### ORIGINAL ARTICLE



# For better or worse: Economic strain, furlough, and relationship quality during the Covid-19 lockdown

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#### **Funding information**

Economic and Social Research Council Centre for Population Change, Grant/Award Number: ES/R009139/1

Edited by: Liana Sayer

#### Abstract

Objective: This study evaluates the role of objective and subjective measures of economic uncertainty, as well as furlough schemes, on changes in couples' relationships during the first lockdown in the UK.

Background: Most theories of relationship quality argue that economic uncertainty strains intimate relationships, leading to a deterioration in relationship quality. Few studies capture such an intense period of economic uncertainty, and the role of government policy to mitigate the impact of the economic crisis.

Method: The study employs the UK Household Longitudinal Covid-19 surveys conducted in April–June 2020. Using multinomial logit regression models (N = 5792), we examine how self-reported change in relationship quality is associated with socioeconomic status, subjective financial uncertainty, and change in employment situation, especially for those furloughed through the UK government's Employment Protection Scheme.

Results: The study finds that 8% of individuals reported a decline in their couple relationship quality, but 19% reported improvements. Those with higher education and household earnings were more likely to experience improvements in relationship quality. Reduced work hours or job loss was not associated with changes in relationship, although expecting a worse future financial situation was. Furlough was strongly associated with improvements in relationships, furloughed men were slightly more likely to report an improvement in their relationships than women.

Conclusion and Implications: Although prior research has found that economic uncertainty is detrimental to relationships, employment protection schemes seem to have mitigated some of the worst effects on families.

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J. Marriage Fam. 2023;1-25.

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### INTRODUCTION

A large number of studies have found that social and economic crises strain partnerships, resulting in worse relationship quality (Aytaç & Rankin, 2009; Conger et al., 2010, see Blom et al., 2019 for review). However, adversity may also strengthen relationships, bringing families closer together (Cohan & Cole, 2002; Henry et al., 2004). Just as crises can unexpectedly foster social cohesion (Abrams et al., 2020), they can also shift everyday life, causing individuals to reevaluate priorities and recognize the importance of family. Thus, a crisis may come with unanticipated benefits, especially for partners.

This study capitalizes on the extraordinary situation produced by the Covid-19 pandemic, in which couples were forced to spend an unprecedented time in close proximity. The lockdown policy introduced in the United Kingdom on 23 March 2020 closed schools and most workplaces, and restricted social interaction outside of the household. By late June 2020, at the time of this study, some lockdown restrictions had been relaxed; for example, nurseries and primary schools had partially reopened, as well as nonessential shops and outdoor venues, and groups of up to six people were allowed to meet outdoors. Yet the majority of social life was still disrupted, with many individuals working remotely from home and very little interaction outside the household. In this study, we examine how heterosexual couples assess whether their relationships became better or worse during the lockdown period, providing insights into how couples cope with uncertainty.

The lockdown of spring 2020 led to a rapid decline in economic activity, with the 20.4% decline in GDP the largest on record in the UK (Office for National Statistics, 2020a). A quarter of businesses had to shut down temporarily (Office for National Statistics, 2020a), and only 54% of working-age individuals were working (Crossley et al., 2021). Following the Family Stress Model (Conger et al., 2010) and the Vulnerability–Stress–Adaptation (VSA) model (Karney & Bradbury, 1995), we would predict that the economic uncertainty would have placed pressure on household finances, strained couple's interactions and support, and resulted in a decline in relationship quality during this period (Pietromonaco & Overall, 2020). Here we examine whether job loss and a decline in working hours are associated with deteriorating relationships, and whether higher education and household income buffer the abrupt change in lifestyle and economic uncertainty of the lockdown, resulting in improvements in relationship quality.

Although economic uncertainty was heightened during this period, the UK government rapidly enacted a range of measures to mitigate the economic impact of the lockdown. In March 2020, the UK government implemented the Coronavirus Job Retention Scheme (CJRS), which furloughed approximately 9.4 million people by late June (Office for National Statistics, 2020b). The Self-Employment Income Support Scheme (S-EISS) also supported a further 3 million self-employed workers whose businesses were adversely impacted by the pandemic (Office for National Statistics, 2020b). These policies led to a reduction in work hours, but guaranteed economic support, providing a reprieve from the demands of everyday work stress. While on furlough, individuals had far more leisure time on their hands, and despite the inability to leave home, they may have had more time for themselves and their family, potentially leading to improvements in relationship quality.

The effects of lockdown, of course, depend on household situation, gender, and the burden of household labor. Although some couples had more time on their hands, parents may have had to unexpectedly homeschool and care for children who were unable to attend school or

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childcare. The homeschooling burden disproportionately fell on mothers, as couples often reverted to traditional gender roles (Benzeval et al., 2020; Sánchez et al., 2021). In addition, women were more likely to reduce work hours, withdraw from the labor market or apply for furlough (Adams-Prassl et al., 2020). As a result, the association between changes in employment status and changes in relationship quality may differ by gender. Prior studies have found that men's economic hardship is more detrimental for the relationship than women's (Hardie et al., 2014; Kinnunen & Feldt, 2004); however, the added strain of increased domestic and childcare responsibilities may have meant that women's relationship quality suffered even more during lockdown.

To examine how relationship quality changed during the lockdown period, we use waves 1-3 of the nationally representative Understanding Society Covid-19 survey, conducted in April-June 2020. The survey captures male and female partners' perceptions on whether their relationships became better or worse since the beginning of the pandemic in March 2020. This self-assessment provides the most direct test of how relationships changed during the first lockdown period, since the period between the start of the lockdown and measurement of relationship quality was about 3 months. While fixed effects models may capture within-individual change over time, prior studies have not been able to isolate the exact effect of the pandemic (Schmid et al., 2021), because the distance between waves is too long to rule out typical declines in relationship quality or other events which may produce change (Lavner & Bradbury, 2010). In addition, we capitalize on the household nature of the survey and examine not only a main sample that includes all married and cohabiting respondents, but also a smaller dyad sub-sample in which both partners responded. The full individual sample allows us to test our main hypotheses on a larger sample and examine interaction terms with enough cases. The dyad sample, on the other hand, allows us to examine partners' employment status jointly, as well as combine partners' assessments of the relationship, but its small size limits exploration of interaction terms. Thus, each sample allows us to explore different research questions related to changes in relationship quality.

Our research contributes to the present literature in the following ways. First, we examine both the deterioration and improvement of couples' relationships during an unprecedented period when most couples were forced to radically change routines and curtail social interaction outside of the household. Second, we examine how rapid changes in employment and working hours might have influenced relationships and whether those with better socioeconomic conditions were better able to weather the lockdown. Third, we focus on furlough, aiming to better understand how economic policies can buffer the effects of economic uncertainty on relationship quality. Fourth, because our dataset includes information on both partners, we can assess whether the male's or the female's change in employment status is more important for relationships during this unpredictable period, contributing to the literature on the gendered influences of economic conditions on relationship functioning. Taken as a whole, our study provides insights into how socioeconomic conditions are associated with relationship functioning, whether this unusual period exacerbated inequalities in relationships across different socioeconomic groups, and how policies can buffer the effects of economic uncertainty on relationship quality.

### BACKGROUND

# Economic uncertainty and relationship quality

An increasing number of studies have investigated the impact of macro-level economic uncertainty on families (e.g., Aytaç & Rankin, 2009; Blom et al., 2019; Conger et al., 2010), especially since the Great Recession of 2008 led to increased job instability (Mandal et al., 2011). According to the Family Stress Model, adverse economic events cause couples emotional problems resulting in conflict and distancing and lead to relationship dissatisfaction and disruption (Conger et al., 2010). The Vulnerability–Stress–Adaptation (VSA) model also predicts that external stressors impact how couples interact and function (Karney & Bradbury, 1995). As stress depletes couples' energy and erodes the ability to support each other, particularly for those who have pre-existing vulnerabilities, couples no longer have the emotional resources needed to maintain healthy relationships (Buck & Neff, 2012; Neff & Karney, 2017).

Both objective and subjective economic uncertainty can impact individuals' perception of relationship quality. First, economic downturns often result in an objective decline in economic status as measured through unemployment or the reduction of working hours. The sudden loss of income and associated stress can cause conflict as households struggle to make ends meet (Conger et al., 2010; Hardie et al., 2014; Mauno et al., 2017). Unemployment or insufficient work could also lead to a lack of structure and regular activity, influencing an individual's sense of purpose and identity (Jahoda, 1982). Numerous studies have shown how unemployment is associated with poor mental well-being and lower self-esteem (Strandh et al., 2013; Suh et al., 1996). This loss of psychological resilience can cause individuals to become withdrawn and uncommunicative, leading to a deterioration in relationship quality (Blom & Perelli-Harris, 2020).

Economic uncertainty not only strains relationships directly through loss of working hours, but also indirectly through subjective perceptions, such as anxiety about the future. The expectation of job loss can be as detrimental to psychological well-being as actual job loss (Mandal et al., 2011), and the fear of unemployment can be destructive to subjective well-being (Knabe & Rätze, 2010). Job insecurity can lead to a "spiral of psychosocial resource losses", which spill over to family life (Blom et al., 2019; Mauno et al., 2017). Concerns about what will happen in the future can affect couples' relationships in the present.

The VSA model posits that beyond actual or fear of job loss, those who have preexisting vulnerabilities or fewer resources are more likely to experience relationship strain (Karney & Bradbury, 1995). In particular, those with lower socioeconomic status, including both income and education, are more prone to relationship instability (Conger et al., 2010; Karney & Bradbury, 1995). Poor relationship quality may be due to general economic pressures that increase the risk of emotional distress (e.g., depression, anxiety, anger, and alienation) and behavioral problems (e.g., substance use and antisocial behavior), which can cross over into couples' interactions (Conger & Conger, 2002; Neff & Karney, 2007). Lower income usually implies constrained financial resources, which could produce tension and conflict (Jackson et al., 2017; Lavner & Bradbury, 2010). In addition, individuals with lower education often have worse communication skills and lack the resilience needed to buffer the effects of external stressors (Brown & Kawamura, 2010; Karney, 2021; Neff & Karney, 2017). Higher education, on the other hand, is related to greater financial stability, communication skills, and coping mechanisms, which can contribute to better relationship satisfaction and stability (Boertien & Härkönen, 2018; Brown et al., 2017).

# Covid lockdowns, furlough policies, and relationship quality

According to previous theories, the Covid-19 pandemic would have placed extreme pressure on couples, harming dyadic processes and undermining couples' relationship quality, especially those couples with fewer resources to protect against economic adversity (Pietromonaco & Overall, 2020). However, some families may have been able to rebound from adversity and experience positive growth (Walsh, 2020). Although lockdown in the UK was abrupt and disorienting, this unusual period also fostered mutual aid, kindness, and unity for many communities (Abrams et al., 2020). A sense of social connection, albeit remotely, may have strengthened

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family ties. This unique period, without the usual hectic schedule of extracurricular activities and social life, provided additional time for communication, leisure activities, and intimacy, which are important for relationship maintenance (Ogolsky et al., 2017).

In addition, UK government furlough policies aimed to reduce the acute financial strain produced by the economic shutdown and may have also, indirectly, supported family relationships. The Coronavirus Job Retention Scheme (CJRS) and the Self-Employment Income Support Scheme (S-EISS) provided financial support to protect jobs and keep employees on the payroll, minimizing the detrimental and long-term effects of job loss on workers and the economy. About 30% of the UK population was furloughed and received around 80% of their normal pay (Pope et al., 2020). The schemes did not target specific industries, but employees in hospitality, arts, and recreation, and those working for small businesses were most likely to be furloughed (Pope et al., 2020). Because of these policies, unemployment did not rise immediately, and few people encountered severe declines in earnings during the first lockdown (Office for National Statistics, 2020b). However, work hours still declined substantially for many, as they shifted to part-time work or took unpaid leave (Adams-Prassl et al., 2020).

The furlough policy created a unique situation for understanding the impact of (temporary) job "loss" on relationships. While furlough provided 80% of salaries, it still resulted in loss of income, potentially straining budgets. In addition, being furloughed disrupted the regular routine of daily life. Researchers have argued that one of the reasons unemployment has a detrimental impact is due to the lack of structure and social activity, which can affect mental well-being (Jahoda, 1982). Active Labor Market Programs, which provide job seekers with training, social contact, and routine, have been found to alleviate some of the negative mental health consequences of unemployment (Wang et al., 2021). The CJRS did not provide any alternate activities, leaving individuals with nothing to do and possibly a sense of ennui, which could strain relationships.

On the other hand, furlough could be seen as a paid "stay-cation." Furloughed individuals had few of their normal job pressures, responsibilities, or work stressors, such as disagreements with co-workers. External stressors can lead to negative interactions and poor relationship evaluation (Neff & Karney, 2009). Without typical work hours and the daily commute, which is about an hour per day on average in the UK (Office for National Statistics, 2018), couples could spend more time together in-home leisure activities and relaxation (Ogolsky et al., 2017). Thus, while furlough shares some similarities with unemployment, in terms of loss of activity and social contact, it also came with no reduction in income or the stigma of unemployment that often leads to conflict. Even though furlough could be an indicator of financial strain and loss of structure, we expect that overall, this unique period of time could lead to an improvement in relationship quality.

### Gender differences in the association between economic uncertainty, furlough policies, and relationship quality

Prior studies have found gender differences in the impact of economic uncertainty and unemployment on relationship quality and stability (Blom et al., 2017; Blom & Perelli-Harris, 2020; Killewald, 2016). For example in Germany, falling below the poverty line decreased relationship satisfaction for women, but not men (Hardie et al., 2014). In the UK, women became unhappy with their relationship when their husbands lost their jobs, but women's own unemployment did not result in a decline in relationship happiness for either partner (Blom & Perelli-Harris, 2020). Men's employment seems to be particularly important when there is a societal expectation that men adopt an economic provider role (Hardie et al., 2014).

In the UK, gender inequalities and traditional gender-role attitudes continue to persist (Blom et al., 2017; Platt & Polavieja, 2016), suggesting that men's economic uncertainty would be detrimental to the couple's relationship quality. The gender division of labor has continued

to be unequal, with only small increases in liberal gender role attitudes (Scott & Clery, 2013). Women still undertake the majority of household responsibilities and are more likely to perceive the unfairness of housework split (Scott & Clery, 2013). New mothers are especially more likely to reduce working hours and specialize in housework (Harkness et al., 2019). Although half of couples in the UK are dual-income, the remainder are male breadwinner couples with only around 5% female breadwinner couples (Kowalewska & Vitali, 2021). Female-breadwinner households tend to be vulnerable financially, and 60% include unemployed men, suggesting that rather than practicing egalitarian gender roles, these couples are more likely to face economic adversity (Kowalewska & Vitali, 2021). Thus, in the UK, men's role as an economic provider is still essential.

Given this context and the economic uncertainty of the lockdown period, men's decline in working hours may have produced role strain, if men were unable to contribute to the household income. The inability to fulfill this role can lead to wives losing respect for their husbands (Blom & Perelli-Harris, 2020). However, as discussed above, the furlough scheme may have alleviated some of the gendered role expectations, by substituting for lost wages and giving "permission" for men to take time off and spend time with their families. Thus, men may have reaped the benefits of the furlough period, as if they were on paid leave.

For women, on the other hand, lockdown and the associated uncertainty may have resulted in very different pressures. Evidence is accumulating that the impact of the lockdown was more severe for women (Adams-Prassl et al., 2020; Chung et al., 2020; Collins et al., 2020). Despite fathers participating more in childcare than usual (Chung et al., 2020; Sánchez et al., 2021), mothers still bore the brunt of childcare, homeschooling, and housework (Andrew et al., 2020; Chung et al., 2020). In addition, women were more likely to lose their jobs and be furloughed, because they were more likely to be in occupations in the service or recreational sector (Office for National Statistics, 2020a). While furlough may have protected them from the majority of lost income, the increase in "cognitive labor" (Daminger, 2019) and "mental load" (Ruppanner, 2020) during the lockdown period would have required women to take on the additional emotional demands of organizing childcare and schooling, since schools were closed. Finally, lack of social contact and help from friends and family may have exacerbated stress for women. These additional stressors may have spilled over to the evaluation of their relationship, particularly if the division of housework was perceived to be unfair (Frisco & Williams, 2003). Therefore, we expect that although furlough may have had a positive impact on men's evaluation of their relationship, the additional pressures of managing a household during lockdown would not have resulted in an improvement in women's evaluation of their relationship, even if they were furloughed.

To sum up, this study addresses the following research questions: (1) How does relationship quality change during the Covid lockdowns in the UK? (2) Do pre-existing conditions (pre-Covid household income and education) buffer any adverse consequences, as predicted by the Vulnerability–Stress–Adaptation model? (3) Are objective (loss in working hours) and/or subjective measures (future financial strain) of economic uncertainty related to changes in relationship quality during the Covid-19 pandemic, in line with the Family Stress Model? (4) Does being furloughed lead to better or worse relationship quality? (5) Does the association between these factors and changes in relationship quality differ by gender?

### **DATA AND METHODS**

### Data

To examine relationship quality during the pandemic, we drew on Understanding Society, the nationally representative UK Household Longitudinal Study (UKHLS), which has followed

over 30,000 households annually since 2009 (University of Essex, Institute for Social and Economic Research, 2020b). We used data from the supplementary UKHLS Covid-19 surveys (University of Essex, Institute for Social and Economic Research, 2020a) which asked all participants from prior UKHLS waves to complete an online survey covering a variety of topics during the pandemic (42% of the original UKHLS sample answered wave 1 of the Covid-19 surveys). We primarily used wave 3 (June 2020) which asked individuals about changes in relationship quality since the outbreak of the coronavirus pandemic. The Covid-19 survey wave 1 (April 2020), 2 (May 2020), and previous UKHLS main surveys provided background information from respondents.

Because the UKHLS is a household survey, all members of the household were invited to participate. However, in practice, far more individuals answered the survey than couples. Therefore, our first sample included all individuals who answered the survey waves 1–3, regardless of whether their partner also answered the survey. A total of 6495 men and women aged 18–64 in couples, either cohabiting or married, answered the June survey. A comparison of those who responded to the 2018–2019 (wave 10) UKHLS survey (University of Essex, Institute for Social and Economic Research, 2020b) revealed that our analytic sample was more likely to be middle-aged adults in long-term and happier relationships who were more likely to have a stable financial situation.

We excluded 93 respondents who did not answer the relationship quality question; sensitivity analyses indicated these respondents did not differ substantially from the remaining sample. We also excluded individuals with missing values (n=610) for the independent variables, for example, fairness of chore split, insufficient working space, or relationship duration, reducing our analytical sample to 5792. Using the previous UKHLS waves, we could tell that those excluded due to item missingness were slightly less educated and more likely to be in a lower-income quintile and childless. We conducted sensitivity analyses with the same models using multiple imputations for item missingness (available upon request). When we only imputed household earnings, the employment status variables did not change. However, when we imputed all variables, job loss became significant. Nonetheless, the other coefficients and standard errors from imputed models were very similar to the presented models.

Our second set of analyses focused on couple dyads (see below), in which each partner answered the relationship and employment questions. Note that the Covid-19 surveys were intended to be an individual survey rather than a household survey, and thus less attention was paid to recruiting all members of the household. As a result, only 1357 couples (2714 individuals) participated. The couple sample was more likely to be married with older children, compared to the sample in which only one member of the couple answered the survey (Table 1). To make the sample more representative of the general UK population, we applied weights provided by UKHLS to all analyses.

### Measurement

## Dependent variable

Because we were interested in individuals' own self-assessment of how relationships changed during lockdown, we focused on the question "How has your relationship with your partner changed since the outbreak of the coronavirus pandemic?" Answer categories were: "better than before, about the same, and worse than before." The Covid-19 survey also asked respondents to assess their relationship happiness on a 7-point scale. This variable was correlated with the "change in relationship" variable, indicating that those who experienced an improvement in relationship were more likely to have a higher score in relationship happiness. In additional models (available upon request), we controlled for relationship happiness, but

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TABLE 1 Descriptive table for variables (weighted)

	% or mean (SD)	
	Individual sample	Couple sample
Couple relationship quality		
Better than before	19.08	18.29
About the same	72.48	74.17
Worse than before	8.44	7.54
Education (%)		
Less than secondary	28.31	30.36
Advanced or secondary	21.92	20.08
University degree	49.77	49.55
Household earning quintile in January/February		
1st (the lowest)	19.11	17.00
2nd	18.87	19.02
3rd	17.85	17.90
4th	16.62	19.08
5th (the highest)	17.46	18.34
Missing	10.09	8.66
Employment status (%)		
Same/more work hours (employed in January/February)	24.63	24.91
Furlough	25.94	26.89
Job/work hour loss	35.17	35.31
Continuously not working	14.25	12.89
Expect worse future financial situation	11.84	10.76
Age of the youngest child in the household (%)		
No child	36.36	27.11
Child 0–5	16.41	17.14
Child 6–12	19.20	22.59
Child 13–16	8.99	11.71
Child 17+	19.04	21.45
Insufficient working space (%)	24.11	23.04
Fairness of chore split (%)		
Very fair	36.99	39.51
Somewhat fair	46.07	46.97
Unfair	16.94	13.52
Common mental disorder (%)	30.58	27.41
Age	46.39	47.66
	(11.01)	(9.48)
Gender (%)		
Men	47.73	58.48
Women	52.27	41.52
Partnership status (%)		
Married	78.94	86.36
		(Continues

TABLE 1 (Continued)

	% or mean (SD)	
	Individual sample	Couple sample
Cohabiting	21.06	13.64
Vulnerable to Covid-19 (%)	4.29	3.04
Ever separated (%)	12.96	11.38
Relationship duration (year)	17.62	19.48
	(10.99)	(9.66)
Observations	5792 individuals	1356 couples

because these controls did not change associations between our main dependent variable and key independent variables, we did not include level of relationship happiness in the presented models. We also considered evaluating longitudinal change in the level of reported relationship happiness using wave 10 of Understanding Society (2017–2019). However, the long time period of up to 3 years between wave 10 and the Covid-19 surveys would not allow us to pinpoint changes due to the pandemic. Thus, we focused on respondents' direct report of how the relationship with their partner changed during the first pandemic lockdown in June 2020, which was the only time the Covid-19 surveys directly asked about change in relationship quality during this period.

### Main independent variables

Objective measures of changes in employment situation, including furlough

Change in employment situation was a composite variable based on a series of questions on current employment status, work hours before and during the lockdown, and detailed reasons for experiencing a reduction in work hours since before the lockdown (i.e., between January–June). Table S1 outlines how we condensed the answer categories into (1) Same/increased working hours; (2) Furlough/self-employed scheme or paid leave; (3) Job/work hour loss; (4) Continuously not working.

The first category was based on a question asking whether the respondent had the same or increased working hours between January and June 2020. If they reported a decline in working hours during lockdown, we incorporated the reasons for work hour loss in the second and third categories. The second category included those who have been "put on furlough or paid leave" (both categories were included in one response category) and those covered by the S-EISS. This category also included those on annual leave and self-isolating or on sick leave with pay, because these workers were financially supported and likely to be able to return to their jobs.

The third category included numerous reasons for reducing working hours, as well as job loss. Note that only 96 respondents (2%) reported losing their job during this period, partially because the furlough scheme protected many vulnerable workers. Thus, we expanded the category to include those who had their hours involuntarily cut, were self-isolating or on sick leave without sick pay, and whose business was directly affected, but were not protected by the scheme. We also included other categories that required employees to cut their hours, such as caring for children or others, those who would normally expect to be working fewer hours (variation), and those who quit their job/changed employer. This category also included other reasons for reducing hours such as avoiding the risk of becoming sick, and bereavement. The final category consisted of those continuously not in the labor force between January and June. The

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category included homemakers, the retired, those in education, and others. In our main models, we tried different specifications of the change in employment situation variable, which we discuss below (see Supplementary Analyses, Table S2).

### Subjective perceptions of economic uncertainty

Expect worse future financial situation captures subjective perceptions of economic uncertainty and was measured by the question asked in the June 2020 survey "how do you think you will be financially a month from now." For parsimony, we condensed the three categories into a dichotomous measure: better off/the same coded as 0 and worse off coded as 1, but the three category measure results were similar.

### Pre-existing vulnerabilities that may protect against financial strain

Education was measured as less than secondary, advanced or secondary, and university degree. Since the UKHLS Covid-19 surveys did not ask respondents' highest degree, we obtained this information from previous UKHLS main waves.

Household earnings quintile controlled for resources available before the economic shut-down. We used information on "total take-home pay/earnings of respondents' household in January/February 2020" provided by the UKHLS Covid-19 surveys. We split the sample into five categories from lowest to highest. Quintile 1 reflected the lowest income and was the reference category. Since around 10% of the values are missing, we included a category for missingness. A robustness check excluding respondents with missing values yielded the same conclusion.

#### Gender

As discussed above, the association between our main variables and relationship quality may depend on gender. *Gender* was coded 0 for men and 1 for women.

### Controls

Living with young children may have increased relationship strain since children require more attention when schools are closed (Kwong et al., 2020; Xue & McMunn, 2021). We included a composite variable identifying the presence and *age of the youngest child* in the household: no children, 0–5, 6–12, 13–16, and 17+; younger children require more care, which can place greater strain on the couple.

During the pandemic when children were unable to attend school and housework increased, the perception of fairness in division of housework may have become even more important for whether relationships improved or deteriorated. Prior research has found that the sense of fairness in the division of household labor had a stronger association with relationship quality than actual time spent on housework (Frisco & Williams, 2003; Wilcox & Nock, 2006). Here we used fairness of chore split to capture whether respondents feel that housework and caring responsibilities were split equally with their partner. It was coded as 0 very fair, 1 as somewhat fair, and 2 as unfair.

Having enough space for household members to work and study was particularly important during the lockdown, especially due to homeschooling (Benzeval et al., 2020). A lack of working space could potentially increase tension and strain on couples. We identified individuals with *insufficient working space* if they replied "No" to the question "whether everyone has their own quiet space at a desk or table to work at."

Age was a continuous variable, ranging from 18 to 64. Partnership status was coded as 0 for married and 1 for cohabiting couples. Vulnerable to Covid-19 indicated whether the respondent had been identified by the National Health Service as someone at risk of severe illness if they

caught coronavirus. *Ever separated* summarized whether the respondent had ever been through a partnership disruption. *Duration* was a linear specification of the number of years living with the current partner; curvilinear and categorical specifications produced similar results.

In order to control for general well-being, we included a measure of mental health based on the 12-item General Health Questionnaire (GHQ-12). Each item of GHQ-12 was recoded as a binary indicator, with "rather more" or "much more than usual" scored as 1; "not at all" or "no more than usual" scored as 0. Scores were summed and range from 0 to 12. As is common practice, respondents who scored three or more on the GHQ-12 were coded as 1 for *common mental disorder*, otherwise coded as 0 (Chandola et al., 2020).

### Method

To examine our main aims, we used the larger individual sample and employ multinomial logistic regression with the outcome variable "change in relationship quality" categorized as became better; about the same (the reference category); and became worse. We entered covariates of interest sequentially to produce models that address each of our research questions. In our main sample, we applied the Stata cluster command to account for clustering of individuals within households.

To better understand gender differences in the association between employment status and relationship quality (Research Question 5), we analyzed the smaller couple dyad sub-sample. Because this sample included information about both partners, we can see how joint couples' changes in employment status impact not only the individual's relationship quality, but also their combined responses. Likewise, only the male partner's furlough status may be associated with changing relationship quality, and not the female partner's. First, we used multinomial logistic regression models for individuals' assessments of change in relationship quality. Next, in supplementary analyses, we examined whether partners' concordance in responses makes a difference. If either partner reported their relationship became worse, the outcome variable was coded as "worse"; if either partner reported their relationship became better but neither reported it became worse it was coded as "better"; and if both partners reported no change, it was coded as "same," the reference group.

### **RESULTS**

Contrary to expectations that the lockdown severely strained relationships (e.g., Pietromonaco & Overall, 2020), we found that 72.5% of our full sample reported no change in relationship quality, and 19.1% reported an improvement (Table 1). Only 8.4% experienced a deteriorating relationship (Research Question 1).

Table 2 shows odds ratios from multinomial logistic regression models. Models 1–3 represented each of our research questions; Model 4 included a measure of mental well-being known to be strongly associated with relationship quality; and Model 5 included all variables, assessing the robustness of the main findings when all were taken into account.

Model 1 in Table 2 showed that those with higher socioeconomic status were more likely to buffer the uncertainty of the pandemic and report an improvement in their relationships, as predicted by the Vulnerability–Stress–Adaptation Model (Research Question 2). The odds of reporting a "better" relationship, relative to "staying the same" were 43% higher for those with a university degree, compared to those with secondary qualifications (p = .03). Those in the 5th (highest) household earning quintiles, relative to those in the lowest quintile, had 63% higher odds of reporting improvements in their relationship (p = .03), compared to staying the same. Note that income and education were not highly correlated in our data (0.1407, p < .01), and models including each variable separately resulted in coefficients similar to Model 1. Nonetheless, lower education and household earnings were not associated with worsening relationships

Multinomial logistic regression of self-reported change in relationship quality (odds ratios). All individuals in a partnership. TABLE 2

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	1		2		3		4		S	
	Better	Worse	Better	Worse	Better	Worse	Better	Worse	Better	Worse
Education (ref. less than secondary)	ss than secondar	y)								
Advanced or	1.340	0.588	1.350	0.586	1.348	0.588	1.350	0.628	1.356	0.617
secondary	[0.940 - 1.912]	[0.940–1.912] [0.334–1.035]	[0.947 - 1.923]	[0.330 - 1.041]	[0.944-1.925]	[0.331 - 1.044]	[0.946 - 1.926]	[0.362 - 1.089]	[0.951 - 1.933]	[0.354 - 1.074]
University	1.434*	0.842	1.483*	0.858	1.435*	0.829	1.439*	0.807	1.487*	0.807
degree	[1.035-1.988]	[1.035–1.988] [0.528–1.342]	[1.068–2.057]	[0.532 - 1.383]	[1.035–1.989]	[0.519–1.322]	[1.041 - 1.989]	[0.517 - 1.260]	[1.074–2.058]	[0.514–1.269]
Household earnings quintile (ref. 1st, the lowest)	ngs quintile (ref.	1st, the lowest)								
2nd	1.218	0.583	1.199	0.576	1.216	0.566	1.215	0.649	1.201	0.615
	[0.801 - 1.853]	[0.320 - 1.062]	[0.779 - 1.844]	[0.310 - 1.070]	[0.798-1.852]	[0.311 - 1.030]	[0.798-1.849]	[0.361 - 1.167]	[0.782 - 1.847]	[0.336–1.125]
3rd	1.162	0.825	1.175	0.818	1.161	0.815	1.156	0.907	1.174	0.862
	[0.748-1.806]	[0.439-1.551]	[0.750 - 1.842]	[0.423 - 1.583]	[0.747 - 1.805]	[0.430 - 1.544]	[0.745-1.795]	[0.490 - 1.679]	[0.750 - 1.838]	[0.454 - 1.636]
4th	1.497	0.799	1.543	0.799	1.512	0.813	1.509	0.972	1.556	0.930
	[0.962 - 2.328]	[0.462 - 1.382]	[0.976 - 2.440]	[0.448 - 1.423]	[0.974-2.348]	[0.469 - 1.409]	[0.974 - 2.338]	[0.559 - 1.690]	[0.988-2.451]	[0.520 - 1.660]
5th, the	1.632*	1.196	1.692*	1.192	1.641*	1.205	1.642*	1.280	1.703*	1.201
highest	[1.045–2.549]	[0.668 - 2.138]	[1.071–2.673]	[0.639 - 2.221]	[1.052–2.561]	[0.675 - 2.150]	[1.054–2.557]	[0.719–2.276]	[1.081 - 2.683]	[0.650 - 2.220]
Missing	1.073	1.131	1.091	1.142	1.079	1.124	1.090	1.305	1.108	1.290
	[0.647 - 1.778]	[0.647–1.778] [0.567–2.254]	[0.658 - 1.807]	[0.565-2.307]	[0.652 - 1.786]	[0.564-2.240]	[0.658 - 1.805]	[0.636 - 2.676]	[0.669 - 1.837]	[0.619–2.688]
Employment situ	Employment situation (ref. same/more work hours)	more work hours	(3)							
Furlough			1.831**	1.166					1.806**	1.057
			[1.388–2.416]	[0.716 - 1.897]					[1.369–2.383]	[0.662 - 1.689]
Job/work			1.304	0.890					1.294	0.741
hour loss			[0.999–1.702]	[0.568 - 1.395]					[0.992-1.687]	[0.481 - 1.143]
Continuously			1.338	0.937					1.338	0.731
not working			[0.940–1.904]	[0.463–1.898]					[0.937–1.913]	[0.365–1.463]
					1.284	1.722*	1.319	1.281	1.235	1.283

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TABLE 2 (Continued)

	1		2		3		4		5	
	Better	Worse	Better	Worse	Better	Worse	Better	Worse	Better	Worse
Expect worse future financial situation					[0.919–1.792]	[1.124–2.640]	[0.943–1.845]	[0.806–2.036]	[0.886–1.720]	[0.805–2.043]
Common							0.874	8.733**	0.865	8.923**
mental disorder							[0.690–1.108]	[6.065–12.574]	[0.684 - 1.095]	[6.213–12.816]
Age of the youngest child in the household (ref. nc	est child in the ho	ousehold (ref. no	child)							
Child 0-5	0.611*	1.689	*209.0	1.723*	*609.0	1.690	*609.0	1.814*	0.604**	1.900*
	[0.416–0.895] [0.982–2.907]	[0.982–2.907]	[0.414 - 0.889]	[1.008-2.944]	[0.415 - 0.892]	[0.986 - 2.898]	[0.416 - 0.891]	[1.040–3.165]	[0.413 - 0.883]	[1.097–3.292]
Child 6-12	0.878	0.822	0.883	0.832	0.864	0.799	0.867	0.715	0.876	0.726
	[0.638 - 1.208]	[0.638–1.208] [0.492–1.374]	[0.645 - 1.209]	[0.495 - 1.399]	[0.630 - 1.186]	[0.476–1.341]	[0.631 - 1.191]	[0.414 - 1.234]	[0.641 - 1.198]	[0.420 - 1.257]
Child 13–16	908.0	0.591	0.804	0.595	0.805	0.589	0.805	0.618	0.805	0.616
	[0.536 - 1.213]	[0.536–1.213] [0.326–1.073]	[0.532 - 1.216]	[0.327 - 1.084]	[0.535 - 1.212]	[0.324 - 1.071]	[0.535 - 1.213]	[0.340 - 1.123]	[0.532 - 1.219]	[0.338 - 1.123]
Child 17+	0.675*	0.872	*679.0	0.883	*070	0.864	*699.0	0.843	0.675*	0.852
	[0.466–0.977] [0.542–1.401]	[0.542 - 1.401]	[0.469 - 0.982]	[0.550 - 1.417]	[0.464 - 0.968]	[0.537 - 1.390]	[0.464 - 0.964]	[0.509 - 1.397]	[0.469 - 0.972]	[0.514 - 1.414]
Fairness of chore split (ref. very fair)	split (ref. very fa	ir)								
Somewhat	0.715**	2.424**	0.729**	2.424**	0.711**	2.399**	0.715**	2.346**	0.730**	2.337**
fair	[0.571–0.894] [1.513–3.883]	[1.513 - 3.883]	[0.584 - 0.910]	[1.524–3.853]	[0.569 - 0.889]	[1.499–3.839]	[0.572 - 0.894]	[1.429–3.852]	[0.586 - 0.910]	[1.427–3.828]
Unfair	0.624**	5.260**	0.629**	5.259**	0.619**	5.208**	0.626**	4.188**	0.632**	4.218**
	[0.448–0.869] [3.048–9.078]	[3.048–9.078]	[0.451 - 0.877]	[3.082–8.974]	[0.446 - 0.859]	[3.001–9.037]	[0.452 - 0.867]	[2.413–7.268]	[0.455 - 0.878]	[2.442–7.286]
Insufficient	0.879	1.818**	0.902	1.829**	0.867	1.775**	0.883	1.356	0.911	1.363
working space	[0.667–1.159]	[1.191–2.773]	[0.686–1.187]	[1.195–2.800]	[0.659–1.140]	[1.168–2.698]	[0.673–1.158]	[0.890–2.067]	[0.696–1.193]	[0.898–2.070]
Age	0.974**	1.013	0.975**	1.013	0.974**	1.013	0.974**	1.022	0.974**	1.022
	[0.959–0.990] [0.986–1.041]	[0.986 - 1.041]	[0.959-0.991]	[0.986 - 1.042]	[0.959-0.991]	[0.986 - 1.042]	[0.958 - 0.990]	[0.995-1.049]	[0.958 - 0.991]	[0.996-1.049]
	1.102	1.035	1.108	1.040	1.100	1.041	1.108	0.812	1.116	0.810
										(Continues)

	1		2		3		4		5	
	Better	Worse	Better	Worse	Better	Worse	Better	Worse	Better	Worse
Women (ref. men)	[0.898-1.353]	[0.735–1.458]	[0.907–1.353]	[0.728–1.486]	[0.896–1.351]	[0.738–1.468]	[0.901–1.363]	Women (ref. [0.898–1.353] [0.735–1.458] [0.907–1.353] [0.728–1.486] [0.896–1.351] [0.738–1.468] [0.901–1.363] [0.576–1.144] [0.912–1.365] [0.573–1.145] men)	[0.912–1.365]	[0.573–1.145]
Cohabiting	0.759	1.224	0.765	1.222	0.765	1.244	0.762	1.176	0.767	1.193
(ref. married)	[0.554-1.040]	[0.554–1.040] [0.709–2.113]	[0.560–1.044]	[0.714–2.091]	[0.560-1.044] [0.714-2.091] [0.559-1.047] [0.717-2.157] [0.556-1.045] [0.682-2.031]	[0.717–2.157]	[0.556–1.045]	[0.682–2.031]	[0.561–1.047] [0.699–2.036]	[0.699–2.036]
Vulnerable to	1.194	0.939	1.177	0.936	1.171	0.905	1.171	0.826	1.157	0.860
Covid-19	[0.618 - 2.307]	[0.618–2.307] [0.404–2.183]	[0.601 - 2.304]		[0.393-2.229] [0.611-2.243] [0.390-2.102] [0.608-2.259]	[0.390-2.102]	[0.608 - 2.259]	[0.324–2.106]	[0.593-2.260]	[0.332–2.225]
Ever	0.902	1.517*	0.888	1.517*	868.0	1.520*	0.910	1.459	968.0	1.445
separated	[0.682 - 1.192]	[0.682–1.192] [1.010–2.279]	[0.671 - 1.174]	[1.015-2.269]	[0.671-1.174] [1.015-2.269] [0.680-1.187]		[1.010–2.288] [0.688–1.202]	[0.972–2.190]	[0.677 - 1.185]	[0.968–2.158]
Duration	966.0	0.989	966.0	0.989	0.997	0.990	0.997	0.990	966.0	0.991
	[0.983 - 1.010]	[0.983-1.010] [0.966-1.013]	[0.983 - 1.009]	[0.966 - 1.013]	[0.984 - 1.010]	[0.984–1.010] [0.966–1.014] [0.984–1.010]	[0.984 - 1.010]	[0.967 - 1.015]	[0.983 - 1.010]	[0.968-1.015]
Constant	0.870	0.032**	0.610	0.031**	0.844	0.029**	0.874	0.008**	0.624	**600.0
	[0.327–2.317]	[0.327–2.317] [0.007–0.138]	[0.232 - 1.602]	[0.007 - 0.143]	[0.315-2.262]	[0.007-0.131]	[0.322–2.372]	[0.232-1.602] [0.007-0.143] [0.315-2.262] [0.007-0.131] [0.322-2.372] [0.002-0.033]	[0.233–1.669] [0.002–0.037]	[0.002-0.037]

Note: N = 5792. \*\*p < .01, \*p < .05. Robust confidence interval in brackets.

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relative to staying the same (p > .05), contradicting expectations that those with lower socioeconomic status were at the greatest risk of relationship deterioration.

Model 2 on Table 2 included the variable that recorded reasons for the loss of working hours since the beginning of the pandemic in January 2020. Contrary to the Family Stress Model, job loss or working fewer hours was not significantly associated with improvements or declines in relationship quality, (Research Question 3). In some specifications job loss was even positively associated with an improvement in relationship quality (Table S2). In models with the same and more hours entered separately (Model 1), where the reference was now same hours only, job/work hour loss became positively associated with reporting a better relationship (p = .036). In models decomposing reasons for loss of hours (Model 3), those whose employer forced them to cut their hours were more likely to report an improvement in their relationship. However, these results were based on relatively low numbers (see Table S1), and the individual categories did not seem robust to other specifications. Thus, we think that the way we collapsed the hours lost category was most informative, and that overall, job loss or decline in working hours was not consistently associated with changes in relationship quality.

The subjective measure of future financial expectations was strongly associated with a worsening relationship (Research Question 3). Model 3 in Table 2 showed that the odds of reporting a worse relationship were 72% higher for those who expected their financial situation to be worse, compared to those who expected their situation to be better/about the same. However, it is important to take into account poor mental well-being, which was strongly associated with a decline in relationship quality (odds ratio = 8.73, p < .01). Once mental well-being was included, the coefficient was no longer significant at the .05 level (Model 4). The GHQ12 identified general anxiety and psychological distress, which could be reflected in concerns about financial security.

Turning to Question 4, Model 2 on Table 2 indicated that the furlough scheme buffered the negative impact on relationship quality and was associated with improvements in relationships. Those who were furloughed, relative to those who worked the same or more hours during the first lockdown, had an 83% higher odds of reporting an improvement in their relationships (p < .01), rather than staying the same. Model 5 also showed that furlough was significant when all indicators (including common mental disorders and subjective financial status) were included in the model. These findings were robust to alternate specifications of the change in employment status variable, as seen in Table S2. In all models, the significance of furlough never dropped below the .01 level. Additional analyses showed that interaction terms between change in employment status and other socioeconomic variables (education, household income) were not significant at the .05 level, and hence we did not find any evidence that the furlough association differed by socioeconomic status (results upon request).

Our control variables were generally in line with expectations. In Model 5 of Table 2, we saw that compared to those who had no child at home, individuals who had a child aged 0-5 in the household were less likely to report an improvement in their relationship during the pandemic (odds ratio = 0.604, p = .01) and more likely to report it had become worse (odds ratio = 1.900, p = .04), relative to staying the same. People whose youngest child was aged above 17 and living in the household with them also had a lower likelihood of reporting an improved relationship (odds ratio = 0.675, p = .04). Prior studies found that teenagers or young adults were more likely to suffer from mental distress during the lockdown (Chandola et al., 2020; Pierce et al., 2020), potentially straining parental relationships. Older people had a lower odds of experiencing an improvement in relationship during the lockdown, but relationship duration was not associated with changes in relationship quality. Cohabitors and those married had a similar chance of experiencing changes in relationship, as did those who ever separated. Although insufficient working space was significantly related to a worsened relationship in Models 1-3, the association disappeared once mental well-being was included (Models 4 and 5), suggesting that the association might have been due to the stress of overcrowding.

Unsurprisingly, the perception of an equal division of household labor was a strong indicator of relationship well-being during the pandemic. Those who reported that their division of labor was unfair were more likely to report that their relationship had become worse, rather than better. Model 5 showed that people who felt that housework and caring responsibilities were split unfairly had a 37% lower odds (p < .01) of reporting an improved relationship, while their relationship had at least more than four times as high odds of becoming worse (p < .01), relative to those who felt that the division was very fair. An interaction term between division of labor and gender was not significant at the .05 level. However, we did find that gender moderates the association between other socioeconomic variables and relationship quality as discussed in the next section.

### Gender differences in association between key variables and changes in relationship quality

The coefficient for gender in the different models in Table 2 suggested that men and women were just as likely to report that their relationship had or had not changed during the pandemic. However, in Question 5, we asked whether the association between key variables and relationship quality differed by gender. Table 3 presents models from the main sample with interaction terms between gender and socioeconomic variables. Model 1 indicated that the association between education and change in relationship quality did not differ by gender, but Model 2 suggested the association between household income and worsening relationship quality was significant and larger for women than for men. As household income increased, women were less likely to report that their relationships became worse, but for men, no decrease was seen. For women, the increase was linear, with women in the highest household quintile the least likely to report that their relationship became worse relative to staying the same, compared to those in the lowest quintile. Model 3, however, showed that the association between changes in working hours and relationship quality did not differ by gender. None of the interaction terms with employment status were significant in this sample, suggesting that both men and women who were furloughed experienced an improvement in their relationship. The association between future financial uncertainty and relationship quality also did not differ by gender (Model 4).

Nonetheless, these models did not include information about partners' employment status, which may be key to understanding the experience of furlough and whose employment status matters. For this analysis, we used the couple dyad sample, which recorded both partners' changes in work hours. We present the models separately by gender to specify men's and women's relationship evaluation according to their own and their partner's change in employment status. Table 4 Model 1 shows that men who were furloughed, compared with those who had same/more work hours during the first lockdown, were nearly three times as likely to report their relationships improved, when controlling for their female partners' change in employment status (p < .01). The female partners' change in employment status, however, was not associated with changes in men's reported relationship quality. For women (Model 2), neither her own nor her husband's change in employment status was associated with changes in relationship quality, although the coefficients for continuously not working and furlough were relatively large.

Table S3 shows the effect of particular combinations of employment statuses within the dyad. The models were still separated according to gender. While this model stressed how both partners' situations may simultaneously influence each other's relationship quality, the findings were similar to Table 4. Model 1 indicated that regardless of their female partner's employment situation, furloughed men reported an improvement in their relationships. However, the findings were mixed when both partners were furloughed. Along with being more likely to report

Multinomial logistic regression of self-reported change in relationship quality, including gender interactions (odds ratios). All individuals in a partnership. TABLE 3

	1		2		3		4		જ	
	Better	Worse	Better	Worse	Better	Worse	Better	Worse	Better	Worse
Women	1.283	1.533	1.082	2.645*	1.363	0.965	1.118	1.109	1.133	0.809
	[0.775–2.123]	[0.736 - 3.194]	[0.601 - 1.947]	[1.191 - 5.870]	[0.944 - 1.970]	[0.521 - 1.790]	[0.897 - 1.394]	[0.757 - 1.623]	[0.907 - 1.415]	[0.555 - 1.178]
Education (ref. university degree)	y degree)									
Advanced or	1.425	0.706	1.316	0.613	1.355	0.588	1.351	0.591	1.354	0.628
secondary	[0.792–2.564]	[0.299-1.664]	[0.929-1.865]	[0.356 - 1.054]	[0.952-1.931]	[0.331 - 1.044]	[0.945–1.931]	[0.332 - 1.053]	[0.948 - 1.934]	[0.362-1.089]
Less than secondary	1.629	1.229	1.424*	0.854	1.493*	0.857	1.439*	0.838	1.446*	0.807
	[0.974–2.723]	[0.576 - 2.625]	[1.029-1.971]	[0.547 - 1.332]	[1.076–2.073]	[0.531 - 1.384]	[1.040–1.991]	[0.522 - 1.345]	[1.048–1.994]	[0.516–1.262]
Advanced or	0.893	0.726								
secondary* women	[0.446–1.787]	[0.241–2.191]								
Less than secondary*	0.789	0.504								
women	[0.455–1.368] [0.220–1	[0.220 - 1.154]								
Household earning quintile (ref. 1st, the lowest)	ile (ref. 1st, the lo	west)								
2nd	1.223	0.590	0.945	1.088	1.198	0.576	1.211	0.559	1.209	0.649
	[0.806 - 1.855]	[0.327 - 1.063]	[0.482 - 1.852]	[0.426 - 2.778]	[0.778 - 1.844]	[0.312 - 1.063]	[0.795 - 1.846]	[0.308 - 1.017]	[0.794 - 1.841]	[0.361-1.165]
3rd	1.164	0.841	1.104	1.659	1.166	0.821	1.159	0.818	1.152	906.0
	[0.752 - 1.802]	[0.447 - 1.582]	[0.546–2.232]	[0.581–4.732]	[0.744 - 1.826]	[0.426 - 1.580]	[0.746 - 1.801]	[0.431 - 1.553]	[0.742 - 1.789]	[0.489 - 1.678]
4th	1.497	0.801	1.936	1.630	1.538	0.799	1.509	0.810	1.503	0.971
	[0.965 - 2.323]	[0.465 - 1.382]	[0.996 - 3.764]	[0.701 - 3.790]	[0.973 - 2.432]	[0.451 - 1.416]	[0.972 - 2.342]	[0.467 - 1.404]	[0.970 - 2.329]	[0.559 - 1.689]
5th, the highest	1.629*	1.182	1.393	2.641*	1.685*	1.192	1.635*	1.193	1.633*	1.280
	[1.045–2.540]	[0.661 - 2.112]	[0.704 - 2.753]	[1.066–6.538]	[1.066-2.664]	[0.644 - 2.207]	[1.050 - 2.545]	[0.669 - 2.127]	[1.051–2.537]	[0.720–2.277]
Missing	1.071	1.116	1.411	2.116	1.086	1.139	1.078	1.124	1.088	1.305
	[0.646 - 1.775]	[0.563–2.212]	[0.636 - 3.129]	[0.763–5.871]	[0.654 - 1.801]	[0.574-2.260]	[0.651 - 1.784]	[0.563-2.243]	[0.657 - 1.802]	[0.636–2.675]
2nd* women			1.573	0.351						
			[0.743 - 3.334]	[0.119 - 1.032]						
3rd* women			1.096	0.301*						
			[0.509 - 2.360]	[0.093 - 0.973]						
										(Continues)

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	1		2		3		4		5	
	Better	Worse	Better	Worse	Better	Worse	Better	Worse	Better	Worse
4th* women			0.585	0.293*						
			[0.283 - 1.212]	[0.102 - 0.846]						
5th, the highest*			1.347	0.235**						
women			[0.656 - 2.763]	[0.083 - 0.668]						
Missing* women			0.597	0.354						
			[0.247 - 1.444]	[0.093 - 1.345]						
Employment situation (ref. same/more work hours)	f. same/more w	ork hours)								
Furlough					2.190**	1.093				
					[1.446–3.316]	[0.546 - 2.189]				
Job/work hour loss					1.519*	0.850				
					[1.003–2.302]	[0.432 - 1.672]				
Continuously not					1.180	0.908				
working					[0.656 - 2.122]	[0.347–2.377]				
Furlough* women					0.711	1.132				
					[0.421 - 1.202]	[0.439 - 2.919]				
Job/work hour loss*					0.747	1.099				
women					[0.448 - 1.246]	[0.474–2.548]				
Continuously not					1.105	1.072				
working* women					[0.573-2.131]	[0.389 - 2.953]				
Expect worse future							1.383	2.095*	1.453	1.281
financial situation							[0.760 - 2.519]	[1.037-4.233]	[0.797 - 2.646]	[0.622–2.638]
Expect worse future							0.872	0.683	0.841	1.004
financial situation* women							[0.422 - 1.802]	[0.289–1.613]	[0.407–1.736]	[0.411–2.450]
Common mental									0.869	8.736**
disorder									[0.685 - 1.104]	[6.070–12.572]

Note: N = 5792. \*\*p < .01, \*p < .05. Robust confidence interval in brackets. All models control for age of the youngest child, insufficient working space, fairness of chore split, age, partnership status, vulnerable to Covid-19, ever separated, and relationship duration.

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**TABLE 4** Multinomial logistic regression models of men's and women's self-reported change in relationship quality. Couple dyad sub-sample.

	Men		Women	
	Better	Worse	Better	Worse
Own education (ref. less than second	ondary)			
Advanced or secondary	1.274	0.838	2.083*	1.129
	[0.639-2.542]	[0.330-2.127]	[1.106-3.924]	[0.432-2.949]
University degree	1.816	0.667	1.574	1.286
	[0.989-3.332]	[0.267-1.664]	[0.897–2.763]	[0.638-2.595]
Household earning quintile in Jan	nuary/February (ref. 1s	t, the lowest)		
2nd	0.655	1.000	1.815	0.603
	[0.269–1.594]	[0.323-3.099]	[0.843–3.905]	[0.195–1.861]
3rd	0.790	1.467	2.662*	0.982
	[0.314–1.986]	[0.430-4.999]	[1.228-5.769]	[0.349–2.766]
4th	1.390	1.159	2.129	0.466
	[0.545–3.548]	[0.352–3.811]	[0.962-4.710]	[0.141-1.534]
5th, the highest	1.242	1.638	3.401**	0.609
	[0.490-3.150]	[0.524–5.122]	[1.533–7.544]	[0.203-1.830]
Missing	0.682	2.183	1.002	0.448
	[0.254–1.832]	[0.652–7.306]	[0.374–2.679]	[0.130–1.538]
Male partner's employment statu	s (ref. same/more work	hours)		
Furlough	2.743**	1.959	0.999	1.050
	[1.597-4.710]	[0.835-4.593]	[0.581–1.716]	[0.456–2.417]
Job/work hour loss	1.452	0.476	1.342	1.265
	[0.838-2.516]	[0.219–1.036]	[0.845–2.133]	[0.610-2.621]
Continuously not working	1.504	1.808	1.275	1.874
	[0.653–3.465]	[0.523–6.246]	[0.573–2.836]	[0.626-5.605]
Female partner's employment sta	tus (ref. same/more wo	rk hours)		
Furlough	0.896	1.669	1.410	0.752
	[0.495 - 1.624]	[0.687–4.056]	[0.796–2.498]	[0.306–1.845]
Job/work hour loss	0.896	1.308	1.268	1.495
	[0.503–1.597]	[0.552–3.101]	[0.763–2.107]	[0.675–3.310]
Continuously not working	1.364	0.761	1.862	0.924
	[0.662-2.810]	[0.251-2.306]	[0.961-3.608]	[0.334–2.556]

Note: Odds ratios (confidence intervals). N = 1356. \*\*p < .01, \*p < .05. Robust confidence interval in brackets. All models control for expect worse future financial situation, common mental disorder, age of the youngest child, insufficient working space, fairness of chore split, age, gender, partnership status, vulnerable to Covid-19, ever separated, and relationship duration.

an improvement, men were also more likely to report their relationship had deteriorated. Interestingly, when men living with a working partner were working less or lost their job they were less likely to report their relationship became worse, possibly because they had more time on their hands but still had the financial security of a working partner. For women, the supplementary analyses showed few significant associations between changes in working hours and her self-reported change in relationship quality, as in Table 4.

Finally, Table S4 presents dyad models which combined both partners' responses into one outcome variable, indicating to what extent either partner's furlough was associated with

improved relationship quality for both. As before, we found that men's furlough status was associated with either of the respondents reporting an improvement in relationship quality, especially if the female partner lost her job or was not working. The associations for other employment status combinations were weaker, but may indicate some benefits to furlough. Note, however, that the magnitude of the odds ratio when either partner reported a "worse" relationship was sometimes equally large when the man was furloughed. This result could potentially indicate a U-shaped relationship, although again the results were not significant at the .05 level. In general, the dyad analyses suggested that men benefited from the furlough scheme and reported an improvement in their relationships, while this was not consistently the case for women.

### DISCUSSION

The Covid-19 pandemic and associated lockdowns created an unprecedented situation of social and economic uncertainty. Prior studies have found that such uncertainty can be extremely detrimental to couples' relationship quality (Aytaç & Rankin, 2009; Blom et al., 2019; Conger et al., 2010), and researchers have surmised that the uncertainty produced by the Covid-19 pandemic would have a negative impact on relationship quality (e.g., Pietromonaco Overall, 2020). However, in this nationally representative household study, focused on the first UK lockdown in June 2020, we found that the majority of individuals reported that their relationships did not change, and nearly 20% said that they improved during this uncertain period. Only 8% reported that their relationships became worse. Thus, while the uncertainty produced by the pandemic did lead to increases in psychological distress and poor mental well-being (Chandola et al., 2020; Daly & Robinson, 2021), the overall impact on partners' relationships do not seem to have been as dire in the UK.

Nonetheless, we did find inequalities in how couples responded to the lockdown. Those with higher education, particularly a university degree, were more likely to report improvements in their relationships, as were those in the highest income quintiles. These findings are in line with the Vulnerability-Stress-Adaptation theory, which posits that pre-existing characteristics and resources help to buffer hardship (Karney & Bradbury, 1995; Pietromonaco & Overall, 2020). Those with greater resources may have been able to weather any financial shortfalls or concerns about the future, and they may have been more likely to work remotely, avoiding the daily grind and commute. Sensitivity checks which included a working-from-home variable found little association with change in relationship, but because those who were furloughed or lost their job could not work from home, we could not include this variable in our full models. However, other studies have indicated that high-income individuals were more likely to work remotely (Felstead & Reuschke, 2021). Those with higher education and income may also have had skills that helped them cope with the uncertainty of the situation (Boertien & Härkönen, 2018; Brown et al., 2017; Neff & Karney, 2004), leading to greater resilience and drawing couples together.

Contrary to the Family Stress Model, experiencing objective economic hardship during this period, through the loss of employment or working hours, did not seem to be detrimental to partners' relationships. The majority of those who experienced a loss of working hours reported their relationship quality stayed the same, and some specifications even suggested that being forced to cut hours improved relationship quality. While subjective concerns about future finances were associated with a worsening of relationships, the significance of the association disappeared when accounting for other indicators of poor mental health, raising questions about whether the association was due specifically to financial considerations or general anxiety. Overcrowded household conditions seemed to matter, as insufficient working space was associated with a decline in relationship quality, but again this association disappeared after including mental health. Thus, while some aspects of economic hardship may have strained

relationships, in this study the hardship seems to have been manifested through psychological distress rather than actual financial loss.

One of the main reasons we do not see strong associations between economic uncertainty and a deterioration in relationships may be due to the UK government's employment protection schemes, which alleviated the stress of substantial financial loss for approximately 30% of the UK population. By paying workers 80% of their normal pay, the furlough policy provided those at risk of job loss with a paid "stay-cation," albeit one stuck at home. Our findings indicate that on average, those who were furloughed experienced an improvement in relationships, potentially because the couple had more time to spend together without the everyday stress of work responsibilities and commute. Note that those who were furloughed were employed in a range of occupational sectors with different levels of earnings; they were not only employed in low-income occupations typically at risk of relationship strain. An interaction term between furlough and prior income was not significant, suggesting that furlough was beneficial for all socio-economic groups. Thus, being furloughed seems to have been exogenous to relationship quality with random assignment to who utilized the scheme. While we cannot definitively determine causality, the employment protection scheme seems to have inadvertently, but successfully, averted a deterioration in relationship quality.

Our findings also shed light on how the association between economic conditions and relationship quality differed by gender. The results from the couple sample indicated that men who were furloughed were more likely to report their relationship with their female partners improved during the lockdown period, compared to men who worked the same or more hours. Furloughed women did not have the same response; their own or their male partners' change in working hours did not seem to matter for their relationship assessment. Although the interaction terms in the main models were not significant, the couple sample findings suggest that men may have appreciated the break from work more than women, which then transferred over to their own evaluation of their relationships. Previous studies have found that in the UK couples still adhere to traditional gender expectations for men to work; for example, women whose husbands became unemployed experienced a decline in relationship quality, while men whose wives become unemployed do not (Blom & Perelli-Harris, 2020). The furlough scheme, however, does not seem to be equivalent to unemployment, instead socially permitting men to take paid leave, and sanctioned as a way to avoid job loss. Despite the lack of time structure and regular activity, men seemed to have benefited from the scheme, which resulted in an improvement in their relationships, albeit potentially temporarily.

Other factors were also important for understanding changes in relationship quality during this period. Having preschool children in the household prohibited couples from experiencing improvements in their relationship, as did having adult-age children. We found that an unfair division of labor was also strongly and consistently associated with relationship deterioration (Frisco & Williams, 2003; Ruppanner et al., 2018). While the burden of housework and homeschooling increased during this period (Benzeval et al., 2020), particularly for women (Andrew et al., 2020; Chung et al., 2020), our results show few gender differences in unfair division of labor, indicating these stressors put pressure on both men and women. Note, however, that prior studies have also found that young children and an unfair division of labor were associated with poor relationship functioning before the pandemic (Blom et al., 2017). Thus, it is difficult to determine to what extent the increased burden placed an additional strain on couples.

Note that our study has several limitations. The UKHLS Covid-19 sample was based on a longitudinal survey that has suffered from attrition. While we apply weights, our sample of couples tends to be middle-aged and better off than the general UK population, with younger and more vulnerable individuals underrepresented. Nonetheless, the survey aimed to be nationally representative, compared to many of the quota or convenience samples which were quickly implemented and often did not include detailed covariates. Second, our study was limited to

responses during the first lockdown, because only the June UKHLS Covid-19 survey directly asked about changes in couples' relationships since the outbreak of the pandemic. Subsequent Covid-19 surveys in September 2020 and January 2021 asked about the level of relationship happiness, but with these questions, it would be difficult to determine whether any long-term changes were directly due to lockdown or other circumstances. These varying period effects, along with changes in question-wording about work hours would complicate the analyses. Thus, this study captures a unique period, when people were coping with the first lockdown, but future research is needed to better understand the long-term effects of the pandemic on rela-

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In conclusion, although the pandemic led to severe recession in the UK the government's swift enactment of employment retention policies seems to have protected not only jobs, but also families. The UK implemented a comprehensive furlough scheme, which appears to have prevented relationship distress, at least early on in the pandemic. Although evidence is accumulating that financial uncertainty is detrimental to relationships, this study shows that employment protection schemes can alleviate some of the worst effects. Now that furlough policies have ended, it is imperative that governments continue to consider policies which provide employment protection and support, especially for disadvantaged couples. Given the importance of couple functioning to adult and child well-being (Harold et al., 2016), economic policies can be an essential policy tool to maintain couple stability.

### **ACKNOWLEDGMENT**

tionship quality.

This research was funded by the ESRC Centre for Population Change grant number ES/R009139/1.

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### SUPPORTING INFORMATION

Additional supporting information can be found online in the Supporting Information section at the end of this article.

**How to cite this article:** Perelli-Harris, B., Chao, S.-Y., & Berrington, A. (2023). For better or worse: Economic strain, furlough, and relationship quality during the Covid-19 lockdown. *Journal of Marriage and Family*, 1–25. <a href="https://doi.org/10.1111/jomf.12906">https://doi.org/10.1111/jomf.12906</a>