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RESEARCH

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Longitudinal effects of pandemic stressors and dyadic coping on relationship satisfaction during the COVID-19 pandemic

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Abstract

Objective: This study examined changes in relationship satisfaction during the COVID-19 pandemic and the moderating roles of financial strain, perceived threat of COVID-19, and dyadic coping.

Background: The systemic-transactional model of dyadic coping posits that relationship satisfaction varies as a function of the stressors partners face and their engagement in dyadic coping.

Method: About 188 partnered adults completed questionnaires at three time points during the initial confinement period of the COVID-19 pandemic and at a 20-month follow-up.

Results: Relationship satisfaction increased during the first confinement period and returned to its baseline level at the 20-month follow-up. Greater financial strain and perceived threat of COVID-19 were associated with poorer relationship satisfaction over time. Dyadic coping buffered the negative impact of financial strain on relationship satisfaction during the initial confinement period, but not 20 months later.

Conclusions: Most individuals were resilient to the effect of pandemic stressors on relationship satisfaction. The buffering effect of dyadic coping was observed during the initial confinement period when access to support resources outside the family unit was curtailed.

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Implications: Intervention efforts to promote dyadic coping and financial well-being for couples may be especially helpful in the context of strict confinement measures.

KEYWORDS
COVID-19, dyadic coping, financial strain, pandemic stress, relationship satisfaction

The coronavirus disease (COVID-19) pandemic led to government-sanctioned confinement measures to curb the spread of the SARS-CoV-2 virus. Such measures contributed to drastic changes in the daily lives of adults, such as travel and quarantine restrictions, telecommuting, school closures, limited access to childcare, as well as associated external stressors including fear of oneself and loved ones contracting the virus and financial strain due to risk of or actual loss of income. In many countries, these external stressors were compounded by strict stay-at-home measures that limited access to social support from extended family and friends, leading partnered individuals to rely more heavily on their significant others for support under these stressful conditions. In this context, some individuals may have derived more support from their romantic relationship, whereas others may have experienced increased relational tension and instability due to pandemic-related stress (Pietromonaco & Overall, 2021).

RELATIONSHIP SATISFACTION DURING THE COVID-19 PANDEMIC

Few studies have reported on trajectories of relationship outcomes during the initial confinement phase of the pandemic. Cross-sectional data collected during this time suggests that, on average, partnered individuals did not report significant changes in relationship quality (Biddle et al., 2020), relational happiness and commitment (Walsh & Stephenson, 2021), or frustrations toward their partner (Calarco et al., 2020). Similarly, longitudinal studies conducted by Williamson (2020) and Gauvin et al. (2022) found that on average, relationship satisfaction did not change over the course of the initial confinement period. However, significant inter-individual differences in relational outcomes were also noted (Williamson, 2020). For example, in a cross-sectional study, Biddle et al. (2020) surveyed 1,854 partnered individuals from a representative sample in Australia and found that 27.9% of respondents reported having a stronger relationship since the beginning of the pandemic while 17.5% reported having a more strained relationship during this time. Furthermore, some longitudinal studies suggest that relationship satisfaction decreased during the COVID-19 pandemic compared with pre-pandemic levels (Ahuja & Khurana, 2021; Schmid et al., 2021; Vigl et al., 2022), whereas other studies reported that the perceived positive effects of the pandemic on romantic relationships and family life were substantially higher than perceived negative effects during the first confinement period (Canzi et al., 2021; Holmberg et al., 2022). In summary, studies to date suggest that although some relationships were maintained or strengthened during initial confinement periods, others deteriorated in quality. This variability in relational outcomes indicates that interpersonal processes or contextual factors may have influenced how partnered individuals experienced and coped with pandemic-related stress.

THE ROLE OF DYADIC COPING

Bodenmann's (2005) systemic-transactional model (STM) proposes that dyadic coping, the process through which spouses help each other when one or both partners are facing stressful live

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events, is a key interpersonal process promoting adaptation to stress. Dyadic coping can involve strategies employed by one partner to support the other (delegated or supportive dyadic coping) or conjoint efforts by both partners to cope with shared stressors (common dyadic coping). The STM is based on the notion of interdependence, or the mutual influence that partners have on one another. Due to this mutual influence, the stress level of one partner can "spill over" into the relationship and influence the stress level of the other (Randall & Bodenmann, 2009). Likewise, coping strategies employed by one partner as well as conjoint or dyadic coping efforts can influence the ability of both partners to cope with stress.

Bodenmann's (2005) STM proposes that relationship satisfaction is influenced by both external stressors experienced by a couple as well as their extent of engagement in dyadic coping. STM differentiates external stressors, defined as stressors originating outside the couple (e.g., financial strain) from internal stressors, defined as stressors originating within the relationship (e.g., infidelity). Bodenmann argued that dyadic coping not only helps partners manage external stressors but that it also plays an important role in enhancing relationship satisfaction. Notably, common dyadic coping involving conjoint efforts made by both partners to manage shared stressors, such as joint problem-solving, information-seeking, or emotion-focused coping, has been found to have a stronger association with relationship satisfaction, compared with other dimensions of dyadic coping in which only one partner leads the stress management strategy (Falconier et al., 2015). Given that the pandemic is a shared stressor among romantic partners, common dyadic coping may moderate the association between pandemic stress and relational outcomes such that greater engagement in common dyadic coping would buffer the impact of pandemic-related stress on relational outcomes.

Few studies have examined the moderating role of dyadic coping on relational outcomes during the COVID-19 pandemic. In one cross-sectional study, Randall et al. (2022) found that individuals' perceptions of their partner's engagement in dyadic coping buffered the negative association between psychological distress and relationship quality during the pandemic. In another cross-sectional study, Donato et al. (2021) found that partners who reported feeling dissatisfied in their relationship exhibited less stress communication, less adaptive dyadic coping responses, and lower psychological well-being compared with partners who reported greater satisfaction with their relationship. In a longitudinal study, Williamson (2020) found that individuals who used more adaptive coping behaviors related to common dyadic coping (e.g., working together as a team, splitting household responsibilities) were more satisfied with their relationship over time compared with those engaging less often in these behaviors.

THE ROLE OF PANDEMIC STRESS

In addition to common dyadic coping, relational outcomes during the pandemic may have also been influenced by specific pandemic-related stressors faced by partnered individuals. Recently, Pietromonaco and Overall (2021) adapted the vulnerability–stress–adaptation model (VSA; Karney & Bradbury, 1995) to identify specific pandemic-related stressors that may influence romantic relationships. According to the adapted VSA model, relationship satisfaction during the pandemic will vary as a function of couples' preexisting vulnerabilities, their experiences of pandemic-related stressors, as well as their adaptive relational processes, such as common dyadic coping. For example, Overall et al. (2022) found that partners' attachment anxiety was associated with increased relationship problems and lower relationship quality when the participants were experiencing more pandemic-related stress.

One pervasive pandemic-induced stressor that impacted partnered individuals during the initial confinement periods was financial strain. *Financial strain* refers to how people perceive the adequacy of their financial resources and the extent to which they worry about their

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current and future financial situation (also referred to as economic strain; Voydanoff & Donnelly, 1988). During the COVID-19 pandemic, many nonessential businesses were mandated to close which led to layoffs, reduced working hours, and reduced salaries. Although not everyone experienced reduced income, many individuals were uncertain of their future income (Altig et al., 2020). Consistent with the principle of interdependence in the STM, financial strain has been conceptualized as a dyadic process in which each partner's level of financial worry influences the other (Falconier & Epstein, 2010). Two longitudinal studies found that adults who reported greater financial strain during the initial confinement period had lower relationship satisfaction and decreased sexual desire for their partners over time (Balzarini et al., 2020, 2021). In addition, in a sample of same-sex partners, financial strain was associated with increased frustrations with one's partner and greater intentions to end one's relationship among same-sex couples (Li & Samp, 2021). These findings suggest that individuals who experience greater financial strain during confinement periods also had poorer relationship outcomes.

Another factor that may have influenced experiences of stress during the initial confinement phase of the pandemic is the extent to which individuals perceived COVID-19 to pose a significant health threat to themselves, their close others, and their community. One study found that perceived health risk associated with COVID-19 accounted for 20.7% of the variance in increasing psychological distress from the beginning of March until the beginning of April 2020 (Robinson & Daly, 2020). Greater perceived COVID-19 threat has also been linked to less relationship satisfaction and greater intentions to terminate one's relationship (Li & Samp, 2021; Reizer et al., 2020). These findings point to a need for further exploration of the impact of perceived threat of COVID-19 on changes in relationship satisfaction over the course of the pandemic.

PANDEMIC STRESS, DYADIC COPING, AND RELATIONSHIP SATISFACTION

The STM model posits that relationship satisfaction varies as a function of the external stressors experienced by the couple as well as their engagement in adaptive relational processes, such as common dyadic coping. Accordingly, financial strain, perceived threat of COVID-19, and common dyadic coping represent potential moderating variables that may have influenced trajectories of relationship satisfaction during the pandemic. A few studies have examined the impact of relational processes on partners' responses to pandemic-related stress. For example, one cross-sectional study revealed that engagement in dyadic coping buffered the negative effect of perceived stress on relationship satisfaction (Xiang et al., 2022). Moreover, in their longitudinal study, Balzarini et al. (2020) suggested that perceived partner responsiveness—the extent to which people believe their partner understands, validates, and cares for them—played an important moderating role in the association between pandemic stress and relationship satisfaction. In that study, financial strain predicted lower relationship satisfaction and greater relational conflict over 3 months, but only among individuals who perceived their partners to be low in responsiveness. Moreover, Ogan et al. (2021) found that dyadic coping mediated the relationship between stress and relationship instability, such that stressed women were less likely to perceive dyadic coping from their partner, which in turn led to increased relationship instability across 6 months of the pandemic. Although these findings demonstrate a link between adaptive relational processes and relationship satisfaction, longitudinal research is required to understand the role of common dyadic coping in fostering positive relationship outcomes during protracted stressors. Notably, most studies have focused on the early phases when strict confinement measures were implemented in many countries. How relational outcomes changed as individuals cycle through different waves of pandemic, emerging viral variants, and changing public health safety measures is unknown.

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PRESENT STUDY

The current study was designed to examine the effects of pandemic-related stressors and common dyadic coping on relationship satisfaction during the initial COVID-19 confinement period, a time when most individuals spent more time with their romantic partners and had little opportunities to interact with and access support from friends and extended family. Additionally, a longer term follow-up assessment was conducted approximately 20 months after the onset of the pandemic to explore how these effects changed as individuals cycled through three waves of the pandemic and were living with less stringent, albeit still present physical distancing directives.

The current study examined the short-term (confinement period, first wave of the pandemic) and long-term (20 months after the onset of the pandemic) impact of the pandemic on relationship satisfaction and explored factors associated with those trajectories. Specifically, the first aim of this study was to examine the trajectory of relationship satisfaction across three time points during the first wave of the COVID-19 pandemic. A second aim was to examine the effects of financial strain, perceived threat of COVID-19, and common dyadic coping on relationship satisfaction trajectories over time. A third aim was to examine whether common dyadic coping would moderate the impacts of financial strain and perceived threat of COVID-19 on relationship satisfaction over time. A final aim of the present study was to explore long-term changes in relationship satisfaction as a function of financial strain, perceived threat of COVID-19, and common dyadic coping approximately 20 months after the onset of the COVID-19 pandemic. On the basis of prior work, we expected significant variability in the patterns of change in relationship satisfaction, with greater financial strain and perceived COVID-19–related threat being associated with poorer relationship satisfaction over time. In line with Bodenmann's (2005) STM model, it was expected that common dyadic coping would attenuate the negative impacts of financial strain and perceived threat of COVID-19 on change in relationship satisfaction over time.

METHOD

Participants and procedure

The sample included 188 heterosexual adults (80.3% female) living in Quebec, Canada, who reported being in a committed romantic relationship and provided information on their current financial situation. Participants were recruited from two existing participant pools of parents who had agreed to be contacted for future studies: (a) mothers of adolescents ($n = 93$) and (b) parents of preschool-age children ($n = 95$).

Prospective participants ($N = 377$) were sent an email invitation to participate in the study. The email contained a link to an informed consent form and an online questionnaire. Of these prospective participants, 49.87% completed the relationship satisfaction questionnaire at Time 1. Once participants gave consent, they completed an online survey in their preferred language (French or English) at four time points. The first three time points spanned the initial confinement period in Quebec, Canada. Time 1 occurred 1 week after the beginning of the confinement period (March 22, 2020), Time 2 occurred approximately 1 month into the confinement period (April 24, 2020), and Time 3 occurred at the end of the first confinement period (June 28, 2020). Time 4 occurred approximately 1 year after the end of the first confinement (July–November 2021). At each time point, follow-up reminder emails were sent to participants who had not completed the survey within 2 weeks of initial contact. The Concordia University Ethics Review Board approved the study. In compensation for their time, participants received CAN$ 20 at each time point.

Of those who completed the survey at Time 1, 92% ($n = 173$) of participants provided follow-up data, with 73.9% ($n = 139$) of participants completing the questionnaire at Time 2, 70.7% ($n = 133$) completing the questionnaire at Time 3, and 80.3% ($n = 151$) completing the questionnaire at Time 4. Chi-square analyses for categorical variables (i.e., gender, ethnicity, study of origin, education) and independent samples t tests for continuous variables (i.e., relationship satisfaction and age) were conducted to analyze differences between participants who completed follow-up questionnaires and those who did not. Participants who did not provide follow-up data (i.e., only completed Time 1) did not differ on gender ($p = .17$), study of origin ($p = .19$), and relationship satisfaction at Time 1 ($p = .13$), compared with participants who completed at least one follow-up assessment. However, White ($p = .04$), older participants ($p = .02$), and participants with a university degree ($p = .04$) were more likely to report follow-up data than participants with other ethnicities, younger participants, or less educated participants.

Participants ranged from 27 to 65 years of age ($M = 45.22$, $SD = 7.59$) at Time 1. The distribution of ethnicity was 70% White, 11% Latin American, 7% Black, 4% Middle Eastern, 2% South Asian, 1.5% Asian, .5% Aboriginal, and 4% self-identified as Other. Approximately 75.2% of participants had a postsecondary education, with 52.5% of participants having a university degree. Most of the sample reported currently living with their romantic partner (88.6%) with an average length of time cohabiting of 15.3 years (range: <1 year–40 years).

Most participants (94.1%) had at least one child living with them. Approximately 50.9% reported that their youngest child was between 0 and 12 years old, 16.1% had an adolescent aged between 13 and 17 years old, and 32.9% had a daughter or son of 18 years or older. Of participants who had children living with them, 80.9% had at least one child who had to stay home due to daycare or school closures caused by pandemic restrictions. In terms of changes to work status and income due to the pandemic, 39.9% reported having to work from home, 29.6% lost their job, and 29% experienced a reduction in salary. Approximately 38% of the sample received financial assistance from the government during the pandemic (e.g., Canada Emergency Response Benefit [CERB]). Individuals who had lost their job, experienced reduced income, or were unable to work due to COVID-19 were allowed to apply for the CERB. Furthermore, 28.7% were employed as an essential worker (i.e., they continued working in person during the confinement period). The mean household income was $CAN 88,200 ($SD = 43,008.82$).

Measures

Relationship satisfaction

The seven-item Dyadic Adjustment Scale (DAS-7; Hunsley et al., 2001) was used to assess relationship satisfaction at all four time points. This scale consists of three items to assess consensus (i.e., the extent to which respondents agree with their romantic partners on important relational matters) with a response range from *always disagree* (0) to *always agree* (5). Three items assess cohesion (i.e., the extent to which romantic partners share common interests and activities together) with a response range from *never* (0) to *more often* (5). One item assesses overall satisfaction with the relationship by asking respondents to rate the extent of happiness with their relationship with a response range from *extremely unhappy* (0) to *perfect* (6). Higher total scores reflect greater relationship satisfaction (total score range: 0–36). The internal consistency of the DAS-7 in the current sample was good at all time points ($a = .83$–$.89$). The DAS-7 cutoff score indicating distressed couples is 21 (Sabourin et al., 2005). Previous studies provide evidence for acceptable internal consistency as well as good concurrent, criterion-related, and content validity of the DAS-7 (e.g., Hunsley et al., 2001).

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Dyadic coping

The five-item common dyadic coping subscale of the Dyadic Coping Inventory (DCI; Bodenmann, 2008) was used to assess common dyadic coping at all four time points. The subscale assesses the frequency at which couples engage in various coping behaviors together, including emotion-focused tactics (e.g., "We help each other relax with such things like massage, taking a bath together, or listening to music together") and problem-focused tactics (e.g., "We help one another to put the problem in perspective and see it in a new light"). Items are rated on a 5-point scale ranging from *very rarely* (1) to *very often* (5), with higher scores indicating greater extent of dyadic coping (total score range: 5–25). The internal consistency of the common dyadic coping subscale in the current sample was good across all time points ($a = .85$–$.88$). Previous research has found evidence for fair construct, concurrent, and discriminant validity of the common dyadic coping subscale of the DCI, with internal consistency estimates ranging from .70 to .75 (Levesque et al., 2014; Randall et al., 2016). Trajectory analyses revealed that the common dyadic coping subscale of the DCI was stable across the first confinement period (T1–T3), $\beta(SE) = -.05$ (.18), $t = -.26$, $p = .79$, and across the longer term follow-up (T1–T4) in the present sample, $\beta(SE) = -.06$ (.12), $t = -.50$, $p = .62$. The average score during the initial confinement period was used in the analyses.

Financial strain

Consistent with Voydanoff and Donnelly's (1988) conceptualization of financial strain, six items were used to assess financial strain at Time 1. Three items addressed perceived lack of financial resources including food, housing, heating, and other basic life supplies in the past week. These items were rated on the 5-point Likert scale ranging from *not at all* (0) to *extremely* (4). A sample item is: "In the past week, how hard has it been for you to pay for basics like food, medical care, housing, and heating?" A fourth item assessed overall financial strain (i.e., the extent to which respondents felt that it was difficult to pay for necessities in the past week) and was rated on a 5-point Likert scale ranging from *not hard* (0) to *very hard* (4). Another item addressed the extent to which respondents worried about their finances in the past week and was rated on a 4-point Likert scale ranging from *not at all* (0) to *a lot* (3). A final item asked participants to select the statement that best describes the food eaten in their household in the past week from a list of four options (e.g., "you and other household members always had enough of the kinds of foods you wanted"). All six items were summed into a total score for the current study with higher scores reflecting greater financial strain (total score range: 0–20). The internal consistency for the six items was adequate ($a = .77$).

Perceived threat of COVID-19

Perceived threat of COVID-19 was assessed at Time 1 by a 5-item scale that tapped on the perceived susceptibility and severity of COVID-19 for oneself and close others based on the health belief model (Gouin et al., 2021). Items were rated on a 5-point Likert scale ranging from *not at all* (1) to *extremely* (5), where higher scores reflect beliefs that COVID-19 posed a significant health threat to themselves and their community (total score range: 5–25). Sample items include "How susceptible do you think your close others are to getting infected or catching the virus COVID-19?" and "If you get infected or catch the virus, how dangerous is the virus COVID-19 for you?" The internal consistency of the items in the current study was adequate ($a = .71$).

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Covariates

Depressive symptoms were assessed using the Center for Epidemiological Study-Depression Scale (CES-D; Radloff, 1977). The CES-D is a 20-item measure assessing the frequency of various depressive symptoms in the past week (e.g., loneliness, poor appetite, sleep disturbances). Items are rated on a 4-point scale ranging from *rarely or none of the time* (0) to *most or all of the time* (3), with higher scores indicating greater depressive symptoms (total score range: 0 to 60). The CES-D has been found to have good internal consistency in a nonclinical sample ($a = .85$; Radloff, 1977). The internal consistency of the CES-D in the current sample was acceptable ($a = .73$).

Other covariates include variables relevant to the impact of COVID-19 on daily living, such as work location (i.e., whether the individual was working from home or outside the home), children staying at home due to school and daycare closures, age, ethnicity, education, study of origin (i.e., mothers of adolescents or parents of preschool children) and cohabiting status. These variables were all assessed at Time 1 using nonvalidated items developed by the research team. Except for age, all these items were transformed into dummy-coded binary variables for the analysis. Furthermore, cohabitation length, a proxy of relationship length, was not included as a covariate in the model given that 11.4% of the sample were not cohabiting and therefore had a 0 value on this variable. However, sensitivity analyses revealed that cohabitation length was not associated with change in relationship satisfaction over time ($b = -.32$, $SE = .55$, $p = .56$).

Statistical analyses

Hierarchical linear modeling (HLM) was used to estimate trajectories of change in relationship satisfaction over four time points (Level 1) as a function of financial strain, perceived threat of COVID-19, and common dyadic coping (Level 2). HLM accounts for the statistical nonindependence of the data as well as the autoregressive correlations observed in repeated within-person analyses (Singer, 1998). Two sets of statistical analyses were conducted using SAS PROC MIXED, Version 9.4 (Cary, NC) with maximum likelihood estimation. The first set of analyses aimed to explore the effects of financial strain, perceived threat of COVID-19, and common dyadic coping on relationship satisfaction during the 4 months spanning the initial, strict confinement period (T1–T3; short-term effects). The second set of analyses aimed to explore the longer term changes in relationship satisfaction when including a 20-month follow-up assessment (T1–T4).

For each set of analyses, we estimated four multilevel models. The growth model was centered at Time 1. Model 1 (unconditional growth model) examined the average change in relationship satisfaction (DAS-7 scores) over time (fixed effect) as well as interindividual variability in the trajectory of DAS-7 scores over time (random effect). Model 2 examined the main effects of financial strain, perceived threat of COVID-19, and common dyadic coping on DAS-7 scores at Time 1 (fixed effect). To explore whether financial strain, perceived threat of COVID-19, and common dyadic coping moderated change in DAS-7 scores over time, Model 3 examined two-way interactions between time and each Level 2 predictor on the average trajectory in DAS-7 scores over time (fixed effect). Model 4 estimated three-way interactions among two Level 2 predictors and time (fixed effect). Simple slope analyses were conducted following a statistically significant interaction by constructing slopes of change over time in DAS-7 scores at two levels of the moderators (1 *SD* above and below the mean). Lastly, an additional model (Model 5) examined the main effects and two-way interactions of interest across the initial confinement period after adjusting for potentially confounding variables including gender (0 = male, 1 = female), ethnicity (0 = White, 1 = Other), age, study of origin (0 = parents of preschool

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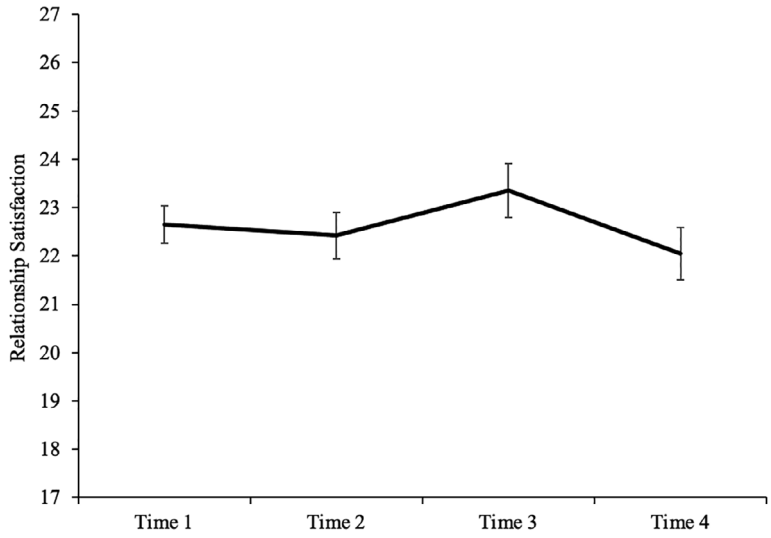


FIGURE 1 Trajectory of relationship satisfaction across four time points during the COVID-19 pandemic in Quebec, Canada. *Note*. The mean relationship satisfaction was 22.65 ($SD = 5.40$) at Time 1, 22.42 ($SD = 5.66$) at Time 2, 23.35 ($SD = 6.39$) at Time 3, and 22.05 ($SD = 6.60$) at Time 4.

aged children, 1 = mothers of adolescents), work location (0 = working from home, 1 = working outside the home), children staying at home due to school and daycare closures (0 = no, 1 = yes), cohabiting status (0 = no, 1 = yes), and depressive symptoms. Proportional reduction in variance of the random effect of time (pseudo R^2 statistic) was calculated by subtracting the residual variance of the more complex models from the residual variance in the unconditional growth model and dividing this value by the residual variance in the unconditional growth model, as a measure of the magnitude of the effect size (Anderson, 2012).

RESULTS

There were some missing data for the common dyadic coping variable but no missing data for the other predictor variables. Little's MCAR test results revealed that data were missing at random ($\chi^2 = 4.97$, $p = .76$). Mean substitution was used to address missing data at the level of the predictor variables.

Initial confinement period (Time 1–Time 3)

Supplemental Table 1 describes the means and standard deviations of the main variables at each time point. Figure 1 depicts the trajectory of DAS-7 scores over four time points during the COVID-19 pandemic. Table 1 describes the results of four sequential models used to predict change in relationship satisfaction (DAS-7 scores) over the course of the initial confinement period (T1 to T3). Model 1 (unconditional growth model) revealed a significant fixed, linear effect of time on DAS-7 scores, indicating that participants' average level of relationship satisfaction increased across the three time points. An additional model tested a curvilinear change in relationship satisfaction over time. A significant curvilinear effect of time on DAS-7 scores ($b = .55$, $SE = .27$, $p = .04$) was found, indicating an initial slight decrease in relationship

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TABLE 1 Summary of hierarchical linear regression analyses for variables predicting change in relationship satisfaction during the initial confinement period

Fixed effects	Model 1 B (SE_B)	Model 2	Model 3	Model 4
Intercepts	22.18 (0.45)***	21.93 (0.38)***	21.86 (0.38)***	21.84 (−0.38)***
Time	0.36 (0.17)*	0.37 (0.17)*	0.41 (0.16)*	0.43 (0.09)**
PT		0.39 (0.42)	1.69 (0.62)**	1.65 (0.62)**
FS		−0.20 (0.06)**	−0.05 (0.09)	−0.04 (0.09)
DC		0.99 (0.07)***	0.85 (0.10)***	0.86 (0.10)***
PT × Time			−0.77 (0.27)**	−0.74 (0.27)**
FS × Time			−0.09 (0.04)*	−0.44 (0.16)**
DC × Time			0.09 (0.04)*	0.07 (0.04)
PC × DC				0.03 (0.15)
FS × DC				−0.02 (0.02)
PT × DC × Time				−0.03 (0.07)
FS × DC × Time				0.02 (0.01)*
Random effects				
Intercept	20.95 (4.37)***	9.43 (3.39)**	8.52 (3.27)**	8.41 (3.28)**
Slope	0.95 (0.66)	0.91 (0.65)	0.56 (0.62)	0.42 (0.25)
Residual	6.45 (0.81)***	6.46 (0.80)***	6.46 (0.80)***	6.49 (0.81)***
Pseudo R^2	—	.04	.41	.56

Note. DC = dyadic coping; FS = financial strain; PT = perceived threat.
*p < .05.**p < .01.***p < .001.

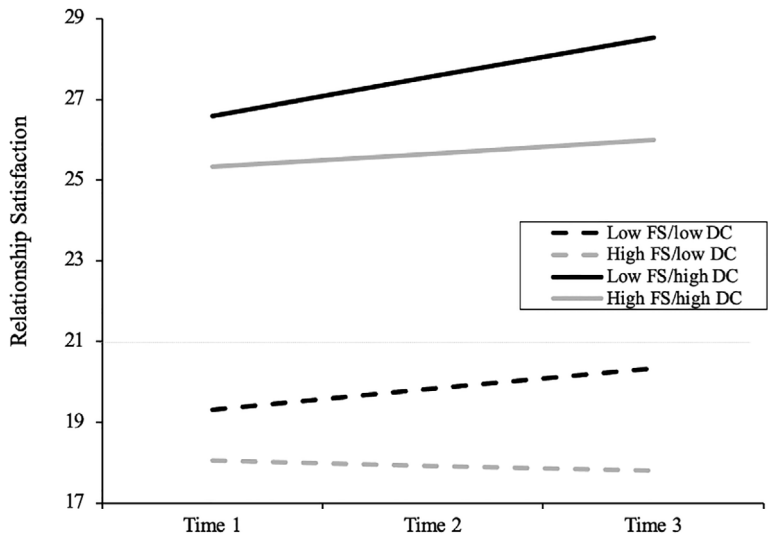


FIGURE 2 Relationship satisfaction as a function of low versus high financial strain and common dyadic coping across three time points during COVID-19 confinement. *Note*. DC = dyadic coping; FS = financial strain. The pale gray line at value 21 on the vertical axis represents the seven-item Dyadic Adjustment Scale cutoff score indicating distressed couples (Sabourin et al., 2005)

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satisfaction during the first month of the confinement period followed by an increase toward the end of the confinement period. Furthermore, Model 1 revealed a marginally significant random effect of the slope, indicating that there was variability in the rates of change in relationship satisfaction over time.

Model 2 examined the main effects of financial strain ($M = 6.37$, $SD = 4.11$), perceived threat of COVID-19 ($M = 15.86$, $SD = 3.03$), and common dyadic coping ($M = 16.18$, $SD = 3.89$) on DAS-7 scores at the beginning of the confinement. The results revealed significant main effects of financial strain and common dyadic coping on DAS-7 scores at Time 1 but not of perceived threat of COVID-19.

Model 3 revealed statistically significant fixed effects for Time × Perceived Threat of COVID-19, Time × Financial Strain, and Time × Common Dyadic Coping in predicting change in DAS-7 scores. That is, higher perceived threat of COVID-19 ($b = -.06$, $SE = .22$, $p = .78$) and financial strain ($b = .04$, $SE = .23$, $p = .86$) were not associated with change in DAS-7 scores over time, but lower perceived threat of COVID-19 ($b = .88$, $SE = .24$, $p < .001$) and lower financial strain ($b = .78$, $SE = .24$, $p < .01$) were associated with a larger increase in DAS-7 scores over time. Greater common dyadic coping was also associated with a larger increase in DAS-7 scores over time on average ($b = .74$, $SE = .23$, $p < .01$), compared with those with lower dyadic coping ($b = .08$, $SE = .24$, $p = .75$).

There was a significant Time × Common Dyadic Coping × Financial Strain interaction (Model 4), whereby high dyadic coping buffered the effects of financial strain on relationship

TABLE 2 Hierarchical linear regression analyses for variables predicting change in relationship satisfaction during the first 20 months of the pandemic

Fixed Effects	Model 1[a] *B* (*SE*$_B$)	Model 2	Model 3	Model 4
Intercepts	27.35 (1.98)***	12.55 (2.70)***	14.69 (3.03)***	9.53 (7.75)
Time	−7.93 (3.04)**	−8.03 (3.07)**	−9.18 (3.16)**	−4.44 (4.02)
Time × Time	3.75 (1.35)**	3.82 (1.37)**	3.77 (1.36)**	3.76 (1.36)**
Time × Time × Time	−0.52 (0.18)**	−0.54 (0.18)**	−0.53 (0.18)**	−0.53 (0.18)**
PT		−0.06 (0.09)	−0.19 (0.11)	0.28 (0.45)
FS		−0.20 (0.06)**	−0.08 (0.08)	−0.41 (0.36)
DC		1.04 (0.07)***	0.99 (0.09)***	1.30 (0.45)**
PT × Time		−0.19 (0.06)**	−0.07 (0.04)*	−0.38 (0.19)*
FS × Time			−0.07 (0.03)*	−0.19 (0.16)
DC × Time			−0.03 (0.03)	−0.14 (0.12)
PT × DC				−0.03 (0.03)
FS × DC				0.02 (0.02)
PT × DC × Time				0.02 (0.01)
FS × DC × Time				0.01 (0.01)
Random effects				
Intercept	20.05 (3.54)***	5.66 (2.24)**	5.43 (2.20)**	5.43 (2.22)**
Slope	0.49 (0.28)*	0.47 (0.28)*	0.39 (0.27)	0.36 (0.27)
Residual	7.71 (0.68)***	7.79 (0.60)***	7.77 (0.69)***	7.78 (0.69)***
Pseudo R^2	—	.05	.20	.27

Note. DC = dyadic coping; FS = financial strain; PT = perceived threat.
[a]Additional model testing varying functional forms of relationship satisfaction over time.
*$p < .05$.**$p < .01$.***$p < .001$.

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satisfaction. Specifically, greater common dyadic coping was associated with an increase in DAS-7 scores over time even among participants reporting high financial strain ($b = .33$, $SE = .29$, $p = .25$). In contrast, in the context of low common dyadic coping, participants with higher financial strain saw a decrease in relationship satisfaction over time ($b = -.13$, $SE = .29$, $p = .65$). The Time × Common Dyadic Coping × Perceived Threat of COVID-19 interaction was not significant. Figure 2 depicts the results of a simple slopes analysis decomposing this interaction.

In Model 5, these analyses were repeated after including a range of potentially confounding covariates. Results indicated that participants with more depressive symptoms reported lower relationship satisfaction at Time 1 ($b = -.13$, $SE = .04$, $p < .01$), but not over time ($b = .02$, $SE = .02$, $p = .32$). There were no statistically significant main effects of ethnicity ($b = .79$, $SE = .96$, $p = .41$), education ($b = .95$, $SE = .83$, $p = .25$), gender ($b = -.08$, $SE = 1.23$, $p = .95$), age ($b = .07$, $SE = .08$, $p = .38$), cohabitation status ($b = -.67$, $SE = 1.39$, $p = .63$), study of origin ($b = -.36$, $SE = 1.39$, $p = .79$), work location ($b = -0.02$, $SE = .54$, $p = .97$), and children living at home ($b = .47$, $SE = .16$, $p = .69$) on DAS-7 scores at Time 1. There were also no statistically significant interactions between the covariates and time for ethnicity ($b = -.78$, $SE = .42$, $p = .07$), education ($b = -.18$, $SE = .35$, $p = .61$), gender ($b = -.45$, $SE = .52$, $p = .39$), age ($b = .01$, $SE = .03$, $p = .86$), cohabitation status ($b = -.02$, $SE = .66$, $p = .97$), study of origin ($b = -.35$, $SE = .62$, $p = .58$), work location ($b = .08$, $SE = .23$, $p = .72$), and children living at home ($b = .04$, $SE = .48$, $p = .97$). Time × Common Dyadic Coping × Financial Strain interaction remained significant in this fully adjusted model ($b = .02$, $SE = .01$, $p = .03$), as well as in a model including only the significant covariates.

Twenty-month follow-up assessment (Time 1–Time 4)

Table 2 describes the results of four sequential models used to predict change in relationship satisfaction (DAS-7 scores) over the 20-month follow-up assessment (T1–T4). When examining change in relationship satisfaction about 20 months after the onset of the COVID-19 pandemic, Model 1 (unconditional growth model) revealed a nonsignificant linear fixed effect of time on DAS-7 scores. Model 1 also revealed a significant random effect of the slope, indicating that there was significant variability in the rates of change in relationship satisfaction over this longer follow-up. An additional model revealed a significant cubic effect of time on DAS-7 scores was also found, indicating that participants' average rating of relationship satisfaction returned to their early-pandemic baseline level at the last follow-up assessment.

Across the 20-month follow-up, there were significant fixed effects for Time × Perceived Threat of COVID-19 and Time × Financial Strain, but not Time × Common Dyadic Coping, in predicting DAS-7 scores over time. That is, greater financial strain ($b = -.30$, $SE = .16$, $p = .05$) and perceived threat of COVID-19 ($b = -.26$, $SE = .15$, $p = .09$) were associated with a larger decrease in DAS-7 scores, compared with lower financial strain ($b = .23$, $SE = .16$, $p = .16$) and perceived threat of COVID-19 ($b = .19$, $SE = .17$, $p = .26$). In contrast to the findings during the first confinement period, there were no statistically significant three-way interactions of Time × Common Dyadic Coping × Financial Strain and Time × Common Dyadic Coping × Perceived Threat of COVID-19 across the 20-month follow-up.

DISCUSSION

The goal of the present study was to assess change in relationship satisfaction during the first confinement period as well as 20 months into the COVID-19 pandemic and to examine the moderating effects of pandemic stressors and common dyadic coping on relationship

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satisfaction over time. During the first wave of the pandemic, relationship satisfaction decreased in the first month of the confinement period but increased above initial levels toward the end of the first confinement period. At the 20-month follow-up, relationship satisfaction returned to its early-pandemic baseline level. Financial strain and perceived threat of COVID-19 were negatively associated with relationship satisfaction over time both at short-term and long-term assessments. Common dyadic coping buffered the negative impact of financial strain on relationship satisfaction during the initial confinement period. However, this effect was not statistically significant at the 20-month follow-up. These findings could reflect patterns of resilience and habituation to pandemic-related stress among partnered individuals.

Short-term trajectory of relationship satisfaction (initial confinement period)

In contrast to studies revealing no overall change or an average decrease in relationship satisfaction during the COVID-19 pandemic (e.g., Ahuja & Khurana, 2021; Gauvin et al., 2022), there was a decrease in relationship satisfaction during the first month of confinement followed by an increase toward the end of the first confinement period in the current sample. Such curvilinear change in relationship satisfaction highlights that the impact of the pandemic on relationship satisfaction changed rapidly during the first confinement period, potentially suggesting a habituation process to this new situation. Indeed, studies document that pandemic-related lifestyle changes were associated with higher relationship quality (Rodrigues & Lehmiller, 2022) including when length of time in quarantine or social distancing with cohabitants increased (Cooper et al., 2020). Similarly, a longitudinal study revealed that partnered individuals perceived more positive than negative impacts of the COVID-19 pandemic on their romantic relationship over time (Holmberg et al., 2022). Similar patterns of habituation have been observed in studies examining change in psychological distress during the COVID-19 confinement period. Fancourt et al. (2021) reported that after an early peak of distress, most people exhibited a reduction in anxiety and depressive symptoms between the 2nd and 5th weeks of the strict confinement period.

The initial confinement period created a unique social context for romantic relationships. Strict confinement measures limited access to support from friends and relatives and provided opportunities for partners to spend more time together, hence creating enhanced interdependence. Partners also had to navigate a shared stressor together (Pietromonaco & Overall, 2021). Qualitative studies suggest that some romantic partners benefitted from confinement via engaging in enjoyable activities together, focusing on their relationship, and deepening their connection with their partner (Holmberg et al., 2022; Okabe-Miyamoto et al., 2021). Moreover, participants may have used a range of adaptive relational processes to effectively manage pandemic stress. For example, during the confinement period, individuals were more forgiving and less blaming of their partner's negative behaviors by attributing these behaviors more to the situation and less to personal characteristics (Williamson, 2020). As well, Neff et al. (2021) revealed that women who attributed blame to the pandemic for current problems reported less relationship stress during the pandemic. Taken together, strict confinement measures appear to have allowed many partnered individuals to strengthen intimacy and connection with their romantic partner.

Long-term trajectory of relationship satisfaction (20-month follow-up)

A follow-up assessment approximately 20 months into the pandemic indicated that relationship satisfaction returned to its early pandemic baseline level. This finding is consistent with research on the effects of natural disasters on romantic relationships. For example, Williamson et al. (2021) found that after Hurricane Harvey, partnered individuals experienced a temporary increase in relationship satisfaction, followed by a return to baseline. Possibly, the acute effects

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of the pandemic triggered an initial boost in relationship satisfaction. As partnered individuals adapted to a new normal, relationship satisfaction may have returned to its baseline levels. Alternatively, it may be the case that the context of enhanced interdependence during the first confinement period dissipated as partners relied less heavily on one another for support as pandemic restrictions were eased. Specifically, after the initial confinement period, public spaces reopened, indoor gatherings were permitted, and access to social support outside the romantic relationship (friends, colleagues, relatives) improved. Vaccination against the SARS-CoV-2 virus was well distributed in Canada by July 2021 (Time 4), which may have changed appraisals of threat related to COVID-19 and created a sense of safety for individuals to gather in larger numbers. Therefore, changes in time spent together, improved access to other social support resources, and change in COVID-19 threat appraisals may explain the return to baseline observed in relationship satisfaction following the initial confinement period.

Effects of pandemic stressors on relationship satisfaction over time

Variability in changes in relationship satisfaction was observed across participants, suggesting that not all partnered individuals were affected by the COVID-19 pandemic in the same way. The adapted VSA model suggests that relationship satisfaction varies as a function of couples' experiences of pandemic-related stressors as well as their capacity to adapt to those stressors (Pietromonaco & Overall, 2021). Consistent with this model, the present study revealed that greater financial strain and perceived threat of COVID-19 were associated with a slower rate of increase in relationship satisfaction over the initial confinement period and an overall decrease in relationship satisfaction across the 20-month follow-up. These findings corroborate prior work demonstrating the negative impact of financial strain (e.g., Balzarini et al., 2020, 2021; Li & Samp, 2021) and perceived threat of the SARS-COV-2 virus (Li & Samp, 2021; Reizer et al., 2020) on relationship outcomes.

Findings indicate that people's experience of the pandemic will vary as a function of individuals' objective financial and material resources (i.e., income, living conditions, ability to purchase necessities) as well as their appraisals of the adequacy of these resources. In a longitudinal study, Turliuc and Candel (2021) found that couples with lower socioeconomic status were prone to greater stress and lower levels of relationship satisfaction during the COVID-19 pandemic. As such, individuals who are already experiencing economic hardship may have been more affected by threats to financial stability posed by the pandemic, even if their romantic relationship is high-functioning. For example, partners sharing a small living space during the pandemic may have less privacy and time for themselves, which may, in turn, exacerbate tensions and conflicts between the partners. Such living circumstances combined with financial stress may further exhaust couples' resources, challenge supportive communication, and contribute to lower relationship satisfaction during the pandemic. For many individuals, the pandemic created substantial economic instability due to job loss. Indeed, almost 40% of participants received financial assistance from the federal government during the pandemic. It is notable that financial strain remained a significant predictor of change in relationship satisfaction despite rapid financial support from the government. One possibility for this is that participants still experienced uncertainty regarding their income source after the support period and may have nonetheless experienced a reduction in their usual income.

Effects of common dyadic coping on relationship satisfaction over time

Greater self-reported engagement in common dyadic coping strategies was associated with a faster rate of increase in relationship satisfaction over time and buffered the negative impact of

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financial strain on relationship satisfaction during the initial confinement period. Taken together with cross-sectional data collected during the COVID-19 pandemic (e.g., Donato et al., 2021; Randall et al., 2022), dyadic coping appears to be an interpersonal process that may protect partnered individuals against the negative effects of stress during crises. The STM proposes that partners who engage in dyadic coping enhance trust, validation, and support in their relationships through adaptive stress communication, motivation toward engaging in dyadic coping, and enhanced self-regulatory resources (Bodenmann, 2005; Neff & Karney, 2017). In line with findings that common dyadic coping is most strongly predictive of relationship satisfaction compared with other forms of dyadic coping (Falconier et al., 2015), the current results add that individuals who work together with their partners to cope with stress may be better equipped to weather crises that involve common stressors.

At the 20-month follow-up, common dyadic coping did not predict change in relationship satisfaction over time, suggesting that within the pandemic context, the moderating effect of dyadic coping changed over time. Common dyadic coping was stable over time in the present sample. Although, there was a main effect of common dyadic coping, it is possible that its moderation effect on relationship satisfaction changed over time. According to the STM, greater dyadic coping resources are activated in the face of more severe stressors (Bodenmann, 2005). During the first confinement period, risks to financial stability and fear of the virus were heightened, suggesting that partners may have activated more dyadic coping resources during this time compared to the post-confinement period. As couples adapt to crises and stressors decrease in intensity, the need for dyadic coping may wane over time. Alternatively, dyadic coping may be particularly relevant in the context of heightened interdependence posed by strict confinement periods. According to the STM, given that one partner's satisfaction is highly dependent on the other partner's satisfaction, partners are generally motivated to help one another deal with stress (Bodenmann, 2005). Partners' motivation to engage in dyadic coping may have been enhanced during the confinement period as partners spent more time together and opportunities for stress spillover and conflicts increased. In contrast, as partners spent less time together and access to social support resources improved at the 20-month follow-up, partners may have relied less heavily on common dyadic coping strategies to cope with the ongoing pandemic. In fact, Bodenmann (2000, as cited in Bodenmann, 2005) revealed that as social support from friends and family increased, individuals relied less on their romantic partner for coping.

Common dyadic coping did not moderate the association between perceived threat of COVID-19 and relationship satisfaction over time. The fact that common dyadic coping moderated the impact of financial strain, but not perceived threat of COVID-19, may be related to differences in the nature of these two stressors. Whereas financial strain may affect both members of a couple in a similar way due to shared sources of income and pooled finances, partners may have different appraisals of the threats related to COVID-19. As such, perceived threat of COVID-19 could be conceptualized as an individual stressor rather than a shared or common stressor. Given that common dyadic coping involves coping strategies that are generally symmetrical or complementary within couples (Falconier & Kuhn, 2019), it may be more effective at mitigating the effects of shared stressors than individual stressors that do not impact both couple members equally.

Strengths, limitations, and future directions

The current study has several strengths. Baseline data were collected during the week of the first confinement period, which allows for the examination of the early effects of confinement measures on romantic relationships. Also, the inclusion of repeated assessments during the first wave of the pandemic as well as a long-term follow-up provides a depiction of how relational outcomes changed as individuals cycle through different waves of pandemic and changing

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public health safety measures. In addition, previous studies investigating relationship outcomes during the pandemic used samples consisting of romantic partners with and without children (e.g., Donato et al., 2021; Randall et al., 2022). The present study describes the trajectory of relationship satisfaction among parents of young children, adolescents, and young adults.

The present study has some limitations that direct future research. First, most participants were White, middle-class, female, and heterosexual, representing sampling bias that restricts the generalizability of the results. Second, average DAS-7 scores in the present sample were comparable to those of a previous community sample ($M = 25.8$; Hunsley et al., 2001), highlighting that the current findings may not be generalized to clinically distressed couples. Couples who had ongoing relational distress, high conflict, and hostility before the pandemic may be less equipped to cope with pandemic-related external stressors and use dyadic coping strategies. Third, the data in the current study were drawn from one partner rather than dyads. Given the interdependent nature of relational variables in romantic partners, future research should consider data from both partners and dyadic analyses, such as the actor–partner interdependence model (Kenny et al., 2006). In addition, researchers should consider the use of person-centered analysis to investigate potential latent class trajectories of relationship satisfaction during the pandemic (Laursen & Hoff, 2006). Fourth, the current study examined common dyadic coping as a sole indicator of stress coping. However, other relationship maintenance behaviors (e.g., responsiveness, conflict management; Ogolsky et al., 2017), as well as other dimensions of dyadic coping (e.g., delegated dyadic coping; Bodenmann, 2005), may have also buffered the effects of pandemic stressors on relationship satisfaction. More research is needed to examine the role of different types of maintenance behaviors above and beyond common dyadic coping strategies. As well, the length of the romantic relationship and the marital status of participants was not measured in the current study. Future research studying relationship satisfaction should include these variables because they are known to impact relationship functioning (Proulx et al., 2017). Finally, nonvalidated items developed by the research team were used to assess financial strain and perceived threat of COVID-19, so future studies should use validated measures to assess these constructs, such as the Financial Strain Survey (Aldana & Liljenquist, 1998) and the COVID-19 Risk Perception Scale (Capone et al., 2021).

Implications

The current study's findings indicate that interventions that foster common dyadic coping may play an important role in supporting couples early on during pandemics. Notably, scalable DVD-based and online interventions have been developed to improve romantic relationship functioning. The Couple Coping Enhancement Training (CCET-DVD) is a DVD-based program that allows couples to improve their relationship in a remote and self-directed manner (Bodenmann et al., 2014). A central aim of CCET-DVD is to enhance couples' communication and couple-level coping with stress. The intervention has been associated with improvements in dyadic coping, relationship satisfaction, positive communication, and conflict resolution (Bodenmann et al., 2014). Hold Me Tight (HMT), an emotion-focused couples therapy online program, aims to create more secure connection in couples by strengthening emotional communication (Johnson, 2008). This online program has been associated with improvements in relationship satisfaction and other relationship maintenance behaviors (Conradi et al., 2018). These intervention formats may be especially suitable during confinement periods. However, clinical research is needed to test the effectiveness of such interventions when administered in a pandemic context.

In the present study, financial strain had a negative impact of relationship satisfaction during the pandemic despite the provision of financial assistance from the Canadian government. Consequently, interventions targeting both financial management and dyadic coping may be

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helpful supplements to governmental financial assistance for couples during periods of financial uncertainty. Falconier (2015) created an interdisciplinary program, TOGETHER, for couples experiencing financial strain. In this program, partners learn how to improve communication, dyadic coping, and manage finances. Components of the program are informed by Bodenmann's (2005) STM. The program has been associated with reductions in financial strain and negative communication between partners as well as improvements in coping strategies and financial management skills. Future research should continue to explore the way couples manage financial crises. Specifically, how dyadic coping impacts financial stress and joint financial management behaviors in couples. From a public health perspective, the development of scalable interventions, integrating financial management and dyadic coping, that could be administered in conjunction with governmental financial assistance during a pandemic context is also warranted.

Conclusion

The results of the current study suggest an overall pattern of habituation and resilience to pandemic stress with regard to relationship satisfaction. Financial strain and perceived threat of COVID-19 are two pervasive pandemic stressors that negatively affect relationship satisfaction in partnered individuals. However, common dyadic coping is an important protective factor against the negative effects of financial strain on relationship satisfaction during the initial confinement period of the COVID-19 pandemic. Future studies should assess the effectiveness of dyadic coping interventions during the initial phases of pandemics and other prolonged crisis.

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