Weathering the Storm: Longitudinal Evidence on Women’s Changing Family Relationships During COVID-19

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Abstract
The massive socioeconomic changes wrought by COVID-19 have disrupted multiple aspects of family life. However, evidence is still lacking on the sustained long-term impact of the pandemic and how families are adapting to this new normal. This article studies changes in women’s family relationships against the backdrop of evolving COVID-19 public health responses, and investigates the adverse effects of working from home, income loss, and anxiety about the virus. We survey 356 Singaporean mothers over four waves: a baseline in April–July 2018 and follow-ups in May, June, and November 2020. Results suggest that while some family relationships suffered during the early days of the crisis, most families displayed resilience in the long-term. Nevertheless, a substantial minority continued to report worsened relationships. Mother’s work from home status and father’s income loss emerged as significant predictors of change in family relationships, highlighting the gendered nature of adaptation to crisis.

Keywords
COVID-19, family relationships, family resilience, working from home, income loss

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The COVID-19 pandemic has disrupted family life all around the world, and studies are just starting to uncover the extent and persistence of these changes. While media headlines have largely focused on how the pandemic is damaging families, ranging from spikes in intimate partner violence (Bradley, DiPasquale, Dillabough, & Schneider, 2020; Mazza, Marano, Lai, Janiri, & Sani, 2020) to the “Corona divorce” phenomenon (Prasso, 2020; Ryall, 2020), other observers argue that resilient families can not only withstand and rebound from disruptive life challenges, but even display growth through adversity (Prime, Wade, & Browne, 2020; Walsh, 2020).

Recent studies suggest that the impact of COVID-19 on family relationships has been far from homogenous. In a Dutch study during the first lockdown in March to May 2020, Bülow et al. (2020) find significant differences between families, with some growing warmer and others facing more conflict. Another study in the US shows that lower income and ethnic minority families experienced greater stress related to income loss and financial costs from April to June 2020, while higher income and White families were more stressed about distance learning (Chen, Byrne, & Vélez., 2021). Turliuc and Candel (2021) also find a socioeconomic divide in Romanian couples’ stress and marital satisfaction during and after lockdown. Most alarmingly, a growing number of studies find that the pandemic has exacerbated inequalities in gender roles and the household division of labor, with mothers bearing the brunt of childcare (Calarco, Meanwell, Anderson, & Knopf, 2021; Çoban, 2021; Collins, 2020; Costoya, Echeverría, Edo, Rocha, & Thailinger, 2021; Del Boca, Oggero, Profeta, & Rossi, 2020; Manzo & Minello, 2020; Mousavi, 2020).

Against this backdrop, there is a need to take a longer term perspective on how families are adapting to the crisis, and how the roles of mothers in particular are evolving in response to the needs of paid and unpaid work within their socioeconomic context. This study seeks to do so by charting changes in the family relationships of Singaporean mothers across an extended period, with measurements in May–July 2018 and May, June, and November 2020. The article also explores the effects of three major pandemic realities on women’s family relationships. First, unlike past telecommuting and other flexible work arrangements which affected a minority of the working population, usually in contexts carefully controlled by the employer (Kelly & Moen, 2007), the COVID-19 lockdowns have called for a vast majority of the population to work from home. Second, economic disruptions triggered by COVID-19 have resulted in income loss for a substantial fraction of the population. Income loss can take several forms, including enforced no-pay leave, salary cuts, reduced shifts for workers earning hourly wages, and retrenchment, and has been tied to increased stress during the pandemic (Shen, Xiao,
Third, the rapid spread of COVID-19 infections in many countries have resulted in significant fear and anxiety, which can also adversely affect marital relationships (Reizer, Koslowsky, & Geffen, 2020). In addition, the article investigates the mediating role of stress and fatigue (Chung, Lanier, & Wong, 2020a), and the moderating roles of socioeconomic status and marital satisfaction, which may play a role in differentiated responses to the pandemic situation (Chen et al., 2021).

### Family Relationships in Crisis

The changes in family relationships in response to COVID-19, and the differences between families in their adaptation to the evolving situation, can be viewed through the lens of family resilience theory. Resilience can be defined as the “successful adaptation of a complex dynamic system to threats or disturbances” (Masten & Motti-Stefanidi, 2020, p. 98), while family resilience specifically refers to “capacities in family functioning to withstand and rebound from disruptive life challenges in adversity” (Walsh, 2020, p. 11). Family resilience has been identified as an important factor in dealing with crises, which can be seen as a period of serious disruptiveness and risk exposure (Patterson, 2002). In the short term, this leads to a disequilibrium in family functioning; in the long term, a resilient family will restore equilibrium by increasing its capabilities or reducing its demands (Bülow et al., 2020). Resilient families may also find opportunities for growth in crisis; for example, González-Calvo and Arias-Carballal (2021) show how some Spanish families enjoyed better family time within the restrictions of lockdown.

In relation to the still-unfolding COVID-19 crisis, it is an open question what constitutes “short term” and “long term.” Therefore, this study records changes in family relationships at several periods during the crisis, with the intention to search for signs of resilience and adaptation. The study also examines some of the adversities that families may face in relation to changing work arrangements, and stress and anxiety during the pandemic.

### Work and Family Relationships

Work and family life are intricately interconnected, creating the potential for conflict (Kanter, 1989). Traditionally, the links have been more indirect—for example, pressure, insecurity, and negative social interactions at work can spill over into marital dissatisfaction (Story & Repetti, 2006). However, with the rise of telecommuting and flexi-work, work and family have been brought into the same physical sphere, predicating a more direct impact.
Pre-COVID, studies on telecommuting have largely been favorable (Hardill & Green, 2003; Wheatley, 2012); one study estimated that working from home raised the productivity of call center workers by 13% (Bloom, Liang, Roberts, & Ying, 2015). Telecommuting can also enable working parents to engage more with the family; however, the success of these arrangements may rest on the ability of the other spouse to “police” the new boundaries between home and work, for example, by taking the children out when necessary (Halford, 2006). In families with young children, working from home may be burdensome or frustrating for the other spouse, and may be a source of conflict among dual-income parents. Moreover, it may also imperil work–life balance, with some individuals finding themselves unable to unwind when surrounded by the trappings of work (Wapshott & Mallett, 2011), leading to poorer family interactions.

In the context of COVID-19, all the negative aspects of telecommuting have been amplified due the new “digital default” (Cockayne, 2021), with working from home no longer a luxury but a daily requirement from which there is no escape. This has had an unequal impact on different socioeconomic classes, some of which are less ready for teleworking than others—one study found that first-time teleworkers had lower life satisfaction during the crisis (Ono & Mori, 2021).

More alarmingly, working from home has also increased gender inequality. It is already known that having longer paid employment hours can shield a spouse from undertaking unpleasant household tasks, which will fall to the spouse with a lower paying or less demanding job (Barnett, 1998). Due to COVID-19 school closures, women in most countries have largely took on the increased burden of childcare, widening the gender gap in the household division of labor (Calarco et al., 2021; Çoban, 2021; Collins, 2020; Costoya et al., 2021; Del Boca et al., 2020; Manzo & Minello, 2020).

Economic disruptions triggered by COVID-19 have also resulted in income loss for a substantial fraction of the population (Walsh, 2020), which can take several forms, including enforced no-pay leave, salary cuts, reduced shifts for workers earning hourly wages, and retrenchment, and has been tied to increased stress or wellbeing losses during the pandemic (Prickett, Fletcher, Chapple, Doan, & Smith, 2020; Shen et al., 2021). Income loss, a form of economic stress, has long been shown to adversely affect family relationships (Fonseca, Cunha, Crespo, & Relvas, 2016). Economic stress is associated with cooler marital interactions, lower relationship satisfaction, and hostility toward children (Conger, Ge, Elder, Lorenz, & Simons, 1994; Falconier & Epstein, 2010). Critically, the amount of stress suffered depends on families’ subjective views of their job security (Sverke & Hellgren, 2002). Men and women may also react to economic strain differently, with wives becoming
more demanding and husbands withdrawing, creating a communication mismatch (Falconier & Epstein, 2011).

**Stress, Anxiety, and Family Relationships**

The rapid spread of COVID-19 infections in many countries has resulted in significant fear and anxiety, which can also adversely affect marital relationships. Following findings that women are more vulnerable than men to COVID-related stress and anxiety (Bakioğlu et al., 2020; Wang et al., 2020), Reizer et al. (2020) survey 130 Israeli mothers and find that fear of COVID-19 is related to poorer marital satisfaction, with psychological distress playing a mediating role.

Psychological stress also can be viewed as a mediator for the impact of income loss and other economic disruptions on family relationships (Randall & Bodenmann, 2017). In Prime et al.’s (2020) conceptual framework for family risk and resilience during the pandemic, they predict that social disruptions caused by the crisis will result in parental stress, which will in turn affect marital and parent–child relationships. This is supported by evidence from the pandemic, where parental stress was associated with lower parent–child closeness and more harsh parenting (Chung et al., 2020a).

In the Vulnerability-Stress-Adaptation model, Karney and Bradbury (1995) argue that marital stress can be a product of long-term vulnerabilities interacting with stressful events and poor adaptation. Therefore, this article investigates the moderating roles of socioeconomic status and marital satisfaction, which could be contributing factors behind differentiated responses to the pandemic situation (Chen et al., 2021; Kevin & Risla, 2020; Turliuc & Candel, 2021).

**Method**

To study the changing family relationships of mothers during the pandemic, this article uses data from Singapore, which reported its first COVID-19 case on 23 January 2020. Following a surge in cases, the government declared a stay-at-home restriction order or lockdown, locally known as a “circuit breaker,” between 7 April and 1 June. During this period, schools conducted home-based learning only and all non-essential workers were required to work from home. Non-essential services were closed and dining at restaurants and food centers was prohibited. Residents were allowed to leave their homes only to buy necessities and to exercise. The lockdown witnessed a surge in family violence cases (CNA, 2020b; Iau, 2020). After the lockdown ended, Singapore spent most of June in the “Phase 1” re-opening period,
which allowed most of the population to resume work while maintaining the restrictions on schools, dining out and social gatherings. At the end of June 2020, Singapore then transitioned to “Phase 2” where schools resumed and dining out as well as small social gatherings of up to five people were permitted. To ameliorate the impact of the lockdown, the government introduced the Jobs Support Scheme, which subsidized up to 75% of employees’ wages during the lockdown (CNA, 2020a), and the Self-Employed Person Income Relief Scheme, which paid out up to SGD 1000 a month (USD 743) for 9 months.

Sample

Our longitudinal dataset consists of four survey waves. The first wave of data was collected between April and July 2018. Female participants were recruited using street intercept at the five main geographical regions of Singapore. Participants met the following inclusion criteria: currently married; aged 25–34 in 2018; either a Singaporean citizen or married to a Singaporean citizen, and able to read, write, and speak in English. Each participant received SGD 120 (USD 88) in the first wave. Of 3038 potential participants approached, 660 (21.7%) met the inclusion criteria and were recruited, 558 (18.4%) did not meet the criteria, and 1820 (59.9%) declined. Of the 660 participants, 500 consented to be re-contacted for follow-up online surveys. 416 (83.2%) completed a second wave in May 2020 during the lockdown, 399 (79.8%) completed a third wave in June 2020 during the slightly less restrictive “Phase 1” period, and 378 (75.6%) completed a fourth wave in November 2020 during the more relaxed “Phase 2” period. Participants received SGD 25 (USD 18) in total for their participation in the second and third waves, and SGD 15 (USD 11) for the fourth wave. For this study, couples who divorced or did not have a child by the second wave are excluded from analysis, yielding a final sample size of 356. The study was approved by the [anonymous] Institutional Review Board.

Measures

The key dependent variables are women’s self-reported changes in relationships with a) their husband and b) all children as a group. During the lockdown, respondents were asked: “How has your relationship with your respective family members been affected by the circuit breaker?” In June, respondents were asked: “How has your relationship with the following people changed after the circuit breaker ended?” Lastly, in November, they were asked: “How has your relationship with the following people
changed, compared to before the circuit breaker?" Responses were recorded on a five-point scale ranging from “much worse” to “much better,” and the question was repeated for husband and children. To account for asymmetry between improved and worsened relationships, responses were recoded into three categories: improved relationships, no change, and worsened relationships.

We consider three main independent variables: a) working from home, b) income loss, and c) anxiety about the virus. Working from home was measured on a five-point scale ranging from “I work only outside of home” to “I work only from home,” and recoded into a binary variable equal to one if the respondent worked only or mostly from home. Respondents similarly reported their husbands’ work from home status. Data on income in December 2019, and May, June, and November 2020 was collected in June and November, measured on a linear scale from 0 to 11 (0 = no income, 1 = monthly income less than SGD 1000, and 11 = monthly income SGD 10,000 or more). Income loss is coded as a binary variable equal to one if monthly income shifted to a lower bracket relative to December 2019, which represents one’s income level before the crisis. Respondents also reported husbands’ income. Lastly, they reported their anxiety about COVID-19 infection on scale of 1–5.

We control for age, education, and income of both spouses, years married, number and age of children, and wife’s ethnicity. Education is coded as a binary variable equal to one if the respondent had a college degree. Income in December 2019 is used to approximate socioeconomic status prior to the pandemic. Children’s ages are represented by a dummy variable equal to one if all children were too young for entry into the national educational system beginning from kindergarten (below 5 years), an age that has been found relevant to women’s work–family balance during COVID-19 (Del Boca et al., 2020). Wife’s ethnicity is measured as a dummy variable equal to one if she was Chinese (the majority ethnic group).

The full sample contains 356 observations for May, and missing data is not an issue for most of the variables, except for income, which is missing 8 observations (2%). Due to attrition, the sample is reduced to 342 in June, with 1 observation missing for mother–child relationships. The sample is further reduced to 296 in November.

**Analytic Plan**

The first part of the analysis focuses on longitudinal change in women’s family relationships, based on the family resilience hypothesis that relationships would improve as the crisis wore on. Descriptive statistics are reported by
survey wave for all dependent variables, and also plotted on a bar graph for ease of comparison. In addition, a tree diagram showing trajectories of change in family relationships is used to investigate whether the trends are sustained over time.

The second part of the analysis is predictive, and uses multinomial logit regressions to test for associations between changes in relationships and the independent variables. All regressions include the full set of controls. We also test for the mediating roles of stress and fatigue (measured in the same wave as the outcome variable), and the moderating roles of socioeconomic status and marital satisfaction (measured prior to the crisis to reflect existing vulnerabilities). As a robustness test, we check for interactions between wife and husband’s work from home status, and between wife and husband’s income loss.

All estimates are adjusted using sample weights to obtain better representation with respect to the age, education, and ethnicity of married female residents in this age range, based on published statistics from the 2015 General Household Survey conducted by the Singapore Department of Statistics. All analyses are done in Stata 15.

Results

Descriptive

Longitudinal change in the dependent variables is reported in Table 1. During the lockdown, respondents were equally likely to report worsened (22%) and improved (22%) spousal relationships. However, things improved post-lockdown—28% reported improved spousal relationships in June, compared to only 15% worsened. The trend continued in November, with 26% reporting improvement and only 10% reporting worsening. These statistics are plotted as a bar chart in Figure 1 for ease of comparison.

Mother–child relationships were generally more positive, with 48% reporting improvement during lockdown, compared to only 14% worsening. The proportion of improved relationships stayed high in June (52%) and November (38%), while worsened relationships fell to 10% in June and 5% in November.

For the independent variables, 50% of the respondents were working from home during the lockdown, falling to 47% in June and 26% in November. Husbands were slightly less likely to work from home, with 46% in May, 39% in June, and 20% in November. Income loss affected a consistent number of wives—16% for May, June, and November, and also a significant number of husbands—22% in May, 25% in June, and 23% in November.
### Table 1. Descriptive statistics for married women with children (N = 356).

| Dependent variables                        | May 2020 | June 2020 | Nov 2020 |
|--------------------------------------------|----------|-----------|----------|
| Relationship with husband worsened (%)     | 21.80    | 14.61     | 9.94     |
| Relationship with husband improved (%)     | 21.58    | 27.65     | 26.11    |
| Relationship with children worsened (%)    | 14.18    | 9.94      | 4.61     |
| Relationship with children improved (%)    | 48.41    | 51.59     | 38.28    |

| Independent variables                      | May 2020 | June 2020 | Nov 2020 |
|--------------------------------------------|----------|-----------|----------|
| Wife working from home (%)                 | 50.42    | 46.53     | 26.36    |
| Husband working from home (%)              | 46.17    | 39.34     | 19.72    |
| Wife had income loss (%)                   | 16.37    | 16.16     | 15.62    |
| Husband had income loss (%)                | 22.25    | 24.65     | 22.72    |
| Anxiety about virus (scale of 1–5)         | 3.45 (0.10) | 3.34 (0.12) | 3.14 (0.12) |

| Mediating variables                        | May 2020 | June 2020 | Nov 2020 |
|--------------------------------------------|----------|-----------|----------|
| Wife’s stress (scale of 1–5)               | 3.58 (0.08) | 3.48 (0.08) | 3.46 (0.07) |
| Wife’s fatigue (scale of 1–5)              | 4.03 (0.08) | 3.96 (0.08) | 3.96 (0.08) |

| Moderating variables                       |          |           |          |
|--------------------------------------------|----------|-----------|----------|
| Couple income in Dec 2019 > $8000 (%)      | 38.91    |           |          |
| High marital satisfaction in 2018 (%)      | 29.32    |           |          |

| Control variables                          |          |           |          |
|--------------------------------------------|----------|-----------|----------|
| Wife’s age in 2020                         | 33.18    | (0.23)    |          |
| Husband’s age in 2020                      | 36.48    | (0.42)    |          |
| Wife has college degree (%)                | 48.64    |           |          |
| Husband has college degree (%)             | 40.62    |           |          |
| Wife’s income in Dec 2019                  | 3.74     | (0.17)    |          |
| Husband’s income in Dec 2019               | 5.32     | (0.17)    |          |
| Years married in 2020                      | 7.24     | (0.21)    |          |
| No. of children in May 2020                | 1.92     | (0.09)    |          |
| Oldest child under 5 in 2020               | 46.97    |           |          |
| Wife is Chinese (%)                        | 69.73    |           |          |

*Note.* Estimates adjusted for sample weights. Mean & linearized standard errors (in brackets) provided for continuous variables.

Anxiety about COVID-19 infection had a mean score of 3.45 out of 5 in May, and decreased slightly to 3.34 in June, and 3.14 in November.
For the mediators, wife’s stress peaked at a mean of 3.58 during lockdown, and fell slightly to 3.48 in June and 3.46 in November. Wife’s fatigue also peaked at 4.03 during lockdown and fell slightly to 3.96 in June and November.

For the moderators and controls, 39% of couples had a December 2019 income of above SGD 8000 (USD 6000), and 29% of couples reported being “very satisfied” with marriage at baseline. The mean ages during lockdown were 33 years for wives and 36 years for husbands. Wives were more likely to have a college degree (49%) than husbands (41%), but husbands had a higher mean income (SGD 4000 to 4999) compared to wives (SGD 3000 to 3999). The mean length of marriage was 7 years, and the mean number of children was 1.92. All children were below 5 in 47% of families, and 70% of wives were Chinese.

Figure 2 illustrates descriptive trajectories in family relationships during and shortly after lockdown. For spousal relationships, 57% of married women perceived no change during lockdown; of this group, 68% further reported no change post-lockdown. Interestingly, many of those who reported improved relationships during the lockdown also reported further improvements post-lockdown (50%), while many of those who reported worsened relationships

**Figure 1.** Changes in women’s family relationships through COVID-19.
Note. Estimates adjusted for sample weights.
during the lockdown also reported further worsening after the lockdown (47%), suggesting persistent effects even after restrictions were relaxed.

For mother–child relationships, 48% reported improvement; of this group, 73% reported further improvement post-lockdown. Again, among those who reported no change during lockdown (37%), a large proportion reported no change post-lockdown (62%), while those who reported worsened relationships during the lockdown (14%) were also more likely to report further worsening after the lockdown (58%).

**Predictive**

Table 2 presents regression results for change in spousal relationships, which were significantly more likely to worsen during lockdown if the wife was working from home ($p < 0.05$), but more likely to improve if the husband was working from home ($p < 0.05$). In June, wife’s work from home status was no longer a significant predictor, but husband’s work from home status continued to predict improved relationships ($p < 0.05$). By November, the associations had reversed—wives who worked from home were more likely to report improved relationships ($p < 0.05$) and less likely to report worsened relationships ($p < 0.1$).

Income loss also emerged as a significant predictor of change in spousal relationships, with wife’s income loss predicting improved relationships in...
Table 2. Multinomial logit regressions on change in spousal relationships.

|                           | May 2020 |          | June 2020 |          | November 2020 |          |
|---------------------------|----------|----------|-----------|----------|----------------|----------|
|                           | Worsen   | Improve  | Worsen    | Improve  | Worsen         | Improve  |
| Wife working from home    | 1.265**  | (0.551)  | 0.107 (0.368) | 0.608 (0.437) | 0.312 (0.375) | -1.508* (0.839) | 0.667** (0.321) |
| Husb. working from home   | 0.629 (0.417) | 0.728** (0.364) | 0.053 (0.465) | 0.846** (0.370) | 0.178 (0.702) | 0.372 (0.365) |
| Wife had income loss      | 0.204 (0.657) | 0.867* (0.511) | 0.171 (0.742) | 0.624 (0.473) | -0.070 (0.841) | 0.471 (0.490) |
| Husband had income loss   | 0.295 (0.522) | -0.069 (0.393) | 1.134** (0.532) | 1.284*** (0.396) | 2.330*** (0.575) | 0.397 (0.513) |
| Anxiety about virus       | -0.047 (0.182) | 0.061 (0.144) | -0.238 (0.172) | 0.100 (0.146) | -0.017 (0.215) | 0.123 (0.146) |
| Wife’s age                | -0.198* (0.111) | -0.083 (0.090) | 0.232** (0.101) | 0.235** (0.105) | 0.327** (0.146) | 0.178** (0.088) |
| Husband’s age             | 0.091 (0.064) | 0.085* (0.045) | -0.016 (0.047) | -0.169*** (0.052) | 0.038 (0.129) | -0.111** (0.053) |
| Wife has degree (%)       | -0.246 (0.505) | -0.404 (0.421) | 0.032 (0.591) | -0.738* (0.440) | -0.090 (0.601) | -0.018 (0.454) |
| Husband has degree (%)    | -0.349 (0.560) | 0.445 (0.402) | -0.276 (0.596) | 0.720* (0.418) | 1.346** (0.600) | 0.285 (0.419) |
| Wife’s income             | 0.049 (0.098) | 0.064 (0.084) | 0.024 (0.084) | -0.008 (0.075) | 0.153 (0.108) | -0.018 (0.068) |
| Husband’s income          | 0.028 (0.103) | -0.095 (0.069) | 0.064 (0.119) | 0.000 (0.070) | 0.029 (0.116) | -0.024 (0.065) |
| Years married             | -0.056 (0.151) | -0.006 (0.077) | 0.131 (0.143) | 0.092 (0.084) | -0.306** (0.130) | -0.081 (0.094) |
| No. of children           | -0.372 (0.246) | -0.370 (0.300) | -0.487 (0.321) | -0.063 (0.263) | 1.278*** (0.409) | -0.496** (0.232) |
| Oldest child under 5 (%)  | 0.010 (0.584) | -0.409 (0.528) | 0.650 (0.656) | -0.103 (0.419) | -0.197 (0.700) | -0.189 (0.418) |
| Wife is Chinese (%)       | -1.392** (0.646) | 0.216 (0.615) | -1.754*** (0.568) | -1.265** (0.494) | -0.979 (0.849) | 0.367 (0.662) |
| Constant                  | 3.043 (3.698) | -1.044 (3.055) | -8.012*** (3.040) | -3.473 (2.738) | -15.923*** (5.481) | -2.366 (2.624) |

N 348 342 296
Pseudo-R² .13 .17 .19

Note. Estimates adjusted for sample weights. *p < .10. **p < .05. ***p < .01.
May (p < 0.1), and husband’s income loss predicting both improved and worsened relationships in June (p < 0.05, p < 0.01) and worsened relationships in November (p < 0.01). On the other hand, anxiety about COVID-19 was not a significant predictor of change in spousal relationships in any wave.

Table 3 presents results for change in mother–child relationships, which were more likely to improve in June if the mother was working from home (p < 0.05). Mothers with income loss were also more likely to report improved mother–child relationships in May and November (p < 0.01, p < 0.1), and less likely to report worsened relationships in November (p < 0.01). On the other hand, if the father experienced income loss, mothers were less likely to report improved relationships in November (p < 0.05). Anxiety about COVID-19 was negatively associated with improved mother–child relationships in November (p < 0.05).

Table 4 presents mediation analysis, with wife’s stress predicting worsened spousal relationships in all waves (p < 0.05) and both worsened and improved mother–child relationships during lockdown (p < 0.01). Wife’s fatigue is also negatively associated with improved spousal relationships during lockdown (p < 0.05) and positively associated with worsened mother–child relationships post-lockdown (p < 1). However, the addition of stress and fatigue to the model does not significantly reduce the coefficients of the independent variables; hence, there is no clear case for mediation effects.

Table 5 presents moderation analysis for change in family relationships during lockdown, by socioeconomic status and marital satisfaction. Couples with joint income higher than SGD 8000 were less likely to experience changes overall (p < 0.1) and due to wife’s income loss (p < 0.01); however, unlike their low-income peers, husband’s work from home status (p < 0.1) and anxiety about COVID-19 (p < 0.01) predicted worsened spousal relationships. Their spousal relationships were also more vulnerable to change in either direction due to husband’s income loss (p < 0.01). On the other hand, results moderated by marital satisfaction were very similar to the base model, with only one significant interaction; wife’s income loss was associated with fewer worsened spousal relationships (p < 0.1).

Table A1 tests for interactions between spouses’ work from home status and income loss. Results are consistent with the base model; wife’s work from home status predicted worsened spousal relationships (p < 0.1) while wife’s income loss predicted improved mother–child relationships (p < 0.05). None of the interaction effects were significant.
Table 3. Multinomial logit regressions on change in mother–child relationships.

|                          | May 2020 | June 2020 | November 2020 |
|--------------------------|----------|-----------|---------------|
|                          | Worsen   | Improve   | Worsen        | Improve   | Worsen | Improve |
| Wife working from home   | −0.527 (0.515) | −0.076 (0.404) | 0.365 (0.519) | 0.856** (0.332) | −1.006 (0.722) | 0.292 (0.321) |
| Husb. working from home | 0.073 (0.493)  | −0.479 (0.334) | −0.217 (0.500) | 0.380 (0.326) | −0.633 (0.799) | 0.435 (0.358) |
| Wife had income loss     | 0.906 (0.800)  | 1.565*** (0.549) | 0.643 (0.960) | 0.460 (0.506) | −14.629*** (1.486) | 0.807* (0.429) |
| Husband had income loss  | −0.150 (0.568) | −0.211 (0.411) | 0.078 (0.742) | 0.263 (0.395) | −0.212 (0.702) | −0.920** (0.425) |
| Anxiety about virus      | −0.192 (0.178) | −0.153 (0.147) | 0.279 (0.207) | 0.123 (0.142) | 0.282 (0.193) | −0.252* (0.132) |
| Wife’s age               | −0.238* (0.139) | 0.025 (0.103) | −0.187 (0.149) | 0.064 (0.082) | −0.171 (0.164) | 0.059 (0.088) |
| Husband’s age            | 0.116* (0.062) | 0.032 (0.047) | 0.113* (0.067) | 0.055 (0.052) | 0.200** (0.083) | −0.034 (0.054) |
| Wife has degree (%)      | 0.138 (0.520)  | 0.474 (0.457) | 0.077 (0.581) | 0.211 (0.416) | 1.134* (0.683) | −0.072 (0.415) |
| Husband has degree (%)   | 0.792 (0.588)  | 0.350 (0.478) | 1.118* (0.677) | 0.652* (0.389) | −0.274 (0.793) | 0.552 (0.417) |
| Wife’s income            | 0.001 (0.117)  | 0.196** (0.098) | 0.048 (0.122) | 0.131* (0.075) | 0.195 (0.164) | 0.108 (0.068) |
| Husband’s income         | −0.191* (0.100) | −0.061 (0.082) | −0.126 (0.108) | −0.036 (0.081) | 0.108 (0.177) | −0.081 (0.073) |
| Years married            | 0.039 (0.116)  | 0.016 (0.097) | 0.172 (0.128) | −0.033 (0.098) | −0.441* (0.231) | 0.001 (0.092) |
| No. of children          | −0.347 (0.294) | −0.380 (0.237) | −0.531 (0.424) | −0.173 (0.256) | 0.767 (0.542) | −0.420* (0.229) |
| Oldest child under 5 (%) | 0.126 (0.664)  | −0.365 (0.418) | 0.309 (0.690) | −0.299 (0.433) | −0.539 (0.905) | −0.239 (0.404) |
| Wife is Chinese (%)      | 0.723 (0.780)  | −0.749 (0.569) | −0.003 (0.721) | −1.232*** (0.465) | 0.864 (1.462) | −0.721 (0.522) |
| Constant                 | 3.454 (3.923)  | −0.598 (2.996) | −0.992 (4.083) | −3.944 (2.794) | −5.437 (6.220) | 0.757 (2.563) |

N = 348 341 296
Pseudo-R² = .12 .12 .14

Note. Estimates adjusted for sample weights. *p < .10. **p < .05. ***p < .01.
Table 4. Multinomial logit regressions on change in family relationships, mediated by stress and fatigue.

**Dependent variable: Change in spousal relationships**

|                     | May 2020 (1) | June 2020 (2) | November 2020 (3) |
|---------------------|-------------|--------------|------------------|
|                     | Worsen      | Improve      | Worsen           | Improve      | Worsen           | Improve      |
| Wife’s stress       | 1.759***    | 0.331        | 0.305            | 0.047        | 0.470            | 0.468*       |
| Wife’s fatigue      | -0.464      | -0.515**     | 0.231            | 0.351        | -0.573           | 0.427        |
| Wife working from home | 1.205*     | -0.031       | 0.231            | 0.351        | -0.573           | 0.427        |
| Husb. working from home | 0.553       | 0.699*       | 0.037            | 0.351        | 0.084            | 0.402        |
| Wife had income loss | 0.431       | 0.837*       | 0.350            | 0.351        | 0.084            | 0.402        |
| Husband had income loss | 0.049       | -0.163       | 0.128**          | 0.148        | 0.128**          | 0.148        |
| Anxiety about virus | 0.040       | 0.078        | -0.325*          | 0.148        | 0.128**          | 0.148        |
| N                   | 348         | 342          | 296              |              |                  |              |
| Pseudo-R^2          | .23         | .21          | .23              |              |                  |              |

**Dependent variable: Change in mother–child relationships**

|                     | May 2020 (1) | June 2020 (2) | November 2020 (3) |
|---------------------|-------------|--------------|------------------|
|                     | Worsen      | Improve      | Worsen           | Improve      | Worsen           | Improve      |
| Wife’s stress       | 1.775***    | 0.489**      | 0.547            | -0.038       | 0.431            | 0.045        |
| Wife’s fatigue      | 0.047       | -0.213       | 0.651*           | -0.080       | -0.434           | 0.146        |
| Wife working from home | -1.059      | -0.195       | 0.241            | 0.879***     | -1.031           | 0.297        |
| Husb. working from home | -0.043     | -0.500       | -0.390           | 0.379        | -0.688           | 0.458        |
| Wife had income loss | 1.574**     | 1.650***     | 0.898            | 0.469        | -15.571***       | 0.783*       |
| Husband had income loss | -0.587     | -0.312       | 0.053            | 0.258        | -0.270           | -0.975**     |
| Anxiety about virus | -0.156      | -0.134       | 0.238            | 0.126        | 0.313            | -0.243*      |
| N                   | 348         | 341          | 296              |              |                  |              |
| Pseudo-R^2          | .19         | .15          | .15              |              |                  |              |

Note. Estimates adjusted for sample weights. *p < .10. **p < .05. ***p < .01. Controls and constant not shown.
### Table 5. Multinomial logit regressions on change in family relationships during lockdown, with moderation.

| Dependent variable | Change in spousal relationships | Change in mother–child relationships |
|--------------------|--------------------------------|-----------------------------------|
|                    | (1)                            | (2)                               |
| Wife WFH           | 1.506** (0.710)                | 0.138 (0.498)                     | -0.784 (0.652) | -0.592 (0.546) |
| Husband WFH        | -0.313 (0.604)                 | 0.802 (0.487)                     | 0.073 (0.649) | -0.421 (0.481) |
| Wife's income loss | 1.536* (0.825)                 | 1.926** (0.743)                   | 1.725 (1.204) | 3.135*** (0.818) |
| Husband's income loss | -0.944 (0.728)               | -0.939* (0.525)                   | -0.507 (0.825) | 0.029 (0.508) |
| Anxiety about virus | -0.554* (0.294)              | -0.105 (0.184)                    | -0.366 (0.242) | -0.338* (0.198) |
| Couple income > $8000 | -2.473* (1.456)             | -2.288* (1.299)                   | -2.488 (1.746) | -2.199** (1.095) |
| * Wife WFH         | -1.246 (0.942)                 | -0.056 (0.742)                    | 0.305 (0.919) | 1.628** (0.783) |
| * Husband WFH      | 1.644* (0.870)                 | -0.158 (0.696)                    | 0.306 (1.043) | -0.546> (0.691) |
| * Wife's income loss | -3.860*** (1.239)            | -3.550*** (1.041)                 | -1.085 (1.418) | -3.850*** (1.139) |
| * Husband's income loss | 3.524*** (1.058)            | 2.999*** (0.845)                  | 0.841 (1.112) | -1.188 (0.836) |
| * Anxiety about virus | 1.080*** (0.371)            | 0.412 (0.264)                     | 0.502 (0.367) | 0.412 (0.265) |

N | 348 | 348 |
N | .22 | .17 |

| Dependent variable | Change in spousal relationships | Change in mother–child relationships |
|--------------------|--------------------------------|-----------------------------------|
|                    | (3)                            | (4)                               |
| Wife WFH           | 1.194** (0.594)                | 0.026 (0.426)                     | -0.140 (0.546) | -0.021 (0.462) |
| Husband WFH        | 0.301 (0.473)                  | 0.831* (0.452)                    | -0.133 (0.571) | -0.547 (0.374) |
| Wife's income loss | 0.934 (0.725)                  | 1.254** (0.633)                   | 1.019 (1.009) | 1.581*** (0.626) |
| Husband's income loss | 0.200 (0.532)                | -0.064 (0.494)                    | -0.055 (0.667) | 0.013 (0.438) |
| Anxiety about virus | -0.121 (0.203)                | 0.162 (0.178)                     | -0.224 (0.197) | -0.080 (0.168) |
| High marital satisfaction | -1.993 (1.699)          | 1.461 (1.412)                     | -0.131 (2.403) | 1.348 (1.247) |
| * Wife WFH         | 0.458 (0.937)                  | 0.164 (0.744)                     | -1.576 (1.084) | -0.365 (0.853) |
| * Husband WFH      | 0.598 (1.035)                  | -0.210 (0.772)                    | 0.871 (1.046) | 0.271 (0.816) |
| * Wife's income loss | -2.642* (1.401)              | -0.899 (0.975)                    | -0.357 (1.449) | -0.018 (1.241) |
| * Husband's income loss | 0.106 (1.089)               | -0.067 (0.919)                    | -0.291 (1.568) | -0.609 (0.896) |
| * Anxiety about virus | 0.335 (0.385)                | -0.290 (0.296)                    | 0.110 (0.534) | -0.269 (0.335) |

N | 348 | 348 |
N | .16 | .13 |

Note. Estimates adjusted for sample weights. *p < .10. **p < .05. ***p < .01. Controls and constant not shown.
Discussion

This article presents evidence of changing family relationships across 7 months of the pandemic, and results largely confirm the expectations of family resilience theory that families would experience disequilibrium in the short term, but adapt to the crisis in the long term (Patterson, 2002). While the percentage of women who reported worsened and improved spousal relationships was roughly equal in the early days of the crisis, by November, improved relationships outnumbered those that worsened. Furthermore, the picture for mother–child relationships was largely positive even during lockdown, and this became overwhelmingly positive by November. These findings point to several tentative conclusions. First, the COVID-19 crisis adversely affected some family relationships in the short term, but also afforded opportunities for growth (Bülow et al., 2020; Prime et al., 2020; Walsh, 2020). Second, young Singaporean families are generally resilient, with the capabilities to overcome crises in the long term, for which 7 months appears to be a reasonable time frame for investigation. Third, the impact of COVID-19 was better for mother–child relationships than spousal relationships, perhaps because young children benefit more from time with their mothers (Yeung, Sandberg, Davis-Kean, & Hofferth, 2001).

Against these relatively optimistic findings, we also note that the substantial minority of women who reported worsened family relationships during lockdown were also much more likely to report further worsening post-lockdown (Figure 2). This suggests the presence of a significant group of less resilient families who were hard hit by the pandemic, and underlines the need to investigate predictors of change in family relationships.

Working from home and family relationships

The association between wives’ work from home status and worsened spousal relationships during lockdown highlights the negative short-run effects of the crisis. COVID-19 has brought out the negative aspects of telecommuting, especially for businesses and workers that are unsuited or unprepared for it (Cockayne, 2021; Ono & Mori, 2021). Working from home may also require additional effort to police the boundaries between home and work, especially if young children are at home due to school closures, and may impair workers’ ability to relax when surrounded by their work materials (Halford, 2006; Wapshott & Mallett, 2011).

Furthermore, spouses who spend longer hours at home face greater house- work expectations (Barnett, 1998), and this role often falls to women who face higher tensions between the competing time demands of employment
and housework (Calarco et al., 2021; Wheatley, 2012). In Singapore, mothers often face a higher allocation of care work even in dual-earner families, resulting in physical, mental, and emotional exhaustion (Aryeel, 1993; Jones, 2012). Early studies during the pandemic confirm these trends; UK mothers were more likely to supervise home schooling and engage in feeding, washing, and dressing children (Hall, 2021), while Singaporean mothers were more likely than fathers to suffer from poorer work–family balance and higher parenting stress (Chung et al., 2020b).

Against this backdrop, it is noteworthy that husbands’ work from home status was associated with improved spousal relationships during lockdown, pointing to a gendered dimension to the division of household labor. If their husbands were available to play a more active role in housework and childcare (Alon, Doepke, Olmstead-Rumsey, & Tertilt, 2020; Biroli et al., 2020; Carlson, 2021), it makes sense that wives would report better spousal relationships.

Interestingly, the negative associations of wives working from home were not sustained post-lockdown, and instead reversed, with wife’s work from home status predicting improved mother–child relationships in June and improved spousal relationships in November. This highlights the resilience of families who were able to adapt to the “new normal” and take advantage of the opportunities it offered for more family time (Cockayne, 2021; Halford, 2006) These improvements were likely facilitated by school reopening and the lifting of visiting restrictions, which meant access to informal childcare by grandparents or other relatives.

**Income loss and family relationships**

Contrary to the predictions of the literature on economic disruptions and stress (Randall & Bodenmann, 2017), wives’ income loss was associated with improved spousal and mother–child relationships both during and after the lockdown. This can be explained by government income support schemes that dampened the negative effects of income loss (CNA, 2020a). Family relationships may have also benefited from wives’ income loss due to a calmer pace of life and greater focus on the family (Zvonkovic, Lee, Brooks-Hurst, & Lee, 2014).

On the other hand, the role of husband’s income loss was more ambiguous. Although it was not significantly associated with change in family relationships during lockdown, it was associated with both worsened and improved spousal relationships in June, and worsened spousal relationships in November. Wives of husbands who experienced income loss were also less likely to report improved mother–child relationships in November. This
increasingly negative view of husband’s income loss post-lockdown may be a result of the gradual phasing out of government income support; for example, the amount of salary support under the Jobs Support Scheme was lowered from 75% during lockdown to 25% after lockdown, with exceptions for firms in hard-hit sectors (CNA, 2020a). Furthermore, the negative role of husband’s income loss, contrasted with the positive role of wife’s income loss, points at the persistence of traditional gendered family roles in Singapore, with the husband often seen as the main breadwinner (Lim, 2021). This is consistent with data from our sample, with husbands earning roughly SGD 1500 more on average than their wives (Table 1).

Anxiety about the virus and family relationships

Contrary to studies in Israel and China on the psychological fear of COVID-19 and marital stress (Reizer et al., 2020; Wang et al., 2020), but consistent with a Dutch study (Donker, Mastrotheodoros, & Branje, 2021), we found no significant associations between anxiety about COVID-19 infection and change in spousal relationships, and only a very limited association with change in mother–child relationships. This may be explained by timely public announcements about virus hotspots and the provision of free treatment for COVID-19 in local hospitals (Choo, 2020), which could have ameliorated the impact of virus-related anxiety. It is notable that 82% of Singaporeans expressed confidence that the country was well equipped to contain and manage the COVID-19 outbreak (Ipsos, 2020).

Stress, fatigue, socioeconomic status, and marital satisfaction

Wife’s stress and fatigue were generally associated with negative changes in family relationships, consistent with Prime et al.’s (2020) conceptual framework for family risk and resilience, as well as evidence from the pandemic (Chung et al., 2020a). High-income families were generally less likely to report changes in family relationships, highlighting the role of economic resources in adaptation (Karney & Bradbury, 1995); however, the exception was in the case of husband’s income loss, which was more strongly associated with changes in family relationships among high-income families. This is consistent with the main findings that point to the prevalence of traditional gender roles in Singapore, where the husband is considered the main breadwinner (Lim, 2021), and suggests that gender imbalance in family roles could be even stronger among high-income families. On the other hand, marital satisfaction did not significantly moderate our findings, suggesting that it may not have played an insulating role against the adverse effects of working from home and income loss.
Limitations

One important limitation is that data was collected only from wives, which does not allow for cross-verification using husbands’ responses or to examine changes in father–child relationships. The measures are also highly subjective and may reflect emotional and cognitive biases.

The study design does not identify causality, and the associations between independent variables and change in relationships cannot be interpreted as measuring the “effects” of the pandemic. It is possible that some extent of relationship change would have occurred even in the absence of the pandemic, or due to other socioeconomic conditions during the same time period. Therefore, the results can only be viewed as indicative of differences between groups of families who experienced the COVID-19 crisis.

Lastly, while the findings provide insight into the global impact of the pandemic on family lives, the generalizability of the results to other policy contexts with different levels of gender inequality in division of household labor and government income support during the pandemic is not clear. The study also focuses on heterosexual marriages, which are the only legal union in Singapore, and does not shed light on other forms of family that may be prevalent in other countries.

Implications

Our findings speak to the resilience of young Singaporean families; despite the significant number of women who reported worsened relationships during lockdown, this group was greatly reduced 6 months later. In fact, the growing numbers of respondents reporting improved relationships suggests that they were able to adapt to new opportunities offered by the COVID-19 crisis, such as using work from home arrangements to spend more time together. However, the presence of a group of women whose family relationships worsened repeatedly during and after the lockdown, although small in number, is concerning and calls for further investigation regarding the causes of change in family relationships.

Furthermore, the stark differences in the associations with wives’ and husbands’ work from home status and income loss point to the persistence of highly gendered family roles, with substantial inequality in the allocation of household chores. This is consistent with a growing number of studies from around the world, which find that women have borne the brunt of changes to living and working arrangements as a result of COVID-19 restrictions. When wives are forced by lockdown conditions to work from
home, they may struggle to manage the conflicting demands of employment and household chores with a blurring of spatial boundaries between the two. Interestingly, wives’ perceptions of spousal relationships improve when husbands work from home, suggesting that flexible work arrangements could be targeted at men to minimize the experience of role conflict among married women.

Lastly, regarding COVID-19 policy, the lack of associations between anxiety about the virus and changing family relationships underscores the importance of effective and trustworthy public health responses in managing the psychological fear of the population. Given that wives who worked from home were no longer reporting worsened relationships in November, this could be a sign that school reopening and the relaxing of movement restrictions allowed mothers to access much-needed child-minding services. In addition, the impact of income loss was not as immediate as feared, affirming the timeliness of income support during the lockdown. Governments around the world should continue to evaluate the implications of their COVID-19 responses for family relationships, and ensure that families have access to adequate resources for adaptation to crisis.

Appendix

Table A1. Multinomial logit regressions on change in family relationships during lockdown, with interactions.

| Dependent variable | Change in spousal relationships | Change in mother−child relationships |
|--------------------|---------------------------------|-------------------------------------|
|                    | Worsen (1) | Improve (1) | Worsen (2) | Improve (2) |
| Wife WFH           | 1.203* (0.712) | −0.304 (0.528) | −0.884 (0.714) | −0.269 (0.527) |
| Husband WFH        | 0.621 (0.748) | 0.354 (0.535) | −0.285 (0.671) | −0.691 (0.564) |
| Wife WFH * Husb. WFH | 0.115 (0.888) | 0.732 (0.647) | 0.626 (0.916) | 0.388 (0.705) |
| Wife’s income loss | −0.656 (1.133) | 0.724 (0.653) | 1.157 (0.933) | 1.494** (0.732) |
| Husband’s income loss | −0.031 (0.532) | −0.209 (0.440) | 0.019 (0.553) | −0.290 (0.450) |
| Wife’s IL * Husb. IL | 1.684 (1.516) | 0.499 (0.929) | −0.791 (1.452) | 0.237 (1.077) |
| Anxiety about virus | −0.056 (0.180) | 0.053 (0.141) | −0.180 (0.176) | −0.157 (0.148) |
| N                  | 348            |            | 348            |            |
| Pseudo-R²          | .14            |            | .12            |            |

Note. Estimates adjusted for sample weights. *p < .10. **p < .05. ***p < .01. Controls and constant not shown.
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