Both overwhelmed or in it together? Similarity in COVID-19-related stress and romantic relationship quality

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Abstract
Stress tends to be negatively associated with romantic relationship quality, but shared stress can bond romantic partners and may actually have a positive effect on relationships. Thus, are similar levels of pandemic-related stress during the COVID-19 pandemic—a time of high stress for many couples—associated with better or worse relationship quality? In this study, we investigated whether similarity in COVID-19-related stress was associated with romantic relationship outcomes in two dyadic samples (N = 300 couples). Generally, we found little evidence that similarity in COVID-19-related stress was associated with relationship outcomes. We did find that similarity in general worry about the pandemic was associated with lower overall relationship quality; however, it was also associated with lower levels of viewing the pandemic as a source of conflict. Therefore, more research is needed to understand the nuances of when and how stress similarity is associated with romantic relationship quality.

KEYWORDS
close relationships, couples, COVID-19, dyadic, romantic relationships, similarity, stress
1 | INTRODUCTION

Given the detrimental effects of stress on romantic relationships (Randall & Bodenmann, 2017), it is important to understand how couples deal with stressful situations. In particular, understanding how couples cope when one versus both of them are experiencing stress can provide vital information about how stress similarity may influence relationships. We examine the effects of similarity in COVID-19-related stress and its influence on romantic relationship quality.

The COVID-19 pandemic has had wide-reaching effects on romantic relationships. While the effects on romantic relationships are somewhat variable between couples, the pandemic generally precipitated decreases in relationship quality (Estlein et al., 2022; Li & Samp, 2021). One way in which the pandemic may have negatively affected relationship quality is through psychological distress. Financial stressors, health concerns, increased isolation, and uncertainty contributed to heightened levels of anxiety, distress, and depression during the pandemic (Aknin et al., 2022). In turn, stress and anxiety during the pandemic have been associated with worse relationship outcomes (Goodwin et al., 2020; Panzeri et al., 2020).

Romantic relationships, however, are not only affected by an individual’s own stress, but by their partner’s stress as well (Falconier et al., 2015; Ledermann et al., 2010). Specifically, there are two competing hypotheses for the ways that stress may influence relationship quality. When both partners are experiencing high levels of stress, both partners’ stress may have additive effects on relationship distress (Ledermann et al., 2010). Contrastly, similarity in stress may be more important, as experiencing a stressful situation together can be a bonding experience (Clavél et al., 2017), particularly if partners see themselves as a united front against an external stressor like the COVID-19 pandemic (Neff et al., 2021). With COVID-19-related stress in particular, dissimilar levels of stress might also indicate ideological differences in how partners view the pandemic. Disagreements about COVID-19 have been shown to negatively affect couples’ ability to cope well with stress together (Lee et al., 2021) and relationship satisfaction (Starks et al., 2021). Therefore, stress similarity might indicate they share a perception of reality and are on the same page, which may buffer the negative effects of stress (Enestrom & Lydon, 2021). To distinguish between these two competing theories of stress—that stress similarity between partners should be associated with better relationship outcomes or that stress similarity does not matter when controlling for overall levels of stress—we examined COVID-19-related stress and its association with relationship quality in a longitudinal, dyadic sample.

2 | METHODS

2.1 | Participants and procedures

These analyses combine dyadic subsets of data from two larger samples for a total of 300 couples at time 1 (T1). Sample A included data from 149 couples. Couples completed a single assessment primarily between 20 April 2020 and 28 May 2020. Sample B included data collected over six waves: 151 couples completed a baseline survey in late April to early May 2020 (T1) and follow-ups in late May 2020 (T2; n = 133 couples), August 2020 (T3; n = 91 couples), November 2020 (T4; n = 80 couples), February 2021 (T5; n = 67 couples), and May 2021 (T6; n = 46 couples). Demographics for both samples are displayed in Tables S1 and S8.

To be eligible, participants had to provide consent, be 18 years or older, understand English, and live with a romantic partner. Participants from Sample A had to be from the U.S. or Canada. Participants from Sample B had to be sheltering-in-place with a romantic partner at T1 and live in the U.S. Participants were encouraged, but not required, to recruit their partner as well. Interested participants were given a unique code to provide to their partner to link their data. Surveys took 5–10 min, and participants in Sample B were paid $3 for wave
1 and $1.50 for each follow-up, plus a $1.50 bonus for completing the first 4 surveys. Sample A included the same T1 questions and was collected cross-sectionally via social media. No compensation was provided for Sample A.

2.2 | Measures

Unless otherwise noted, measures were collected in Sample A and all waves of Sample B. Measures were kept short, often using a single face-valid item, to maximize participation.

2.2.1 | Measures of COVID stress

Worry about getting COVID
Worrying about getting COVID-19 was assessed with one item: “How worried are you about getting COVID-19?” rated from 1 (Not at all) to 5 (Extremely).

Pandemic concern
Concern about the COVID-19 pandemic was assessed with one item: “In the past week, how much has the COVID-19 pandemic made you concerned about meeting your or your family's basic needs (e.g., food, shelter, exercise, medical care)?” At T1 for both samples, the item was asked without the stem “In the past week.” Questions were rated from 1 (Not at all) to 5 (Extremely).

Germ worry
Worry about germs was assessed with one item: “In the past week, how often have you had the following feelings: - Feeling worried about germs and staying clean?” rated from 1 (Not at all) to 4 (Nearly every day).

COVID anxiety
Anxiety about the COVID-19 pandemic was assessed with one item: “In the past week, how anxious or concerned have you been about the pandemic?” rated from 1 (Not at all) to 5 (Extremely). This was not measured in Sample A or Sample B at T1; it was only measured in Sample B T2-T6.

2.2.2 | Relationship outcomes

Pandemic agreement
Perceived agreement with one’s partner about the pandemic was assessed with one item: “In the past week, how much have you and your partner agreed about how to manage the pandemic (e.g., how often you should wash your hands, social-distancing practices, whether to disinfect groceries)?” At T1, this item was asked without the stem, “In the past week.” Both questions were rated from 1 (Not at all) to 5 (Extremely).

Pandemic conflict
If they did not select 5 (Extremely) for perceived agreement,² then they were asked a follow-up question about perceiving the pandemic as a source of conflict. Perceiving the pandemic as a source of conflict was assessed with one item: “In the past week, how much has managing the pandemic been a source of conflict in your relationship?”
T1, this item was asked: “How much is managing the pandemic a source of conflict in your relationship right now?” Both questions were rated from 1 (Not at all) to 5 (Extremely).

**Prior week satisfaction**
Relationship satisfaction was assessed with one item: “In the past week, how satisfied have you been with the following... - Your relationship overall?” rated from 1 (Not at all satisfied) to 5 (Extremely satisfied).

**Prior week conflict**
Relational conflict was assessed with one item: “In the past week, how much have you and your partner... - been fighting/arguing?” rated from 1 (Not at all) to 5 (Extremely).

**Change in relationship quality**
Change in relationship satisfaction and change in relational conflict were assessed with one item each: “How has your relationship changed since you and your partner have been sheltering-in-place together” (in Sample A, this was followed by “If not sheltering-in-place together, since the pandemic began”) followed by “Your overall relationship satisfaction?” and “Fights/arguments with your partner?” both rated from 0 (Less/Lower) to 10 (More/Higher). This was measured only at T1.

### 2.3 Data analytic strategy

To determine whether we would create composites, we computed correlations and conducted exploratory factor analyses for the different types of COVID-19-related stress (i.e., worry about getting COVID, pandemic concern, germ worry, COVID anxiety), as well as for the general measures of relationship quality (i.e., prior week satisfaction, prior week conflict, change in satisfaction, change in conflict). Based on our pre-registration (https://osf.io/nzx24/), only worry about getting COVID and COVID anxiety fit the criteria for a composite (i.e., average correlation of 0.6, no correlations at any time point lower than 0.5, and the exploratory factor analysis indicates good fit). Therefore, we created a composite of worry about getting COVID and COVID anxiety referred to as COVID worry.

As COVID anxiety was not measured at T1, COVID worry for baseline analyses only includes worry about getting COVID.

For our T1 data in both samples, we conducted a series of dyadic response surface analyses (DRSA) with the “RSA” package in R (Schönbrodt & Humberg, 2023). We examined the association between each partner’s self-reported measures of COVID-19-related stress at T1, grand-mean centering all predictors, and each of the outcomes of general relationship quality at T1, combining the data from the first and second sample. We modeled the nested nature of our data (partners within couples) by using a multilevel version of DRSA that included couple as a factor. For T2-T6 data in Sample B, we additionally conducted longitudinal versions of the same analyses, nesting participants within time and couple and including time as a covariate in the analyses.

Based on our pre-registration we examined correlations between potential covariates (i.e., relationship exclusivity, relationship status, relationship length, length of cohabitation, square foot of residence, having children or not, children’s age, whether they had COVID already, severity of COVID, whether their job had been interrupted as a function of the pandemic, whether they were sheltering in place with their partner or separately, and perceived stress) and each of the COVID-19-related stress and relationship quality variables. As perceived stress was significantly correlated with COVID-19-related stress variables (i.e., COVID worry, pandemic concern, germ worry) and relationship outcomes (i.e., prior week satisfaction and prior week conflict), we included perceived stress as a covariate in the DRSA models. Relevant data, code, codebook, and supplemental materials are available online (https://osf.io/nzx24/).
3 | RESULTS

Descriptive statistics and correlations between key variables accounting for the non-independence between partners are shown in Table S2, including correlations between actor and partner variables (“WABA” R package; Dansereau et al., 1984).5

3.1 | Does similarity matter?

DRSA provides several pieces of information about which combinations of actor and partner variables produce the highest outcomes. Broad congruence indicates an effect of stress similarity as well as general effects of stress (e.g., if matching at levels of higher stress is better than matching at levels of lower stress in addition to the benefits of being similar), and is indicated by three conditions: a significant negative $\alpha_4$ value as well as $\alpha_3$ and $\alpha_5$ values that do not differ significantly from zero (Schönbrodt et al., 2018). In addition, strict congruence indicates an effect of stress similarity without general effects of stress, suggesting stress similarity is equally beneficial across levels of stress, and is achieved when $\alpha_1$ and $\alpha_2$ are also not significantly different from zero (see Supplemental Materials S1 for more in-depth explanation).

There were two significant $\alpha_4$ values indicating effects of similarity in COVID-19-related stress on general relationship quality (see Figure 1 and Table 1).6 There was a broad congruence effect for COVID worry on conflict change, such that couples in which partners were more similar in COVID worry tended to experience greater increases in conflict relative to less similar partners. This similarity effect was qualified by a significant $\alpha_2$ value indicating that couples who matched in COVID-19-related stress at more midrange levels had greater increases in conflict compared to couples who matched at extreme levels (see column 3, row 2 in Figure 1). There was also a strict incongruence effect (positive $\alpha_4$) for COVID worry on prior week satisfaction, such that couples in which partners were more dissimilar in COVID-19-related stress reported higher satisfaction. None of the other $\alpha_4$ values were significantly different from zero, indicating that couples in which partners were more similar in other forms of COVID-19-related stress did not experience higher or lower levels of relationship quality compared to more dissimilar couples. Therefore, while there is some evidence that similarity in COVID worry may be related to negative relationship outcomes, generally similarity in COVID-19-related stress was not robustly related to general relationship quality.

3.2 | Longitudinal DRSA models

None of the $\alpha_4$ values for any of the COVID-19-related stress variables were significantly different from zero in any of the longitudinal models for either of the general outcomes measured in T2-T6 (i.e., prior week satisfaction and prior week conflict), indicating that couples with more similar COVID-related-stress did not experience higher or lower levels of prior week satisfaction and conflict over time compared to those who were less similar (see Table S10 and S11).

3.3 | COVID-specific relationship outcomes

Our main results indicate that COVID-19-related stress similarity is not robustly related to relationship outcomes such as conflict and satisfaction. However, stress similarity may have direct consequences on more proximal determinants of relationship quality, such perceived agreement about the pandemic and perceiving the pandemic as a
source of conflict. However, DRSA results showed only one significant effect of similarity in COVID-19-related stress on proximal relationship outcomes (see Table 2): a strict incongruence effect for COVID worry on pandemic conflict, such that couples in which partners were more similar in COVID worry reported lower levels of pandemic-related conflict. Notably, this is the reverse of the congruence effects found earlier, in which similarity in COVID worry was
associated with worse relationship outcomes. Therefore, while the overall relationship outcomes are correlated with these proximal determinants (see Table S2), it does not appear that stress similarity is robustly linked to how couples report navigating pandemic-related conflict.

### 4 | DISCUSSION

Across two datasets of couples during the early months of the COVID-19 pandemic, we examined whether similarity in COVID-19-related stress between partners was associated with relationship quality. Prior research suggests competing hypotheses about the role of stress similarity; however, our data do not provide clear support for either hypothesis, suggesting a more complicated association between stress and relationship outcomes. Although we did find some evidence that similarity in worry about COVID more generally was associated with worse general relationship quality, it was also associated with lower perceptions of the pandemic as a source of conflict in their relationship. Interestingly, these results provide evidence that stress similarity may lead to less conflict about the source of stress while simultaneously having negative indirect effects on the relationship, suggesting a more nuanced effect of stress similarity on relationship quality. Additional pathways between stress similarity and lower relationship quality may exist outside of the effects of stress similarity and ideological alignment on the source of stress. Future research should explore alternate mechanisms through which stress similarity may affect relationship outcomes.

Given the unique and wide-reaching effects and politically polarized nature of the COVID-19 pandemic, it is unwise to generalize these results across different types of stress, or to different populations. Future research should explore whether general stress similarity operates in a similar way or if the effects found in this study are applicable.
only to the context of COVID-19. An additional limitation of our study is that pandemic conflict was asked only to the subset of our participants who did not indicate extreme pandemic agreement, as we interpreted extreme agreement as indicating no conflict. However, this approach limits the variability in this measure. Also, while we attempted to be comprehensive in our measures of stress, people could have been concerned about the pandemic for different reasons, and more general stress similarity may affect relationships differently than sharing specific reasons for stress. We also relied on single-item, self-report measures of stress, which may be limited.

Taken together, these findings suggest the dyadic effects of COVID-19-related stress on relationships are nuanced. Given couples commonly experience stressful situations, considering individual differences and contextual factors may be useful in the future to help us better understand when and for whom similarity in stress matters.

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CONFLICT OF INTEREST STATEMENT
The authors have no conflicts of interest to report.

DATA AVAILABILITY STATEMENT
The data that support the findings of this study are openly available at OSF at https://osf.io/nzx24/.
ENDNOTES

1 Three of the couples completed the assessment between 28 May 2020 and 12 November 2020. For additional descriptive statistics, see Table S1.

2 33.78% of participants selected 5 at baseline. Collapsing across T1-T6, 32.19% of participants’ responses were 5.

3 See Tables S3–S7 for details.

4 For more details on how we interpreted the RSA parameters to determine similarity, see Supplemental Materials S1.

5 Multilevel models predicting each of the variables did not show a significant effect of sample in any of the models (all p’s > 0.05). To see means and standard deviations by sample and wave, see Table S6.

6 Given that we pre-registered these analyses and were looking for consistent patterns across the models, we did not adjust p-values for multiple comparisons.

7 Given our results, it did not make sense to include our pre-registered mediation analyses. See supplemental analyses Tables S12 and S13 for additional mediation analyses.

REFERENCES


AUTHOR BIOGRAPHIES

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