DEMOGRAPHIC RESEARCH
A peer-reviewed, open-access journal of population sciences

DEMOGRAPHIC RESEARCH

VOLUME 51, ARTICLE 3, PAGES 49–80
PUBLISHED 18 JULY 2024
https://www.demographic-research.org/Volumes/Vol51/3
DOI: 10.4054/DemRes.2024.51.3

Research Article

Lessons from the pandemic: Gender inequality in childcare and the emergence of a gender mental health gap among parents in Germany

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Demographic Research: Volume 51, Article 3
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Abstract

OBJECTIVE
This study investigates how changes in childcare arrangements affected parental mental health 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 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 partnered mothers and fathers interviewed before (2018–2019) and after (2020) the onset of the pandemic. We ran change score regression models to examine (1) whether changes in gender inequality in childcare arrangements predict within-changes in mental health among mothers and fathers, and (2) whether gender role attitudes moderate this association.

RESULTS
Systematic mental health differences can be pinpointed at the intersection of gender inequality in childcare and gender role attitudes. Women in stable female childcare arrangements in which the mother did relatively more childcare and women who transitioned from non-female to female childcare arrangements experienced the largest mental health declines. This association was particularly salient among women with egalitarian attitudes. Men in these childcare arrangements either experienced no change

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or even improvement in certain mental health dimensions. By contrast, sharing childcare was mentally beneficial for both mothers and fathers in this global health crisis.

CONCLUSION
Gender inequality in childcare is a risk factor for women's health, particularly during times of shifting patterns in employment and childcare arrangements.

CONTRIBUTION
Taking lessons from the pandemic, policymakers should acknowledge the disproportionate burden that mothers carry when institutional childcare and schooling are unreliable. Accordingly, the unfolding childcare crises in Germany and beyond need to be tackled from a gender-sensitive perspective.

1. Introduction

The COVID-19 pandemic was a quasi-natural experiment that showed us what the world might look like if access to formal schooling and childcare – which are necessary for many families, especially working mothers – was not reliably available. Several countries throughout the world implemented public health measures to slow the virus's spread, such as closing schools and childcare facilities. Pre-existing gendered labor and childcare divisions and cultural expectations concerning the roles of mothers and fathers led to distinct responsibilities being assigned to mothers and fathers in response to increased childcare demands following the onset of the pandemic. This increased the likelihood that mothers would bear the cost of providing childcare when there was no institutional option. In fact, mothers were three times more likely than fathers to shoulder the majority of the additional unpaid childcare during the pandemic in all OECD countries: 65% of mothers of children under age 12 reported that they took on the majority or entirety of the additional childcare, compared to 22.4% of fathers (OECD 2021).

In an attempt to 'flatten the curve' and to slow down the spread of the SARS-CoV2 virus, childcare and school closures increased mental health inequalities within populations. Early in the pandemic, in Germany, a noticeable disparity in mental health emerged between individuals in different household structures, which was particularly large among parents of minor children who were living together (Hiekel and Kühn 2022). Studies investigating changes in individual mental health consistently found that declines were steeper for mothers than for fathers, and were greater the younger the children (Etheridge and Spantig 2022; Hipp and Bünning 2021; Huebener et al. 2021; Pierce et al. 2020; Vicari, Zoch, and Bächmann 2022; Zamarro and Prados 2021).

There may be a connection between the two observations – gendered patterns in the division of increased childcare demand and growing mental health disparities between mothers and fathers. Hence, gender inequality in childcare responsibilities may have put mothers at greater risk of declining mental health than fathers when navigating their family through a pandemic.

We formulated the first research question as follows: In the German setting, how did parents split childcare owing to school and daycare closures during the pandemic and how does this relate to disparities between mothers' and fathers' mental health? By tracking persistence and change in parents' childcare arrangements before and during the early months of the pandemic in Germany, we empirically determine if the experience of school and daycare closures affected the mental health of mothers and fathers in the same way.

When suggesting a connection between gender inequality in childcare arrangements and the mental health outcomes of mothers and fathers, it may be crucial to consider individual perceptions of gender equality. Depending on their views on gender roles, women and men may evaluate gender inequality in childcare arrangements differently. Parents with egalitarian gender role attitudes consider childcare a joint responsibility, while parents with non-egalitarian gender role attitudes assign more childcare responsibilities to the mother. Thus, when gender inequality in childcare arrangements persisted or increased during the pandemic, women (and men) who held gender-egalitarian attitudes may have experienced larger declines in mental health because their desired and lived realities did not converge. However, to date an empirical investigation of how gender role attitudes shaped the association between changes in parents' childcare arrangements and their mental health is lacking. We therefore formulated a second research question: How did gender role attitudes affect the relationship between the division of childcare and mothers' and fathers' mental health during the pandemic in Germany? In order to achieve this, we looked into the degree to which pre-pandemic gender role attitudes account for variance in the mental health outcomes linked to changes in the division of childcare responsibilities.

This research builds on earlier studies that have examined the relationship between gender and mental health during the COVID-19 pandemic. Only one study, based on UK data, was empirically able to test hypotheses relating changes in childcare arrangements to changes in mental health (Etheridge and Spantig 2022), despite the fact that the theoretical arguments are made in most studies addressing mental health disparities between mothers and fathers during the pandemic. Studies (Hipp and Bünning 2021; Li et al. 2022; Vicari, Zoch, and Bächmann 2022) that look at the possible contribution of gender inequality in childcare to the different mental health outcomes of mothers and fathers were unable to take couples' pre-pandemic childcare arrangements into account, putting them at risk of reporting biased estimates due to unobserved heterogeneity.

Lastly, to investigate these associations the bulk of these studies (Huebener et al. 2021; Li et al. 2022; Pierce et al. 2020) use online non-probability samples. Research on a variety of areas, including health behavior, has shown that probability samples are more accurate than non-probability samples (Cornesse et al. 2020).

We use data from the German Family Panel (pairfam) on partnered mothers and fathers in Germany, collected between the end of 2018 and beginning of 2019, and from an additional web survey conducted in spring 2020. The unique advantage of this extensive data set is the self-reported measures of (a) mental health covering three dimensions (stress, exhaustion, loneliness), (b) childcare arrangements with the partner, and (c) gender equality attitudes one year prior to the pandemic. The data collection at the onset of the pandemic (May–July 2020 with the majority of interviews being completed by mid-June) coincides with the period in which schools and childcare facilities were closed throughout Germany (mid-March to June), while a quarter of German employees worked remotely, double pre-pandemic levels (Federal Statistical Office of Germany 2022). We contend that parents bore the full burden of childcare during this phase of the pandemic (or public health response), even though many of them continued paid work at the same time. Thus, this period of data collection had a significant impact on the daily lives of the population we study.

We investigated the relationship between changes in the division of childcare and intra-individual shifts in mental health using change score analysis based on the two measurement time points: pre-pandemic ($t1$) and during the pandemic ($t2$).

Learning from the pandemic is crucial research for policy-making. The conditions under which families navigated the pandemic undoubtedly had unique features, such as restricted contact beyond the household, that limited both formal and informal support. Still, the pandemic teaches us whether and how a childcare crisis affects the mental health of parents differently depending on how the division of childcare is negotiated when facing a structural constraint in childcare services and support.

2. Background

A body of literature established prior to the pandemic links gender inequality in childcare to mental health differences between mothers and fathers. These studies have shown that one parent having more care responsibility than the other parent is associated with lower mental health, especially for (full-time) working mothers (Bianchi and Milkie 2010). Seminal work by Hochschild (2012) not only describes how most couples share childcare gender-unequally despite women's increased participation in the labor force, but also how these day-to-day routines affect them in terms of feelings of guilt and inadequacy,

low relationship quality, lack of sexual interest, sleep deprivation, and the role of gender ideologies that link these behaviors and their perception.

In contemporary societies in which both fathers and mothers tend to fulfil at least one role other than that of caregiver, namely working in a paid job, the association between inequality in the division of childcare and mental health outcomes results in role strain and role conflict. Role strain describes "the felt difficulty in fulfilling role obligations" (Goode 1960: 483). It tends to occur when individuals experience pressure to engage in contradictory activities and thus experience conflicts of time, place, or resource allocation. Family-to-work (FWC) and work-to-family conflicts (WFC) are spill-over effects that occur when the demands of the two spheres interfere with each other in terms of time, place, and resources.

Goode argues that role conflict and role strain can be reduced by either abandoning a role or obtaining a better bargain in a given role (Goode 1960: 486). Parents may feel that the coping strategy of formal withdrawal (i.e., role leaving) from caregiving is neither accessible or desirable. Thus, the only option to resolve role strain and conflict may be role bargaining, or renegotiating how to share the caregiving role with the child's other parent. Unsuccessful bargaining and hence receiving low levels of support from the partner may have detrimental consequences for the mental health of the person experiencing role strain and conflict (Michel et al. 2011; van Daalen, Willemsen, and Sanders 2006).

So far we have argued that in their role as caregivers, mothers and fathers may experience role strain and role conflict, which to reduce or resolve requires (re)negotiation of the division of childcare between partners. Unsuccessful bargaining is argued to be detrimental for mental health outcomes. Persistent or increasing inequality in childcare arrangements during a situation in which childcare demands have suddenly increased is an example of unsuccessful bargaining. 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 to 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 ruled out informal support from outside the family's own household. Nine out of ten 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 caregivers 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 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).

When seeking to understand the associations between inequality in the division of childcare and mental health outcomes, using a gender lens is inevitable (Xue and McMunn 2021). Along with deeply engrained gendered patterns of paid labor following the transition to parenthood and the predominance of gendered norms in who is deemed 'better' at raising children, in Germany gender disparities in the division of unpaid work between partners predate the pandemic. Such gendered patterns in the division of unpaid work are manifested in women taking on more responsibility for housework and childcare, even among couples that divide paid work equally (Sullivan 2019). Generally, German mothers are less likely than fathers to be tied to the workforce and more likely to adjust their work schedules in response to unexpected care needs (Musick, Bea, and Gonalons-Pons 2020). In both eastern and western Germany, part-time employment is by far the most prevalent employment status for mothers as it allows them to combine employment and family care (Konietzka and 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 on regular childcare (Federal Statistical Office of Germany 2016). Using the same data and an almost identical sample as the present study, Jessen et al. (2022) found that prior to the pandemic more than two-thirds of parents reported that the mother provided most or all of the childcare. Thirty percent reported sharing child care equally, while only 3% indicated that childcare was provided mostly or completely by the father.

Empirical studies have revealed the stark persistence of gender-unequal care arrangements in Germany after the onset of the pandemic. Again, Jessen and colleagues (2022) found that the predominantly female childcare arrangement persisted among German parents. The observation masks evidence indicating that the share of mothers providing "most" of the childcare decreased (–13%) and the share of mothers providing "(almost) all" of the childcare increased (+8%). These findings suggest that conditions during the pandemic did not foster greater gender equality in childcare arrangements. Instead, for a large majority of partnered mothers, their role as the primary carer persisted or they became the sole childcare provider.

So far we have argued that persistent and growing inequality in the division of childcare in the family is linked to mental health because of the unresolved role strain and conflict that an unequal division of childcare implies, all other things being equal (i.e., employment status, working hours, remote working and changes therein, age,

educational degree). This association may have been exacerbated during the early months of the pandemic because of pre-pandemic inequality in the provision of childcare between mothers and fathers and the sudden and publicly seldom-discussed withdrawal of the government as a provider of institutional childcare and schooling. Parents had to find individual solutions to provide the additional childcare resulting from the nationwide closure of daycare and schools.

In the following we formulate a hypothesis that argues that persistent or growing inequality in partnered mothers and fathers' relative contribution to childcare will have detrimental mental health outcomes for the disadvantaged partner, all else being equal.

2.1 The gender childcare gap hypothesis

A couple's childcare arrangement at any point in time *t* is either equal (i.e., both partners contribute equally to the provision of childcare) or unequal (i.e., one partner provides more childcare than the other). Comparing a couple's childcare arrangement at two points in time *t*1 and *t*2 results in four different combinations: (1) stable unequal (one partner provides more childcare than the other), (2) stable equal (both partners contribute equally to the provision of childcare), (3) more unequal (the couple switches from an equal to an unequal care arrangement) and (4) more equal (the couple switches from an unequal to an equal care arrangement). Based on previous research we expect these patterns to be highly gendered. In the majority of cases combinations 1 and 3 are childcare arrangements in which the mother (1) is or becomes (3) the primary caregiver, and combination 4 usually implies that the mother is sharing the role more equally with her partner and is no longer the primary caregiver. We therefore use the term 'female childcare arrangement' to describe a childcare arrangement in which the mother provides more childcare than the father. The term 'non-female childcare arrangement' describes a childcare arrangement in which the mother and the father provide similar levels of childcare or a childcare arrangement in which the father provides more childcare than the mother. We formulate gender-specific hypotheses regarding mental health outcomes because the same childcare arrangement has different implications for men and women regarding potential role conflict and strain.

A stable female childcare arrangement implies that the significant amount of additional childcare that parents took on during the pandemic was either added to the mother's already larger care burden or that the overall distribution of the childcare responsibilities between the partners remained unequal even when the father provided some of the care. While the former situation increases the mother's risk of role strain the latter does not provide significant relief from exposure to role strain. Women in a stable female childcare arrangement were most likely to reach a tipping point where their mental

resilience diminished. Men in these childcare arrangements continued to experience less risk of role strain and related mental health outcomes.

Similar to their counterparts in a persistent female childcare arrangement, women whose childcare arrangements became less gender-equal because they switched from a non-female childcare to a female childcare arrangement during the pandemic may have experienced increased role strain that negatively affected their mental health. Compared to the pre-pandemic period, men in such care arrangements had no (additional) childcare and may have experienced no change or even improved mental health.

By contrast, among women and men who experienced greater gender equality because they switched from a female childcare to a non-female childcare arrangement during the pandemic (usually 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 experienced less (additional) role strain they may have also experienced less severe mental health decline or even mental health improvement. Fathers, however, were exposed to more role strain, and might therefore have experienced mental health declines.

Women and men who shared childcare more equally prior to the pandemic and thus were in a stable non-female childcare 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 that fostered resilience to a decline in mental health. Compared to their counterparts in more gender-unequal childcare arrangements, we expect that these women and men experienced smaller declines in mental health during the pandemic.

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

Hypothesis 1a: After the onset of the pandemic, mothers in any type of female childcare arrangement experienced declining mental health. Mental health declines among mothers were larger for those in a stable female childcare arrangement and those who experienced a shift from a non-female childcare to a female childcare arrangement and smaller for those who experienced a shift from a female childcare to a non-female childcare arrangement.

Hypothesis 1b: After the onset of the pandemic, fathers who experienced a shift from a female childcare to a non-female childcare arrangement experienced mental health declines. Fathers in a stable non-female childcare arrangement also experienced mental health declines. Fathers in a stable female childcare arrangement and those who experienced a shift from a non-female childcare to a female childcare arrangement experienced improved mental health.

2.2 The gender role attitude hypothesis

Although gender role attitudes shape behavior by influencing parents' actual childcare arrangements (Davis and Greenstein 2009; Pollmann-Schult 2016), women's labor market attachment (Steiber and Haas 2009), and couples' division of housework (Aassve, Fuochi, and Mencarini 2014) and childcare (Monna and Gauthier 2008), parents' gender role attitudes do not always match their actual childcare arrangements. Even couples who say that they intend to share childcare equally before they become parents rarely do so after they have a child (Grunow and 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% of parents with children below age 3 would prefer an egalitarian division of labor but only 14% actually 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, and 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 childcare (or not) during school and daycare closures are most likely driven by pragmatism rather than gender role attitudes.

Gender role attitudes may influence how women and men evaluate gender inequality in their childcare arrangements, and how they perceive role strain and its proposed association with mental health (Stevenson and Wolfers 2009). This is because different gender role attitudes imply varying benchmarks that women and men have for how childcare 'ought' to be distributed (Gager and Hohmann-Marriott 2006). Greenstein (1996) argues 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 disadvantage or advantage in how childcare is divided as legitimate, whereas such perceptions might clearly defy the ideals that egalitarian individuals hold with respect to labor allocation (Blom, Kraaykamp, and Verbakel 2017).

This implies that being in a persistent female childcare arrangement or experiencing a shift to a female childcare 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 propose two gender-specific hypotheses:

Hypothesis 2a: The association between mental health and being in a stable female childcare arrangement or experiencing a shift toward a female childcare arrangement is stronger for egalitarian mothers than for non-egalitarian mothers.

Hypothesis 2b: Egalitarian fathers are less buffered by or benefit to a smaller degree from being in a stable female childcare arrangement or experiencing a shift from a non-female childcare to a female childcare arrangement.

3. Data and sample

The Panel Analysis of Intimate Relationships and Family Dynamics (Pairfam) is a large, nationally representative, prospective study of German adults that has been running since 2008–2009 (Brüderl, Drobnič, and Hank 2022; Huinink et al. 2011). Currently, there are 14 annual regular panel waves representative of three German birth cohorts (1971–1972, 1981–1983, and 1991–1993, 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, these items were measured during school and daycare closures, in which the mechanisms that are argued to underly the association between childcare arrangements and mental health were particularly salient. Finally, it contains information on individual gender role attitudes.

The fieldwork of the regular 12th panel wave had to be paused in March 2020 during the pandemic because interviewers could no longer visit the participants' homes to conduct 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. 3,154 of the eligible 9,640 respondents completed the so-called Corona survey. Most of the data was 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 non-probability samples, as many COVID-19-related studies on mental health did. However, switching from face-to-face to online data collection introduces possible bias due to selective participation in the optional add-on. Women, members of the younger sampled cohorts, 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 coresidents, 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 851 partnered parents (518 mothers and 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 1 for stress, by 4 for loneliness, and by 2 for exhaustion. Furthermore, to the question on the division of childcare, parents of older children especially responded 'does not apply to us.' That reduced our sample by a further 43. Our final analytical sample comprised 481 women and 322 men living with minor children and a partner in Germany.

4. Measurements

Dimensions of mental health: In order to consider pre-pandemic differences in dimensions of mental health we investigated intra-individual changes, and thus focused on those dimensions 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 comes from the UCLA loneliness scale developed by Russell, Peplau, and 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 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 *t*1. A value of 0 indicated no change, negative values indicated a decline in stress, exhaustion, and loneliness between *t*1 and *t*2, and positive values indicated an increase in these dimensions.

Changes in childcare 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 childcare. We collapsed values 1 and 2 to 'my partner' and 3 and 4 to 'myself', as they describe situations in which either the respondent or the partner had a childcare load higher than that of the other, while value 3 remained as '50/50.' In order to tackle changes in childcare arrangements we combined the reports from pre-pandemic (*t*1*)* and pandemic (*t*2*)*. Given the predominantly female childcare organization in German households, we distinguished between 'female childcare' and 'non-female childcare,' and considered whether the childcare arrangement was stable or shifting between *t*1 and *t*2 (Table 1). Respondents who reported a split of about 50/50 in *t*1 and *t*2 were categorized as having a stable non-female childcare arrangement (the reference category). We also grouped female respondents as having a stable non-female childcare arrangement if they reported either 'my partner' in *t*1 and *t*2 or 'my partner' in *t*1 and 'split about 50/50' in *t*2 or vice versa. Male respondents were grouped in this category if they reported 'myself' in *t*1 and *t*2 or 'myself' in *t*1 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 childcare 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 *t*1 and either 'my partner' or a 'split about 50/50' in *t*2 and male respondents who reported 'my partner' in *t*1 and either 'myself' or a 'split about 50/50' in *t*2 were categorized as having experienced a change from female childcare to non-female childcare.

Conversely, female respondents who reported either 'my partner' or a 'split about 50/50' in *t*1 and 'myself' in *t*2 and male respondents who reported 'myself' or a 'split about 50/50' in *t*1 and 'my partner' in *t*2 were classified as having experienced a shift

from a non-female childcare arrangement in *t*1 to a mainly female childcare arrangement in *t*2, and thus as having experienced a change from non-female childcare to female childcare. Respondents who reported having a predominantly female childcare arrangement in *t*1 and *t*2 were categorized as having a stable female childcare arrangement.

Table 1: Care arrangement transitions between the pre-pandemic and pandemic periods

Pre-pandemic	Fathers			Mothers		
	Pandemic					
	My partner	50/50	Myself	My partner	50/50	Myself
My partner	71.6%	25.9%	2.5%	25.0%	25.0%	50.0%
50/50	22.6%	67.8%	9.6%	7.1%	57.1%	35.7%
Myself	10.0%	50.0%	40.0%	3.6%	17.2%	79.2%
Stable non-female childcare arrangement						
Female to non-female childcare arrangement						
Non-female to female childcare arrangement						
Stable female childcare arrangement						

Gender role attitudes: In the pre-pandemic data collection, respondents were asked 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.

A child under 6 will suffer from having a working mother.

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 the third item were recoded so that lower values indicated more egalitarian views. The index was created by obtaining the mean score of all items. We dichotomized the variables and categorized respondents who answered 'disagree' or 'disagree completely' as holding egalitarian gender role attitudes. 35% of respondents in our sample were categorized as 'egalitarian' and 65% as 'non-egalitarian.' Using a dichotomized measurement of gender egalitarianism allows estimating a more parsimonious model and eases the interpretation of findings, but comes at some cost. Dichotomization does not account for the extent of variation in the outcome of interest between the groups that are now lumped together in each of the two categories.

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 childcare arrangements. Together 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 childcare load that parents took 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) unemployed.

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–family conflict for the person concerned. Additional stressors due to having reduced access to childcare services likely had an impact on parental mental health. Therefore, we considered increased working hours during the pandemic to be 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 between no change and different situations implying a reduction of working hours (i.e., due to part-time work, job loss, leave, overtime reduction). Furthermore, most respondents had their working hours reduced in a mandatory part-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).

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 childcare 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.

The 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.

The age of the youngest child was included as a control variable in order to capture variation in the childcare 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 and Granström 2018). In addition, slightly more university-educated respondents participated in the Corona survey (Walper et al. 2021).

5. Analytical approach

We investigated the relationship between changes in the division of childcare and intra-individual changes in mental health with linear regression models (Allison 1990). Change scores in mental health were calculated based on the two measurement time points: pre-pandemic (*t*1) and during the pandemic (*t*2). 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 the association between childcare arrangements and mental health changes for women and men, we included the generated variable 'changes in childcare arrangements,' and controlled for cohort, education, and age of the youngest child. Baseline mental health for each dimension (at *t*1) was included in our models as the mean score variable in order to account for low mental health at *t*1 showing a lower decrease when approaching the floor of the scale, and vice versa for high mental health at *t*1 showing a lower increase when approaching the ceiling of the scale (Mattes and 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 working remotely at least partially (Figure 1, Table S2).

To test Hypotheses 2a and 2b regarding heterogeneity in the association between childcare arrangements and mental health and the role of gender role attitudes, we additionally included an interaction term between the type of childcare arrangement and gender role attitudes (Figure 2, Table S3).

We replicated all models using calibrated design weights recommended by the data provider (Wetzel, Schumann, and Schmiedeberg 2021). Comparing weighted and unweighted results reveals that the impact of weighting is close to zero. We are thus confident that our results are not biased due to selection into the survey and accumulated selective participation over the course of the panel data collection.

6. Results

Table 2 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 indicate a decrease in stress levels for fathers and an increase for mothers between the pre-pandemic and the pandemic period. Exhaustion and loneliness increased slightly for both fathers and mothers between the pre-pandemic and the pandemic period.

Table 2: 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 childcare to non-female childcare	17.2		14.4	
Stable non-female childcare	26.4		19.6	
Non-female childcare to female childcare	8.8		11.3	
Stable female childcare	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	
Unemployed	4.7		9.8	
Pandemic-related change in employment/work				
Working hours increased (d)	7.6		8.3	
Working remotely (d)	52.4		37.8	
Cohort				
1991–1993	4.7		4.4	
1981–1983	55.3		67.4	
1971–1973	40.0		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	
Medium	30.8		40.8	
High	66.2		57.2	
Observations	322		481	

Note: Dummy variables indicated with d.

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 childcare arrangement,' while 30.7% of fathers and 19.6% of mothers reported having a 'stable non-female childcare arrangement.' Moreover, 17.3% of fathers and 14.4% of mothers reported experiencing a shift from a female childcare to a non-female childcare arrangement, and 8.4% of fathers and 11.3% of mothers reported experiencing a shift from a non-female childcare to a female childcare arrangement.

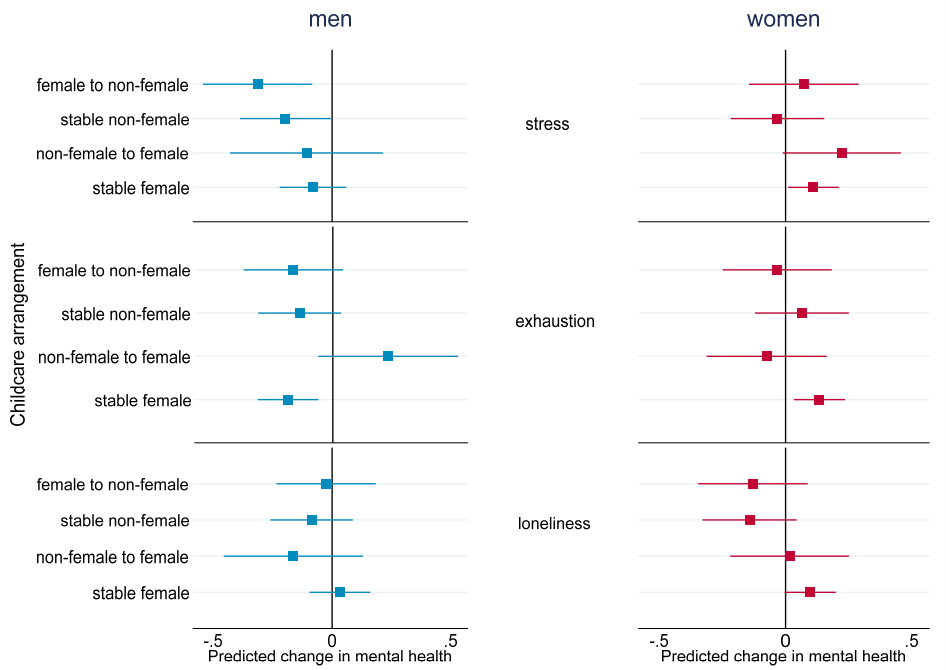
About 36.5% of the male and 33.9% of the female respondents were classified as holding egalitarian gender role attitudes. The vast majority (89.2%) of the male sample were in full-time employment, while in the female sample 50.5% were in part-time employment and 22.7% were in full-time employment. Only 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 plots the results of three regression models predicting mental health disparities along the three dimensions of the mental health of fathers (left panel) and of mothers (right panel), expressed as marginal effects. The x-axis plots the predicted changes in levels of stress, exhaustion, and loneliness. The value 0 refers to no change, while negative values indicate decreases and positive values indicate increases in levels of stress, exhaustion, and loneliness after the onset of the pandemic compared to prior to the pandemic. The y-axis distinguishes the four care arrangements. We present the results of the full regression models in the supplement to this paper (Table S2).

In Hypothesis 1a we formulated the expectation that mothers in any type of female childcare arrangement experienced mental health declines. We moreover expected mothers who experienced growing gender inequality in their childcare arrangement (i.e., shifting from non-female childcare to female childcare arrangement) to respond with larger decreases in mental health compared to mothers who experienced a reduction in gender inequality in their childcare arrangement (i.e., shifting from female childcare to non-female childcare arrangement).

Mothers in a stable female childcare arrangement did report increasing levels of stress (0.11), exhaustion (0.13), and loneliness (0.10) compared to prior to the pandemic. 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 childcare arrangement. The increase in exhaustion in the women's sample was 0.50, which implies a modest increase in exhaustion for the mothers in this group.

Figure 1: Estimates and 95% confidence intervals for predicted mental health disparities among 803 fathers and mothers, by childcare arrangement



Mothers who experienced a shift from a non-female childcare to a female childcare arrangement during the pandemic reported increased levels of stress (0.22), but not exhaustion and loneliness.

Mothers who experienced a change from a female childcare to a non-female childcare arrangement – whose partner did more childcare than pre-pandemic – did not report changes in their mental health outcomes. We also found no evidence for changed mental health outcomes in the group of mothers in a stable non-female childcare arrangement, who continued to share childcare equally after the onset of the pandemic. This finding suggests that this group may have had higher levels of resilience to declines in mental health when the care burden increased.

In Hypothesis 1b we formulated the expectation that fathers who experienced a shift from a female childcare to a non-female childcare arrangement experienced mental health declines after the onset of the pandemic. We also expected mental health declines among

fathers in a stable non-female childcare arrangement. Fathers in a stable female childcare arrangement and those who experienced a shift from a non-female childcare to a female childcare arrangement experience improved mental health (Hypothesis 1b).

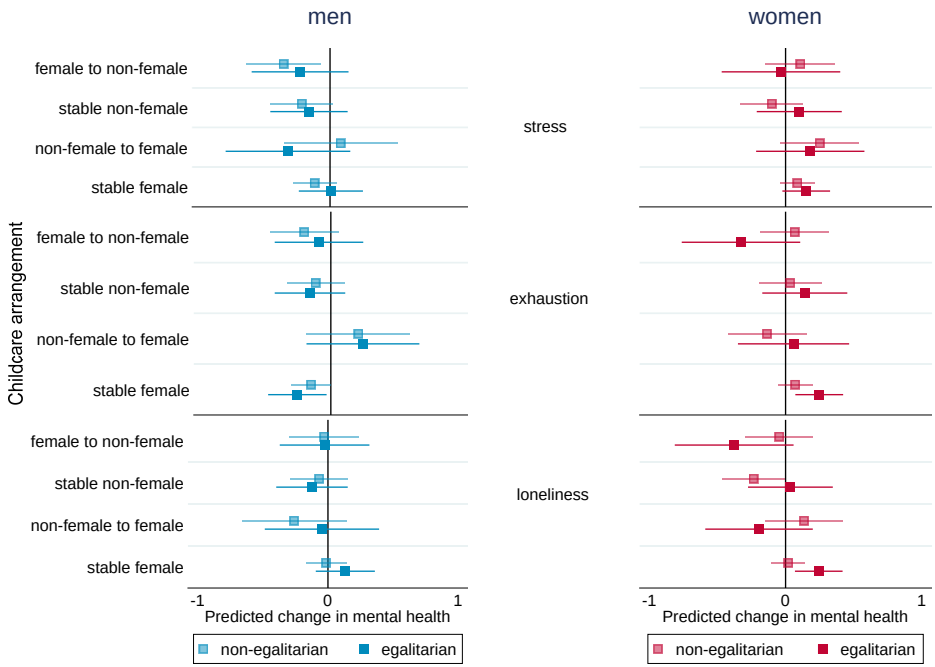
Fathers in a stable non-female childcare arrangement, who continued to share childcare equally with their partner, reported decreasing – not increasing as expected in Hypothesis 1b – levels of stress (–0.19), exhaustion (–0.14), and loneliness (–0.08) after the onset of the pandemic, although the standard errors of the point estimates are relatively large. Similarly, fathers in a stable female childcare arrangement, whose partner continued to take on most of the additional childcare duties during daycare and school closures, experienced a decreased level of exhaustion (–0.19). This effect can be considered a sizable decline given that the overall increase in levels of exhaustion for men in our sample was close to zero. We found no evidence of changed mental health for fathers who were relieved of childcare after the onset of the pandemic. Overall, the findings suggest that men who continued to share childcare equally with their partner experienced greater levels of resilience to declines in mental health when the care burden increased. Fathers who benefitted from their partner continuing to handle most of the childcare experienced a decline in levels of exhaustion during the early months of the pandemic.

Next, we examined possible heterogeneity in the association between childcare arrangements and the mental health trajectories of fathers and mothers according to 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 attitude. We present the results of the full regression models (the β coefficients) in the supplement to this paper (Table S3*)*.

Hypothesis 2a proposed that women who reported increased or persistent gender inequality in their childcare 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 childcare 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 childcare arrangement exhibited the predicted change in mental health that was equal to zero, the egalitarian women in this group exhibited increases in the predicted levels of stress (0.15), exhaustion (0.25), 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 childcare to a non-female childcare arrangement during the pandemic exhibited a decrease in the predicted levels of exhaustion (–0.21) and loneliness (–0.38) compared to the pre-pandemic period. While women with non-egalitarian attitudes did not benefit from

reduced childcare 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 2: Estimates and 95% confidence intervals for predicted mental health disparities among 803 fathers and mothers, by childcare arrangement and gender role attitude



Hypothesis 2b proposed that for men, experiencing persistent or increased relief from childcare and the implied role strain would be less beneficial for 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 childcare arrangement the predicted levels of change in stress were equal to zero, indicating no change, while for non-egalitarian men in this care arrangement, stress levels declined. 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 childcare arrangement during the pandemic.

7. Discussion

The COVID-19 pandemic has cast a spotlight on a looming childcare crisis across the globe. In a quasi-natural experimental setting, school and daycare closures, as an attempt to mitigate the spread of the virus, revealed how couples react when institutional childcare is no longer available or is unreliable. Mothers took on a disproportionate part of the additional childcare in addition to their already higher share (OECD 2021). In this study we investigated the mental health consequences of persistence and change in gender inequality in unpaid childcare. 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 examines 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 change in mothers' and fathers' mental health in three dimensions: levels of stress, exhaustion, and loneliness. First, we argue that gender inequality in couples' childcare arrangements may be the driving factor behind the established finding that, overall, mothers responded with larger declines in mental health than fathers when guiding their families through a pandemic. Second, we argue that gender role attitudes may have moderated the association between the persistence of and changes in gender inequality in childcare and the gender gap in mental health. By doing so, we empirically acknowledge that the experience of guiding their families through a pandemic did not affect all parents univocally, and did not even affect all women and men the same way.

The first key finding based on the comparison of pre-pandemic and pandemic childcare arrangements reported by mothers and fathers was that the pandemic was not the grand equalizer in terms of the division of care 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 (e.g., Etheridge and Spantig 2022; Hank and Steinbach 2021; Hipp and Bünning 2021; Jessen et al. 2022; Zoch, Bächmann, and Vicari 2021). The strong gender-based segregation of labor market behaviors and the predominant gender norms regarding the childcare roles of mothers and fathers prior to the pandemic did not provide a favorable starting point for women and men to renegotiate childcare more equally during this global health crisis. The changes in parental childcare 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 only the female partner was working from home during the spring lockdown (Jessen et al. 2022).

The second key finding is that both persistent female childcare and the growing gender inequality in parental childcare 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. Our results revealed that the largest increases in exhaustion and loneliness were among mothers in a persistent female childcare arrangement. For these women, their relative share of childcare before the pandemic increased by the absolute amount of additional childcare needed during the school and daycare closures. Thus, the mental health toll was larger for women who continued to take greater childcare responsibility than their partner.

Across all childcare arrangements, stress levels increased more than those of mothers in a persistent female childcare arrangement only for mothers who experienced a change from a non-female childcare to a female childcare arrangement. As in most of the non-female childcare arrangements there was a 50/50 split, this result suggests that giving up a gender-equal care arrangement during a care crisis led to an increase in feelings of stress for the partner who was suddenly performing most of this unpaid labor, and who in the vast majority of cases was the mother. Gender inequality in childcare is thus an important determinant of women's time poverty and a risk factor in women's health. Given that most of the fathers and mothers in our sample reported having a persistent female childcare arrangement, these findings provide empirical evidence on the largest group of mothers in Germany, and might reflect the adverse health consequences that mothers experienced during the pandemic and potentially more generally, in the absence of reliable childcare.

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

A third key finding is that both women and men benefit from gender equality in childcare. Sharing the caring made both women and men more resilient to declines in mental health when schools and daycare centers were closed. Gender equality in childcare

is thus a health-promoting behavior, particularly for women, that likely extends to the wellbeing of the children being cared for.

This study also addressed the question of whether experiencing a persistent female childcare arrangement or a shift from non-female childcare to female childcare arrangement was more detrimental to mothers and fathers with egalitarian gender role attitudes than those with traditional gender role attitudes. Consistent with our expectations, we found that the association between inequality in parental childcare 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 childcare was unequal and benefited more when the division was equal than their non-egalitarian 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 and Steinbach 2021; Neubacher 2020).

Our analysis of gender role attitudes not only revealed that parents' childcare 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 public health interventions implemented in spring 2020 radically called into question and further constrained the desired way of life and expectations of these women, leaving 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 declining mental health. This is a concerning finding, given that the mismatch between desired and lived realities regarding gender-egalitarian childcare practices is particularly large in Germany, with egalitarian women who perform more childcare than their partner comprising a significant share of the female population, (German Federal Ministry for Family Affairs 2017).

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

The relative approach we used to capture the childcare 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 childcare arrangements took on the greater 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 childcare is an important determinant of women's time poverty in societies in which the relative distribution of childcare lags 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 are 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 collected data; 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 formulated hypotheses, 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 were robust to different specifications of the variables used to test our hypotheses.

The pandemic taught us how in the context of Germany persistent gender inequality in paid and unpaid labor led to gendered patterns in how parents accommodate unreliability in formal childcare provision, with one outcome being gendered health outcomes to the disadvantage of those partnered women who provide the bulk of the childcare for their children. The other side of the coin is that our findings show that unreliable institutional childcare had no effect on mental health when partnered mothers and fathers reported a persistent equal childcare arrangement; i.e., the additional burden did not fall predominantly on mothers but was distributed equally between both partners or fell predominantly on the fathers' shoulders (who tended to carry a lower burden in pre-pandemic times).

The findings from this study are relevant beyond understanding the consequences of the pandemic for the state of gender equality in the realms of childcare and mental health. Despite the relatively short duration of the COVID-19 pandemic, its intensity and universality shined a spotlight on existing inequalities in gender and childcare that were exacerbated and will remain for years to come. In Germany and many other countries a childcare crisis is currently unfolding that has outlived the pandemic and will affect

families in the decades to come. Difficulties in the childcare sector in terms of funding, staffing levels, recruitment and retention, gender imbalance, and an aging workforce, which had already led to imbalances in childcare arrangements among parents, were only made worse during the global crisis. Germany lacks more than 300,000 skilled childcare workers who are needed to meet childcare demand and ensure appropriate child-to-staff ratios, a number that is expected to grow due to underfunding and an aging workforce, and challenges to recruiting and retaining the workforce (Bertelsmann-Stiftung 2022).

Moreover, parents may experience less generous support from employers when navigating unreliable childcare when childcare services reduce their hours of service. As a consequence, women may (further) reduce their working hours more than men or may even withdraw from the labor market altogether in order to compensate for the lack of public childcare and schooling and to maintain work–family conflict and its consequences for their mental health at a manageable level. These developments are in sharp contrast to the aims of the family policy reforms implemented in Germany the early 2000s, namely to give particularly mothers with young children incentives to return to the labor market much faster than in the past. Thus, a childcare crisis potentially sets societies back in terms of one crucial dimension of gender equality: equal gender access to – and participation in – the labor market. Therefore, policymakers need to address the obstacles that face mothers when combining work and family responsibilities.

Author contributions

Authors contributed equally and are listed alphabetically.

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