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Gender inequality in childcare and parental mental health during the Covid-19 pandemic in Germany. Do gender role attitudes matter?

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Objective

This study investigates mental health inequalities among partnered parents during the Covid-19 pandemic in Germany.

Background

The gender gap in mental health that emerged in Germany during the pandemic grew disproportionally among partnered parents. The question arises as to why mothers – compared to fathers –experienced greater declines in mental health than fathers when guiding their families through the pandemic.

Method

The German Family Panel is based on a random probability sample from which we selected n=803 men and women interviewed before (2018/19) and after the onset of the pandemic (2020). We ran stepwise change score models to examine whether 1) changes in gender inequalities in care arrangements predict changes in mental health among mothers and fathers, and 2) how gender role attitudes moderate this association.

Results

Systematic mental health differences can be pinpointed at the intersection of gender inequalities in care work and gender role attitudes. Women in stable female care arrangements in which the mother did relatively more care work and women who transitioned from non-female to female care arrangements experienced the largest mental health declines. This association was particularly salient for women with egalitarian attitudes. Men in these care arrangements either experienced no change or even improvements in certain mental health dimensions. By contrast, sharing the care benefited mothers and fathers in this global health crisis.

Conclusion

Gender inequalities in care work are a risk factor for women's health.

Implications

Policy makes should acknowledge the disproportionate burden that mothers are carrying and pandemic-recovery measures should take a gender-sensitive approach.

KEYWORDS Mental health, Covid-19 pandemic, division of childcare, gender role attitudes, stress, exhaustion, loneliness

Like in many other countries, a key component of the German governmental response to the Covid-19 pandemic in early 2020 was the implementation of large-scale social distancing measures aimed at slowing down the spread of the virus. The nationwide closure of childcare facilities and schools in March 2020 caused major disruptions in parents' established strategies for balancing paid and unpaid labor responsibilities. About four million families with children in which the sole parent or both parents were employed were suddenly cut off from reliable access to public childcare and schooling (Jessen et al., 2022). Adherence to contact restrictions also ruled out having informal support outside of the family's own household. Nine out of 10 children spent less time with their grandparents during the spring lockdown in Germany (Langmeyer et al., 2020), even though 40% of grandparents acted as regular or occasional informal care givers prior to the pandemic (Glaser et al., 2015). Homeschooling – which was legally prohibited and heavily sanctioned in Germany before the pandemic – was an unprecedented duty imposed on parents who lacked experience in supporting their children's' education via remote learning. For many parents, the scale of the challenge of combining additional childcare responsibilities and homeschooling with paid employment was as unprecedented as the level of workplace transformation they experienced. For example, some parents became unemployed, others transitioned to remote work, while others who remained at their usual workplace faced a high risk of exposure to a largely unknown virus (Adams-Prassl et al., 2020).

Scholars have found that the mental health gap that emerged between people in different types of household structures in Germany early in the pandemic was particularly large among co-parents of minor children who were living together (Hiekel & Kühn, 2022). Studies investigating individual mental health and how it changed consistently found that mental health declines were steeper for mothers than for fathers, and were greater the younger the children were (Etheridge & Spantig, 2022; Hipp & Bünning, 2021; Huebener et al., 2021; Pierce et al.,

2020; Vicari, Zoch, & Bächmann, 2022; Zamarro & Prados, 2021). The question arises as to why mothers experienced larger mental health declines than fathers when guiding their families through the pandemic.

Gender inequalities in care arrangements may be a driving factor in different mental health trajectories of mothers and fathers during the pandemic. There is ample cross-national evidence that the pandemic led to more gender inequality in parental care work. Pre-pandemic patterns of gendered labor and care work practices and societal expectations about the different responsibilities of mothers vs. fathers to respond to care needs made it more likely that mothers, more than fathers, compensated for the absence of institutional support. Indeed, across all OECD countries, mothers took on the brunt of the additional unpaid care work during the pandemic (OECD, 2021). For Germany, representative survey data have shown that two- thirds of partnered mothers continued to provide more care than their partners or even increased their relative contributions (Jessen et al., 2022). Although the relative share of care work performed by fathers increased disproportionately to that for mothers early in the pandemic, this was mainly due to fathers starting from a much lower absolute share (Kreyenfeld & Zinn, 2021). Moreover, the increased involvement of fathers in care work appeared to be driven by situational constraints, i.e., by the father working from home while the mother did not (Boll & Schüller, 2020).

Thus, the first aim of the present study is to examine whether the persistence of and the changes in gender inequalities in care arrangements in response to the closures of schools and daycare centers were associated with changes in the mental health of partnered mothers and fathers after the onset of the pandemic, and ultimately contributed to the emergence of the mental health gap between partnered mothers and fathers in Germany.

Perceptions of gender inequality may be crucial to consider when proposing a link between gender inequalities in care arrangements and the mental health trajectories of mothers and

fathers during the pandemic. How women (and men) evaluate gender inequalities in care arrangements may vary depending on their gender role attitudes. People with egalitarian gender role attitudes consider childcare a joint responsibility of both parents, while people with non-egalitarian gender role attitudes assign more care responsibilities to the mother. This could imply that women (and men) who hold gender- egalitarian attitudes may have experienced larger declines in mental health when gender inequality in care arrangements was persistent or increasing during the pandemic. However, the question of how gender role attitudes shaped the association between changes in parents' care arrangements and in their mental health has yet to be addressed. Thus, the second aim of the present study is to examine whether and how gender role attitudes moderated the association between the division of childcare and mothers' and fathers' mental health during the pandemic in Germany. To do so, we investigate the extent to which pre-pandemic gender role attitudes explain variation in the mental health outcomes associated with changes in sharing (or not sharing) childcare responsibilities.

The majority of existing studies on the links between parental mental health during the pandemic and gender inequalities used online non-probability samples to examine these associations (Huebener et al., 2021; Li et al., 2022; Pierce et al., 2020). It has been demonstrated that non-probability samples are less accurate than probability samples across various topics, including health behavior (Cornesse et al., 2020). In addition, as they were unable to account for self-reported mental health prior to the pandemic, the ability of these studies to assess changes in parents' mental health in response to the pandemic is limited. Other studies that addressed the potential role of gender inequalities in care arrangements in the unequal mental health trajectories of mothers and fathers were unable to account for pre-pandemic care arrangements within couples, and thus ran the risk of reporting biased estimates due to unobserved heterogeneity (Hipp & Bünning, 2021; Li et al., 2022; Vicari, Zoch, & Bächmann, 2022).

We use data from the German Family Panel Pairfam collected around the turn of the year 2018/2019 and from an additional web survey conducted in spring 2020. This rich data source allows us to not only account for pre-pandemic levels of mental health, but also to address the question of whether care arrangements changed during the pandemic compared to the period prior to the pandemic, and to relate these changes to men's and women's gender role attitudes. We compare mothers' and fathers' self-reported care arrangements and mental health between one year prior to the pandemic and spring 2020. This approach allows us to assess how mothers' and fathers' care arrangements shifted in response to changing childcare demands induced by the pandemic, whether these shifts associated with changes in their self-reported mental health. We apply a multidimensional perspective on mental health, studying the dimensions of stress, exhaustion, and loneliness. The empirical evidence presented in this study informs policy makers about growing mental health inequalities along the parenthood and gender divide in the wake of the pandemic and identifies policy channels through which effective recovery strategies may be formulated.

Theoretical background

There is a body of literature established prior to the pandemic that links gender inequalities in childcare work to mental health differences between women and men. These studies have shown that one parent having more care responsibilities than the child's other parent is associated with lower mental health, especially for (full-time) working mothers (Bianchi & Milkie, 2010). Different mechanisms for this association have been proposed. First, role strain describes "the felt difficulty in fulfilling role obligations" (Goode, 1960, p. 483). Role strain tends to occur when individuals experience pressure to engage in contradictory activities, and thus experience conflicts of time, place, or resource allocation. Second, family-to-work (FWC) and work-to-family conflict (WTC) are spill-over effects that occur when the demands of the two spheres interfere with each other in terms of time, place, and resources.

For parents, figuring out how to work from home or to stay safe at the workplace while also juggling increased childcare and homeschooling demands and dealing with a highly uncertain and unfamiliar situation, may have caused the prevalence, intensity and duration of role strain, WFC, and FWC to rise to unprecedented levels, especially in the early stages of the pandemic. We therefore argue that in the early phase of the pandemic, the opportunities were limited for parents to enjoy the benefits of caregiving with their positive association to mental health, including experiencing feelings of joy, accomplishment, fulfillment and meaning in life (Negraia & Augustine, 2020), and recovering from (work- related) stress and recharging their energy levels.

Family relationships are the most immediate and persistent context in which strain and conflict may negatively affect mental health. This is because formal withdrawal from social obligations is difficult, and informal withdrawal may lead to both feelings of distress and the imposition of guilt and sanctions by family members. For parents, strain and conflict may increase not just because they face additional childcare demands, but when they also receive low levels of support from their partner (Michel et al., 2011; van Daalen, Willemsen, & Sanders, 2006). Thus, the mental health may be particularly prone to decline when they experience not just persistent but greater inequality in childcare arrangements during a situation in which childcare demands have suddenly increased.

When seeking to understand these associations, the use of a gender lens is inevitable (Xue & McMunn, 2021). In Germany before the pandemic, there were gender inequalities in care arrangements due to a gendered distribution of labor market participation and of care roles. Such gendered patterns in the division of unpaid work are manifested in women taking on more responsibilities for unpaid housework and childcare, even in couples in which paid work is shared equally (Sullivan, 2019). The most common arrangement is for mothers, vis-à-vis fathers, to be less attached to the labor market and to have a greater tendency to adapt their work

schedules to care need interruptions (Musick, Bea, & Gonalons-Pons, 2020). In both eastern and western Germany, part-time employment is by far most the prevalent employment status for women as it allows them to combine employment and family care (Konietzka & Kreyenfeld, 2010). This has direct effects on the gender care gap, which is largest for German women in their mid-thirties who spend 110.6 % more time than German men of the same age performing regular care work (Federal Statistical Office of Germany, 2016). Using the same data and an almost identical sample than the present study, Jessen et al. (2022) found that prior to the pandemic, more than two- thirds of parents reported having a *female care arrangement* in which the mother provides most or all of the childcare. 30% reported sharing child care equally, and only 3% indicated that child-care was provided mostly or completely by the father.

The sudden and publicly little discussed withdrawal of the government as a provider of institutional childcare and schooling during the pandemic forced parents into finding individual solutions to the pressure to provide a significant amount of additional childcare. Empirical studies have revealed the stark persistence of gender unequal care arrangements in Germany during the pandemic. Again, (Jessen et al., 2022) found that the predominantly female care arrangement persisted among German parents. The observation masks evidence indicating that the share of mothers in a female care arrangement providing "most" of the childcare decreased (-13%) and the share of mothers providing "(almost) all" of the childcare increased (+8%). These findings suggest that the conditions during the pandemic did not foster greater gender equality in childcare arrangements. Instead, for a large majority of partnered mothers, their care role persisted or they became the sole care provider.

The gender care gap hypothesis

Hence, both before and after the onset of the pandemic, the most prevalent care arrangement was one in which the mother consistently provided more or all of the childcare. This implies that the significant amount of additional childcare that parents took on during the pandemic was either added to the woman's already larger care burden or, that the overall distribution of the

care responsibilities between the partners remained unequal, even when some of the care was provided by the father. Whereas the former situation increases women's risk of role strain, the latter did not provide significant relief from exposure to role strain. Women in a *persistent female care arrangement* were the most prone to reach a tipping point at which their mental resilience diminished. We therefore expect that during the pandemic, women in these care arrangements experienced the largest mental health declines during school and daycare closures, while men in these care arrangements experienced continuous relief from care work even during schooling and childcare closures. Thus, we expect that during the pandemic, men experienced less severe mental health declines associated with care work or even profited from other types of stress relief (e.g., no commute to work).

Women whose care arrangements became less gender-equal because they *switched to a female care arrangement* during the pandemic may have experienced a decline in mental health similar to that of their counterparts in persistent female care arrangements. Compared to the period prior to the pandemic, men in such care arrangements were relieved from (additional) care work, and may have experienced no changes or even improvements in their mental health.

By contrast, among women and men who experienced greater gender equality because they *switched to a non-female care arrangement* during the pandemic (in most cases, an arrangement in which childcare was divided equally between both partners, and in rare cases an arrangement in which the father provided more childcare than the mother), the mental health outcomes may have been the opposite of those outlined above. As women in these care arrangements were relieved from (additional) role strain they may have experienced less severe mental health declines or even mental health improvements. Men, however, were exposed to more role strain, and might therefore have experienced mental health declines.

Women and men who shared care work more equally prior to the pandemic and *who maintained a non-female care arrangement* during the pandemic may have been particularly prone to

individual role strain, but they might have also experienced a level of support from their partner support that fostered resilience. Compared to their counterparts in more gender- unequal care arrangements, we expect that these women and men experienced no change or significantly smaller declines in mental health during the pandemic.

Based on these theoretical considerations on the link between care arrangements, role strain, and mental health during the pandemic, we formulate two gender-specific hypotheses:

We expect that after the onset of the pandemic, women in any type of female-care arrangement experienced larger mental health declines than women in a persistent non-female care arrangement. We further expect that mental health declines among mothers were largest for those in a persistent female care arrangement, were second-largest for those who experienced a shift from a non-female to a female care arrangement, and finally, were smallest for those who experienced a shift from a female to a non-female care arrangement (Hypothesis 1a).

We expect that after the onset of the pandemic, men in any type of female care arrangement experienced smaller mental health declines than men in a persistent non-female care arrangement. We further expect that the mental health declines among fathers were smallest for those in a persistent female care arrangement, were second-smallest for those who experienced a shift from a non-female to a female care arrangement, and, finally, were largest for those who experienced a shift from a female to a non-female care arrangement (Hypothesis 1b).

The gender role hypothesis

Although gender role attitudes predict behavior by influencing parents' actual care arrangements (Davis & Greenstein, 2009; Pollmann-Schult, 2016), women's labor market attachment (Steiber & Haas, 2009) and the division of housework (Aassve, Fuochi, & Mencarini, 2014) and of care work in couples (Monna & Gauthier, 2008), parents' gender role attitudes do not always match their actual care arrangements. Even couples who say that they

intend to share care work equally before they become parents rarely do so after they have a child (Grunow & Evertsson, 2019). The mismatch between imagined and lived realities is not entirely due to couples adjusting their gender role attitudes after becoming parents: In Germany, 60 percent of parents with children below age 3 would prefer an egalitarian division of labor but only 14 percent actually do achieve such an arrangement (German Federal Ministry for Family Affairs, 2017). In the German context of supported familialism, it is likely that institutional constraints (i.e., childcare shortage), normative expectations, as well as pragmatic decisions (i.e. a tax system supporting the male breadwinner model) contribute to the significant gap between desired and lived realities. In crises such as a pandemic that cut off access to formal childcare and support, couples' intra-household negotiations on how to share (or not) childcare during the school and daycare closures were most likely driven by pragmatism, rather than by gender role attitudes.

Gender role attitudes may influence how women and men evaluate gender inequality in their care arrangements, and how they perceive role strain and its proposed association with mental health (Stevenson & Wolfers, 2009). This is because different gender role attitudes imply varying benchmarks that women and men have for how care "ought" to be distributed (Gager & Hohmann-Marriott, 2006). Greenstein (1996) argued that the comparison referents of mothers with different gender ideologies vary: while non-egalitarian women might base their expectations on what they perceive other mothers are doing, egalitarian women might compare their own contribution to that of their male partner. Moreover, individuals with non-egalitarian gender role attitudes may be more likely to perceive their own under- or over-benefit in how care work is divided as legitimate, whereas such perceptions might clearly defy the ideals that egalitarian individuals hold with respect to labor allocation (Blom, Kraaykamp, & Verbakel, 2017).

This implies that being in a persistent female care arrangement or experiencing a shift to a female care arrangement during the pandemic was associated with larger mental health declines for egalitarian than for non-egalitarian women. Meanwhile, such care arrangements may have been associated with fewer buffering effects or smaller improvements in mental health for egalitarian than for non-egalitarian men. Based on these theoretical propositions, we put forward two gender-specific hypotheses:

The association between mental health and being in a persistent female care arrangement or experiencing a shift toward a female care arrangement is stronger for egalitarian mothers than for non-egalitarian mothers (Hypothesis 2a). Egalitarian fathers in such a care arrangement are less buffered by or benefit to a smaller degree from it (Hypothesis 2b).

Data and Sample

The Panel Analysis of Intimate Relationships and Family Dynamics (Pairfam) is a large, nationally representative, prospective study of German adults has been running since 2008/2009 (Brüderl et al., 2022; Huinink et al., 2011). Currently, there are 13 annual regular panel waves representative of three German birth cohorts (1971-72, 1981-83, and 1991-93; as well as 2001-2003 since wave 11). For our analyses of pre-pandemic mental health inequalities, we used data from wave 11, which were collected roughly one year before the onset of the pandemic in November 2018 and March 2019. Pairfam has a number of unique features that makes it the gold standard survey data infrastructure for studying gender attitudes, inequalities in paid and unpaid labor, and outcomes such as mental health. First, it is a probability sample with repeated and identical measures on childcare arrangements (and inequalities in such arrangements) and on various dimensions of mental health. Second, it contains information on individual gender role attitudes. Finally, these items were measured during school and daycare closures, in which the mechanisms that are argued to underly the association between care arrangement and mental health were particularly salient.

The fieldwork of the regular 12th panel wave had to be paused during the pandemic in March 2020 because interviewers could no longer visit the participants' homes to conduct the interviews. Between May 19 and July 13, 2020, an additional, optional 15-minute web-based survey covering the consequences of the Covid-19 pandemic for the respondents' private lives and personal relationships was fielded among those panel members who were part of the gross sample of wave 12. N=3,154 (of the eligible 9,640) respondents completed the so-called Corona survey. The majority of the data had been collected by mid-June.

Analyzing panel survey data with identical questions posed before and during the early months of the pandemic has clear methodological advantages over relying on the non-probability samples that many Covid-19-related studies on mental health did. However, switching from a face-to-face to an online data collection introduces possible bias due to selective participation in the optional add-on. Women, members of the younger cohorts sampled, highly educated individuals, non-migrants, and residents of urban areas and western Germany were more likely to participate in the online add-on. Household size, parental status, partnership status, and level of economic deprivation were not associated with the likelihood of participating in the online add-on (results provided upon request). Based on the self-reported information on co-residents, we identified each respondent's partnership and parenthood status. We restricted our sample to women and men who were living with their partner and children under age 18. This reduced our sample to n=851 partnered parents (n=518 mothers and n=333 fathers). Finally, we conditioned inclusion on valid responses to indicators related to three dimensions of mental health before and during the pandemic, which reduced the sample by n=1 for stress, by n=4 for loneliness, and by n=2 for exhaustion. Furthermore, especially parents of older children replied "does not apply to us" to the question on the division of childcare. That reduced our sample further by n=43. Our final analytical sample comprised n=481 women and n=322 men.

Measurements

Mental health. In order to consider pre-pandemic differences in mental health, we investigated intra-individual changes, and thus focused on those dimensions of mental health for which we could obtain measurements both before and after the onset of the pandemic: namely, levels of stress, exhaustion, and loneliness. All three dimensions were measured by asking respondents: "How have you been feeling, for the most part, during the past four weeks?" The response categories ranged from 1 = *"does not at all apply"* to 5 = *"applies absolutely."* Pairfam collects this information using established scales that tend to be modified by shortening the original number of items through tapping into the construct, or by unifying the scale length.

For stress, we used three items that captured the feelings of being *"stressed," "overburdened,"* and *"under pressure,"* which are part of a stress scale developed by (Fliege et al., 2001). For exhaustion, we used two items that assessed whether the respondents were feeling *"active"* and *"full of energy."* These items are part of the psychological state scale developed by Abele-Brehm and Brehm (1986). We reversed the items, so that larger values indicated lower mental health, consistent with the other two dimensions of mental health studied here. For level of loneliness, we used one item that measured the extent to which respondents were *"feeling alone."* The item originally stems from the UCLA loneliness scale developed by (Russell, Peplau, & Cutrona, 1980). A second item was introduced in the Corona survey that captured the extent to which the respondents were *"feeling lonely"*. This item was adapted from the Psychological Adjustment to the Covid-19 pandemic study (Schmidt et al., 2021).

We obtained three sum scores for the mental health dimensions *stress, exhaustion,* and *loneliness* by summing answers to up to three questions for each dimension and dividing that number by the number of items for each dimension. A higher sum score indicated worse mental health in that dimension. We obtained for each individual three change scores (for each dimension) by subtracting the pandemic score t*2* from the pre-pandemic score *t1* and

obtained a change score. A value of 0 indicated no change, negative values indicated a decline in *stress*, *exhaustion*, and *loneliness* between *t1* and *t2*, and positive values indicated an increase in these dimensions. Baseline mental health for each dimension (at *t1*) was included in our models as the mean score variable.

Care arrangements. Respondents were asked in both data collections to report how they and their partner currently organize childcare for the children living in their joint household. The answer categories were 1 = "(almost) completely my partner," 2 = "for the most part my partner," 3 = "split about 50/50," 4 = "for the most part me," 5 = "(almost) completely me," and 6 = "another person." We omitted value 6 (n=1) as our focus was on the couple-level division of care work. We collapsed values 1 and 2 to *my partner* and 3 and 4 *to myself* as they describe situations in which either the respondent's or the partner's care work load was higher than that of the other, while value 3 remained as 50/50. In order to tackle changes in care arrangements, we combined the reports from *t1* and *t2. Given the predominantly female childcare organization in German households, we distinguished between female care and non-female care, and considered whether the childcare arrangement was stable or shifting between t1* and *t2*. Respondents who reported a *split about 50/50* in *t1* and *t2* were categorized as having a *stable non-female* care arrangement (the reference category). We also grouped those female respondents as having a *stable non-female* care arrangement *if* they reported either *my partner* in t1 and t2 or *my partner* in t1 and *split about 50/50 in t2 or vice versa*. Male respondents were grouped in this category if they reported *myself* in t1 and t2 or *myself* in t1 and *split about 50/50 in t2 or vice versa.* We acknowledge that a roughly equal care arrangement and a care arrangement in which the father is providing more childcare than the mother are qualitatively different. However, the small group of parents reporting a male care arrangement (2% in 2019 and 5% in 2020) did not warrant a robust statistical analysis on

their own. Robustness analyses omitting these cases did not modify the results presented here (results available upon request).

Female respondents who reported *myself* in t1 and either *my partner* or a *split about 50/50* in t2 and male respondents who reported *my partner* in t1 and either *myself* or *a split about 50/50* in t2 were categorized as having experienced a change from *female care to non-female care*.

Conversely, female respondents who reported either *my partner* or a *split about 50/50* and male respondents who reported *myself* or a *split about 50/50* in t1 were classified as having experienced a shift from a *non-female care* arrangement in *t1* to a mainly *female care* arrangement in t2, and thus as having experienced a change from *non-female to female care*. Respondents who reported having a predominantly female care arrangement in t1 and t2 were categorized as having a *stable female care* arrangement.

Gender role attitudes. Respondents were asked in the pre-pandemic data collection how much they agreed with a number of statements regarding gender role attitudes. We used three items capturing attitudes toward mothers' and fathers' paid work and the division of labor. The three items are particularly well-suited for our purposes, as the division of paid labor has direct consequences for ascriptions of the division of unpaid labor, and of childcare in particular. These were:

- *"Women should be more concerned about their family than about their career;"*

(1) *"A child under 6 will suffer from having a working mother;" and*

(2) *"Children often suffer because their fathers spend too much time at work."*

The answer categories ranged from 1 = *"disagree completely"* to 5 = *"agree completely."* The answers to item (3) were recoded so that lower values indicated more egalitarian views. The index was calculated as the arithmetic mean of the items. Given the skewness of the distribution

toward egalitarian attitudes, we dichotomized the variables and categorized respondents who answered “disagree” or “disagree completely” to at least two of the statements above as holding egalitarian gender role attitudes.

We included a number of control variables in our models:

Pre-pandemic employment status and pandemic-related change. The pre-pandemic employment status of mothers and fathers was related to their pre-pandemic care arrangements. In combination with pandemic-related change in working conditions, this variable informed us about the extent to which parents– typically mothers – deprioritized employment in response to the pandemic, and about the additional care work load that parents take on (Alon et al., 2020). We captured pre-pandemic employment status with a variable that distinguished between a) full-time or self-employed; b) part-time, marginally, or occasionally employed; c) parental leave; and d) out of employment.

Pandemic-related changes in working conditions were measured by a set of items describing (a) no change, (b) different situations implying a reduction in working hours, and (c) an increase in working hours. We generated a dummy variable indicating an *increase in working hours* because we believe that this represents a pandemic-related change that may have increased work-to-family conflict for the person concerned. Additional stressors due to having reduced access to care services likely had an impact on parental mental health. Therefore, we consider *increased working hours* during the pandemic as a potentially important confounder. To keep the model sparse and in light of the small sample sizes in the different categories, we refrained from further distinguishing *no change* and different situations implying a *reduction of working hours* (i.e., due to short-time work, job loss, leave, overtime reduction). Furthermore, most respondents had their working hours reduced within a mandatory short-time work arrangement, which was a key social policy instrument used to avoid massive lay-offs during lockdowns. This means that compensation for wage losses due to a reduction in working hours was provided

through a government earnings replacement scheme (Moehring et al., 2021) Hence, respondents in short-time work were likely not affected by role-strain.

In addition, we generated a second dummy variable indicating whether *the respondent worked remotely* in response to the pandemic. The effect of this altered working condition on mental health is ambiguous. On the one hand, it enabled parents to continue to work despite lacking access to childcare. On the other hand, there is empirical evidence that the shift to remote work increased the sole care work of mothers (Jessen et al., 2022). In our sample, *working remotely* was by far the most prevalent change in working conditions that both mothers (37%) and fathers (52%) reported.

Age of mothers and fathers was found to be associated with well-being, with a gradual increase by age (Hansen, 2012). To control for this potential confounding variable, we added cohort membership to our analyses. Slightly more members of the younger panel cohorts of the regular panel participated in the Corona survey.

Age of the youngest child was included as a control variable in order to capture variation in the care burden, which decreased with the age of the child. Therefore, the age of the youngest child was broken down into the following categories: a) 0-2 years, b) 3-5 years, c) 6-11 years, and d) 12-18 years.

Education was a potential confounding variable selecting people into different mental health outcomes to the disadvantage of the lower-educated (Halpern-Manners et al., 2016; Molarius & Granström, 2018). In addition, slightly more university- educated respondents participated in the Corona survey[1].

[1] https://www.pairfam.de/fileadmin/user_upload/redakteur/publis/Dokumentation/TechnicalPapers/Technical_Paper_15.pdf

Analytical Approach

To investigate changes in the mental health scores that may have emerged between pre-pandemic and spring 2020, we ran stepwise change score models (Allison, 1990). These individual changes were estimated for each of the three indicators as the dependent variable. To test Hypotheses 1a and 1b regarding the persistence of or the changes in care arrangements in their associations with mental health changes for women and men, we included the pre-pandemic and spring 2020 combined variable of the division of childcare arrangements, and controlled for cohort, education, and age of the youngest child. We included each respondent's corresponding pre-pandemic mean mental health score in order to account for individual floor and ceiling effects (Mattes & Roheger, 2020). We additionally analyzed potential changes in the respondent's employment situation by examining the respondent's pre-pandemic employment status, any changes in his/her working hours during the pandemic, and whether the respondent was at least partially working remotely (Figure 1, Table S1).

To test Hypotheses 2a and 2b regarding heterogeneity in the association between care arrangements and mental health and the role of gender role attitudes, we additionally included an interaction term between the type of care arrangement and gender role attitudes (Figure 2, Table S2).

Results

Table 1 presents the pre-pandemic and pandemic mean values of the three dimensions of mental health as well as the intra-individual changes, separately for mothers and fathers. The results show that the stress levels of fathers decreased significantly, while the stress levels of mothers increased between the pre-pandemic and the pandemic period, although the latter results were non-significant. Exhaustion and loneliness increased for both fathers and mothers between the pre-pandemic and the pandemic period. The differences were significant except for the increased exhaustion among fathers.

Table 1: Sample description for n= 803 parents. Percentages if not indicated otherwise.

	Fathers		**Mothers**	
Mental health outcomes	mean	sd	mean	sd
Stress				
Pre-pandemic value	9.18	3.01	9.16	3.01
Pandemic value	**8.46**	3.26	9.28	3.38
Intra-individual difference	**-0.73**	3.81	0.14	3.72
Exhaustion				
Pre-pandemic value	5.53	1.68	5.46	1.76
Pandemic value	5.64	1.66	**5.98**	1.82
Intra-individual difference	0.11	2.1	**0.54**	2.14
Loneliness				
Pre-pandemic value	1.58	0.89	1.70	0.92
Pandemic value	**3.32**	1.82	**3.71**	1.97
Intra-individual difference	**1.70**	1.83	**2.01**	1.92
Change in division of childcare				
female care to non-female care	17.2		14.4	
stable non-female care	26.4		19.6	
non-female care to female care	8.8		11.3	
stable female care	47.6		54.7	
Gender role attitudes				
Egalitarian (d)	36.7		33.9	
Pre-pandemic employment status				
Full-time	89.4		22.7	
Part-time	3.7		50.5	
Parental leave	2.2		17.1	
Out of employment	4.7		9.8	
Pandemic related change in employment/work				
Working hours increased (d)	7.6		8.3	
Homeoffice (d)	52.4		37.8	
Cohort				
1991-1993	4.7		4.4	
1981-1983	55.3		67.4	
1971-1973	40		28.2	
Age of the youngest child				
0-2	27.3		21.2	
3-5	31.1		28.8	
6-11	28.0		33.0	
12-18	13.6		17.0	
Education				
low	3.1		2.1	
moderate	30.8		40.8	
high	66.2		57.2	
Observations	322		481	

Note: Dummy variables indicated with d; bold figures in the unweighted sample indicate significant mean differences between pre-pandemic and pandemic (t test, p<0.05).

For the distribution of the treatment variable *change in division of childcare*, the table shows that most fathers (43.7%) and mothers (54.7%) reported having a *stable female care arrangement*, while 30.7% of fathers and 19.6% of mothers reported having a *stable non-female care arrangement*. Moreover, 17.3% fathers and 14.4% mothers reported experiencing a shift from a *female care to a non-female care arrangement*, and 8.4% fathers and 11.3% mothers reported experiencing a shift from a *non-female care to a female care arrangement*.

About 36.5% of the male and 33.9% of the female respondents were classified as holding egalitarian gender role attitudes. The vast majority (89.2%) of the male sample were in full-time employment, while in the female sample, 50.5% were in part-time employment and 22.7% were in full-time employment. Only 7.8% of the male sample and 8.3% of the female sample were affected by increased working hours during the pandemic, while 53.3% of the male sample and 37.8% of the female sample worked remotely during the pandemic.

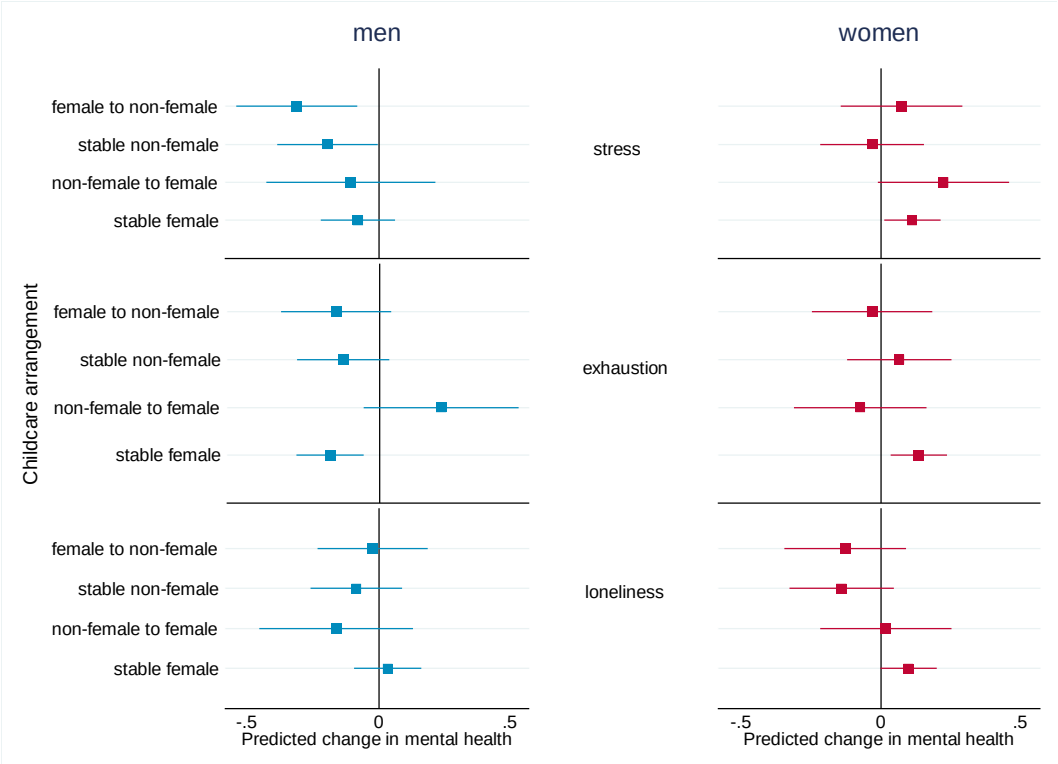

Figure 1. Predicted mental health disparities of n=803 fathers and mothers by childcare arrangements

Figure 1 plots the results of three regression models predicting mental health disparities along three indicators of the mental health of fathers (left panel) and of mothers (right panel), expressed as marginal effects. On the x-axis, the predicted changes in levels of stress, exhaustion, and loneliness are plotted. The value 0 refers to no change, while negative values indicate lower levels and positive values indicate higher levels of stress, exhaustion, and loneliness. On the y-axis, the four care arrangements are distinguished. We present the results of the full regression models (the β coefficients) in the supplement of this paper (*Table S1)*.

In line with Hypothesis 1a and the underlying reasoning about the resilience to role strain when the spouse provided childcare support during the pandemic, mothers in a *persistent non-female care arrangement* did not report a statistically significant change in any of the three mental health dimensions. Mothers who experienced an increase in the share of care work performed by their partner during the pandemic or a change from a *female to a non-female arrangement* did not differ from mothers in a persistent *non-female care arrangement* in any of the mental health dimensions studied. It thus appears that these women were buffered against the increased stress, exhaustion, and loneliness associated with having additional childcare duties. Moreover, in line with Hypothesis 1a, we found significant increases in levels of stress (0.11) and exhaustion (0.13), but not in levels of loneliness, among mothers who were in a *persistent female care arrangement*. Given that the average increase in stress levels that we observed for the full sample of women was close to zero, this represents a sizeable decline in mental health for the group of mothers in the most gender-unequal care arrangement. The average increase in exhaustion in the women's sample was 0.50, which implies a modest increase in exhaustion for the mothers in this group. Only for the dimension of stress were mothers in the persistent female care arrangement group surpassed by mothers who experienced a shift from a non-female *to a female care arrangement* during the pandemic, among whom the increases in stress levels were larger.

In line with Hypothesis 1b and consistent with the findings for women, we found that men in a persistent non-female care arrangement were buffered against mental health declines, and that their predicted levels of stress, exhaustion, and loneliness even decreased during the pandemic. Moreover, in line with Hypothesis 1b and the reasoning that men did not experience increases in role strain if their partner handled most of the additional childcare duties during daycare and school closures, men in a persistent female care arrangement experienced a significant decrease in levels of exhaustion (-0.19), which can be considered a sizable decline given that the overall increase in levels of exhaustion was close to zero for men in our sample.

Next, we examined possible heterogeneity in the association between care arrangements and the mental health trajectories of fathers and mothers by their gender role attitudes. *Figure 2* plots the results of three regression models predicting mental health disparities along three indicators of the mental health of fathers (left panel) and of mothers (right panel), expressed as marginal effects and an interaction by gender role attitudes. We present the results of the full regression models (the β coefficients) in the supplement of this paper (*Table S2)*.

Hypothesis 2a suggested that women who reported increased or persistent gender inequality in their care arrangements would experience larger increases in levels of stress, exhaustion, and loneliness if they had endorsed egalitarian attitudes prior to the pandemic. The findings instead suggest that the association between gender inequality in parental care and the decrease in mental health that we found earlier only applied to women with egalitarian attitudes. While women with non-egalitarian attitudes in a *persistent female care arrangement* exhibited the predicted change in mental health, which was not statistically significant from zero, indicating no change, the egalitarian women in this group exhibited increases in the predicted levels of stress (0.15), exhaustion (0.24), and loneliness (0.24). In addition, and not specified in our hypothesis, we found that egalitarian women who experienced an increase in gender equality in parental care by switching from a *female to a non-female care arrangement* during the

pandemic exhibited a decrease in the predicted levels of exhaustion (-0.15) and loneliness (-0.19) compared to the pre-pandemic period. While women with non-egalitarian attitudes did not benefit from reduced care responsibilities during the pandemic, women with egalitarian attitudes profited from decreased role strain, as their mental health improved compared to the pre-pandemic period.

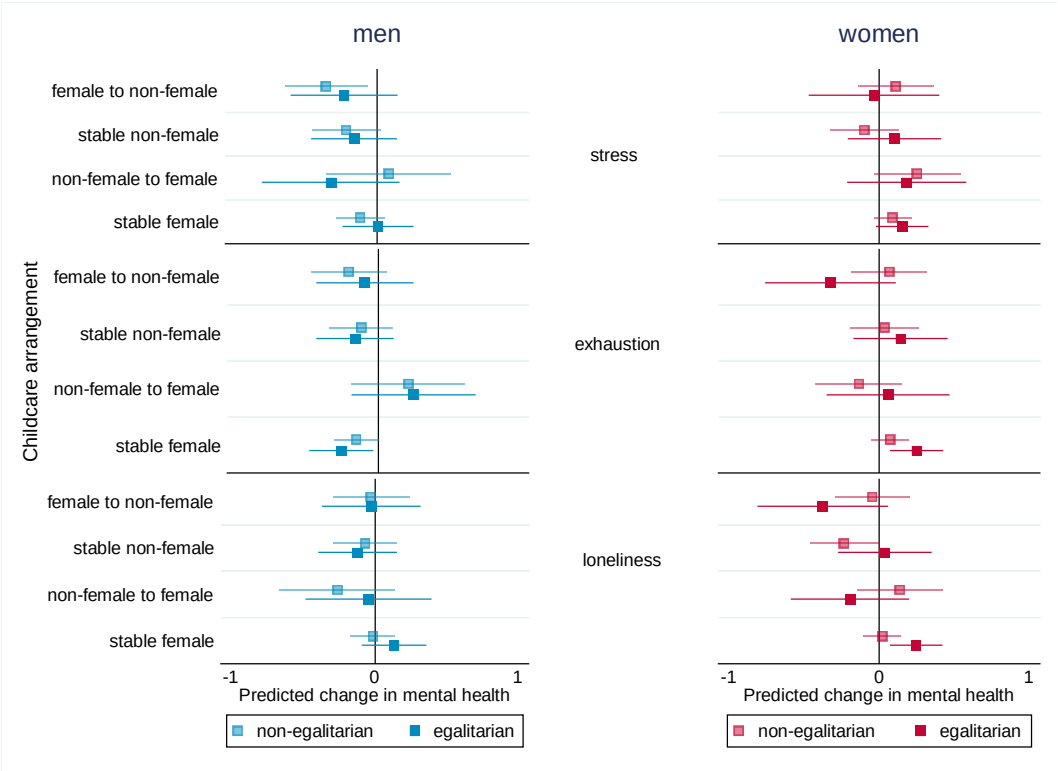

Figure 1. Predicted mental health disparities of n=803 fathers and mothers by childcare arrangements and gender role attitudes

Hypothesis 2b suggested that for men, experiencing persistent or increased relief from care work and the implied role strain may have been less beneficial to their mental health if they had egalitarian rather than non-egalitarian attitudes. The analyses did not uncover a consistent pattern. In line with the hypothesis, we found that for egalitarian men in a *persistent female care arrangement*, the predicted levels of change in stress were zero, while for non-egalitarian men in this care arrangement, stress levels were reduced. Contrary to our expectations, we observed

larger decreases in stress levels among egalitarian than among non-egalitarian men who switched from a *non-female to a female care arrangement* during the pandemic.

Discussion

Drawing on theoretical insights from scholarship on role strain, the (in)compatibility of paid employment and childcare, gender, and relevant empirical research on parental mental health before and during the Covid-19 pandemic, this study investigated the impact of the division of childcare on individual changes in mothers' and fathers' mental health during the first Covid-19 lockdown in Germany. We studied the inter-individual change in three dimensions of mental health: levels of stress, exhaustion, and loneliness. We also argued that gender role attitudes may have moderated the association between the persistence of and changes in gender inequalities in childcare and the gender gap in mental health.

This study identified systematic differences at the intersection of gender inequalities in care work and gender role attitudes. The first key finding based on the comparison of pre-pandemic and pandemic care arrangements reported by mothers and fathers was that the pandemic was not the grand equalizer in terms of the division of care work between women and men. The study thereby joins the growing body of literature confirming persistent and, in many cases, growing gender inequality in unpaid labor in the absence of institutional childcare and schooling. The strong gender-based segregation of labor market behaviors and the predominant gender norms regarding the care roles of mothers and fathers prior to the pandemic did not provide a favorable starting point for women and men to renegotiate care work more equally during this global health crisis. The changes in parental care arrangements likely arose from forced pragmatism due to the time availability of each of the parents, rather than from a change in gender role attitudes or increased opportunities to reconcile paid and unpaid labor (Allmendinger, 2021). This assumption is supported by findings using the same data on the work-related determinants of parental care arrangements during the pandemic. The increase in

cases of the mother becoming the sole caregiver during the pandemic was largest among parental couples in which the female partner only was working from home during the spring lockdown (Jessen et al., 2022).

The second key finding is that parental care arrangements and changes in these arrangements contributed to the emergence of a gender-based mental health gap among parents to the disadvantage of mothers. It is important to acknowledge that the associations revealed here were net of pre-pandemic and pandemic-related (gendered) patterns of and changes in paid employment that our models controlled for. The distribution of care work explained the variation in the mental health trajectories during the pandemic of women, and to a much less extent of men. Our results revealed that the largest increases in exhaustion and loneliness were among mothers in a *persistent female care arrangement*. For these women, the relative share of care work they were doing before the pandemic increased by the absolute amount of additional childcare that needed to be performed during the school and daycare closures. Compared to among mothers in a *persistent female care arrangement,* stress levels increased more only for mothers who experienced a change from a *non-female care to* a *female care arrangement*. As in most of the non-female care arrangements there was a *split of 50/50*, this result suggests that giving up a gender-equal care arrangement during this global health crisis led to an increase in feelings of stress for the partner who was suddenly performing most of this unpaid labor, and who was, in the vast majority of cases, the mother. Thus, this study expands our knowledge about the association between additional and persistent role strain and mental health for primary caregivers during the Covid-19 pandemic. Given that most of the fathers and mothers in our sample reported having a *persistent female care arrangement*, these findings provide empirical evidence for the largest group of mothers in Germany, and might reflect the adverse health consequences that mothers experienced during the pandemic.

For men, we observed a significant protective effect in the exhaustion dimension if their parental care arrangement changed from a non-female care to a female care arrangement. This implies that men seem to have benefited individually from a gender-based specialization in care work during this global health crisis. Given the toll on the mental health of the primary caregiver in such gender-unequal care arrangements, this benefit certainly does not extend to the family system as such. However, the findings for the other care arrangements were either counterintuitive or not statistically significant, which suggests that overall, the association between the parental care arrangement and the father's mental health was weak (Zoch, Bächmann, & Vicari, 2021).

The findings imply that the sudden withdrawal of institutional education and childcare provided by the government in spring 2020 and the complete lack of institutional support for parents providing the additional childcare needed affected mothers more than fathers. Thus, mothers emerged as a new vulnerable social group in Germany during this global health crisis. For women who lacked a spouse who was committed to care work, the pandemic situation (further) limited their options to reconcile paid employment and unpaid labor, and thus increased the individual role strain associated with larger mental health declines. Moreover, our results suggested that persistent gender equality in parental care arrangements buffered women somewhat from the negative effects of a lack of institutional childcare on their mental health. Thus, sharing care responsibilities is a health-promoting behavior for mothers that may extend to the well-being of the children being cared for. To support families in navigating through the pandemic and to ensure that families recover from its effects, policymakers must acknowledge and address the disproportionate burdens that mothers carry during such global health crises. Thus, policies aimed at helping families recover from the setbacks they experienced during the pandemic need to embed a gender-sensitive approach. Beyond providing for targeted measures,

such as increased public spending on childcare and early education, policies must embed a gender lens into all aspects of governance to avoid reinforcing existing gender inequalities.

This study also addressed the question of whether experiencing a *persistent female care arrangement or a shift from non-female to female care arrangement* was more detrimental for mothers and fathers with egalitarian gender role attitudes than for those with traditional gender role attitudes. Consistent with our expectations, we found that the association between inequality in parental care arrangements and decreased mental health reported earlier only applied to women with egalitarian attitudes. Thus, during the pandemic, egalitarian women both suffered more when the division of care work was unequal and benefited more when the division was equal than their traditional counterparts did. It has been argued in both academic and public discourses that Germany was unlikely to experience a re-traditionalization of gender and parental roles and practices because, at the aggregate level, women and men tended to practice gender-based segregation in paid and unpaid labor before the pandemic, while during the pandemic, men increased the time they spent caring for their children more than women did in absolute terms (Hank & Steinbach, 2021; Neubacher, 2020).

Our analysis of gender role attitudes not only revealed that parents' care arrangements did not necessarily reflect individual gender role attitudes, but also that the mismatch between desired and lived realities was particularly concerning for women with egalitarian gender role attitudes. In particular, the desired way of life and the expectations of these women were radically called into question and further constrained by the public health interventions implemented in spring 2020, which left them without reliable institutional childcare from one day to the next. The presented findings also show that it was this group of women who were most vulnerable to experiencing mental health declines.

We note a couple of limitations of this study. Because the prevalence of men as primary caregivers is relatively low in Germany, in some of the categories, the number of respondents

in certain care arrangements was relatively small for the male sample. The small number of cases did not allow for further stratification, such as looking at the small group of men who performed more childcare relative to their partner before or during the pandemic. However, our analysis examined individual changes in mental health as well as changes in care arrangements, and provided findings that are superior to those of previous studies based on cross-sectional designs or on self-assessed changes measured through retrospective questions.

The relative approach we used to capture the care arrangements of mothers and fathers does not fully reflect the implications of the drastic increase in the demand for childcare during school and daycare center closures. It greatly exacerbated gender-based inequality in time poverty, as the availability of discretionary time fell much more sharply among women than among men. Particularly women in persistent female care arrangements took over the larger share of the additional childcare demand on top of their already higher relative share. As this development likely further limited the time they had for recreation and for seeking medical care, it promoted self-neglect. Thus, the present study adds to the literature that provides empirical evidence on the role of time poverty as a risk factor for women's health. Gender inequality in care work is an important determinant of women's time poverty in societies in which the relative distribution of care work is lagging behind the relative distribution of paid work.

Although Pairfam data represent the gold standard data infrastructure for studying gender, family, and health in the German context, the relatively small amount of available data on partnered mothers and fathers for whom there were comparable pre-pandemic and pandemic measurements resulted in small sample sizes. We therefore used parsimonious models, and were thus limited in our ability to exploit some of the richness of the data collected, for instance with regard to more granular changes in childcare arrangements or paid employment. Whereas the point estimates of our hypothesis testing models revealed clear differences in the hypotheses formulated, the confidence intervals still tended to be large, and thus provided only tentative

evidence for some of the associations. We performed a number of sensitivity analyses, which assured us that our results are robust to different specifications of the variables used to test our hypotheses. Mothers in this care arrangement were most prone to reach a tipping point at which their mental resilience diminished.

Ongoing and future data collection are extremely important. There are good reasons to assume that the mental health disadvantage of mothers increased over the course of the pandemic in light of the results emerging from data on an early phase of the pandemic. Research on the division of housework during the pandemic has already shown that even among couples who shared housework more equally during the early months of the pandemic, this increase in gender equality had vanished a few months later, particularly for couples with children (Rodríguez Sánchez, Fasang, & Harkness, 2021). This was also the case for couples who shared care work more equally during the pandemic. If the share of the population of mothers who took over the brunt of the additional childcare during the pandemic has increased over the past two years, the mental health concerns raised by our findings may apply to an even larger percentage of women now than was reported here.

While the conditions under which families navigated the pandemic have changed, these changes may only affect the mechanisms through which parental role strain has increased: schools and childcare facilities are open, but the dynamic infection situation in the youngest age groups imply that the level of predictability of the demand for childcare is extremely low (i.e., children may need to be cared for at home when infected with the virus), and the prevalence of infections of parents via their children is high, which could, in turn, further exacerbate role strain and time poverty. Moreover, parents may experience less generosity in the support provided by employers in navigating unreliable childcare due to the partial closure of classes/groups during quarantines and outbreaks. As time passes, more longitudinal data will become available that

will allow us to further investigate gender inequalities in households, in the labor market, and in society at large and their impact on mental health over the course of the pandemic.

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Supplement

Table S1: Results from gender specific linear regression models for partnered fathers and mothers estimating changes in levels of stress, lack of energy, and loneliness by changes in the division of childcare.

	Stress		Lack of Energy		Loneliness	
Variable	Male	Female	Male	Female	Male	Female
Base mean outcome	-0.597***	-0.526***	-0.747***	-0.670***	-0.710***	-0.637***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Birth cohort						
1981-83	0.334	0.225	0.043	-0.107	-0.119	-0.247
	(0.180)	(0.246)	(0.853)	(0.584)	(0.599)	(0.206)
1971-73	0.377	0.083	0.023	-0.321	-0.160	-0.331
	(0.152)	(0.711)	(0.926)	(0.153)	(0.513)	(0.141)
1991-93 (Reference)						
Education						
Low (Reference)						
Moderate	-0.605	0.276	0.080	-0.100	-0.881**	0.127
	(0.067)	(0.335)	(0.790)	(0.729)	(0.003)	(0.662)
High	-0.554	0.184	0.061	-0.160	-0.833**	-0.113
	(0.090)	(0.521)	(0.839)	(0.581)	(0.005)	(0.696)
Age group youngest cohabiting child						
Under 3 (Reference)						
Under 6	0.048	-0.104	-0.097	0.111	0.113	-0.106
	(0.719)	(0.400)	(0.435)	(0.418)	(0.354)	(0.440)
Under12	0.018	-0.021	-0.011	0.088	0.267	-0.037
	(0.906)	(0.882)	(0.936)	(0.559)	(0.057)	(0.804)
Under 18	-0.393*	-0.305*	-0.360	0.147	0.066	-0.235
	(0.048)	(0.049)	(0.051)	(0.435)	(0.712)	(0.212)
Employment status						
Full-time / self-employed (Reference)						
Part-time / marginally / occasionally employed	0.851*	-0.010	0.095	-0.036	0.349	-0.087
	(0.014)	(0.924)	(0.764)	(0.730)	(0.268)	(0.411)
Maternal / paternal leave	-0.123	0.026	-0.162	0.034	-0.121	0.034
	(0.729)	(0.879)	(0.621)	(0.843)	(0.709)	(0.840)
Out of employment	0.372	-0.007	0.055	0.045	0.621*	-0.087
	(0.164)	(0.966)	(0.821)	(0.781)	(0.011)	(0.589)
Table continues on next page						
More work	0.283	0.437**	-0.055	0.085	-0.223	0.109
	(0.114)	(0.002)	(0.737)	(0.546)	(0.170)	(0.441)
Remote work	0.058	0.206*	0.123	0.125	0.091	-0.058
	(0.581)	(0.017)	(0.199)	(0.148)	(0.348)	(0.501)

Division of childcare						
Female to non-female care	-0.117	0.104	-0.027	-0.097	0.061	0.013
	(0.443)	(0.475)	(0.847)	(0.505)	(0.658)	(0.928)
Stable non-female care (Reference)						
Non-female to female care	0.089	0.254	0.375*	-0.140	-0.076	0.158
	(0.637)	(0.091)	(0.031)	(0.358)	(0.657)	(0.295)
Stable female care	0.116	0.142	-0.049	0.070	0.119	0.240*
	(0.349)	(0.192)	(0.665)	(0.525)	(0.291)	(0.030)
N	296	447	295	446	296	448
R2	0.3536	0.2985	0.4065	0.3325	0.4095	0.3467

p-values in parentheses

* p<0.05, ** p<0.01, *** p<0.001

Source: Pairfam 11 and coronavirus survey

Table S2: Results from gender specific linear regression models for partnered fathers and mothers estimating changes in levels of stress, lack of energy, and loneliness by the interaction of changes in the division of childcare and gender role attitudes.

	Stress		**Lack of Energy**		**Loneliness**	
Variable	Male	Female	Male	Female	Male	Female
Base mean outcome	-0.588***	-0.529***	-0.746***	-0.666***	-0.710***	-0.646***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Birth cohort						
1981-83	0.357	0.207	0.018	-0.131	-0.090	-0.271
	(0.157)	(0.289)	(0.939)	(0.503)	(0.695)	(0.165)
1971-73	0.393	0.063	-0.005	-0.345	-0.131	-0.353
	(0.152)	(0.779)	(0.985)	(0.125)	(0.599)	(0.115)
1991-93 (Reference)						
Education						
Low (Reference)						
Moderate	-0.615	0.300	0.076	-0.045	-0.876**	0.157
	(0.063)	(0.300)	(0.803)	(0.878)	(0.004)	(0.586)
High	-0.576	0.207	0.076	-0.125	-0.851**	-0.095
	(0.079)	(0.475)	(0.801)	(0.667)	(0.005)	(0.744)
Age group youngest cohabiting child						
Under 3 (Reference)						
Under 6	0.044	-0.133	-0.097	0.143	0.111	-0.068
	(0.743)	(0.335)	(0.435)	(0.301)	(0.369)	(0.621)
Under 12	0.018	-0.065	-0.011	0.093	0.271	-0.025
	(0.907)	(0.670)	(0.936)	(0.537)	(0.057)	(0.866)
Under 18	-0.381	-0.279	-0.362	0.166	0.076	-0.191
	(0.058)	(0.140)	(0.051)	(0.383)	(0.675)	(0.312)
Employment status						
Full-time / self-employed (Reference)						
Part-time / marginally / occasionally employed	0.881*	0.001	0.073	-0.016	0.337	-0.070
	(0.012)	(0.995)	(0.820)	(0.878)	(0.290)	(0.507)
Maternal / paternal leave	-0.076	0.049	-0.172	0.077	-0.11	0.072
	(0.833)	(0.773)	(0.603)	(0.650)	(0.737)	(0.670)
Out of employment	0.419	0.010	0.042	0.078	0.629*	-0.056
	(0.120)	(0.950)	(0.864)	(0.633)	(0.011)	(0.730)
More work	0.301	0.440**	-0.057	0.082	-0.242	0.117
	(0.095)	(0.002)	(0.732)	(0.559)	(0.141)	(0.407)
Table continues on next page						
Remote work	0.074	0.202*	0.110	0.116	0.098	-0.066
	(0.483)	(0.021)	(0.261)	(0.182)	(0.319)	(0.443)
Division of childcare						
Female to non-female care	-0.143	0.210	-0.089	0.033	0.039	0.189

	(0.460)	(0.227)	(0.617)	(0.849)	(0.822)	(0.270)
Stable non-female (Reference)						
Non-female to female care	0.303	0.352	0.337	-0.170	-0.193	0.371*
	(0.239)	(0.061)	(0.154)	(0.365)	(0.408)	(0.048)
Stable female care	0.099	0.188	-0.035	0.037	0.053	0.255
	(0.513)	(0.162)	(0.804)	(0.784)	(0.702)	(0.058)
Egalitarian	0.056	0.201	-0.044	0.107	-0.055	0.271
	(0.774)	(0.305)	(0.809)	(0.584)	(0.757)	(0.166)
Division of childcare*Egalitarian						
Female to non-female care*Egalitarian	0.073	-0.344	0.159	-0.501	0.057	-0.602
	(0.813)	(0.290)	(0.578)	(0.122)	(0.839)	(0.063)
Stable non-female * Egalitarian (Reference)						
Non-female to female care*Egalitarian	-0.467	-0.271	0.079	0.088	0.269	-0.601
	(0.232)	(0.388)	(0.823)	(0.783)	(0.441)	(0.055)
Stable female care*Egalitarian	0.071	-0.137	-0.064	0.069	0.203	-0.047
	(0.774)	(0.544)	(0.779)	(0.759)	(0.368)	(0.835)
N	296	447	295	446	296	448
R2	0.3503	0.2949	0.3999	0.3354	0.4046	0.3553

p-values in parentheses

* p<0.05, ** p<0.01, *** p<0.001

Source: Pairfam 11 and coronavirus survey