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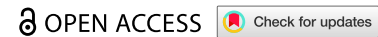


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BRIEF REPORT



Hugging a new acquaintance increases Social Interest

Kira von Kleist^a, Nico Henschel^b and Karen Dobkins^a

^aDepartment of Psychology, University of California, San Diego, CA, USA; ^bDepartment of Cognitive Science, Comenius University, Bratislava, Slovakia

ABSTRACT

Decades of research show that social touch enhances interpersonal connection, from increasing relationship satisfaction to fostering prosociality among strangers. We tested whether a simple hug could increase Social Interest between strangers. Experimenters approached people on campus and invited them to join a study on touch. If they agreed, they were randomly assigned to either receive a hug or not. Afterward, the experimenter invited them to view vacation photos, with viewing time and number of photos serving as measures of Social Interest. Among 330 participants, those who received a hug showed greater Social Interest, and the more they liked the hug, the stronger the effect. Hugs between new acquaintances may promote connection.

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Humans have a fundamental need to belong, reflected in the desire to build and maintain relationships (Baumeister & Leary, 2017; Lieberman, 2013). This need is so strong that, even under minimal circumstances, people are highly sensitive to social cues that signal opportunities to form new relationships. For example, merely discovering shared group membership can promote the development of friendships (Harvey et al., 1961). In the present study, we asked whether something as minimal as a hug between people meeting for the first time could help spark Social Interest. The decision to study the effects of hugs was inspired by the rich literature demonstrating the benefits of social touch (Field, 2010). Below, we offer a brief review along with selected examples from this work.

Hugs in close relationships. Over the past two decades, empirical studies have shown the physiological and psychological benefits of hugs (and cuddling) between people in close relationships (Packheiser et al., 2024). For example, correlational studies have shown that frequent close hugs are associated with lower rates of viral infections (Cohen et al., 2015), and experimental studies have shown that physiological responses to stress are reduced when women are hugged by their male partners (Berretz et al., 2022). In addition to evidence that hugs lower stress and improve physical health, studies have shown that hugs enhance relationship *quality*. For example, in a longitudinal study of romantic couples, Van Raalte et al. (2021) reported that those who were instructed to cuddle more with each other over four weeks showed greater relationship satisfaction compared to an active control group (instructed to spend more time together) and a passive control group (given no instructions).

Touch in close relationships. Given that hugs are a form of touch *in general*, these findings from hugging studies are in line with a large body of work demonstrating the benefits of other types of social touch in close relationships (Jakubiak & Feeney, 2017). For example, correlational studies in couples have shown that physical contact is positively correlated with positive affect and reduced physiological stress responses (Ditzen et al., 2008; Debrot et al., 2013). Experimental lab studies have shown that couples who hold hands while discussing a conflict show more constructive behavior and fewer signs of stress than those in the control (holding a weight) condition do (Jakubiak & Feeney, 2019), and couples trained to practice warm

CONTACT Karen Dobkins  kdobkins@ucsd.edu  University of California San Diego, 9500 Gilman Drive, San Diego, CA 92093, USA

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touch with their partners over four weeks show higher levels of oxytocin and lower stress markers compared to couples in a monitor-control condition (Holt-Lunstad et al., 2008).

Touch between strangers (laboratory studies). In addition to studies showing that touch is beneficial for people in *close relations* (e.g., romantic partners, as discussed above), researchers have also investigated whether touch between *strangers* might likewise be beneficial, as this could have implications for well-being in daily life, e.g., when meeting a new acquaintance. Unfortunately, relatively few studies have tested the effects of touch on strangers, and the results have been mixed. For example, in one lab study, Coan et al. (2006) reported that holding the hand of a stranger (in this case, an experimenter) during a stressful task reduced physiological stress markers but did not reduce *self-reports* of stress. And, Floyd et al. (2018) altogether failed to find a benefit of a stranger's touch on pain tolerance as compared to when the experimenter was simply present. While these types of in-lab studies have the advantage of careful control over the conditions, they may feel unnatural to participants, which might explain the weak effects.

Touch between strangers (field studies). To increase ecological validity, other studies have been conducted 'in the field', and here, the results are more consistent. In many of these studies, the experimenter approaches a stranger and makes a request (i.e., asks a favor), with the measure of interest being whether that stranger is more likely to comply if, while making the request, the experimenter touches the stranger (e.g., on the arm or shoulder) vs. does not. The results from these studies report higher rates of compliance due to being touched in the following situations: the experimenter boards a bus with insufficient fare and asks the driver to ride freely (Gué et al., 2003), the experimenter approaches a stranger on the street, asking them to watch their large dog for 10 min (Gué et al., 2002), the experimenter approaches a stranger in a mall and asks them to fill out a survey (Hornik & Ellis, 1988), and the experimenter approaches a smoker and asks for a cigarette (Joule et al., 2007).

In addition to increasing the likelihood of engaging in prosocial behaviors, other researchers have asked whether touching a stranger can enhance their *positive affect*. For example, Fisher et al. (1976) conducted their study in a library, asking the librarian to briefly touch the hand of some patrons (selected randomly) during an interaction. They found that people who were touched reported greater positive affect and more liking of the librarian when they were surveyed later about their experience in the library. In summary, the results from field studies suggest that a simple (and appropriate) touch between strangers can lead to more prosocial behaviors and favorable feelings toward the person initiating the touch.

The current study. The ecological validity and significance of these field studies demonstrating the prosocial and psychological benefits of touch between strangers inspired the question of the current study: does *hugging* a stranger, which is more intimate than simple touch, increase prosocial feelings and behaviors? To our knowledge, only one study has shown the benefits of hugging a stranger; however, it was conducted in the laboratory and focused on physiological (and not psychological) effects (Dreisoerner et al., 2021). As such, field studies examining the prosocial benefits of hugging a stranger, particularly its potential to foster new relationships, have yet to be conducted. In fact, field studies are becoming increasingly rare owing to the substantial effort required to conduct them and a growing bias against their use. This is unfortunate, as they are extremely valuable for understanding how people are affected in real-world contexts (Cialdini, 2009).

In the current real-world study, experimenters approached students walking on campus and, using random assignment, either gave them a hug (the 'Hug' group) or did not (the 'No Hug' group, who either received a handshake by the experimenter or no touch at all). At the end of the study (after filling out some survey questions), the experimenter invited the participants to view their vacation pictures and the extent to which the participants did so was used as a measure of Social Interest. From these data, we asked three questions. *First*, we asked whether Social Interest was greater for people who were hugged compared to those who were not hugged. *Second*, for the people who were hugged, we asked whether the degree to which they reported liking the hug predicted Social Interest. *Third*, in an exploratory fashion, we asked whether there was a 'gender effect', wherein people show more Social Interest when they are hugged by someone of a different (vs. same) gender.

Methods

The data for this study were collected between 2014 and 2015 at the University of California, San Diego. The study was approved by our university IRB, and all participants provided oral consent.

Experimenters. There were 18 experimenters (11 females, 7 males, age: $M = 21.0$, $SD = 2.31$ years), students at our university, who conducted the study. These experimenters stood in specific areas on campus, waiting for potential participants to pass by. Experimenters were trained to give hugs in a standardized way, wore similar clothes without perfume or jewelry, and were naive to the hypothesis of the study.

Participants. The participants were recruited while walking around the campus and were approached by one of the experimenters. The experimenter asked the person, ‘Would you like to participate in a study about touch, which takes about 5–10 min?’. If the person said ‘Yes’ (providing oral consent), the experimenter continued the interaction. In total, 943 people were approached, and 358 (38%) agreed to participate in the study. After excluding some participants (see below), the remaining sample consisted of 330 participants retained for analysis. The mean age of the final sample was 21.0 ($SD = 4.16$), with 142 (43%) female and 188 (57%) male participants and an ethnoracial makeup of participants identified as Asian (45%), Caucasian (28%), Hispanic (14%), as Mixed (10%) and African American (3%). The female experimenters tested 196 participants (59%), and the male experimenters tested 134 (41%) participants.

Exclusion. Out of the 358 participants who initially agreed to participate in the study, 27 participants were excluded because they declined a hug, an issue we revisited in the *Discussion*. One participant was excluded because they identified as transmasculine, and we did not have enough participants in this category to include this gender level in our models. This left us with 330 participants.

Overall procedure. Each participant was randomly assigned to one of six conditions. Two of these did not include a hug, with the participant experiencing either a handshake or no physical touch at all. The four other conditions consisted of the participant receiving one of four types of hugs (which consisted of the hug being either 1 or 3 s, and was either accompanied by a pat on the back or not). Because we found no differences between the two types of ‘No Hug’ conditions and the four kinds of ‘Hug’ conditions (see *Appendix A*), we combined data to create just two final groups, which we refer to as the ‘Hug’ condition ($n = 213$) vs. ‘No Hug’ ($n = 117$) condition for the remainder of this paper. If the participant was assigned to the ‘Hug’ condition, the experimenter said, ‘This study will start out by giving you a hug. Are you ok with that?’ If the participant said ‘Yes’, they were immediately hugged.

Next, the participants were handed a device (tablet or laptop) and asked to fill out a questionnaire about their hugging experiences/preferences as well as demographic information. One of the purposes of the questionnaires was to reduce suspicion about the true aim of the study, which was to measure participants’ reactions to being invited to view the experimenter’s vacation pictures (described below). Because participants had just consented to take part in a study described as being about ‘touch,’ the questionnaire about hugging served as a decoy measure. Note that for participants who were *hugged*, the questionnaire included one extra question that asked ‘How much did you like the hug?’ (1 = not at all, 5 = I really liked it), which was used in one of our analyses (Question 2). The complete list of items on the questionnaire is provided in (*Appendix B*).

When participants finished the questionnaire, and it seemed that the study had ended, the experimenter casually invited the participant to look at the experimenter’s 187 vacation pictures (landscapes and crowds of people) on the device, saying ‘Thanks so much for being in this study – oh, hey, I just got back from a cool vacation in Serbia. Would you like to see some pictures on my device, if you have time?’. (We chose this country because we wanted a country that participants were unlikely to know about, therefore making it less likely that they would challenge the ‘fake’ story that the experimenter had been there. We also chose a very large number of photos to make it unlikely that the participant would reach the end). The

participant's reaction to this was taken as a measure of 'Social Interest' towards the experimenter (described further, below).

If the participant said 'No', the experimenter thanked them, and the study ended. If the participant said 'Yes', the experimenter pulled up the set of pictures, allowing the participant to look through them. The experimenter then picked up a clipboard, appearing to be busy, so that the participant would not feel obligated to look at the pictures for a long time. However, if the participant asked questions or made comments about the pictures, the experimenter responded. During this time, the experimenter used a hidden timer to measure the number of seconds the participant spent looking at the pictures. When the participants finished looking at the pictures, they handed the device back to the experimenter, and the experimenter thanked them again. After the participant walked away, the experimenter noted how many pictures the participant looked at (which was recorded from the device itself) and how long the participant looked at the pictures (recorded from a stopwatch).

Measures

Social interest. We defined the measure of Social Interest in two ways. First, in a binary fashion, we coded whether people responded with 'Yes' or 'No' when invited to view the vacation pictures. Second, for those who said 'Yes', we calculated a composite measure of 'number of photos viewed' and 'time spent looking at pictures' (see *Analyses and Results*). These measures of Social Interest were designed to be implicit rather than explicitly asking participants how much interest they felt toward the experimenter to avoid potential bias from demand characteristics.

Hug liking. For participants in the Hug condition who said yes to viewing the pictures, we used the 'How much did you like the hug?' (on a scale of 1–5, 1 = not at all, 5 = I really liked it) item on the questionnaire to ask whether it predicted Social Interest.

Covariates. In our analyses below, we included covariates (the experimenter's gender, the participant's gender, and ethnoracial status) if we found that they predicted Social Interest. In one analysis (question 3), we specifically examined the effects of gender.

Analyses and results

Question 1. Did people in the Hug group show more Social Interest than people in the No Hug group? This was addressed in two ways. First, we tested whether the percentage of people who said 'Yes' to view the experimenter's pictures was greater in the Hug vs. No Hug group. Using a logistic regression, with Condition (Hug vs. No Hug) as the independent variable and whether the participant agreed to look at the pictures (Yes vs. No) as the dependent variable, we found that a significantly greater percentage ($N = 162$, 76%) of participants in the Hug condition said 'Yes' to looking at the pictures than in the No Hug condition ($N = 61$, 52%) (Odds ratio = 2.92, 95% CI [1.81, 4.73], $p < .001$).

Second, we examined whether, among those who agreed to view the pictures ($N = 223$), Social Interest was greater in the Hug condition than in the No Hug condition. As a first step, we tested for normality. Because both the two main measures – number of photos viewed and the time spent viewing, were not normally distributed ($W(222) = .78$, $p < .001$; $W(222) = .67$, $p < .001$, respectively), we log-transformed both variables to better approximate a normal distribution. As we intended to create a combined score of the two measures, we first Z-scored them separately (as they would otherwise be in different units). Because we found that they were sufficiently correlated ($r = .70$, $p < .001$), we took their average to create a composite 'Social Interest' score. The descriptive statistics showing median unlogged values (number of photos looked at and seconds spent looking at the photos) for the different conditions are presented in the *Appendix C*.

Next, we conducted a Type II multiple linear regression, where the dependent variable was Social Interest and the predictor variable was Condition (Hug vs. No Hug). Here, because ethnoracial status was found to predict Social Interest (ANOVA: $F(4, 218) = 2.98$, $p = .020$, $R^2 = .05$), as well as covary with condition ($\chi^2(4, 223) = 10.19$, $p = 0.037$), we included it as a covariate in the model. The results showed that

participants in the Hug condition exhibited significantly more Social Interest towards the experimenter compared to participants in the No Hug condition, and this effect showed a moderate effect size ($\beta = 0.50$, $p < .001$, model fit: $F(5, 217) = 5.29$, $p < .001$, $R^2 = .11$; see Table 1).

It is perhaps important to ask whether this effect is due to being hugged *per se* rather than being due to being touched in general. This can be addressed by comparing Social Interest between participants in the No Hug condition who received a handshake vs. no touch at all. As reported in Appendix A, we found no benefit of a handshake on Social Interest ($p = .999$), suggesting that the observed benefit of hugging was unlikely due to just being touched by the experimenter (and see von Mohr et al. (2021) for a similar argument that touch is only effective if it is intimate).

Question 2: For people in the Hug group who said ‘Yes’ to viewing the pictures ($N = 162$), was Social Interest positively predicted by Hug Liking? Using a Type II multiple linear regression, where the dependent variable was Social Interest, and the predictor variable was Hug Liking (rated on a scale of 1–5), we found that participants who reported more liking of the hug showed more Social Interest in the experimenter ($\beta = 0.21$, $p = .007$; model fit: $F(1,160) = 7.60$, $p = .007$, $R^2 = .05$; see Table 2).

Question 3: Inspired by a question raised by the editor and reviewers, we explored whether Social Interest was stronger in participants who were hugged by someone of a different (vs. same) gender, which we addressed with tests of contrasts. The results, which are presented in Figure 1, revealed that female participants showed a significant ‘gender effect’ ($t(32.19) = -2.58$, $p = .015$), i.e., they showed much more interest in a male vs. female hugger (Cohen’s $d = 0.72$), while male participants showed no more interest in a female vs. male hugger ($t(45.04) = -0.03$, $p = .975$). These results should be viewed with caution, however, given the small sample size in some categories, e.g., there were only 20 instances in which a female participant was hugged by a male experimenter. The null findings for male participants should also be viewed with caution, as the results of a sensitivity analysis using G*Power (Faul et al., 2009) suggest that, assuming that $\alpha = 0.05$ and power $(1-\beta) = 0.8$, we were underpowered to detect small effect sizes should they exist. Specifically, the current sample of 93 males would have been able to detect only a minimum effect size of Cohen’s $d = 0.68$ (which is moderate). Nevertheless, if the effect we observed is real, it might be explained by supposing that feelings of *romantic* interest are induced when hugged by someone of the opposite gender. Further research, which controls for sexual orientation and includes larger sample sizes, will be needed to address this possibility.

Table 1. Type II regression model showing Social Interest as a function of Condition (Hug vs. No Hug), while controlling for ethnoracial status ($N = 223$).

Predictor	β	β 95% CI [LL, UL]	p	Fit
Condition (No Hug vs. Hug)	0.50	[0.24, 0.77]	<0.001	
African American	0.91	[0.26, 1.56]	<0.01	
Caucasian	0.19	[-0.10, 0.47]	0.20	
Hispanic	0.39	[0.03, 0.74]	0.03	
Mixed	0.57	[0.16, 0.98]	<0.01	
				$R^2 = .11^{***}$
				95%CI [.03, .17]

Note: The condition was dummy-coded (0 = No Hug, 1 = Hug). For the effects of ethnoracial status, the reference group was Asian. β (beta) represents the standardized regression coefficient. ***indicates $p < .001$. LL and UL indicate the lower and upper limits of a confidence interval, respectively.

Table 2. Type II regression model showing Social Interest as a function of Hug Liking for people in the Hug condition ($N = 162$).

Predictor	β	β 95% CI [LL, UL]	p	Fit
Hug Liking	0.21	[0.06, 0.37]	0.007	
				$R^2 = .05^{**}$
				95% CI [.00, .12]

Note: β (beta) represents the standardized regression coefficient. LL and UL indicate the lower and upper limits of a confidence interval, respectively. **indicates $p < .01$.

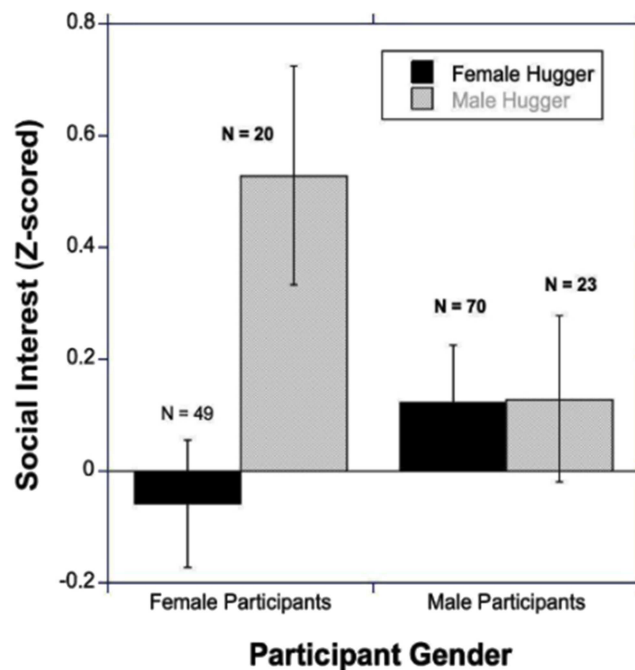


Figure 1. Means and standard errors for all four pairings of participant gender and hugger gender. Only female, but not male, participants showed greater Social Interest when the hugger was a different (vs. same) gender.

Discussion

The findings of the current study show that, under natural conditions of walking around a college campus, hugging (vs. not hugging) a newly met person leads to greater Social Interest in the hug initiator, and the more this person enjoys the hug, the more interest they show. Moreover, we observed that the effect size of this single hugging experience was moderate – a result notably larger than the typically small effects reported for other single-session psychological interventions (van Agteren et al., 2021). Such findings suggest that something as minimal as a hug can be a potent way to form new relationships.

The findings of the present study align with a substantial body of research demonstrating that minimal social cues – such as physical proximity, brief positive interactions, and even arbitrary group assignment – can foster a sense of belonging, which is a fundamental human need (the *belongingness hypothesis*; Baumeister & Leary, 1995; Lieberman, 2013). While social bonds can form through various avenues (e.g., shared hobbies, values, or cultural backgrounds), social touch is thought to be a particularly powerful mechanism (the *social touch hypothesis*; Field, 2010). Because most prior work on social touch and well-being has focused on close relationships, the current field study provides novel evidence that affective gestures, such as spontaneous and consensual hugs between new acquaintances, may serve as an important first step toward building Social Interest and potentially forming new relationships.

Despite the encouraging results of the current study, several limitations should be noted. The first pertains to whether our dependent measure truly captured ‘Social Interest’. An alternative explanation is that, after being hugged by the experimenter, participants felt obligated to reciprocate with a warm gesture, acting out of *reciprocity* rather than genuine interest in the experimenter. We would nonetheless argue that this falls under the umbrella of prosocial behavior (Buunk & Schaufeli, 1999). Thus, the results of the present study suggest that hugging a stranger in the real world can increase prosocial feelings and/or behaviors, a finding that, to our knowledge, has not yet been documented in the literature.

A second limitation is that our sample consisted mainly of WEIRD (Western, educated, industrialized, rich, and democratic) students and may therefore not be generalizable to other groups. For example, social norms around hugging might vary across cultures depending on their warmth, political orientation, and demographic composition (Sorokowska et al., 2021). As such, future work looking at the benefits of hugging should be conducted across a broader range of groups.

A third limitation is that our study was conducted *prior* to the COVID-19 pandemic, at a time when people were less anxious about being touched by a stranger, and for this reason, the current results may not hold up in today's culture. During the pandemic, hugging became less frequent (Packheiser et al., 2024), leading to an increased longing for touch (Meijer et al., 2022). However, even under these conditions, hugs were still found to improve people's mood (Packheiser et al., 2024). Future studies – if policies and social norms permit – could investigate how the effects of hugging have shifted in the post-pandemic era and compare contemporary outcomes to our pre-pandemic findings.

A final limitation concerns how we consented people. Potential participants were asked whether they would 'be willing to be in a study about touch'. If they agreed and were randomly assigned to the Hug condition, they were further asked, 'May I give you a hug?'. An alternative consenting procedure would have been to ask potential participants whether they would 'be willing to be in a study that *may* or *may not* involve getting a hug from the experimenter'. We chose not to go this latter route, as we wished to hide, as much as possible, the fact that the study was about the effects of being hugged by the experimenter. Moreover, we feared that this alternative consenting approach could create a situation in which people who were randomly assigned to the 'No Hug' condition might feel rejected (after learning, during the consent process, that there was a chance to be hugged), and this, in turn, could negatively affect their feelings towards the experimenter.

While our consenting procedure may have avoided some of these pitfalls, it may have raised others. Specifically, because participants in the Hug condition were first asked for consent to be hugged and then hugged (if they agreed), we cannot disentangle the effects of these two components. As such, it is possible that simply being *asked* for a hug, rather than the hug itself, contributed to the observed increase in Social Interest. This general confound is, of course, true for any intervention, which is one of the rationales behind an 'intent-to-treat' analysis (Gupta, 2011).

Another potential concern about our consent process stems from the fact that we excluded 11% of participants (27 out of 240) who were assigned to the Hug condition because they declined the hug (see Methods). This exclusion raises the possibility of differences in the composition of our two groups. Specifically, we can assume that a similar proportion, approximately 11%, of participants in the No Hug condition would also have declined a hug, had they been asked. As a result, while 100% of the participants in the Hug condition were individuals who agreed to hug someone they had just met, only approximately 89% of those in the No Hug condition could be presumed to share this disposition. Although we believe that this small difference (100% vs. 89%) is unlikely to account for the observed group difference in Social Interest, future studies should address this issue by asking participants in the No Hug condition, at the end of the study, to reflect on whether they would have agreed to a hug if it had been offered. In this way, only participants who either agreed or retrospectively reported that they would have agreed to the hug could have been included in the analysis.

While the current study's methodology of collecting data from participants who consented to being hugged presents certain limitations, it also highlights a crucial factor in the benefits of hugging or any form of touch: *mutual consent*. In real-world contexts, the positive effects of hugging a new acquaintance are likely contingent on both parties' willingness to engage, a factor that may vary across cultures. Nevertheless, we think the work has strong implications for human relations, suggesting that by asking for consent to hug, and then hugging, a new acquaintance might go a long way.

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References

- Baumeister, R. F., & Leary, M. R. (1995). The need to belong: Desire for interpersonal attachments as a fundamental human motivation. *Psychological Bulletin*, 117(3), 497–529. <https://doi.org/10.1037/0033-2909.117.3.497>
- Baumeister, R. F., & Leary, M. R. (2017). The need to belong: Desire for interpersonal attachments as a fundamental human motivation. *Interpersonal Development*, 57–89. <https://doi.org/10.4324/9781351153683-3>
- Berretz, G., Cebula, C., Wortelmann, B. M., Papadopoulou, P., Wolf, O. T., Ocklenburg, S., & Packheiser, J. (2022). Romantic partner embraces reduce cortisol release after acute stress induction in women but not in men. *PLoS One*, 17(5), e0266887. <https://doi.org/10.1371/journal.pone.0266887>
- Buunk, B. P., & Schaefeli, W. B. (1999). Reciprocity in interpersonal relationships: An evolutionary perspective on its importance for health and well-being. *European Review of Social Psychology*, 10(1), 259–291. <https://doi.org/10.1080/14792779943000080>
- Cialdini, R. B. (2009). We have to break up. *Perspectives on Psychological Science: A Journal of the Association for Psychological Science*, 4(1), 5–6. <https://doi.org/10.1111/j.1745-6924.2009.01091.x>
- Coan, J. A., Schaefer, H. S., & Davidson, R. J. (2006). Lending a hand: Social regulation of the neural response to threat. *Psychological Science*, 17(12), 1032–1039. <https://doi.org/10.1111/j.1467-9280.2006.01832.x>
- Cohen, S., Janicki-Deverts, D., Turner, R. B., & Doyle, W. J. (2015). Does hugging provide stress-buffering social support? A study of susceptibility to upper respiratory infection and illness. *Psychological Science*, 26(2), 135–147. <https://doi.org/10.1177/0956797614559284>
- 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 Social Psychology Bulletin*, 39(10), 1373–1385. <https://doi.org/10.1177/0146167213497592>
- Ditzen, B., Hoppmann, C., & Klumb, P. (2008). Positive couple interactions and daily cortisol: On the stress-protecting role of intimacy. *Psychosomatic Medicine*, 70(8), 883–889. <https://doi.org/10.1097/PSY.0b013e318185c4fc>
- Dreisoerner, A., Junker, N. M., Schlotz, W., Heimrich, J., Bloemeke, S., Ditzen, B., & van Dick, R. (2021). Self-soothing touch and being hugged reduce cortisol responses to stress: A randomized controlled trial on stress, physical touch, and social identity. *Comprehensive Psychoneuroendocrinology*, 8(100091), 100091. <https://doi.org/10.1016/j.cpnec.2021.100091>
- Dueren, A. L., Vafeiadou, A., Edgar, C., & Banissy, M. J. (2021). The influence of duration, arm crossing style, gender, and emotional closeness on hugging behaviour. *Acta Psychologica*, 221(103441), 103441. <https://doi.org/10.1016/j.actpsy.2021.103441>
- Faul, F., Erdfelder, E., Buchner, A., & Lang, A.-G. (2009). Statistical power analyses using G*Power 3.1: Tests for correlation and regression analyses. *Behavior Research Methods*, 41(4), 1149–1160. <https://doi.org/10.3758/BRM.41.4.1149>
- Field, T. (2010). Touch for socioemotional and physical well-being: A review. *Developmental Review: DR*, 30(4), 367–383. <https://doi.org/10.1016/j.dr.2011.01.001>
- Fisher, J. D., Rytting, M., & Heslin, R. (1976). Hands touching hands: Affective and evaluative effects of an interpersonal touch. *Sociometry*, 39(4), 416–421. <https://www.ncbi.nlm.nih.gov/pubmed/1006362>
- Floyd, K. (1999). All touches are not created equal: Effects of form and duration on observers' interpretations of an embrace. *Journal of Nonverbal Behavior*, 23(4), 283–299. <https://doi.org/10.1023/a:1021602926270>
- Floyd, K., Ray, C. D., Raalte, L. V., Stein, J. B., & Generous, M. A. (2018). Interpersonal touch buffers pain sensitivity in romantic relationships but heightens sensitivity between strangers and friends. *Research in Psychology and Behavioral Sciences*, 6, 27–34. <https://doi.org/10.12691/RPBS-6-1-4>
- Guéguen, N., & Fischer-Lokou, J. (2002). An evaluation of touch on a large request: A field setting. *Psychological Reports*, 90(1), 267–269. <https://doi.org/10.2466/pr0.2002.90.1.267>
- Guéguen, N., & Fischer-Lokou, J. (2003). Another evaluation of touch and helping behavior. *Psychological Reports*, 92(1), 62–64. <https://doi.org/10.2466/pr0.2003.92.1.62>

- Gupta, S. (2011). Intention-to-treat concept: A review. *Perspectives in Clinical Research*, 2, 109–112. <https://doi.org/10.4103/2229-3485.83221>
- Harvey, O. J., Sherif, M., White, B. J., Hood, W. R., & Sherif, C. W. (1961). *Intergroup conflict and cooperation: the Robbers Cave experiment* (Vol. 10). University Book Exchange.
- 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>
- Hornik, J., & Ellis, S. (1988). Strategies to secure compliance for a mall intercept interview. *Public Opinion Quarterly*, 52(4), 539–551. <https://doi.org/10.1086/269129>
- 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: An Official Journal of the Society for Personality and Social Psychology, Inc.*, 21(3), 228–252. <https://doi.org/10.1177/1088868316650307>
- Jakubiak, B. K., & Feeney, B. C. (2019). Hand-in-hand combat: Affectionate touch promotes relational well-being and buffers stress during conflict. *Personality Social Psychology Bulletin*, 45(3), 431–446. <https://doi.org/10.1177/0146167218788556>
- Joule, R.-V., & Guéguen, N. (2007). Touch, compliance, and awareness of tactile contact. *Perceptual and Motor Skills*, 104(2), 581–588. <https://doi.org/10.2466/pms.104.2.581-588>
- Lieberman, M. D. (2013). *Social: Why our brains are wired to connect* (Vol. 1). Crown Publishers.
- Meijer, L. L., Hasenack, B., Kamps, J. C. C., Mahon, A., Titone, G., Dijkerman, H. C., & Keizer, A. (2022). Affective touch perception and longing for touch during the COVID-19 pandemic. *Scientific Reports*, 12(1), 3887. <https://doi.org/10.1038/s41598-022-07213-4>
- von Mohr, M., Kirsch, L. P., & Fotopoulou, A. (2021). Social touch deprivation during COVID-19: Effects on psychological wellbeing and craving interpersonal touch. *Royal Society Open Science*, 8(9), 210287. <https://doi.org/10.1098/rsos.210287>
- Nagy, E. (2011). Sharing the moment: The duration of embraces in humans. *Journal of Ethology*, 29(2), 389–393. <https://doi.org/10.1007/s10164-010-0260-y>
- Packheiser, J., Sommer, L., Wüllner, M., Malek, I. M., Reichart, J. S., Katona, L., Luhmann, M., & Ocklenburg, S. (2024). A comparison of hugging frequency and its association with momentary mood before and during COVID-19 using ecological momentary assessment. *Health Communication*, 39(5), 951–959. <https://doi.org/10.1080/10410236.2023.2198058>
- Sorokowska, A., Saluja, S., Sorokowski, P., Frąckowiak, T., Karwowski, M., Aavik, T., Akello, G., Alm, C., Amjad, N., Anjum, A., Asao, K., Atama, C. S., Atamtürk Duyar, D., Ayebare, R., Batres, C., Bendixen, M., Bensafia, A., Bizumic, B., Boussena, M., ... Zupančič, M. (2021). Affective interpersonal touch in close relationships: A cross-cultural perspective. *Personality Social Psychology Bulletin*, 47(12), 1705–1721. <https://doi.org/10.1177/0146167220988373>
- van Agteren, J., Iasiello, M., Lo, L., Bartholomaeus, J., Kopsaftis, Z., Carey, M., & Kyrios, M. (2021). A systematic review and meta-analysis of psychological interventions to improve mental wellbeing. *Nature Human Behaviour*, 5(5), 631–652. <https://doi.org/10.1038/s41562-021-01093-w>
- Van Raalte, L. J., Floyd, K., & Mongeau, P. A. (2021). The effects of cuddling on relational quality for married couples: A longitudinal investigation. *Western Journal of Communication*, 85(1), 61–82. <https://doi.org/10.1080/10570314.2019.1667021>

Appendices

Appendix A

The decision to collapse data into two groups (Hug vs. No Hug). Our original intention was to test whether there was a difference in Social Interest between (1) the two types of ‘No Hug’ (i.e., handshake vs. no touch at all) and (2) the four types of ‘Hug’. The four Hug conditions were set up as a 2×2 design, where one dimension was *Length*: Hugs were ‘Long’ (~3 s) or ‘Short’ (~1 s), and the other dimension was *Patting Style*: Hugs had ‘No Pat’ (i.e., the experimenter placed and kept both hands on the other person’s back) or ‘Pat’ (i.e., the experimenter placed one hand on the other person’s back while his/her other hand was used to pat the other person’s back). We chose 3 s as the Long Hug duration to approximate the length of a natural hug (Nagy, 2011). However, there is debate about whether shorter or longer hugs are more pleasurable (Dueren et al., 2021; Floyd, 1999). Upon discovering that there was no difference between the two No Hug conditions and the four Hug conditions, we later decided to collapse the data into two groups: Hug ($n = 213$) vs. No Hug ($N = 117$). Using data that were log-transformed and Z-scored (see ‘Analysis and Results’), a t -test revealed no difference between participants who received a handshake vs. no touch (t -test: $t(56.65) = -0.001$, $p = .999$, Cohen’s $d = .0003$), which suggests that a handshake offers no benefit. Similarly, an ANOVA revealed no differences in Social Interest between the four groups of participants in the Hug condition ($F(3, 158) = 0.46$, $p = .71$, $\eta^2 = 0.009$). Mirroring the lack of difference in Social Interest across the four Hug types, we also found no difference across the four hug types in ‘Hug Liking’ (ANOVA: $F(3, 158) = 0.19$, $p = .906$, $\eta^2 = 0.004$).

These null findings should be viewed with some caution, as the results of sensitivity analyses using G*Power (Faul et al., 2009) suggest that, assuming $\alpha = 0.05$ and power $(1-\beta) = 0.8$, we were underpowered to exclude small effect sizes should they exist. Specifically, for the two No Hug conditions, the current sample of 61 would have been able to detect only a minimum effect size of Cohen's $d = 0.64$ (which is moderate). And for the four Hug conditions, the current sample of 162 participants would have been able to detect a minimum effect size of Cohen's $f = 0.26$ (which is also moderate).

Appendix B

Items on the questionnaire. All the participants answered the following questions: (1) Family affection: growing up, how common was affectionate touch with your family overall? (1 = very rare, 5 = very frequent). (2) Frequency: how often do you hug your friends when you meet them? (1 = almost never, 5 = almost always), (3) Length: when you hug your friends, do you like short or long hugs (1 = very short, 5 = very long), (4) Patting: do you like to be patted when a friend hugs you? (1 = not at all, 5 = I really like it). Only people in the Hug condition answered one extra question. 'How much did you like this hug?' (1 = not at all, 5 = I really liked it).

Appendix C

Table C1. Table showing medians of the two measures of Social Interest, 'number of photos' and 'time viewing photos', for participants who agreed to view the photos. Note that these are unlogged values, although our main analyses used logged values to approximate normality (see 'analyses and results').

	Median photos looked at	Median time (seconds) viewing photos	<i>n</i>
No Hug condition	19	48	61
Hug condition	34	63.5	162
No touch condition	18.5	53.5	30
Handshake condition	21	48	31
Long Hug with Pat	41	76	48
Short Hug with Pat	23	48	37
Long Hug without Pat	29.5	96.5	32
Short Hug without Pat	37	60	45