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# Does attachment style moderate the effect of computer-mediated versus face-to-face conflict discussions?

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## Abstract

Successful conflict resolution is important in romantic relationships. With the advent of computer-mediated communication (CMC), partners can resolve conflict using CMC. But is CMC as effective as face-to-face communication for conflict resolution? And does the effectiveness depend on attachment style? We asked 100 romantic couples to discuss a conflict topic and randomly assigned them to do so face-to-face or via CMC. Levels of distress, anger, and conflict resolution did not differ between face-to-face and CMC discussions. Attachment style did not moderate these findings. A more anxious and a more avoidant attachment style were associated with higher levels of distress and anger. We conclude that there is no indication that resolving conflict face-to-face has advantages over resolving conflict via CMC.

## KEYWORDS

adult attachment, computer-mediated-communication, conflict resolution, texting

## 1 | INTRODUCTION

Partners in romantic relationships increasingly use computer-mediated communication (CMC) such as mobile messaging and email to communicate with each other. This observation has inspired a large number of studies on the role of CMC in close relationships (Drouin & Landgraff, 2012; Jin & Peña, 2010; Luo, 2014; Morey, Gentzler, Creasy, Oberhauser, & Westerman, 2013; Pettigrew, 2009). Couples use CMC to express affection, but also to discuss serious issues and to apologize (Coyné, Stockdale, Busby, Iverson, & Grant, 2011). This is true despite the fact that CMC is recognized as a channel that is prone to misunderstandings (Scissors & Gergle, 2013).

How CMC affects conflict resolution has remained underexplored in the literature. The existing research is largely limited to surveys and interviews; experimental research is especially lacking. As such, this preregistered experimental study contributes to research on the role of CMC in romantic relationships by addressing whether discussing a conflict via CMC versus face-to-face (FtF) communication leads to differences in conflict resolution. Furthermore, attachment style is an important factor in effective conflict resolution (Simpson, Rholes, & Phillips, 1996), and attachment style affects which modality people prefer when communicating positive and negative intimate information (Wardecker, Chopik, Boyer, & Edelstein, 2016). We therefore also investigated the moderating role of attachment style on the effect communication modality has on conflict resolution.

### 1.1 | The role of CMC in close relationships

The majority of research on CMC use in close relationships focuses on how CMC (more specifically how the frequency and duration of CMC), is associated with relationship quality. The evidence is mixed. For instance, Baym, Zhang, Kunkel, Ledbetter, and Lin (2007) looked at the link between media use and relationship quality in different types of relationships (friend, family member, romantic partner, acquaintance). Participants estimated the percentage of interactions that happen FtF, via the telephone, and via the internet. Then they reported on their relationship quality. Baym et al. (2007) found that the relative use of each medium was unrelated to relationship quality. Jin and Peña (2010) focused on mobile phone use in romantic relationships and found that both frequency and time spent on mobile voice calls—but not the frequency and time spend on texting—were positively associated with commitment. Morey et al. (2013), on the other hand, found that *the frequency of both* voice calling and texting were positively related to relationship satisfaction, but these associations were mainly present for individuals higher on avoidant attachment. Similarly, Caughlin and Sharabi (2013) found that the frequency of both FtF communication and CMC predicted closeness and satisfaction. However, they also found that only discussing certain topics via CMC (“segmentation”) was negatively related to closeness and satisfaction. Luo (2014) differentiated between the total amount of texting to the partner and the proportion of texting (relative to FtF, phone, email, and chat contact) when predicting relationship satisfaction. They found that the total amount of texting was unrelated to relationship satisfaction but that the proportion of texting relative to total communication was negatively related to relationship satisfaction. Finally, Bradnam (2017) found positive correlations for the frequency of both voice calls and texting to the partner on relationship satisfaction, but only the association between texting and relationship satisfaction held in a regression controlling for relationship status and attachment style. To summarize, correlational

studies on the link between CMC use and relationship quality show both positive and negative associations, and indicate that these associations depend on various factors such as the attachment style of romantic partners.

One explanation for the mixed results found in the extant research could be that the concept “CMC use” is too broad to yield consistent results. First of all, CMC technologies vary in the features they afford users, such as access to nonverbal cues and control over time and pace of the interaction (Schouten, Valkenburg, & Peter, 2007; Walther, 1996). For instance, voice calling affords more nonverbal cues than text messaging, including tone and pitch, whereas texting allows users to structure, revise, and edit messages before sending. In our study, we will focus only on texting.

Second, and more importantly, the studies cited above all focused on the frequency or proportion of using different media, without taking the content or context of communication into account, thus oversimplify a more complex phenomenon. That is, the effects of texting on relational processes might differ depending on the content of the messages communicated. For example, using texts in the context of catching a partner up on the day's events is likely very different from using texts to resolve a conflict. Wardecker et al. (2016) shed light on the role of the content of the message by asking participants to what extent they use and prefer different media (FtF, phone, texting, email) for communicating specific positive and negative messages (e.g., telling the partner you love them versus arguing with the partner). They found that FtF communication was used and preferred the most for both positive and negative messages. Especially for negative messages, mediated communication was preferred less. They also asked about how well conflicts are resolved using different modalities and found that FtF communication received the highest scores, followed by phone, texting, and email. Importantly, they also measured people's attachment styles and how they interacted with medium use and preference, a topic we will turn to later.

Given that especially negative messages elicit differences in preferences between media, it is possible that communication aimed at conflict resolution may play out differently when conducted FtF versus via CMC. We conceive of successful conflict resolution as both a process and an outcome. When conceived as a process, successful conflict resolution can be operationalized as an absence of stress and anger during conflict. Conflict resolution as an outcome, then, can be operationalized as partners' perceptions that a conflict was successfully resolved. As we will outline below, this distinction is relevant as there is reason to assume that the modality of communication (CMC vs. FtF) for conflict resolution may have a different impact on feelings experienced during the conflict resolution process than on perceptions of whether or not the conflict is resolved.

## 1.2 | The role of texting in conflict resolution

Texting is characterized by reduced cues, near-synchronicity, and brevity compared to FtF communication (Rettie, 2009). These characteristics have advantages for relational communication, but also disadvantages (Kelly et al., 2012; Perry & Werner-Wilson, 2011; Scissors & Gergle, 2013). With respect to the disadvantages, research shows that in reduced-cue settings, people tend to over-interpret the remaining cues available in the interaction in order to form impressions of the sender (Hancock & Dunham, 2001). Therefore, texting is often viewed as causing miscommunication (Kelly & Miller-Ott, 2018). Especially in conflict situations, this over-interpretation may be based on cues stemming from negative affect, thereby potentially

polarizing the discussion and leading to hyper-negative impressions (Walther, 1996). The reduced nonverbal cues in CMC interactions may also lower social presence and make it harder to understand the affectional tone of a message (Kelly & Miller-Ott, 2018). Given these disadvantages, some people see texting as inappropriate for serious conversations (Kelly et al., 2012), suggesting that discussing conflicts via texting could exacerbate conflicts.

Research, however, does not unequivocally support the idea that resolving conflicts over text is bad. On the contrary, conflict discussions via text may be beneficial. For example, in an experimental study by Perry and Werner-Wilson (2011), couples had two problem-solving discussions, one via texting and one FtF. Afterwards, all couples indicated their communication satisfaction. Some couples were also interviewed about their experience and the use of texting to solve conflicts. Participants were equally satisfied with the communication, regardless of whether it happened via text or FtF. However, in the interviews, participants acknowledged some advantages of texting: texting allows more time for reflection, gives more time to formulate one's point without being interrupted, and can de-escalate the conflict, for example because raising your voice is not possible. These themes are in line with the advantages of CMC that were found in research performed outside the romantic couple context (Schouten et al., 2007; Walther, 1996; Walther, 2007). This research notes that the asynchronicity of text-based interaction affords more control over the message and greater focus on the content because nonverbal cues can be distracting instead of enriching.

In other studies on the role of CMC in conflict resolution, people report advantages and disadvantages of both FtF and texting (Caughlin & Sharabi, 2013; Pusateri, Roaché, & Wang, 2015; Scissors & Gergle, 2013). Scissors and Gergle (2013) asked couples the extent to which they switch between media during conflict, and to report on instances where they did so. They found that some couples switch from FtF to texting to avoid escalation (because it is easier to stay focused on content in texting) while others switch from texting to FtF to avoid escalation (because texts might get misinterpreted). In Caughlin and Sharabi (2013), focus group participants said that some things are easier to say through a text message, but they also referred to FtF interactions as the “actual” meeting. In a study on serial arguments, Pusateri et al. (2015) found that it is very uncommon to have an argument solely via texting: Only 4% of their participants reported doing this. Thus, it seems that although texting has advantages, people do not fully rely on it to resolve conflicts.

### 1.3 | Attachment style as moderating factor

Given that findings about the role of texting in conflict resolution are mixed, it is relevant to explore whether moderating factors might explain why some people prefer FtF discussions while others prefer texting. Prior research suggests that attachment style might be a particularly relevant moderator. According to attachment theory, how people approach their partner and act within relationships is largely determined by their working model of relationships (Hazan & Shaver, 1987). Especially in stressful situations such as a romantic conflict, a person's attachment style influences emotional reactions to the situation; anxious individuals report more stress and anger during conflict (Campbell, Simpson, Boldry, & Kashy, 2005; Powers, Pietromonaco, Gunlicks, & Sayer, 2006; Simpson et al., 1996) whereas avoidant individuals tend to show stronger physical stress reactions (Diamond, Hicks, & Otter-Henderson, 2006; Gouin et al., 2009). Thus, the extent to which people feel distress and anger during conflict resolution depends on attachment style.

People with an *avoidant attachment style* are motivated to remain independent, even in close relationships. Relative to people with a secure attachment style, individuals with an avoidant attachment style are less likely to self-disclose to others (Grabill & Kerns, 2000) and show lower interpersonal communication competence in general (Anders & Tucker, 2000). One might think, therefore, that avoidant individuals also use less texting, yet Jin and Peña (2010) found that attachment style does not predict the amount of texting. This may be because people with an avoidant attachment style communicate less with their partner, but when they do communicate, they prefer texting because it is a more distant way of communicating. Indeed, individuals with an avoidant attachment style use more texting relative to other means of communication (Luo, 2014) and indicate a higher preference for CMC compared to FtF and phone communication (Wardecker et al., 2016). For individuals higher on avoidant attachment, more texting even had a positive effect on relationship satisfaction (Morey et al., 2013). Thus, it seems that avoidant people are more comfortable with texting than FtF communication. This may be especially true in conflict situations, when forced to self-disclose and communicate with their partner. In these situations, using texts may increase controllability over what is said. In line with this, Wardecker et al. (2016) found that avoidant individuals feel that conflicts are more likely to be resolved via CMC. We will test whether this perception based on a survey study can also be found in a dyadic experimental study when conflict resolution is measured right after the conflict discussion.

People with an *anxious attachment style*, on the other hand, are motivated to completely merge with their partner. As such, they may dislike texting, because it does not fulfill their high need for intimacy (Hazan & Shaver, 1987). The lack of immediate feedback in CMC may make them insecure about their partner's feelings and the higher ambiguity of text messages may lead to more negative interpretations (Kingsbury & Coplan, 2016). The ambiguity that comes along with texting may also further increase the distress anxious individuals feel during conflict (Simpson et al., 1996). Anxious individuals are very dependent on social support to deal with their negative feelings (Lopez & Brennan, 2000), which is not readily available when the partner is not in close proximity. We therefore predict that in a conflict situation, texting would be more distressing for anxious individuals than FtF communication. On the other hand, texting may help anxious individuals control their feelings of anger. Given that anxious individuals tend to get angrier and more hostile during conflict (Simpson et al., 1996) and report a higher tendency for their conflicts to escalate (Campbell et al., 2005), CMC may be beneficial to them. Given that texting can prevent escalation because one cannot raise one's voice (Scissors & Gergle, 2013), we predict that, in a conflict situation, anxious individuals will feel less anger when texting than communicating FtF. Given that anger is negatively correlated with conflict resolution (Geist & Gilbert, 1996), this reduced anger may enable anxious individuals to better resolve the conflict.

From what is known about the role of texting in conflict resolution and the differences between avoidant and anxious individuals, we formulate the following hypotheses:

**Hypothesis 1 (H1)** People with a more avoidant attachment style will feel less distress when solving a conflict via texting than FtF and people with a more anxious attachment style will feel more distress when solving a conflict via texting than FtF.

**Hypothesis 2a (H2a)** People with a more anxious attachment style will report feeling more anger during the process of conflict resolution. Hypothesis 2b: This effect will be less pronounced in texting than FtF.

**Hypothesis (H3)** Both people with a more avoidant attachment style and those with a more anxious attachment style will be more successful resolving the conflict via texting than FtF.

## 1.4 | The present study

We conducted an experimental study in which we asked couples to have a problem-solving discussion either FtF or via texting. We assessed their attachment style prior to the discussion. Afterwards we asked details about the discussion, perceived stress and anger, and to what extent the conflict was resolved.

## 2 | METHOD

We followed our preregistered procedure, but implemented three minor changes: First, because we were not able to recruit sufficient couples via the participant pool, we also included a number of couples recruited by student research assistants. Second, while we initially planned to recruit only participants younger than 40 because of their confidence in using texting, we eventually also included people older than 40 who were confident in using texting. Fifteen participants in our final sample were older than 40. Third, because of the COVID-19 outbreak, we were not able to invite all 100 couples to the lab. Hence, we used a video call procedure for the last 25 couples.

### 2.1 | Participants

We used our participant pools and the personal network of our research assistants to recruit couples. Most of the couples (97) were heterosexual. There were two lesbian couples and one couple where members identified as nonbinary/gender fluid. Participants ranged in age from 18 to 57 years ( $M = 24.23$ ,  $SD = 8.93$ ).

### 2.2 | Procedure

Data collection took place between October 2019 and April 2020. All materials, the preregistered report, and a document with the outcomes of additional analyses can be found on the OSF website (<https://osf.io/sbw8z/>). Ethical approval was given by both universities involved and participants gave their informed consent at the beginning of the first questionnaire. The procedure was run either in the lab or in participants' own homes. In the latter case, the experimenter set up a video chat with the participants to give the instructions and make sure that the participants followed the procedure. Participants completed all questionnaires in two different rooms. In the video chat, we ensured participants were in different rooms by having them keep their computer cameras on until participants were separated.

Once in separate rooms, participants listed three conflict topics that occur in their relationship. They then answered the attachment measure and a measure of relationship satisfaction. While participants completed this questionnaire, the researcher selected a conflict topic that



was mentioned by both partners and that was rated highest on the list. If partners listed different topics, the researcher randomly picked the first topic of one of the partners. The participants then discussed the topic FtF or via texting (randomly determined by a random number generator prior to participants' arrival). There were 49 couples in the texting condition and 51 couples in the FtF condition. In the texting condition participants were asked to go to separate rooms to have the discussion. They were allowed to discuss the topic for as long as they wanted, until it was (partly) resolved. We did not time the discussions, but the time stamps of the questionnaires give an idea of the duration of the discussion. The time difference between the end of the first questionnaire and the end of the second questionnaire was on average 14.82 ( $SD = 7.65$ ) minutes. This includes the discussion time and the time it took to complete the second questionnaire. Couples in the FtF condition were faster ( $M = 12.78$ ,  $SD = 5.44$ ) than couples in the texting condition ( $M = 16.99$ ,  $SD = 8.99$ ),  $F(1, 98.25) = 6.79$ ,  $p = .011$ ), which was expected given that conveying information via text takes more time (c.f., Walther, 1996).

After the discussion, participants answered a questionnaire that asked them about the topic of the discussion, their level of stress, anger and perceived understanding during the discussion, and the extent to which the conflict was resolved.

### 2.3 | Main measures

Attachment style was measured with the Adult Attachment Questionnaire (AAQ, Simpson et al., 1996). The AAQ consists of 17 items, nine of which measure avoidant attachment ( $\alpha = .81$ ) and eight of which measure anxious attachment ( $\alpha = .79$ ). Based on the scores on the two subscales we computed two continuous variables indicating the extent to which a person exhibits avoidant tendencies and the extent to which a person exhibits anxious tendencies. Individuals who score relatively low on both scales are characterized as securely attached.

We asked participants about their discussion using questions established by Simpson et al. (1996). The amount of stress was measured by asking participants "How stressful was the discussion you just had?"; "How upset did you feel during the discussion?"; and "To what extent was the topic you discussed a major problem in your relationship?" Each item was answered on a 7-point Likert-type scale (1 = *not at all*; 7 = *extremely*;  $\alpha = .80$ ).

The amount of anger participants felt during the discussion was measured by asking them to what extent they feel anger, hostility, disgust, and resentment using 7-point Likert-type scales (1 = *none*; 7 = *an extreme amount*;  $\alpha = .89$ ).

The extent to which the problem was resolved was assessed with two questions (used by Campbell, Martin, & Ward, 2008): "To what extent do you feel that you resolved the problem?" and "To what extent do you feel the discussion was productive toward resolving your differences." (1 = *not at all*, 7 = *extremely*). These questions were only moderately correlated ( $r = .57$ ), so we decided to use only the first question as our measure for conflict resolution. The results for the second question are very similar and can be found in the supplement material. We also included an open-ended question in which participants could provide additional information about the conflict.



## 2.4 | Additional measures

To be able to describe the sample, we also measured participants' relationship satisfaction at the start of the study with the relationship assessment scale (Hendrick, 1988) which has been used in related research (Bradnam, 2017; Simpson et al., 1996). This 7-item scale includes items such as: "In general, how satisfied are you with your relationship" and is measured on a 5-point scale,  $\alpha = .76$ . We found that the couples were very satisfied with their relationship ( $M = 4.42$ ,  $SD = 0.47$ ).

Because texting is often found to cause miscommunication (Kelly & Miller-Ott, 2018) we also wanted to explore whether CMC or FtF communication leads to more understanding. The extent to which participants felt understood during the discussion was assessed with the following questions: To what extent did you feel understood? To what extent did you feel validated? To what extent did you feel cared for? To what extent did you feel misunderstood? To what extent did you feel valued? ( $\alpha = .90$ ).

## 3 | RESULTS

### 3.1 | Power

In the literature, the correlations between partners for our dependent variables distress, anger, and conflict resolution vary between .41 and .60. We calculated beforehand that we would need data from 100 couples (based on the assumption that we want a power of .90 to detect a medium-sized effect in a regression with five predictors [two attachment scores, one condition, two interaction effects]), which we successfully collected. With this sample size, and based on the correlations from the literature, our effective sample size would be around 132. The correlations we found between partners were actually lower than what is typically found in the literature ( $r_{\text{distress}} = .51$ ,  $p < .001$ ,  $r_{\text{anger}} = .44$ ,  $p < .001$ ,  $r_{\text{conflict resolution}} = .40$ ,  $p < .001$ ). As such, our power is higher than we calculated beforehand.

### 3.2 | Descriptive statistics

Table 1 shows the descriptive statistics and correlations for the main variables. These correlations do not take the dependency between partners into account. In line with previous research we find that a higher score on anxious attachment and a higher score on avoidant attachment were associated with higher scores of distress and anger during the discussion. There was no association between attachment and the extent to which the conflict was resolved, but there was a negative association between both anxious and avoidant attachment and understanding.

### 3.3 | Main analyses

We ran mixed model analyses of variance (ANOVAs) with the repeated command to account for the dependency between partners' data (as recommended by Kenny, Kashy, & Cook, 2006). Because we are not making comparisons between models, we used REML, which is preferred for smaller sample sizes. We used compound symmetry as the covariance structure.<sup>1</sup> In all

**TABLE 1** Descriptive statistics and correlates of the key variables

	<i>M (SD)</i>	2	3	4	5	6	7
1. Relationship satisfaction	4.42 (0.47)	-.17*	-.12	-.41**	-.47**	.41**	.54**
2. Anxious attachment	3.27 (1.04)		.12	.26**	.20**	-.02	-.15*
3. Avoidant attachment	3.45 (1.08)			.18*	.17*	-.09	-.20**
4. Distress	2.61 (1.28)				.68**	-.45**	-.59**
5. Anger	1.71 (1.11)					-.45**	-.70**
6. Conflict resolution	4.87 (1.69)						.53**
7. Understanding	5.39 (1.31)						

\* $p < .05$ ; \*\* $p < .01$ .

models there were five predictors: the score on anxious attachment, the score on avoidant attachment, the modality (effect coded such that FtF is a  $-.5$  and texting is a  $.5$ ), the interaction between anxious attachment and modality, and the interaction between avoidant attachment and modality. We first present the three models for the dependent variables distress, anger, and conflict resolution. In the later section of the results we present our exploratory analyses for perceived understanding and for the partner effects.

### 3.3.1 | Distress (H1)

We did not expect a main effect of modality on distress and we did not find one; the level of distress in the FtF condition ( $M = 2.50$ ,  $SD = 1.16$ ) was similar to the level of distress in texting condition ( $M = 2.79$ ,  $SD = 1.39$ ),  $F(1, 96.45) = 2.21$ ,  $b = 0.31$ ,  $SE = .21$ ,  $p = .141$ , 95% confidence interval (CI)  $(-.11, .73)$ . In line with earlier studies we found that higher scores on anxious attachment were associated with higher levels of distress,  $F(1, 172.24) = 10.88$ ,  $b = 0.26$ ,  $SE = .08$ ,  $p = .001$ , 95% CI  $(.11, .42)$ . Higher scores on avoidant attachment were also associated with higher levels of distress, albeit less pronounced,  $F(1, 144.65) = 4.56$ ,  $b = 0.16$ ,  $SE = .07$ ,  $p = .034$ , 95% CI  $(.01, .31)$ . In our first hypothesis we predicted an interaction between modality and anxious attachment style, but we did not find it,  $F(1, 172.24) = 0.11$ ,  $b = -0.05$ ,  $SE = .16$ ,  $p = .745$ , 95% CI  $(-.37, .26)$ . We also expected an interaction effect for modality and avoidant attachment style, but there was none,  $F(1, 144.64) = 0.00$ ,  $b = 0.002$ ,  $SE = .15$ ,  $p = .990$ , 95% CI  $(-.29, .30)$ . In other words, attachment style did not moderate the association between communication modality (FtF vs. texting) and distress.

### 3.3.2 | Anger (H2a and H2b)

We did not expect a main effect of modality on anger and we did not find one; the level of anger in the FtF condition ( $M = 1.84$ ,  $SD = 1.22$ ) was similar to the level of anger in the texting condition ( $M = 1.58$ ,  $SD = 0.98$ ),  $F(1, 97.34) = 0.001$ ,  $b = 0.01$ ,  $SE = .19$ ,  $p = .973$ , 95% CI  $(-.36, .38)$ . In line with H2a, we found that higher scores on anxious attachment were associated with higher levels of anger,  $F(1, 175.89) = 5.74$ ,  $b = 0.17$ ,  $SE = .07$ ,  $p = .018$ , 95% CI  $(.03, .31)$ . We did not predict any specific effect of avoidant attachment, but we also found that higher scores on

avoidant attachment were associated with higher levels of anger,  $F(1, 148.67) = 6.25$ ,  $b = 0.17$ ,  $SE = .07$ ,  $p = .014$ , 95% CI (.04, .30). Unlike our prediction in H2b we found no interaction effect between modality and anxious attachment,  $F(1, 175.89) = 1.87$ ,  $b = -0.20$ ,  $SE = .14$ ,  $p = .173$ , 95% CI (-.48, .09). There was also no interaction effect between modality and avoidant attachment style,  $F(1, 148.67) = 0.65$ ,  $b = 0.11$ ,  $SE = .14$ ,  $p = .421$ , CI (-.16, .38). In other words, attachment style did not moderate the association between modality (FtF vs. texting) and anger.

### 3.3.3 | Conflict resolution (H3)

We did not expect a main effect of modality on conflict resolution and we did not find one; the extent to which participants felt the conflict was resolved was similar in the FtF condition ( $M = 4.85$ ,  $SD = 1.64$ ) and the texting condition ( $M = 4.89$ ,  $SD = 1.74$ ),  $F(1, 95.79) = 0.001$ ,  $b = 0.01$ ,  $SE = .29$ ,  $p = .971$ , 95% CI (-.56, .58). We found no association between attachment and conflict resolution. Neither anxious attachment,  $F(1, 179.02) = 0.27$ ,  $b = 0.06$ ,  $SE = .11$ ,  $p = .606$ , 95% CI (-.17, .28), nor avoidant attachment,  $F(1, 151.50) = 0.92$ ,  $b = -0.10$ ,  $SE = .11$ ,  $p = .339$ , 95% CI (-.32, .11), was associated with the extent to which the problem was resolved. In H3 we predicted an interaction between modality and both attachment styles, but we did not find these for anxious attachment style,  $F(1, 179.02) = 1.08$ ,  $b = -0.24$ ,  $SE = .23$ ,  $p = .301$ , 95% CI (-.69, .21), nor for avoidant attachment style,  $F(1, 151.50) = 1.21$ ,  $b = 0.24$ ,  $SE = .22$ ,  $p = .273$ , 95% CI (-.19, .67). We see no evidence that individuals' attachment style was moderating the association between modality and conflict resolution.

## 3.4 | Additional analyses

We registered an exploratory analysis to determine whether attachment moderated the association between modality and perceived understanding. This analysis is exploratory because of the lack of prior research on the interplay between attachment, modality, and perceived understanding. Again, we used a mixed model ANOVA in SPSS with the repeated command to account for the dependency between partners. Our model was identical to those described in our primary analyses, except that perceived understanding was our dependent variable. Similar to the analyses above, we do not find an effect of modality ( $M_{\text{FtF}} = 5.47$ ,  $SD = 1.41$ ;  $M_{\text{texting}} = 5.31$ ,  $SD = 1.20$ ),  $F(1, 97.21) = 0.02$ ,  $b = -0.03$ ,  $SE = .23$ ,  $p = .883$ , 95% CI (-.48, .41). Anxious attachment was also not associated with understanding,  $F(1, 166.53) = 3.22$ ,  $b = -0.15$ ,  $SE = .08$ ,  $p = .074$ , 95% CI (-.31, .01); however, higher scores on avoidant attachment were associated with lower perceived understanding,  $F(1, 139.68) = 8.06$ ,  $b = -0.21$ ,  $SE = .08$ ,  $p = .005$ , 95% CI (-.36, -.07). Similar to the analyses on our primary dependent variables, there were no interaction effects for anxious attachment,  $F(1, 166.53) = 0.19$ ,  $b = 0.07$ ,  $SE = .16$ ,  $p = .666$ , 95% CI (-.25, .39), nor for avoidant attachment,  $F(1, 139.68) = 0.52$ ,  $b = -0.11$ ,  $SE = .15$ ,  $p = .471$ , 95% CI (-.41, .19).

The second set of exploratory analyses examined partner effects. Specifically, we were interested in whether partners' attachment styles, as well as the interaction between actors' and partners' attachment styles, moderated the impact that modality had on conflict. With these models, it was possible to detect, for example, whether or not texting would be especially beneficial when both partners score high on avoidant attachment. These analyses were exploratory because we did not have enough statistical power to reliably detect small to medium effects,

which is what we would hypothesize these effects to be. Given that we did have dyadic data, and at the recommendation of a peer reviewer, we nevertheless wanted to run these actor/partner models as a possible inspiration for future research. We ran four different partner models, one for each of the following dependent variables: distress, anger, conflict resolution, and understanding. In these models, we included the following predictors:

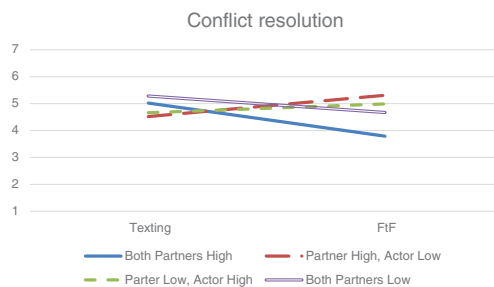
Main effects: modality, anxious attachment, avoidant attachment, partner anxious attachment, partner avoidant attachment;

Two-way interactions: modality  $\times$  anxious attachment, modality  $\times$  avoidant attachment, modality  $\times$  partner anxious attachment, modality  $\times$  partner avoidant attachment, avoidant attachment  $\times$  partner avoidant attachment, anxious attachment  $\times$  partner anxious attachment; and

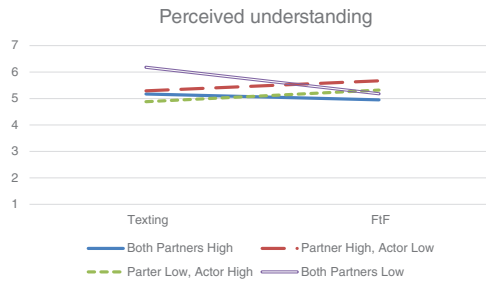
Three-way interactions: modality  $\times$  anxious attachment  $\times$  partner anxious attachment, modality  $\times$  avoidant attachment  $\times$  partner avoidant attachment.

Below we summarize the results. The full results of these models can be found in the supplemental material.

There were no partner effects on distress or anger. For conflict resolution and understanding we found no main effects and no two-way interactions. There were, however, significant three-way interactions between avoidance, partner avoidance, and modality on conflict resolution,  $F(1, 89.23) = 6.22$ ,  $b = 0.74$ ,  $p = .014$ , 95% CI (0.15, 1.33) and on understanding,  $F(1, 90.00) = 4.61$ ,  $b = 0.51$ ,  $p = .034$ , 95% CI (0.04, 0.98). The pattern for conflict resolution is shown in Figure 1. As can be seen here, if both partners were high on avoidant attachment and they were communicating FtF, they reported a lower conflict resolution than all other groups. The pattern for understanding is shown in Figure 2 and is somewhat different from the pattern for conflict resolution. Here, when both partners are low on avoidant attachment and in the texting condition understanding was particularly high. Given that these analyses are underpowered, we must interpret these findings with caution. Still, these analyses hint toward the importance of partner effects when studying the impact of modality on conflict discussion.



**FIGURE 1** Three way interaction between one's own score on avoidant attachment, the partner's score on avoidant attachment, and condition on conflict resolution. *Note:* To probe this interaction, we tested the impact of condition for individuals and partners  $\pm 1$  SD from the mean. When both partners were high in avoidance, there was a marginal effect of condition ( $b = 1.22$ ,  $p = .053$ ). When individuals were low in avoidance but their partners were high in avoidance there was also a marginal effect of condition ( $b = -.79$ ,  $p = .086$ ). When both partners were low in avoidance, there was no effect of condition ( $b = .62$ ,  $p = .320$ ). When individuals were high in avoidance but their partners were low in avoidance there was no effect of condition ( $b = -.33$ ,  $p = .466$ )



**FIGURE 2** Three way interaction between one's own score on avoidant attachment, the partner's score on avoidant attachment, and condition on perceived understanding. *Note:* To probe this interaction, we tested the impact of condition for individuals and partners  $\pm 1$  SD from the mean. When both partners were high in avoidance, there was no effect of condition ( $b = .22, p = .655$ ). When individuals were low in avoidance but their partners were high in avoidance, there was no effect of condition ( $b = -.36, p = .293$ ). When both partners were low in avoidance, individuals in the texting condition reported higher levels of understanding than did individuals in the face to face condition ( $b = 1.00, p = .045$ ). When individuals were high in avoidance but their partners were low in avoidance, there was no effect of condition ( $b = -.44, p = .206$ )

## 4 | DISCUSSION

In this study, we investigated the effects of communication modality on levels of distress, anger, and conflict resolution as well as the moderating effect of attachment style on these associations. In our data, communication modality did not affect conflict resolution, and individual attachment style did not moderate this relationship.

Our first hypothesis stated that, people who have a more avoidant attachment style would feel less stressed resolving a conflict via texting than FtF and people with a more anxious attachment style would feel more stressed solving a conflict via texting than FtF. However, because we found no interaction effects between modality and attachment style, this hypothesis was not supported.

Our second hypothesis stated that people with a more anxious attachment style would report more anger during conflict than people with a more avoidant attachment style. Moreover, we expected that this effect would be less pronounced in texting than in a FtF conversation. Although we indeed found a significant main effect of anxious attachment on anger, there was no support for an interaction between medium and attachment style. Thus, our second hypothesis was only partially supported. Finally, counter to the third hypothesis, we found no effects of attachment style on conflict resolution.

Overall, we found no main effects of or interactions with communication medium, suggesting that perhaps texting is as well suited for conflict resolution as is a FtF conversation. We need to be careful with drawing conclusions because our analyses are meant to detect differences, not similarities. Equivalence tests (Lakens, Scheel, & Isager, 2018) for the effect of communication medium on distress, anger, conflict resolution, and understanding showed that for conflict resolution and understanding, the effects are statistically equivalent when assuming that a 0.5 difference on the 7-point scale is the smallest effect size of interest. But these analyses were neither preregistered, nor adjusted for the dependency in the data, so they should be interpreted with some caution. Still, we conducted a study that was well-powered to find medium-sized effects of communication medium and the means we find are very close together

(e.g., 4.89 and 4.85 for conflict resolution), shedding doubt on the idea that resolving a conflict via texting would have negative consequences.

Our more exploratory analyses yielded some interesting results. First, we found no effect of condition on perceived understanding, so there is no evidence that texting was more prone to misunderstandings than was FtF communication. It is important to consider the time that elapsed between many of the early studies on the use of CMC in romantic relationships and the current study. In this timeframe, text messaging has evolved from a relatively cue-poor mode of communication relying on SMS infrastructure to a cue-rich mode of messaging relying on a (mobile) internet infrastructure, changing the nature of texting. Most contemporary mobile messengers embed features that support a conversational mode of communication, such as an interface that visualizes turn-taking, presence awareness cues, read receipts, and reply-features. Moreover, because most messengers now operate on the internet, users no longer pay per utterance, enabling them to break up longer utterances into smaller pieces. This speeds up the conversation, and allowing the message sender to include shorter utterances that mimic nonverbal behavior in FtF interactions (e.g., typing “uhuh” or “hmm...”). Taken in combination with features such as emoji or gif, and the ability to integrate photos, video, or soundbites, it seems the gap in media richness between FtF and messaging may be closing. Future research might consider this question by recording/registering couples' conversations and analyzing partner's verbal and nonverbal (non)cooperation.

Second, we found two three-way interactions showing that conflict resolution and understanding depend on the attachment score of both partners and the mode of communication. More specifically, when both partners score high on avoidant attachment, conflicts seem more easily resolved via texting than FtF. Moreover, when both partners score low on avoidant attachment style, understanding is better in text-based settings than in FtF settings. This has several implications for research. First, it shows that there may be differences in how well conflicts are resolved in different communication media, but these differences depend on the interaction between both partners' individual characteristics. In this study, when both partners have a more avoidant attachment style, text-based interactions may work better for them than FtF interactions. These differences are not observed when partners differ in attachment style. It would be interesting to investigate whether other relationships tasks (e.g., self-disclosure) differs in text-based interaction versus FtF interaction when both partners share a specific attachment style. Second, more generally researchers should consider the *interplay* between partner's individual differences when studying relational communication and media preference.

In sum, our results replicate earlier research showing that a person's attachment style is associated with how conflicts are resolved (Simpson et al., 1996). Higher scores on anxious attachment were associated with more distress and more anger and higher scores on avoidant attachment were associated with more distress, more anger, and lower perceived understanding. What is more, the partner effects show that if two partners of a couple score on avoidant attachment, texting may be a particularly effective way to resolve a conflict.

## 4.1 | Strengths and limitations

Our findings must be interpreted in light of our study's strengths and limitations. One of the strengths of this study is that it was a registered report. That means that the methods and analyses were preregistered and the sample size was based on an a priori power analysis. Because the paper was reviewed (and provisionally accepted) based on the theoretical framework and

the proposed method, there was little incentive to present the results in any distorted way. Indeed, this process reduces researcher degrees of freedom and promotes best research practices and reporting (which may otherwise be compromised, even if unconsciously; Banks, Rogelberg, Woznyj, Landis, & Rupp, 2016).

We collected data in two different countries, which makes results more generalizable. While the Netherlands and the United States both belong to the group of countries that are summarized as WEIRD (Western, educated, industrialized, rich, and democratic), there are still cultural differences between them. We checked whether adding the site of the data collection as a control variable and/or moderator would alter our results, and it does not. (Please note that these analyses were not preregistered and can be found in supplement material.). Taken together with the fact that culture does not seem to be a large moderating factor for psychological studies in general (Klein et al., 2018), we think that our results generalize well to other WEIRD countries.

What is more, we collected data from both partners of a couple, which, although more time consuming, leads to a richer data set. Indeed, it was only when interacting both partners' attachment styles that attachment moderated the association between communication medium on conflict resolution and understanding. In other words, had we not considered partner effects, we would have concluded that type of medium does not matter. Although we did not have the ideal statistical power for these tests, we are hopeful that our pattern of results will inspire future research that focuses on couples in which both partners have either high or low levels of avoidant attachment.

Despite these strengths, we must also recognize our limitations. First, our data collection was disturbed by the COVID-19 crisis. As such, we had to collect part of our data in an online setting, instructing couples via video chat to fill in the questionnaires and have the discussion. Using these remote data collection strategies removed some of our ability to control for extraneous variables. Importantly, when we conduct our analyses with type of data collection entered as a control variable or moderating variable, our results remain the same. Consistent with these analyses, our perception is that using an online data collection method did not change how participants responded, suggesting this may be a more efficient (and even more externally valid) way of data collection. There are certainly advantages to this type of data collection: partners do not have to come to the lab, participants are in the comfortable environment of their own home, and the researcher does not have to visit them. We suspect that many other couple processes could be studied this way, at a lower cost.

## 4.2 | Directions for future research

These findings suggest interesting ideas for future research. We limited our sample to participants who were used to texting with their partners. We also let people have the discussion during the study and not "on their own time". We felt that this necessary to ensure a "clean" difference between a FtF conversation and a text-based conversation. We did not want the modality of communication to be confounded by how comfortable participants were in using it and/or the time allocated to the discussion. However, this setup may have reduced differences between the two modalities. As we laid out in the beginning, texting is characterized by reduced cues, near-synchronicity, and brevity when compared to FtF communication (Rettie, 2009). However, people who are very familiar with texting might use many cues in their messages to compensate for the reduced cues (cf. Wrench & Punyanunt-Carter, 2007). Moreover, by letting



people have the discussion in the lab, the conversation was by default (quasi-)synchronous, regardless of the modality. In reality, however, text messaging is a fragmented practice that is often multitasked with various other activities (Kelly & Miller-Ott, 2018). This fragmentation may have an effect, as in reality there may be greater time lags between responses and partners may not be as focused on the text-based conversation as they were in our study. Future research could strive for greater ecological validity by including more aspects of texting into the design, for instance by instructing partners to have the discussion whenever they choose within the next 24 hours and then report back to the researcher. Alternatively, a diary study in which participants reported whether they had a conflict via texting or in person and then reported conflict resolution would allow us to get at these processes as they occur in real life.

Future research should also assess the impact of communication medium during more severe conflicts. Our participants were limited to nonsevere conflicts because research has shown that attachment style influences even minor conflicts and we did not want to burden our participants more than necessary. Still, we know that the effects of a person's attachment style are most pronounced when discussing topics that are a major issue in the relationship (Simpson et al., 1996). It is possible that when the conflict is more severe, attachment would moderate the impact of communication medium on conflict resolution.

### 4.3 | Conclusion

In sum, we show that a more secure attachment style is associated with less negative feelings during conflict, but that the type of medium (FtF vs. texting) does not moderate these outcomes. It seems possible to resolve at least minor conflicts via texting just as you could face to face, regardless of a person's attachment style. We do have preliminary evidence that texting may be beneficial when both partners are high in avoidant attachment. Future research should continue to study these partner effects.

#### DATA AVAILABILITY STATEMENT

The data that support the findings of this study are openly available in osf at <http://doi.org/10.17605/OSF.IO/SBW8ZZ>, reference number SBW8Z.

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#### ENDNOTE

<sup>1</sup>There was some skewness in our dependent measures, so we checked whether our results are robust using the generalized linear mixed model estimation technique. Our pattern of results were identical to those reported in this paper.

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