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Changes in employment and relationship satisfaction in times of the COVID-19 pandemic: Evidence from the German family Panel

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ABSTRACT

Families have been hit hard by the COVID-19 pandemic and its associated lockdown, but barely any research has been conducted yet, investigating how COVID-19-related stressors – and, specifically, disruptions in established employment arrangements – affected couples' relationship quality. To account more comprehensively for such non-monetary costs of the COVID-19 pandemic, the present study investigates whether changes in partners' employment situation during the COVID-19 crisis – particularly home-office and short-time work – had an immediate impact on the relationship satisfaction of cohabiting married and unmarried couples. To do so, we estimated fixed-effects regression models, exploiting unique data from the German Family Panel (*pairfam*; wave 11) and its supplementary COVID-19 web-survey. We observed a substantial proportion of respondents experiencing positive (20%) or negative (40%) changes in relationship satisfaction during the crisis. Relationship satisfaction has decreased, on average, for men and women alike, almost irrespective of whether they experienced COVID-19-related changes in their employment situation. While partners' employment situation hardly moderated the negative association between respondents' employment and relationship satisfaction, the presence of children seemed to buffer partly against a COVID-19-related decrease. Our results thus confirm previous findings suggesting that the COVID-19 pandemic constitutes a threat to couples' relationship quality and healthy family functioning more generally.

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KEYWORDS Relationship quality; family stress theory; Corona; *pairfam*

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Introduction

Families have been hit hard by the COVID-19 pandemic and its associated lockdown (e.g. Biroli *et al.* 2020; Lebow 2020). An important aspect in discussions about the social consequences of this crisis relates to its potential impact on gender inequalities in families and, consequently, society as a whole (e.g. Alon *et al.* 2020; Settersten *et al.* 2020; see also Czymara *et al.* 2020). Empirical studies assessing changes in couples' division of housework and childcare during the COVID-19 pandemic (e.g. Fodor *et al.* 2020; Hank and Steinbach 2020) provide ambiguous evidence on the question of whether gender inequalities in couples' division of labour have actually increased. However, there is fairly robust evidence suggesting significant – and gendered – changes in parents' employment situation (e.g. Adam-Prassl *et al.* 2020; Reichelt *et al.* 2020).

Barely any research has been conducted yet investigating how COVID-19-related stressors – and, specifically, disruptions in established employment arrangements – affected couples' relationship quality (see Balzarini *et al.* 2020; Biroli *et al.* 2020, for exceptions). Addressing this issue seems important to grasp more comprehensively the non-monetary costs of the COVID-19 pandemic both in the short-term and in the longer-term (reflected in, for example, expected decreases in union stability; see Prasso 2020; Prime *et al.* 2020). Exploiting cross-sectional data based on a convenience sample, Balzarini *et al.* (2020), for example, showed that financial strain, social isolation, and perceived stress related to COVID-19 are negatively associated with relationship quality.

Using data from the German Family Panel (*pairfam*; wave 11, data collection in 2018/2019) and its supplementary COVID-19 web-survey, the present study aims to provide an initial exploration of whether changes in the employment situation during the COVID-19 crisis – particularly home-office and short-time work – had an immediate impact on cohabiting (married and unmarried) individuals' relationship satisfaction. We add to previous research (e.g. Balzarini *et al.* 2020; Biroli *et al.* 2020) in two particular ways: First, we are able to exploit representative panel data for three German birth cohorts and compare changes in partnership satisfaction before and during the COVID-19 pandemic. Our longitudinal data also allow us to rule out that observed changes between 'baseline' and follow-up result from maturation effects alone. Second, we directly address relationship satisfaction and thereby dynamics in couples rather than families, as examined by Biroli *et al.* (2020).

Home-office and short-time work as stressors

For a sizeable share of persons, COVID-19-related interventions implied starting to work from home or increasing their home-office intensity. Whereas home-office was rather uncommon and below the European average in Germany prior to the pandemic (e.g. Chung and van der Lippe 2018), more than a quarter of the working population worked at least partly from home in spring 2020 (e.g. Hoenig and Wenz 2020; Schröder *et al.* 2020). On the one hand, working from home might come with the potential benefit of spending more time with the partner and the family and is discussed as a measure to reconcile family and work (e.g. Chung and van der Lippe 2018), which could contribute to an improvement of relationship satisfaction. On the other hand, there might be challenges related to working from home, for example, the need to arrange the practicalities of working from home, bargaining over new routines related to work and personal life with the partner, and potential conflict arising from the need to adjust to the new situation. Parents who had to combine home-office with child care and/or home schooling may have experienced even more stress given their double workload. Furthermore, roles can become blurred and boundary management may become an issue (Allen *et al.* 2014; Chung and van der Lippe 2018) as working from home increases the risk that job demands interfere with family life. Indeed, working from home has been shown to be related to work-to-family conflict (Voydanoff 2005). This may have triggered increased couple conflict about the labour division regarding parental responsibilities, calling for dyadic coping (e.g. Randall and Bodenmann 2017).

Short-time work is a labour market policy instrument available in several European countries that is applied to avoid layoffs in times of economic crisis (Konle-Seidl 2020). In Germany, short-time work typically means reduced working hours and reduced but partly compensated income payments (60% or 67% of net income lost due to reduced working hours are compensated for childless persons or parents, respectively). In April 2020, the Federal Employment Agency reported that 30% of employees in Germany worked short-time (Statistik der Bundesagentur für Arbeit 2020). Individuals working from home, just as those working short-time, spend more time with their partner and family, which constitutes an opportunity to improve work-family balance, but also requires adjustments in couples' daily arrangements. In addition, individuals affected by short-time work might worry about financial

issues related to reduced wages, especially as two-thirds of those affected have lower education and have already had lower earnings before the crisis started (Schröder *et al.* 2020).

Family stress theory postulates that acute as well as chronic stressful economic conditions, particularly a loss in income and related financial pressure in the household economy, can undermine relationship satisfaction and stability (e.g. Conger *et al.* 2010; Karney and Bradbury 1995). In fact, studies indicate that low income and financial hardship are linked to increased couple conflict (Hardie and Lucas 2010) and reduced marital quality (Kelley *et al.* 2018). Whereas short-time work prevents unemployment, the associated partial loss in earnings and changed everyday routines suggest negative effects of short-time work on relationship satisfaction.

Research has also shown that coping resources vary by social status (Conger *et al.* 2010) and are a strong predictor of relationship satisfaction (Falconier *et al.* 2015). Stressful events like an economic crisis or the COVID-19 pandemic can increase pre-existing problems within couples as more conflicts might arise and may even foster marital dissolution (Pietromonaco and Overall 2020; Prime *et al.* 2020). From previous findings and stress theoretical implications, we, therefore, expect a decline of relationship satisfaction for persons who are particularly affected by COVID-19-related changes, especially by short-time work and home-office. On the other hand, couples' relationship satisfaction might even develop positively, if less time is spent on employment and more time is made available for childcare, family, and the romantic relationship. How COVID-19-related changes in employment play out for individuals might depend on their individual situation, in particular on the employment situation of the partner and the presence of children in the household. We, therefore, consider these characteristics of the household context as potential moderators.

Data and method

We combine data from the German Family Panel's wave 11 (*pairfam*; see Brüderl *et al.* 2020; Huinink *et al.* 2011), whose 9,435 computer-assisted personal interviews were conducted between October 2018 and May 2019, with pre-release data from the *pairfam* COVID-19 web-survey (Walper *et al.* 2020), in which information from 3,176 respondents was collected during the period from mid-May through early July 2020. These longitudinal data allow us to assess how changes in relationship

satisfaction correlate with COVID-19-related changes in both partners' employment situation.

Our analysis is restricted to respondents from the three initial pairfam cohorts (born in 1971–1973, 1981–1983 or 1991–1993, respectively) who were (full-time or part-time) employed at baseline (i.e. wave 11) and cohabited with a partner (married or unmarried) at baseline and follow-up. We created a balanced data set excluding individuals with inconsistent or missing information on any relevant variable, leaving us with a sample of 832 respondents (see Figure A1 in the Online Appendix for a detailed description of the sample selection). Of those, we excluded 51 respondents (6%) with the strongest changes in relationship satisfaction (four or more units on the 11-point scale) between the two waves, which are likely attributable to other causes than COVID-19-related changes in employment (see Figure 1 for the distribution of changes in relationship satisfaction). The final analytical sample includes 781 respondents (419 women and 362 men).

We estimated *fixed-effects linear regression models* (e.g. Brüderl and Ludwig 2014) in order to explore changes in relationship satisfaction between wave 11 and the COVID-19 survey for different employment

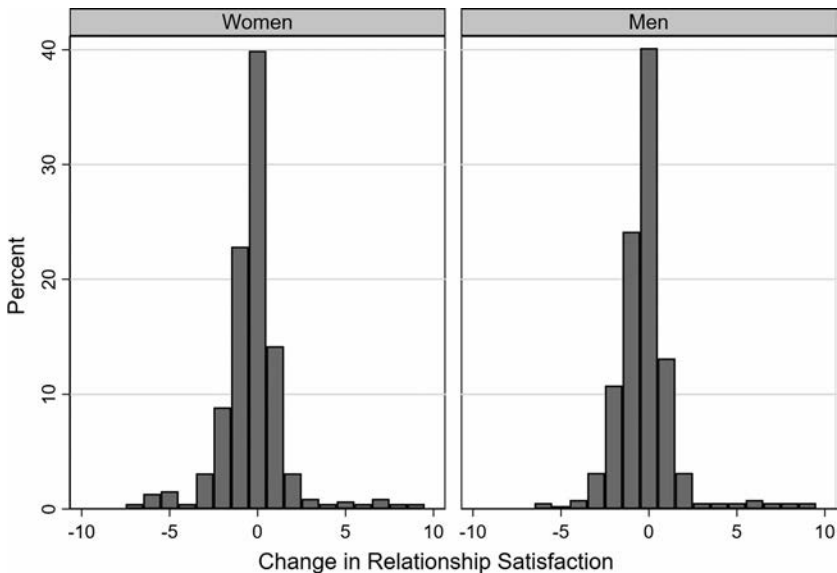


Figure 1. Histograms of change in relationship satisfaction between wave 11 and the COVID-19 survey, by gender, before excluding 6% (51 respondents) with changes of four or more scale points. Negative values indicate a decline in relationship satisfaction. Source: pairfam, own calculations.

groups. The fixed-effects approach eliminates all time-invariant factors by exploiting within-person variability (i.e. intra-individual changes over time) only. We thereby avoided that potentially unobserved time-invariant confounders bias our estimates. Standard time-invariant control variables (see, for example, Karney and Bradbury 2020) were therefore omitted from the models.

In addition to a model for the overall association between employment and relationship satisfaction, we examined whether the employment-related changes in relationship satisfaction differ between different groups. We calculated separate models for women and men; for respondents with a partner who was not employed in wave 11, who was employed and did not experience COVID-19-related employment changes, and who was employed and did experience COVID-19-related employment changes. Furthermore, we run separate models for respondents living with versus without at least one child in the household in wave 11. The statistical significance of differences between employment groups in the same model was assessed using Wald χ^2 -tests, while interaction effects were calculated to assess differences by gender, partner's employment and the presence of children. In addition, we report supplementary analyses that examine whether there is evidence of COVID-19-related changes in relationship satisfaction that go over and above a maturation effect (i.e. a decrease in relationship satisfaction associated with the progression of time spent in a relationship).

Relationship satisfaction was assessed with the question 'All in all, how satisfied are you with your relationship?', with response options ranging from 0 ('very dissatisfied') to 10 ('very satisfied'). The coefficients in the estimated models can be interpreted as the change in respondents' relationship satisfaction between wave 11 and the COVID-19 survey.

Changes in the *employment situation* were assessed in the COVID-19 survey, asking respondents 'Have there been changes to your employment situation due to the COVID-19 pandemic? Please mark all options that apply.' Based on the responses, we defined the following four categories: (1) short-time work (also including decreased working hours, time off in lieu, special leave, paid leave arrangements), (2) working (full-time or part-time) in home-office, (3) short-time work *and* home-office (if both of the above changes applied), and (4) no change in employment situation between wave 11 and the COVID-19 survey.¹

We distinguish three types of *partner's employment situation*: (1) partners who were not full-time or part-time employed in wave 11, (2) partners in full-time or part-time employment in wave 11 without the experience of a COVID-19-related employment change, and (3) partners in full-time or part-time employment in wave 11 experience a change to short-time work and/or home-office (as defined above) or any other change not captured by these categories. Information about changes for partners was obtained using the same items as for the respondents' situation (see above).

To assess the *presence of children*, we use information from wave 11 indicating whether at least one child was living in the household. A dummy indicator for the *closure of childcare facilities and schools* was generated using the COVID-19 survey questions regarding the closure of schools or kindergarten/daycare facilities for those having children.

Results

Descriptive results (Table 1) show that- between wave 11 and the COVID-19 survey- the mean relationship satisfaction decreased by 0.29 for women and 0.36 for men, respectively. Figure 1 shows comparable shares of changes in relationship satisfaction for women and men: With about 40%, the proportion of respondents reporting a decrease in relationship satisfaction was twice as large as the share of those reporting an increase in relationship satisfaction (approximately 20%). In addition, relationship satisfaction remained stable for about 40% of both men and women. Changes in the employment situation of women and men in the sample of initially full-time or part-time employed respondents were comparable, with 31% and 25%, respectively, reporting no changes in employment, about one fifth reporting short-time work, about 40% reporting working from home, and approximately 10% reporting both short-time work and home-office as a COVID-19-related change (see Table 1).² Six out of ten women and five out of ten men reported that their partner experienced job-related changes due to the COVID-19 pandemic. Almost every other respondent in the sample was confronted with the closure of a childcare facility or school at the time of the COVID-19

¹Note that we do not consider respondents with the following answers in the analyses: unpaid leave arrangements or unpaid vacation (n=10), layoff (n=5) or firm shutdown (n=14). Those with increased or more flexible working hours without mentioning home-office or short-time work were not considered in the analysis as well (n=83).

²Note that 95% of men worked full-time in wave 11, while part-time work was more frequent among women (53%).

Table 1. Person-level descriptive statistics by gender.

	Women	Men
	Mean/proportion	Mean/proportion
Relationship satisfaction change	−0.29	−0.36
<i>Respondent employment COVID-19 survey</i>		
No change	0.31	0.25
Short-time work	0.19	0.19
Home-office	0.40	0.43
Short-time work + home-office	0.11	0.13
<i>Partner employment</i>		
Not full-/part-time employed wave 11	0.16	0.30
No change	0.23	0.21
Changed employment	0.61	0.49
<i>Childcare/school</i>		
Institution closed	0.48	0.52
Institution closed if child in household wave 11	0.81	0.84
<i>Respondent employment wave 11</i>		
Full-time	0.47	0.95
Part-time	0.53	0.05
<i>Partner employment wave 11</i>		
Full-time	0.79	0.33
Part-time	0.05	0.37
<i>Marital status wave 11</i>		
Married	0.69	0.72
<i>Children in household wave 11</i>		
No child	0.35	0.31
One child	0.21	0.24
Two children	0.36	0.36
Three or more children	0.09	0.09
<i>Education wave 11^a</i>		
Enrolled	0.00	0.01
Low education	0.00	0.02
Medium education	0.44	0.38
High education	0.55	0.59
<i>Birth cohort</i>		
1971–1973	0.33	0.33
1981–1983	0.48	0.50
1991–1993	0.19	0.17
Respondents	419	362

Source: pairfam, own calculations.

^aLow education = no degree, lower secondary education (ISCED97-levels 1b, 2a, 2b), medium education = upper secondary education and post-secondary non-tertiary education (ISCED97-levels 3a, 3b, 4a), high education = tertiary education (ISCED97-levels 5 and 6).

survey in May-June 2020. Among respondents living with children in wave 11, about 80% were still affected by the closure of a childcare facility or school at that time.

The coefficients of the fixed-effects models (see [Figure 2](#) and Table A1 in the Online Appendix) represent the average difference in relationship satisfaction between wave 11 and the COVID-19 survey for different groups of persons (persons not indicating change in their employment situation, those starting short-time work during COVID-19, etc.). While Model 1 shows the difference in relationship satisfaction

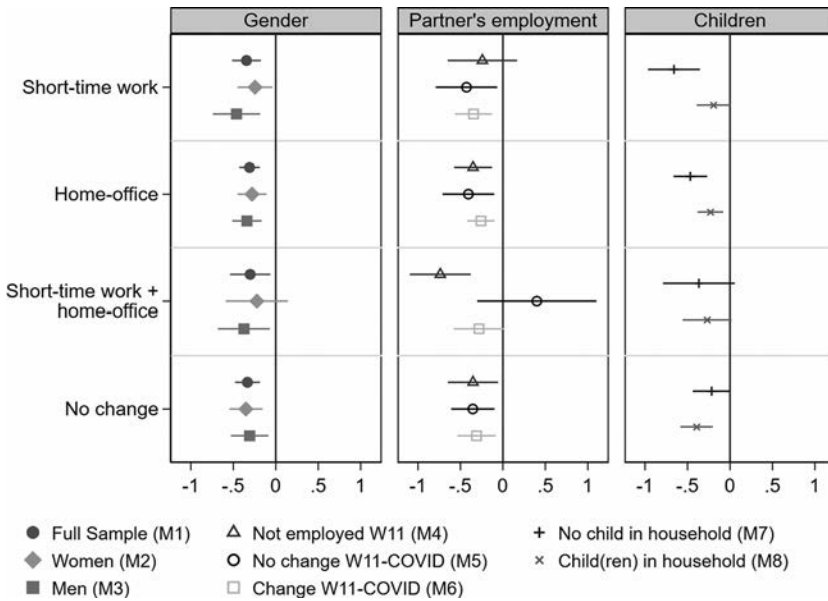


Figure 2. Coefficients (with 95% confidence intervals) indicating relationship satisfaction differences between wave 11 and the COVID-19 survey obtained from fixed-effects regression models, by employment categories. Full sample and separate analyses by gender, partner's employment situation and presence of children in the household (see Table A1 in the Online Appendix). Source: pairfam, own calculations.

between wave 11 and the COVID-19 survey by employment category for the whole sample, Model 2 and Model 3 show the association separately for women and men (first panel Figure 2). Models 4–6 (second panel Figure 2) show the associations by partners' employment and Models 7 and 8 (third panel Figure 2) show the association for respondents living without and with children.

According to Model 1, an average decrease in relationship satisfaction was observed among all groups that experienced COVID-19-related changes in employment. Short-time work, working from home and the combination of both was associated with a decrease in relationship satisfaction by about 0.3 ($p < 0.05$). Interestingly, also individuals with no COVID-19-related change in employment showed a statistically significant decrease in relationship satisfaction that is comparable in size (no statistically significant differences between the employment groups emerged). Looking at women and men separately in Models 2 and 3 revealed that the coefficient of combined short-time work and home-office was not significantly different from zero among women. However, calculating interaction effects between gender and employment

(see Table A2 in the Online Appendix) did not reveal significant differences in employment-related changes in relationship satisfaction between women and men.

To test whether the employment situation of the respondent's partner moderates the association between respondents' COVID-19-related employment changes and relationship satisfaction, we estimated models separated by partners' employment (Models 4-6). Unfortunately, sample sizes did not allow distinguishing partner's employment situation as detailed as for the anchor respondent, so any change in the partner's situation was considered here. The results for respondents whose partner was not employed in wave 11, experienced no change or a change in employment between wave 11 and the COVID-19 survey are similar to those found for the full sample in Model 1, showing no significant differences between partner's employment except for the combination of short-time work and home-office. Respondents who changed to short-time work and home-office and had a partner without a change in his or her employment showed a non-significant increase in relationship satisfaction; however, even though the respective coefficient differs significantly from that for respondents whose partner was not employed in wave 11 ($p < 0.01$) and respondents whose partner experienced any change in their employment ($p < 0.1$), small sample sizes and large confidence intervals do not allow to interpret this finding as strong evidence for a moderating effect of partner's employment.

Models 7 and 8 provide evidence that COVID-19-related changes in employment vary by the presence of children in the household. COVID-19-related uptake of both short-time work and home-office were negatively associated with relationship satisfaction for respondents without children in the household ($\beta = -0.66$ and $\beta = -0.47$; $p < 0.001$). Interestingly, interaction effects (see Table A2 in the Online Appendix) indicate that the decrease in relationship satisfaction among those who experienced short-time work but did not live with children was significantly stronger than the corresponding, only marginally significant change for respondents in short-time work who lived with children in the household ($p < 0.05$). For home-office, we also observed a tendency towards a stronger decrease in relationship satisfaction among respondents who did not live with children ($p < 0.1$). Furthermore, the decrease in relationship satisfaction among respondents without children experiencing short-time work is significantly stronger than the decrease among their counterparts reporting no COVID-19-related employment change ($p < 0.05$). In contrast, no significant differences were observed

between employment categories among respondents with children in the household.

In supplementary analyses, we investigated whether the general pattern of decreasing relationship satisfaction in our analyses can reasonably be attributed to the COVID-19 pandemic or whether these changes represent pure maturation effects (details are provided in the Online Appendix; see Table A3). While, based on the results of these analyses, we cannot rule out that a part of the decrease in relationship satisfaction observed in our original analyses is attributable to maturation, our supplementary analyses challenge the notion that COVID-19-related decreases would have been observed in that time period due to maturation alone.

Discussion

Exploiting unique data derived from the German Family Panel pairfam and employing a fixed-effects approach, this study explored immediate consequences of the COVID-19 pandemic for couples' relationship satisfaction, focussing in particular on potential effects resulting from changes in respondents' work arrangements. On average, relationship satisfaction turned out to have decreased, almost irrespective of whether respondents experienced changes in their employment situation during the COVID-19 crisis or not. Even though men were almost exclusively working full-time and every other women reported working part-time, the COVID-19-related changes in relationship satisfaction were, by and large, similar for women and men, irrespective of their work situation.

Whereas it seems plausible to assume that COVID-19-related changes in employment would hit especially hard if they affected both partners, our analyses provide only limited support for this notion: With few exceptions, we observed comparable decreases in relationship satisfaction for most combinations of respondents' and their partners' employment situation. Since some of the exceptions from this pattern might result from small case-numbers, they should be interpreted with caution. For parents, combining home-office with home-schooling or child-supervision could put particular strain on the relationship with their partner. Surprisingly, the results indicated that relationship satisfaction tended to decrease more strongly for respondents experiencing home-office and short-time work who lived without children in the household compared to those living with children. A potential explanation of why individuals without children experience a comparatively stronger decline

than those with children in the household might be a relatively stronger increase in conflicts compared to pre-COVID-19 levels. While respondents without children in the household seem to have experienced stronger declines in relationship satisfaction during COVID-19, it is noteworthy that they initially had higher average levels of relationship satisfaction compared to those with children in the household (8.6 vs. 8.0 scale points).

Our results are thus consistent with previous findings from cross-sectional studies suggesting that the COVID-19 pandemic might constitute a threat to couples' relationships quality and healthy family functioning more generally (e.g. Balzarini *et al.* 2020; Biroli *et al.* 2020), at least in the short-term. These costs clearly need to be added when counting the non-monetary societal costs of the pandemic. Reasons for the decline in relationship quality during the COVID-19 pandemic could be found in restricted opportunities to enjoy leisure time activities outside the household and in the necessity to spend more time at home (together). Further, a decrease in general life satisfaction of individuals caused by the pandemic might spill over into relationships. With regard to the family stress theory, our results are only partly in line with expected developments in relationship satisfaction related to changes in employment situation as our results indicate a general decline in relationship satisfaction during the pandemic, also for those without a COVID-19 related change in employment. From a family stress theory perspective, the pandemic might thus be regarded as a general stressor affecting couple relationships (Pietromonaco and Overall 2020).

Obviously, our study is not without limitations: First, the observed effects might partially result from the maturation of relationships. However, our supplementary analyses give reason to assume that the average decline in relationship satisfaction is not merely a continuation of a pre-existing downward trend. Furthermore, we observe a substantially higher proportion of couples experiencing (positive or negative) changes in relationship satisfaction than usually reported in the literature (see Karney and Bradbury 2020). Second, it has to be acknowledged that data about relationship satisfaction has been collected in different survey modes: While computer-assisted self-interviews were used in wave 11, the COVID-19 survey was carried out as a computer-assisted web-interview, which was a necessary concession to the pandemic. Although mode effects cannot be ruled out, we are convinced that the interview situation is reasonably similar as the respondents both times self-administered the questionnaire on a computer.

Third, pairfam's short COVID-19 web-survey with its focus on the pandemic and its associated lockdown neither provides information on break-ups nor re-partnering, nor does it allow to identify partners via partner characteristics (e.g. partners' month and year of birth). Therefore, we cannot rule out that respondents report on relationship satisfaction from two different cohabitating relationships. However, Hiekel and Fulda (2018) reported that serial cohabitation is a rare phenomenon in Germany. In addition, we exploited information from the pairfam waves 7–11 and found that only about 1% of initially employed respondents changed their cohabiting partner within two-year intervals, implying that the problem is marginal in our analyses.

Following our initial assessment of changes in couples' relationship quality during the COVID-19 crisis, future research should aim to inspect whether the association of employment and relationship satisfaction varies by characteristics like socio-economic status or dyadic coping resources. As we also found a decrease in relationship satisfaction among respondents without job changes, future studies should also assess whether there is a general COVID-19 effect on partnership satisfaction, also in individuals that were not employed before the pandemic. Moreover, longer-term studies will have to show whether the changes in relationship satisfaction observed here remain a temporary phenomenon, or whether they will sustain, accumulate and, eventually, substantiate in increased risks of partnership dissolution.

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Disclosure statement

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