S., van Anders, S. M., Wardecker, B. M., Shipman, E. L., & Samples-Steele, C. R. (2014). Too close for comfort? Adult attachment and cuddling in romantic and parent-child relationships. *Personality and Individual Differences*, 69, 212–216. <https://doi.org/10.1016/j.paid.2014.05.035>

Cohen, S., Kamarck, T., & Mermelstein, R. (1983). A global measure of perceived stress. *Journal of Health and Social Behavior*, 24, 385–396.

Collins, N. L., & Read, S. J. (1990). Adult attachment, working models, and relationship quality in dating couples. *Journal of Personality and Social Psychology*, 58, 644–663. <https://doi.org/10.1037/0022-3514.58.4.644>

Debrot, A., Schoebi, D., Perrez, M., & Horn, A. B. (2013). Touch as an interpersonal emotion regulation process in couples’ daily lives: The mediating role of psychological intimacy. *Personality and Social Psychology Bulletin*, 39, 1373–1385. <https://doi.org/10.1177/0146167213497592>

Debrot, A., Stellar, J. E., MacDonald, G., Keltner, D., & Impett, E. A. (2020). Is touch in romantic relationships universally beneficial for psychological well-being? The role of attachment avoidance. *Personality and Social Psychology Bulletin*. <https://doi.org/10.1177/0146167220977709>

Derogatis, L. R., & Melisaratos, N. (1983). The brief symptom inventory: An introductory report. *Psychological Medicine*, 13(3), 595–605. <https://doi.org/10.1017/S0033291700048017>

Diener, E., Emmons, R. A., Larsen, R. J., & Griffin, S. (1985). The satisfaction with life scale. *Journal of Personality Assessment*, 49, 71–75.

Diener, E., Wirtz, D., Tov, W., Kim-Prieto, C., Choi, D., Oishi, S., & Biswas-Diener, R. (2010). New well-being measures: Short scales to assess flourishing and positive and negative feelings. *Social Indicators Research*, 97, 143–156. <https://doi.org/10.1007/s11205-009-9493-y>

Ditzen, B., Hoppmann, C., & Klumb, P. (2008). Positive couple interactions and daily cortisol: On the stress-protecting role of intimacy. *Psychosomatic Medicine*, 70, 883–889. <https://doi.org/10.1097/PSY.0b013e318185c4fc>

Ditzen, B., Neumann, I. D., Bodenmann, G., von Dawans, B., Turner, R. A., Ehlert, U., & Heinrichs, M. (2007). Effects of different kinds of couple interaction on cortisol and heart rate responses to stress in women. *Psychoneuroendocrinology*, 32(5), 565–574. <https://doi.org/10.1016/j.psyneuen.2007.03.011>

Driskell, J. E., Salas, E., & Johnston, J. (1999). Does stress lead to loss of a team perspective? *Group Dynamics: Theory, Research, and Practice*, 3, 291–302.

Ebisch, S. J., Ferri, F., & Gallese, V. (2014). Touching moments: Desire modulates the neural anticipation of active romantic caress. *Frontiers in Behavioral Neuroscience*, 8, 60. <https://doi.org/10.3389/fnbeh.2014.00060>

Fraley, R. C. (2019). Attachment in adulthood: Recent developments, emerging debates, and future directions. *Annual Review of Psychology*, 70, 401–422. <https://doi.org/10.1146/annurev-psych-010418>

Fredrickson, B. L. (2013). Positive emotions broaden and build. In E. A. Plant & P. G. Devine (Eds.), *Advances in experimental social psychology* (Vol. 47, pp. 1–53). Academic Press. <https://doi.org/10.1016/B978-0-12-407236-7.00001-2>

Fredrickson, B. L., & Joiner, T. (2018). Reflections on positive emotions and upward spirals. *Perspectives on Psychological Science*, 13, 194–199. <https://doi.org/10.1177/1744691617692106>

Girme, Y. U., Overall, N. C., & Simpson, J. A. (2013). When visibility matters: Short-term versus long-term costs and benefits of visible and invisible support. *Personality and Social Psychology Bulletin*, 39, 1141–1154.

Girme, Y. U., Overall, N., Simpson, J. A., & Fletcher, G. (2015). “All or nothing”: Attachment avoidance and the curvilinear effects of partner support. *Journal of Personality and Social Psychology*, 108, 450–475. <https://doi.org/10.1037/a0038866>

Guerrero, L. K., & Andersen, P. A. (1991). The waxing and waning of relational intimacy: Touch as a function of relational stage, gender and touch avoidance. *Journal of Social and Personal Relationships*, 8, 147–165. <https://doi.org/10.1177/0265407591082001>

Gulledge, A. K., Gulledge, M. H., & Stahmann, R. F. (2003). Romantic physical affection types and relationship satisfaction. *The American Journal of Family Therapy*, 31(4), 233–242. <https://doi.org/10.1080/01926180390201936>

Gulledge, A. K., Hill, M., Lister, Z., & Sallion, C. (2007). Non-erotic physical affection; It's good for you. In L. L'Abate (Ed.), *Low cost approaches to promote physical and mental health; Theory, research, and practice* (pp. 371–383). Springer.

Hanzal, A., Segrin, C., & Dorros, S. M. (2008). The role of marital status and age on men's and women's reactions to touch from a relational partner. *Journal of Nonverbal Behavior*, 32(1), 21–35. <https://doi.org/10.1007/s10919-007-0039-1>

Hazan, C., & Shaver, P. (1987). Romantic love conceptualized as an attachment process. *Journal of Personality and Social Psychology*, 59(2), 511–524. <https://doi.org/10.1037/0022-3514.52.3.511>

Hertenstein, M. J., Keltner, D., App, B., Bulleit, B. A., & Jaskolka, A. R. (2006). Touch communicates distinct emotions. *Emotion*, 6(3), 528–533. <https://doi.org/10.1037/1528-3542.6.3.528>

Holt-Lunstad, J., Birmingham, W. A., & Light, K. C. (2008). Influence of a “warm touch” support enhancement intervention among married couples on ambulatory blood pressure, oxytocin, alpha amylase, and cortisol. *Psychosomatic Medicine*, 70(9), 976–985. <https://doi.org/10.1097/PSY.0b013e318187aef7>

Jakubiak, B. K., & Feeney, B. C. (2016). A sense of security: Touch promotes state attachment security. *Social Psychological and Personality Science*, 7, 745–753. <https://doi.org/10.1177/1948550616646427>

Jakubiak, B. K., & Feeney, B. C. (2017). Affectionate touch to promote relational, psychological, and physical well-being in adulthood: A theoretical model and review of the research. *Personality and Social Psychology Review*, 21, 228–252. <https://doi.org/10.1177/1088868316650307>

Jakubiak, B. K., & Feeney, B. C. (2018a). Interpersonal touch as a resource to facilitate positive personal and relational outcomes during stress discussions. *Journal of Social and Personal Relationships*, 026540751880466. <https://doi.org/10.1177/0265407518804666>

Jakubiak, B. K., & Feeney, B. C. (2018b). Hand-in-hand combat: Affectionate touch promotes relational well-being and buffers stress during conflict. *Personality and Social Psychology Bulletin*. <https://doi.org/10.1177/0146167218788556>

Jones, S., & Yarbrough, A. (1985). A naturalistic study of the meanings of touch. *Communications Monographs*, 52, 19–56.

Kenny, D. A., Kashy, D. A., & Cook, W. L. (2006). *Dyadic data analysis*. Guilford Press.

Kim, K. J., Feeney, B. C., & Jakubiak, B. K. (2018). Touch reduces romantic jealousy in the anxiously attached. *Journal of Social and Personal Relationships*, 35, 1019–1041. <https://doi.org/10.1177/0265407517702012>

Nguyen, T., Heslin, R., & Nguyen, M. L. (1975). The meanings of touch: Sex differences. *The Journal of Communication*, 25, 92–103.

Rempel, J. K., Holmes, J. G., & Zanna, M. P. (1985). Trust in close relationships. *Journal of Personality and Social Psychology*, 49, 95–112. <https://doi.org/10.1037/0022-3514.49.1.95>

Robinson, K. J., Hoplock, L. B., & Cameron, J. J. (2015). When in doubt, reach out: Touch is a covert but effective mode of soliciting and providing social support. *Social Psychological and Personality Science*, 6(7), 831–839. <https://doi.org/10.1177/1948550615584197>

Russo, V., Ottaviani, C., & Spitoni, G. F. (2020). Affective touch: A meta-analysis on sex differences. *Neuroscience and Biobehavioral Reviews*, 445–452. <https://doi.org/10.1016/j.neubiorev.2019.09.037>

Stadler, G., Snyder, K. A., Horn, A. B., Shrout, P. E., & Bolger, N. P. (2012). Close relationships and health in daily life: A review and empirical data on intimacy and somatic symptoms. *Psychosomatic Medicine*, 74(4), 398–409. <https://doi.org/10.1097/PSY.0b013e31825473b8>

Stanton, S. C. E., Campbell, L., & Pink, J. C. (2017). Benefits of positive relationship experiences for avoidantly attached individuals. *Journal of Personality and Social Psychology*, 113, 568–588. <https://doi.org/10.1037/pspi0000098>

Suvilehto, J. T., Nummenmaa, L., Harada, T., Dunbar, R. I. M., Hari, R., Turner, R., Sadato, N., & Kitada, R. (2019). Cross-cultural similarity in relationship-specific social touching. *Proceedings of the Royal Society B*, 286(1901), 1–10. <https://doi.org/10.1098/rspb.2019.0467>

Thayer, S. (1986). Touch: Frontier of intimacy. *Journal of Nonverbal Behavior*, 10(1), 7–11. <https://doi.org/10.1007/BF00987201>

Van Lange, P. A. M., Rusbult, C. E., Drigotas, S. M., Arriaga, X. B., Witcher, B. S., & Cox, C. L. (1997). Willingness to sacrifice in close relationships. *Journal of Personality and Social Psychology*, 72, 1373–1395. <https://doi.org/10.1037/0022-3514.72.6.1373>

Ware, J. E., & Sherbourne, C. D. (1992). I. Conceptual framework and item selection. *Medical Care*, 30(6), 473–483.