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## Childcare, work or worries? What explains the decline in parents' well-being at the beginning of the COVID-19 pandemic in Germany?

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### Abstract

**Objective:** We examine how care arrangements, general and altered working conditions, and worries influenced subjective well-being at the onset of the COVID-19 pandemic for working parents in Germany.

**Background:** Prior research suggests several reasons for declines in subjective well-being, particularly for working mothers. We employ Pearlin's (1989) stress process model to explore the role of parental childcare, altered working conditions and amplified worries of working parents in terms of increased stressors and modified resources to cope with the extraordinary situation.

**Method:** We use data from two starting cohorts from the National Educational Panel Study and its supplementary COVID-19 web survey from spring 2020 to examine possible heterogeneities in contextual factors for individual-level changes in the well-being of working mothers and fathers.

**Results:** We confirm a more pronounced decline in well-being for working mothers than fathers. Part-time work and access to emergency care reduce the gender gap in decreased well-being. Conversely, young children in the household and personal worries are associated with lower well-being for both parents. However, we cannot explain the more significant decrease in mothers' well-being by increased childcare responsibilities or altered working conditions.

**Conclusion:** A greater decline in well-being indicates a particular burden among working mothers. However, it cannot be linked solely to gendered inequalities in the changes of paid and unpaid work during the first months of the pandemic.

**Key words:** childcare, life satisfaction, gender division of labour, coronavirus crisis, NEPS-C



## 1. Introduction

COVID-19 pandemic-related closures of schools and public childcare have shaken established options for balancing work and family life worldwide. Parents had to reorganise their children's care and schooling on short notice while simultaneously facing tremendous changes at their workplace, such as job loss, remote work or longer working hours in occupations with increased demand. Moreover, with enforced distancing rules, parents had to balance the increased challenges of combining work and family roles without the support of public childcare or their social networks, such as grandparents, relatives, and friends (Alon et al. 2020; Collins et al. 2020; Li et al. 2021; Zhou et al. 2020; Zoch et al. 2021a). Drawing on Pearlin's stress process model (1989), the measures to contain the virus, altered working conditions, time constraints, role conflicts and the necessarily renegotiated division of paid and family work within couples can be interpreted as new stressors and ceased or modified resources in daily life routines—factors that are supposed to reduce mental health and well-being (Li et al. 2021). Indeed, recent research provides evidence for decreased well-being across different social groups (Nieuwenhuis & Yerkes 2021; Zhou et al. 2020) and contexts (e.g., Banks et al. 2021; Giurge et al. 2020; UN Women 2020).

Prior studies suggest important gender differences in altered life satisfaction (e.g., Huebener et al. 2021; Zoch et al. 2021b) due to heterogeneous pandemic effects for men and women. First, women were more substantially hit by labour market disruptions and gender-specific changes in working conditions such as job losses, altered working hours or working remotely (Alon et al. 2020; Collins et al. 2020; Feng & Savani 2020; Frodermann et al. 2020; Hammerschmid et al. 2020; Hipp & Bünning 2021; Möhring et al. 2021; Nieuwenhuis & Yerkes 2021; Peck 2020; Reichelt et al. 2021; Zhou et al. 2020). Second, women were more likely to face the double burden of reconciling paid and unpaid work than men. Although fathers significantly increased their portion of childcare, mothers continued to take on the lion's share of unpaid work (e.g., Del Boca et al. 2020; Farré et al. 2020; Fodor et al. 2021; Hipp & Bünning 2021; Huebener et al. 2021; Jessen et al. 2021a; Kreyenfeld et al. 2020; Kulic et al. 2020; Sevilla & Smith 2020; Zoch et al. 2021a). This burden has resulted in more frequent role conflicts for women, so it is not surprising that working mothers experienced the greatest declines in well-being (e.g., Giurge et al. 2021). However, most studies investigating pandemic-related changes in life satisfaction did not examine the interplay between the employment status of both partners, pandemic-related changes in parents' working conditions, and couples' division of childcare. Additionally, recent studies suggest that women have felt lonelier and were more concerned about the social and individual implications of the pandemic than men (Bünning et al. 2020; Czymara et al. 2021; Etheridge & Spantig 2020; Lie et al. 2021). Although gender differences in concerns and loneliness are likely related to the sharp increase in gender-specific stressors in work and family life, the link to altered well-being has hardly been investigated. Overall, studies combining several factors from different life areas to explain the gender gap in reduced well-being among working parents are limited.

This study investigates gender differences in subjective well-being (SWB) during the first months of the COVID-19 pandemic in Germany. We expand the existing literature by examining the role of (i) childcare arrangements in the presence of (ii) pandemic-related

changes in working conditions and (iii) the resulting worries and social implications for working parents. Therefore, we focus on working mothers and fathers who live with at least one child under age 14. Before the pandemic, children attended a public childcare facility or school. The observed parents were therefore particularly affected by the nationwide closure of schools and public childcare. Following the stress process model, we categorise the various contextual factors identified from previous research as increased stressors or modified resources. Specifically, we examine the decline in SWB for parents who acted as the primary caregiver and those who shared the care obligation with partners or informal networks. Additionally, we investigate the role of access to emergency childcare. During the pandemic, access to childcare is presumed to be particularly supportive in balancing work and family obligations.<sup>1</sup> Furthermore, we analyse the gender-specific relevance of working conditions for pandemic-related changes in SWB (e.g., Etheridge & Spantig 2020; Möhring et al. 2021). Similar to altered childcare arrangements, we consider these work-related factors to be increased stressors and modified resources that enable parents to cope with the exceptional situation of the pandemic. Additionally, we examine whether changes in work and family life have different effects on the well-being of dual-earner parents with two full-time working partners compared to couples with one partner – usually the women – working part-time. In this way, we further extend previous research and explore whether the earner model moderates the degrees of stress or modified resources, contributing to gender disparities in SWB changes. Finally, we explore whether the associations between the gender-specific changes in work and family life and reduced well-being are moderated by increased concerns and loneliness.

To investigate the gender gap in declined well-being, we combined longitudinal panel data from two Starting Cohorts of the National Educational Panel Study (NEPS) with a supplementary COVID-19 web survey of the NEPS respondents. By analysing in-person changes in SWB, we also add to previous cross-sectional research that was unable to explore the intraindividual changes in SWB (e.g., Hipp & Bünning 2021; Huebener et al. 2020).

## 2. Theoretical considerations and empirical evidence

### 2.1 *Explanations on subjective well-being*

To explain the pandemic-related changes in subjective well-being (SWB), we draw on Pearlin's *stress process model* (1989), differentiating between two central factors: strains and resources.<sup>2</sup> The first comprises sources of stress, such as difficulties in satisfying

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1 During the first months of the pandemic in Germany, children could access emergency care only if both parents worked in an "essential occupation", i.e., occupations ensuring the continuity of critical functions in a country.

2 Subjective well-being is often explained as "people's emotional responses, domain satisfactions, and global judgements of life satisfaction" (Diener et al. 1999: 277). It constitutes an essential component of mental

normative roles and demands, triggered by either major life events or chronic issues. The other comprises personal characteristics that help to cope with stressors, such as individual resilience and energy (Peck 2020) and social support (Nomaguchi & Milkie 2020). The COVID-19 pandemic and its far-reaching consequences in all life areas can be interpreted as a major life event with new stressors and modified resources. However, it is important to note that even before the pandemic, women had already been in a resource loss position due to persistent gender inequalities in all life areas (Peck 2020). This position has led to an ongoing gender gap in well-being (e.g., Batz & Tay 2018). Overall, we expect that these existing differences before the pandemic and gender-specific changes in work and family life during the pandemic explain the gender gap in SWB changes.

## 2.2 Division of paid and unpaid work

We start from the general empirical finding that pandemic-related changes in work and family life have put more strain and stress on mothers than on fathers (e.g., Farré et al. 2020, Fodor et al. 2021; Hipp & Bünning 2021; Jessen et al. 2021a; Kreyenfeld et al. 2020; Kulic et al. 2020). Therefore, we expect that the gender gap in declined well-being is partly related to the continued gender division of unpaid work during the pandemic.

In general, public childcare is an essential resource for reconciling family and work. It helps to reduce work-family conflicts and thus has a positive impact on SWB, particularly for working mothers (Nomaguchi & Milkie 2020; Voydanoff 2005). With the sudden closure of schools and childcare facilities, families had to reorganise work and childcare responsibilities. These circumstances not only generated substantial new stressors (e.g., Huebener et al. 2020; Hipp & Bünning 2021) but also often reinforced gender inequalities in family life (e.g., Etheridge & Spantig 2020; Zoch et al. 2021a). In Germany, gender inequalities in the labour market, in particular the substantial gender wage gap caused by women working part-time, in lower-paying occupations, sectors and positions (Boll & Lagemann 2018), leave most women in a worse bargaining position than men (e.g., Schober & Zoch 2019). According to resource-bargaining perspectives (e.g., Lundberg & Pollak 1996), mothers have less power to negotiate lower contributions to family work. Together with comparatively traditional gender norms, particularly in West Germany, mothers were, therefore, more likely to act as primary caregivers during the COVID-19 pandemic (e.g., Jessen et al. 2021b; Zoch et al. 2021a). This situation probably led to enormous gender-specific stressors due to increased work-family and family-work conflicts. *Specifically, we expect that acting as the primary caregiver is associated with a stronger decline in SWB than if parental childcare is shared (Hypothesis 1a).* However, if working parents had access to emergency childcare, they could at least avoid the very stressful situation of having to teach or care for their children at home during working hours. Considering emergency care as a resource for working parents, *we expect access to emergency care to lessen the decline in SWB for all working parents (Hypothesis 1b).* Since women are more likely to provide a larger share of care, we expect that much of the

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health (Headey et al. 1993) and is often accompanied by higher productivity (Oswald et al. 2015). Thus, SWB represents an important economic factor in a society.

gender difference in well-being can be explained by the specific care arrangements in families.

However, the burdens of schooling and caring for children at home should also vary with parents' employment status. It is crucial to consider that due to insufficient childcare provision and all-day schooling, Germany is dominated by a modernised male-breadwinner regime with a high share of maternal part-time work, particularly in West Germany (e.g., Zoch 2020). Facing closed schools and childcare facilities, part-time working parents should have more (time) resources to take on higher shares of family work. Hence, they should be less affected by increasing work-family conflicts and strains than parents in full-time employment. *We therefore expect that the decline in SWB was less pronounced for parents working part-time than for those working full-time (Hypothesis 2a).*

With the dominant modernised male-breadwinner model in Germany, men rarely reduce their working hours after childbirth (Zoch 2020). Hence, full-time working mothers usually also have full-time working partners, whereas the opposite is not the case. Moreover, even if mothers work full-time, they typically shoulder larger shares of family work (e.g., Schober & Zoch 2019). Consequently, the pandemic is likely to have dramatically increased time strain and role conflicts for parents in dual full-time earner couples, particularly for mothers (Peck 2020). Based on these considerations, *we expect that parents in dual full-time earner couples experienced a greater decline in SWB than those with a part-time working spouse (Hypothesis 2b), with a more pronounced association for mothers.*

### 2.3 Altered working conditions

For men and women, it is not only the division of paid and family work that has changed to different degrees as a result of the pandemic. Due to highly gender-segregated occupations and sectors in Germany, men and women were very likely also affected differently by the economic downturn and changes in work environments (e.g., Hammerschmid 2020; Möhring et al. 2021; Peck 2020). New stressors emerged through, for example, job losses and furloughs, short-time work, or a reduction of working hours often accompanied by a loss of income. Conversely, workload and working hours increased in essential occupations, particularly in the health and retail sectors (e.g., Alon et al. 2021; Bünning et al. 2020; Reichelt et al. 2021). While any reduction in hours and income brings economic disadvantages, it is the increased workload—with simultaneously closed schools and public childcare—that is particularly likely to increase stress, especially for working mothers. *Drawing on the stress process model, we therefore expect that working more hours compared to prepandemic times should translate into a more significant decline in SWB for mothers than for fathers (Hypothesis 3a).*

Another significant change in working conditions was the widespread use of remote work. Remote work is typically considered a resource for levelling declines in well-being because it allows one to continue working at all while minimising one's own and others' risk of contagion (e.g., Adams-Prassl et al. 2020; Zoch et al. 2021b). However, these positive effects were more likely for childless workers (Bertoni et al. 2021) or fathers, as mothers devoted significantly more time to childcare when working remotely (Alon et al. 2021; Collins et al. 2020; Farré et al. 2020). Prior research suggests a drop in females'

productivity, which presumably also reduces their satisfaction (Feng & Savani 2020; Peck 2020). Hence, *we expect the stress-reducing association between remote work and SWB to be less pronounced for mothers than for fathers (Hypothesis 3b).*

## 2.4 Pandemic-related worries

The various pandemic-related changes in work and family life are likely to accumulate and reinforce each other, thus negatively affecting well-being, particularly for mothers (Etheridge & Spantig 2020; Li et al. 2021; Nieuwenhuis & Yerkes 2021). Altered working conditions, for example, did not only affect mothers directly in terms of income decline or loss of productivity. When working reduced hours, mothers were also more likely than fathers to fear career penalties (Clark et al. 2020). Moreover, children were more likely to share their problems and concerns, e.g., due to the challenges of home schooling or reduced contact with others, with the parent working remotely, i.e., mothers rather than fathers (ibid.). Additionally, according to prior research, mothers were more concerned about individual, social, health, and childcare issues (Bünning et al. 2020; Czymara et al. 2021; Zoch et al. 2021b) and suffered more from loneliness than men (Etheridge & Spantig 2020). Social isolation and loneliness represent intense stressors that negatively impact mental health and well-being (McQuaid et al. 2021). *Drawing on these empirical findings, we expect the negative association between concerns and loneliness and SWB to be stronger for mothers than for fathers (Hypothesis 4).*

## 3. Data and methods

### 3.1 The National Educational Panel Study (NEPS)

To test our hypotheses, we used data from two independent panel surveys of the German National Education Panel Study (NEPS) (Blossfeld et al. 2011): (1) NEPS-SC6 ‘Adults’ and NEPS-SC5 ‘Highly Educated’. Since 2009, NEPS-SC6 annually surveys more than 17,100 individuals born between 1944 and 1986 with different educational backgrounds. In 2010, NEPS-SC5 started biannually with 17,900 individuals who began a bachelor's degree in the fall of 2010 and started working in the last few years. We combine these data from regular NEPS waves<sup>3</sup> with information from a supplementary COVID-19 web survey of all NEPS respondents conducted in spring 2020.<sup>4</sup> A total of 2,678 adults from the last regular NEPS-SC6 wave and 2,859 adults from the last NEPS-SC5 wave participated in the

3 Starting Cohort 5: doi:10.5157/NEPS:SC5:14.1.0; Starting Cohort 6: doi:10.5157/NEPS:SC6:11.1.0. At the time of the analyses, most recent information were available in the respective consortium data B140\_C1 (NEPS-SC5, wave 15), conducted March–July 2019 and B145\_C1 (NEPS-SC6, wave 12), conducted September 2019–March 2020.

4 Included as “pTargetCORONA” in the respective SUF of NEPS-SC5 and NEPS-SC6, conducted May–June 2020.

supplementary COVID-19 web survey.<sup>5</sup> This supplementary survey asked about the consequences of the COVID-19 pandemic, focusing on respondents' living and working conditions and SWB.

We restricted our balanced sample to respondents who participated in the COVID-19 web survey and in at least one of the two previous regular waves. To examine the role of childcare arrangements, we restricted the sample to parents living with at least one child under 14 years who were affected by the closure of schools or public childcare during the first months of the pandemic. Being interested in altered working conditions, we also excluded respondents older than 65, in education or vocational training, and with inactive or unknown employment status prior to the pandemic. After excluding respondents with missing values on our central variables, our analysis sample consists of 297 mothers and 252 fathers.

Since the NEPS samples come from a long-running panel survey subject to selective initial nonresponse and attrition, we weighted our descriptive results. The weights were provided specifically for employed participants in the COVID-19 web survey and were poststratified, i.e., adjusted to the distribution of the target population in official statistics (German Microcensus, statistics from 2019).<sup>6</sup> To prevent very small respondent groups that received a higher weight from biasing the standard errors, all multivariate models were based on unweighted data. Instead, we follow Würbach et al. (2021) and control for possible selectivity bias due to nonresponse by including relevant indicators in the models directly.<sup>7</sup>

### 3.2 Measurements and analytical strategy

In line with prior research, we operationalise SWB in our analyses based on overall life satisfaction. Respondents reported their life satisfaction based on the question “*All in all, how satisfied are you with your life at the moment?*” on an 11-point Likert scale with 0 meaning “completely unsatisfied” and 10 meaning “completely satisfied”. To consider prepandemic differences in SWB, we focus our analyses on the intraindividual change in satisfaction between spring 2020 and the last available satisfaction measure before the pandemic.

Our first variables of interest subsume the *pandemic care arrangements* (Table 1): According to *Hypotheses 1a–1b*, these indicate whether care work was performed exclusively by the respondent (*primary caregiver*) or shared between family members and whether parents had access to emergency care in public childcare and schools. The second

5 In NEPS-SC6, 33.6% of respondents of the main survey sample participated in the supplementary COVID-19 web survey, while in NEPS-SC5 this was 32.1%.

6 For this calibration, year of birth, gender, federal state, regional BIK-code, education, migration background, children under 14 in household and employment status were considered (cf., Würbach et al. 2021).

7 Models control for age, East Germany, household size, young children, change in income and working conditions. It is important to note that regression models do not include variables such as education or migration background. These are potential determinants of employment, working characteristics and care arrangements. Holding these factors constant would therefore likely lead to over control bias. We examine the additional role of education in robustness checks but find similar results as presented.



set of explanatory variables, referring to *Hypotheses 2a–3b*, considers *altered and general working conditions*. In the case of altered working conditions, we measure whether respondents experienced an increase in working hours<sup>8</sup> and worked remotely. As general working conditions that affect the work-family balance of households, we created a dummy indicating respondents' prepandemic part-time employment and whether both parents have worked full-time (*full-time couple*). Furthermore, to account for gender-specific effects of worries on SWB (*Hypothesis 4*), we included a measure for general concerns that involves several reported concerns of economic and social inequality (*being concerned*) and an additive sum score for having felt lonely (*feeling lonely*).

To examine whether gender differences in SWB were related to sample composition, we controlled for a set of individual and household characteristics, such as respondent age, a dummy for education level (*tertiary education*), household size, a dummy for the presence of cohabiting children under 6, residence in East Germany, and a dummy indicating a decrease in household income by more than 10 percent compared to the prepandemic period.

Table 1 (weighted sample) illustrates the composition of the subsamples of mothers and fathers. As expected, we observe more mothers than fathers who served as primary caregivers (28% vs. 5%), but slightly more fathers reported having used emergency care for their children. Concerning pandemic-related altered working conditions, more fathers reported increased working hours than mothers. Here, our sample differs from prior studies that find similar changes in parents' working hours (Knize et al. 2021). In contrast to prior research (e.g., Möhring et al. 2021), in our sample, more fathers than mothers (53% vs. 33%) reported having worked remotely during the first months of the pandemic. Considering general working conditions, unsurprisingly, nearly two-thirds of mothers worked part-time compared to each fifth father, and more mothers lived in full-time couples than fathers.<sup>9</sup> We also find compositional differences in sociodemographics: working mothers were older and less highly educated than fathers. Conversely, working fathers reported larger household sizes and slightly more often cohabited with children under 6. The reported share of pandemic-related loss of household income was similar for both groups. Finally, mothers reported more often than fathers to be concerned and suffered more from loneliness.

Overall, comparing the weighted, calibrated, sample with the unweighted sample suggests small differences in characteristics that point towards the selectivity of the unweighted sample. Plausibly, parents most burdened by simultaneously balancing work and childcare were less likely to participate in a survey. Compared to the weighted sample, fathers in our sample were on average older and better educated, less likely to work more hours but more often worked remotely and especially were more likely to take care of their

8 To keep the model sparse, we refrained from taking a reduction in working hours, short-time work or job losses into account, because, on the one hand, this would somewhat reduce the double burden of simultaneous work and childcare as stated in Hypothesis 3a, and on the other hand, this information is confounded with a lower household income. We also refrained from including "being employed in an essential occupation"; this characteristic is confounded with access to emergency care and would overspecify the model.

9 Because we wanted to employ this little partner information available without further reducing our analysis sample, we include the missing variables of these two variables into our models.

children. Mothers in our sample were better educated and more likely to work more hours and remotely. They more often experienced a decline in household income and more often sent their children to emergency care.

*Table 1:* Description of dependent and independent variables (weighted and unweighted sample)

|                                    | Weighted Sample |      |         |      | Unweighted Sample |      |              |      |
|------------------------------------|-----------------|------|---------|------|-------------------|------|--------------|------|
|                                    | Fathers         |      | Mothers |      | Fathers           |      | Mothers      |      |
|                                    | mean            | sd   | mean    | sd   | mean              | sd   | mean         | sd   |
| <i>Satisfaction with life:</i>     |                 |      |         |      |                   |      |              |      |
| Prepandemic value (1-10)           | 8.08            | 0.86 | 7.95    | 1.10 | 8.13              | 0.93 | 8.13         | 1.00 |
| Pandemic value (1-10)              | 7.42            | 1.52 | 6.89    | 1.67 | 7.19              | 1.73 | <b>6.94</b>  | 1.71 |
| With-in person difference          | -0.66           | 1.59 | -1.06   | 1.77 | -0.95             | 1.61 | <b>-1.19</b> | 1.54 |
| <i>Pandemic care arrangements:</i> |                 |      |         |      |                   |      |              |      |
| Primary caregiver (d)              | 0.05            | 0.23 | 0.28    | 0.45 | 0.10              | 0.29 | <b>0.27</b>  | 0.44 |
| Emergency care (d)                 | 0.11            | 0.32 | 0.09    | 0.29 | 0.07              | 0.26 | <b>0.13</b>  | 0.34 |
| <i>Altered working conditions:</i> |                 |      |         |      |                   |      |              |      |
| Working more hours (d)             | 0.25            | 0.43 | 0.13    | 0.33 | 0.18              | 0.39 | 0.23         | 0.42 |
| Working remotely (d)               | 0.53            | 0.50 | 0.33    | 0.47 | 0.63              | 0.48 | <b>0.53</b>  | 0.50 |
| <i>General working conditions:</i> |                 |      |         |      |                   |      |              |      |
| Part-time (d)                      | 0.22            | 0.41 | 0.64    | 0.48 | 0.12              | 0.32 | <b>0.68</b>  | 0.47 |
| Part-time (missing)                | 0.14            | 0.35 | 0.20    | 0.40 | 0.03              | 0.16 | <b>0.11</b>  | 0.31 |
| Full-time couple (d)               | 0.10            | 0.31 | 0.25    | 0.44 | 0.14              | 0.35 | <b>0.20</b>  | 0.40 |
| Full-time couple (missing)         | 0.34            | 0.48 | 0.35    | 0.48 | 0.22              | 0.41 | 0.23         | 0.42 |
| <i>Sociodemographic variables:</i> |                 |      |         |      |                   |      |              |      |
| Age                                | 37.79           | 6.48 | 39.14   | 5.71 | 41.00             | 8.20 | <b>39.11</b> | 7.25 |
| Tertiary education (d)             | 0.56            | 0.50 | 0.38    | 0.49 | 0.66              | 0.47 | 0.60         | 0.49 |
| Household size                     | 4.00            | 0.94 | 3.73    | 0.56 | 3.98              | 0.93 | <b>3.73</b>  | 0.76 |
| Child(ren) under 6 (d)             | 0.53            | 0.50 | 0.51    | 0.50 | 0.54              | 0.50 | 0.48         | 0.50 |
| East Germany (d)                   | 0.17            | 0.38 | 0.28    | 0.45 | 0.16              | 0.37 | <b>0.28</b>  | 0.45 |
| Decreased household income (d)     | 0.16            | 0.37 | 0.17    | 0.38 | 0.19              | 0.39 | 0.23         | 0.42 |
| <i>Worries:</i>                    |                 |      |         |      |                   |      |              |      |
| Being concerned                    | 6.38            | 1.53 | 6.88    | 2.01 | 6.18              | 1.74 | <b>6.55</b>  | 1.65 |
| Feeling lonely                     | 5.47            | 1.67 | 5.86    | 1.76 | 5.18              | 1.58 | <b>5.48</b>  | 1.68 |
| Observations                       | 252             |      | 297     |      | 252               |      | 297          |      |

*Note:* Dummy variables indicated with d; bold figures in the unweighted sample indicate significant mean differences between reporting mothers and fathers (t test,  $p < 0.05$ ).

*Source:* NEPS SC6+SC5, unweighted, own calculation.

To investigate the relationship between gender differences in reduced SWB and the various contextual factors, we employed stepwise multiple linear regression models. More specifically, we estimated change score models (Allison 1990), i.e., our dependent variable describes individual-level changes in SWB of the respondents between spring 2020 and their prepandemic SWB. Concentrating on intraindividual changes enables us to reduce omitted variable bias, as time-constant heterogeneity is partly controlled by design.

Our stepwise procedure is structured as follows: In the first step, we estimated the baseline model, including only an indicator for gender (M1 in Table 2). In the second step,

we expanded the model by including individual- and household-level characteristics and the pandemic-related decrease in household income as well as general working conditions (M2). This model accounts for compositional effects among the respondents. Next, we included altered working conditions (M3), care arrangements (M4) and worries (M5), all accounting for the specificity of the pandemic situation. The last two models (M6 and M7) estimate the effects of all explanatory variables for fathers and mothers separately.

## 4. Results

### 4.1 Descriptive results

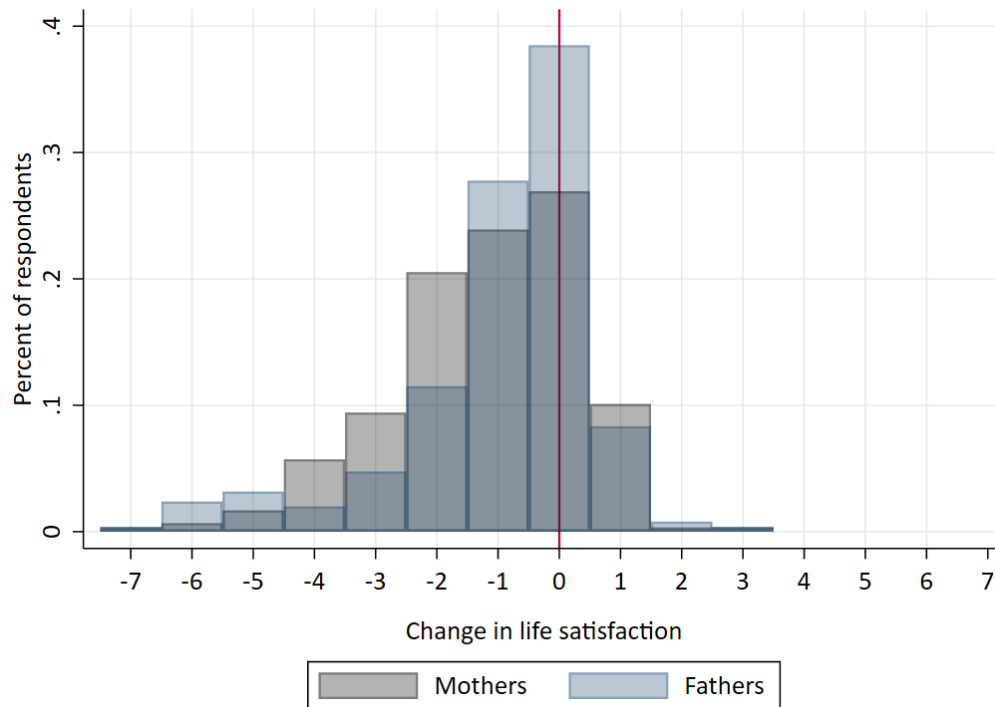
A comparison of the two time points shows a decrease in life satisfaction for mothers and fathers (Table 1, weighted sample). Before the pandemic, both groups differed only slightly in their satisfaction (fathers 8.08 vs. mothers 7.95), whereas in spring 2020, mothers reported significantly lower life satisfaction (6.89) than fathers (7.42). Figure 1 shows the intraindividual changes in life satisfaction, illustrating the broad range of changes in satisfaction of mothers and fathers. In both groups, the largest share of respondents showed a decline in life satisfaction. Conversely, the share of respondents without a change in life satisfaction differs substantially: only approximately 25 percent of mothers but almost 40 percent of fathers reported no change in SWB. The descriptive results are in line with previous research, displaying a clearly larger decline in SWB of working mothers compared to that of working fathers during the onset of the pandemic.

### 4.2 Regression results

In Table 2, we present the intraindividual change estimates from stepwise linear regression models. The baseline model (M1) confirms the descriptive results of a significantly larger decline in life satisfaction for working mothers (-0.24) compared to the reference group of working fathers, displayed in the estimated constant that is substantial and negative (-0.95). In the intraindividual change score model, coefficients indicate whether SWB is additionally negatively affected (negative coefficient) or less negatively, or even positively changed (positive coefficient), compared with the corresponding reference group.

In the second step (M2), we included sociodemographic control variables and general working conditions in our models. We find children under 6 to particularly reduce the SWB of working parents compared to older children. For a decrease in household income, we find a similar association. Considering general working conditions, respondents who had worked part-time indicated a significantly smaller reduction in life satisfaction. This finding supports *Hypothesis 2a*. However, we do not find any effects for dual career full-time couples, which contradicts *Hypothesis 2b*. By including these compositional factors, the gap in the SWB decline between mothers and fathers widened even more.

Figure 1: Change in overall life satisfaction prior to and during the COVID-19 pandemic (within-person differences).



Note: Negative values indicate reduced life satisfaction, whereas positive values indicate increased satisfaction during the COVID-19 pandemic compared to earlier measures. The value 0 indicates no within-person change in life satisfaction.

Source: NEPS SC6+SC5, own calculation, unweighted.

Third, we examined whether the observed differences in SWB decline were related to altered working conditions (M3). However, disappointingly, neither an increase in time working nor remote work show any association with parental SWB. Next, we included an indicator for respondents who provided parental childcare exclusively as the primary caregiver and who had access to emergency childcare (M4). Both coefficients are positive, indicating smaller satisfaction declines. However, only the effect of emergency care is statistically significant. Thus, we cannot confirm *Hypothesis 1a* that the primary caregiver generally revealed lower SWB than parents who shared childcare. Conversely, our *Hypothesis 1b* seems confirmed, i.e., emergency care relieved working parents decisively in balancing work and family life and, thus, reduced their SWB significantly less than for parents who were denied this option of external childcare.

Last, to explore the interplay of contextual factors with worries for gender differences in SWB changes, we included measures for having been concerned and felt lonely during the onset of the pandemic in our model (M5). We find a significantly negative association between reduced SWB and concerns and loneliness. However, although the gap in gender differences in SWB decreases somewhat, it remains substantial.

Table 2: Change score stepwise linear regressions models for life satisfaction (OLS)

|   | Fathers and mothers            |                                |                                |                                |                                | Fathers                       | Mothers                       |
|---|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|-------------------------------|-------------------------------|
|   | M1                             | M2                             | M3                             | M4                             | M5                             | M6                            | M7                            |
| Mother ( <i>ref. father</i> )                 | -0.24 <sup>+</sup><br>(0.14)   | -0.54 <sup>***</sup><br>(0.16) | -0.53 <sup>***</sup><br>(0.16) | -0.58 <sup>***</sup><br>(0.16) | -0.43 <sup>**</sup><br>(0.15)  |                               |                               |
| Age   |                                | -0.03 <sup>**</sup><br>(0.01)  | -0.03 <sup>**</sup><br>(0.01)  | -0.03 <sup>**</sup><br>(0.01)  | -0.03 <sup>**</sup><br>(0.01)  | -0.02<br>(0.01)               | -0.04 <sup>**</sup><br>(0.02) |
| East Germany ( <i>ref. West Germany</i> )     |                                | -0.14<br>(0.16)                | -0.14<br>(0.16)                | -0.15<br>(0.16)                | -0.19<br>(0.15)                | -0.07<br>(0.26)               | -0.20<br>(0.19)               |
| Household size                                |                                | -0.05<br>(0.08)                | -0.05<br>(0.08)                | -0.04<br>(0.08)                | -0.05<br>(0.08)                | -0.03<br>(0.10)               | -0.09<br>(0.13)               |
| Child(ren) under 6                            |                                | -0.31 <sup>*</sup><br>(0.14)   | -0.32 <sup>*</sup><br>(0.14)   | -0.33 <sup>*</sup><br>(0.14)   | -0.29 <sup>*</sup><br>(0.14)   | -0.16<br>(0.21)               | -0.41 <sup>*</sup><br>(0.19)  |
| Decreased household income                    |                                | -0.30 <sup>+</sup><br>(0.17)   | -0.28 <sup>+</sup><br>(0.17)   | -0.29 <sup>+</sup><br>(0.17)   | -0.30 <sup>+</sup><br>(0.17)   | -0.39<br>(0.28)               | -0.29<br>(0.22)               |
| <i>General working conditions:</i>            |                                |                                |                                |                                |                                |                               |                               |
| Part-time                                     |                                | 0.33 <sup>+</sup><br>(0.19)    | 0.34 <sup>+</sup><br>(0.19)    | 0.36 <sup>+</sup><br>(0.19)    | 0.25<br>(0.18)                 | 0.07<br>(0.26)                | 0.43<br>(0.33)                |
| Part-time: missing                            |                                | 0.78 <sup>*</sup><br>(0.34)    | 0.76 <sup>*</sup><br>(0.34)    | 0.75 <sup>*</sup><br>(0.34)    | 0.60 <sup>+</sup><br>(0.33)    | 1.19 <sup>+</sup><br>(0.65)   | 0.57<br>(0.40)                |
| Full-time couple                              |                                | 0.11<br>(0.19)                 | 0.12<br>(0.19)                 | 0.11<br>(0.19)                 | 0.01<br>(0.19)                 | 0.10<br>(0.24)                | 0.13<br>(0.38)                |
| Full-time couple: missing                     |                                | -0.28<br>(0.24)                | -0.27<br>(0.24)                | -0.25<br>(0.24)                | -0.23<br>(0.23)                | -0.23<br>(0.32)               | -0.22<br>(0.37)               |
| <i>Altered working conditions:</i>            |                                |                                |                                |                                |                                |                               |                               |
| Working more ( <i>ref. same/less</i> )        |                                |                                | 0.18<br>(0.16)                 | 0.20<br>(0.15)                 | 0.18<br>(0.15)                 | 0.24<br>(0.24)                | 0.18<br>(0.20)                |
| Working remotely                              |                                |                                | 0.17<br>(0.14)                 | 0.17<br>(0.14)                 | 0.17<br>(0.14)                 | 0.09<br>(0.22)                | 0.27<br>(0.17)                |
| <i>Pandemic care arrangements:</i>            |                                |                                |                                |                                |                                |                               |                               |
| Primary caregiver ( <i>ref. shared care</i> ) |                                |                                |                                | 0.14<br>(0.17)                 | 0.16<br>(0.16)                 | -0.07<br>(0.26)               | 0.24<br>(0.20)                |
| Emergency care                                |                                |                                |                                | 0.49 <sup>*</sup><br>(0.21)    | 0.59 <sup>**</sup><br>(0.21)   | 0.61 <sup>+</sup><br>(0.33)   | 0.55 <sup>*</sup><br>(0.28)   |
| <i>Worries</i>                                |                                |                                |                                |                                |                                |                               |                               |
| Being concerned                               |                                |                                |                                |                                | -0.11 <sup>**</sup><br>(0.04)  | -0.14 <sup>**</sup><br>(0.05) | -0.08<br>(0.05)               |
| Feeling lonely                                |                                |                                |                                |                                | -0.17 <sup>***</sup><br>(0.04) | -0.18 <sup>*</sup><br>(0.07)  | -0.17 <sup>**</sup><br>(0.05) |
| Constant                                      | -0.95 <sup>***</sup><br>(0.10) | 0.71<br>(0.51)                 | 0.55<br>(0.51)                 | 0.35<br>(0.52)                 | 2.11 <sup>***</sup><br>(0.60)  | 1.64 <sup>+</sup><br>(0.91)   | 2.01 <sup>*</sup><br>(0.87)   |
| Observations                                  | 549                            | 549                            | 549                            | 549                            | 549                            | 252                           | 297                           |
| R <sup>2</sup> adj.                           | 0.00                           | 0.03                           | 0.04                           | 0.04                           | 0.09                           | 0.06                          | 0.08                          |
| P   | 0.07                           | 0.00                           | 0.00                           | 0.00                           | 0.00                           | 0.03                          | 0.00                          |

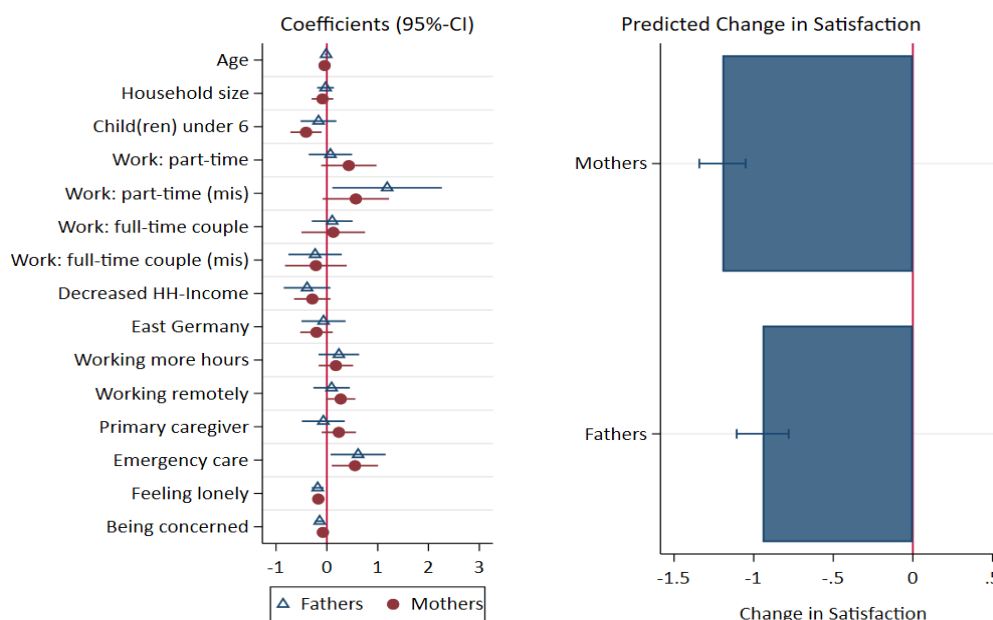
Note: Reference categories indicated with *ref.* Standard errors in parentheses. +  $p < 0.10$ , \*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$ .

Source: NEPS SC6+SC5, unweighted, own calculation

We estimated separate models for men and women to examine gendered associations in the relationship between the explanatory variables and altered SWB. Figure 2 presents the coefficients from these models with full controls and the predicted change in satisfaction (see also M6 & M7 in Table 2). However, the results reveal barely any gender-specific correlations between the determinants and altered satisfaction: part-time work lessens the decline in SWB more for mothers than fathers; however, none of the effects is statistically significant. Additionally, the relation between full-time working couples and changes in SWB seems to be similar for mothers and fathers. The same applies to the gender-specific association between altered working conditions and SWB declines. Both working more hours, which we categorised as a stress amplification mainly for mothers, and working remotely, which we assumed to serve as a resource but primarily for fathers, show similar correlations for mothers and fathers. Last, we find a somewhat more pronounced association between living with a child under 6 and the decline in life satisfaction for mothers, even when accounting for differences in care arrangements, working conditions and worries. Although this finding is in line with previous research (e.g., Huebener et al. 2020), the coefficients are statistically insignificant. The lack of gender-specific correlations between the determinants and altered satisfaction is confirmed by estimating interaction effects in joint models for mothers and fathers. Therefore, we have to reject the extended part of *Hypothesis 2b* as well as *Hypotheses 3a* and *3b*. Finally, regarding the gender-specific role of worries for differences in SWB, we observe a significant negative association between concerns and a more pronounced decline in life satisfaction only for working fathers, contrary to our expectation. The feeling of loneliness was similarly linked to a more pronounced reduction in life satisfaction of both mothers and fathers. However, as we expected working mothers to be more affected in their well-being by worries, we also have to reject *Hypothesis 4*.

Last, we explore the possible interplay between the task of being the primary caregiver and further individual and household characteristics (see Figure 3). For children under 6, for which we detected a negative link to mothers' well-being, we do not find an amplification of this effect if mothers were the primary caregiver. Considering educational attainment, which is typically used as a proxy for more or less progressive gender role attitudes, we observe an interesting relation for fathers: Fathers in shared care arrangements and those with lower levels of education displayed less pronounced declines in SWB, while tertiary-educated fathers who acted as the primary caregiver displayed significantly higher declines in SWB. This result might reflect prevailing gender roles in Germany, where better-off fathers in particular see themselves as the main breadwinners and might, therefore, be dissatisfied with taking on more family tasks.

Figure 2: Coefficients and predicted change in satisfaction from separate models for mothers and fathers.



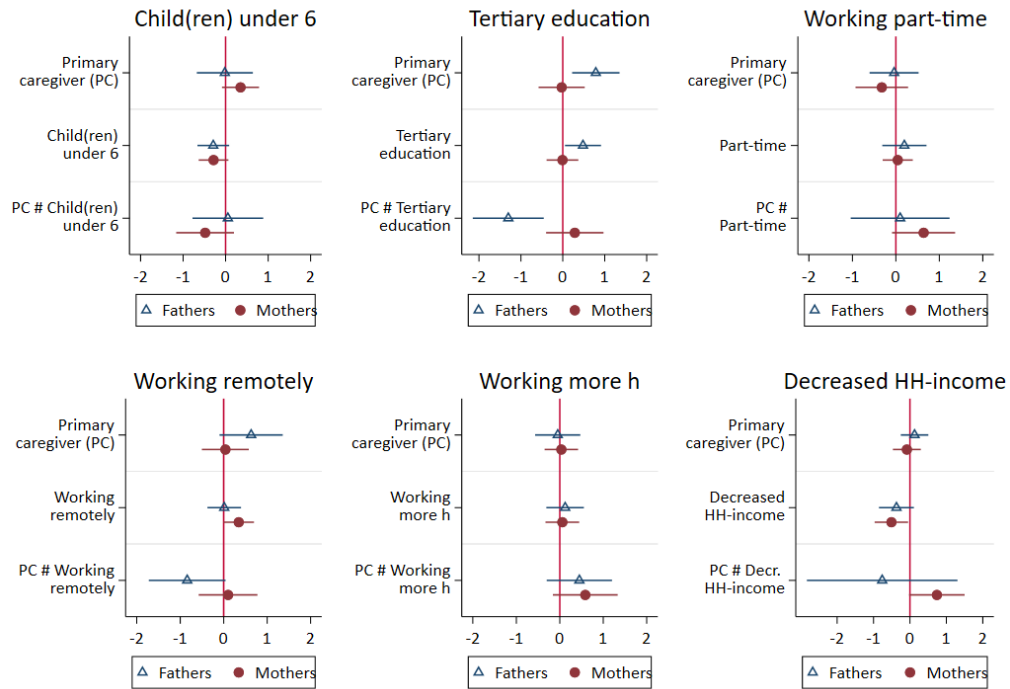
Note: 95% confidence intervals. Negative values indicate a more pronounced reduction in life satisfaction, whereas positive values indicate a less pronounced reduction in satisfaction during the COVID-19 pandemic compared to earlier measures.

Source: NEPS SC6+SC5, own calculation, unweighted.

Moreover, we expected part-time working mothers to have more resources to reconcile paid work and childcare and, thus, when serving as the primary caregiver, to be less affected by work-family conflicts than full-time working mothers. The results show slightly less reduced well-being for primary caregiving mothers who worked part-time. The interaction effect indicates similar patterns for remotely working, primary caregiving fathers and mothers who shared care obligations while they worked from home. However, fathers in remote work who had to care primarily for their children tended to display more pronounced declines in SWB. For working more hours, we do not find any such effect. Finally, when household income decreased, both mothers and fathers sharing parental childcare showed a stronger negative association with changed SWB, whereas primarily caregiving mothers with decreased household income seemed to be more satisfied than others. Again, this result might point towards the importance of prevailing gender role attitudes, as mothers were more likely to revert to caregiver roles in an economic downturn.

However, although these coefficients were substantial in size, particularly for mothers, barely one of the observed differences for the smaller subsamples of primary caregivers was statistically significant. Therefore, the findings provide only tentative support for our expectation that working mothers would be more affected in their SWB when acting as exclusive caregivers.

Figure 3: Interaction effects between mothers and fathers serving as primary caregivers and further characteristics.



Note: 95% confidence intervals. Negative values indicate a more pronounced reduction in life satisfaction, whereas positive values indicate a less pronounced reduction in satisfaction during the COVID-19 pandemic compared to earlier measures.

Source: NEPS SC6+SC5, own calculation, unweighted.

### 4.3 Robustness checks

We estimated various model specifications that reinforced our findings. First, we tested the role of respondents' satisfaction level before the COVID-19 pandemic. The results indicate a smaller decline in life satisfaction for respondents with lower prepandemic life satisfaction than for respondents with medium satisfaction scores. Conversely, highly satisfied respondents experienced the most pronounced decline in their life satisfaction, although the estimate was statistically insignificant. Nevertheless, considering the prepandemic level of satisfaction barely altered the observed gender differences in individual-level changes in SWB.

Moreover, we tried to explain the gender gap in the intraindividual change in SWB by exploring further potential stressors and resources to cope with the situation. As the COVID-19 pandemic hit all areas of daily life and generated various time stressors, particularly for working parents, we examined the role of leisure activities. Specifically, we considered doing sports, having social interactions, reading, watching television, engaging



in artistic activities, or simply doing nothing. Although there were gender differences in the reported frequency of these activities, these could not explain the gender gap in reduced life satisfaction. Finally, we tested whether remaining differences were related to unobserved differences between the two starting cohorts. However, including a dummy indicating the original sample did not alter our results.

## 5. Conclusion

Our study points to important differences in altered parental subjective well-being (SWB) in the context of the first months of the COVID-19 pandemic in Germany. By comparing life satisfaction in spring 2020 with prepandemic information based on panel data, our results show a decline in SWB for working mothers and fathers with at least one child under 14 years of age. However, fathers' SWB declined less than that of mothers. These gender differences in altered parental SWB remained statistically significant when accounting for a large set of control variables as well as parental care arrangements and working conditions, which both increased the strain for working parents facing closures of schools and public childcare. Gender differences in feelings of isolation and concern about the multiple threats of the pandemic as well as serving as the primary caregiver for very young children explain overall only a very small part of the observed gender gap in declined SWB. At the same time, they seem to be the most relevant of the influencing factors examined. Nevertheless, the observed differences between mothers and fathers remained substantial and statistically significant.

Our study provides additional support on gender disparities in SWB during the first months of the COVID-19 pandemic (Hipp & Bünning 2021; Huebener et al. 2020 for Germany; Etheridge & Spantig 2020; Zhou et al. 2020 for the UK). However, the results are based on a very small number of respondents and should therefore be interpreted with caution. The small number of cases did not allow for further group-specific analyses. Additionally, we were unable to estimate more rigorous panel analysis, such as fixed-effects regression or difference-in-differences, as some information was only measured at one point in time. The data also do not contain detailed information on partners' employment, prepandemic care arrangements or the division of unpaid work within couples, for example, in the form of exact hours for different tasks of unpaid labour. Hence, the risk of biased estimates remains due to unobserved characteristics that may correlate with some of the observables. However, by examining within-person changes in life satisfaction, our results provide a more robust picture than previous cross-sectional findings. In particular, dual-earner couples are urgently dependent on institutional support to reconcile work and family. This link is highlighted by our finding that parents with access to emergency care experienced less decline in their life satisfaction than parents without access to public childcare. The results, therefore, emphasise the necessity for reliable infrastructure that enables both partners to reconcile work and family life.

From an international perspective, our results most likely represent a conservative estimate of the negative impact of the pandemic on gendered contexts and, thus, changes in well-being. Given only low COVID-19 infection rates in Germany in spring 2020,

containment measures were moderate and without strict curfews, accompanied by enormous economic aid and special labour market instruments, such as short-time work, to support those negatively affected by the pandemic. Hence, our results most likely represent a lower bound when comparing altered parental SWB in Germany to other European countries or the United States. Moreover, our results likely underestimate the role of care arrangements and working conditions, as parents stressed most by reconciling work and care obligations did not take the time to participate in the supplementary COVID-19 web survey. Last, we can also assume that the effects we find have gradually intensified in the further course of the pandemic. In Germany, schools and public childcare did not operate regularly until summer 2021, so dual-career parents became increasingly exhausted by persistent multiple strains. Since we already observe significantly lower life satisfaction among parents in the first months of the pandemic, we assume that well-being has further declined in the following months of the pandemic, particularly for working mothers. Further studies will have to show whether this will actually lead to a retraditionalization of gender roles in the long run, which has been pointed out by studies dealing with the change of gender roles during the pandemic (Danzer et al. 2021; Reichelt et al. 2021), and how it will, in turn, affect the life satisfaction of working mothers.

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## Information in German

### Deutscher Titel

Kinderbetreuung, Arbeit oder Sorgen? Was erklärt den Rückgang des elterlichen Wohlbefindens zu Beginn der COVID-19-Pandemie in Deutschland?

### Zusammenfassung

**Fragestellung:** Wir untersuchen, wie Betreuungsarrangements, allgemeine und veränderte Arbeitsbedingungen und Sorgen das subjektive Wohlbefinden zu Beginn der COVID-19-Pandemie bei berufstätigen Eltern in Deutschland beeinflussen.

**Hintergrund:** Vorherige Studien deuten auf mehrere Gründe für den Rückgang des subjektiven Wohlbefindens hin, insbesondere bei berufstätigen Müttern. Wir verwenden das Stressprozessmodell von Pearlin (1989), um die Rolle der elterlichen Kinderbetreuung, der veränderten Arbeitsbedingungen und der verstärkten Sorgen berufstätiger Eltern im Hinblick auf erhöhte Stressoren und veränderte Ressourcen zur Bewältigung der außergewöhnlichen Situation zu untersuchen.

**Methode:** Wir verwenden Daten aus zwei Startkohorten des Nationalen Bildungspanels und der zusätzlichen COVID-19 Online-Erhebung vom Frühjahr 2020, um mögliche Heterogenitäten bei den Kontextfaktoren zu untersuchen, die sich auf individueller Ebene auf das Wohlbefinden von berufstätigen Müttern und Vätern auswirken.

**Ergebnisse:** Die Studie bestätigt, dass das Wohlbefinden von berufstätigen Müttern stärker abnimmt als das von Vätern. Teilzeitarbeit und der Zugang zu Notfallbetreuung verringern die geschlechtsspezifischen Unterschiede beim Rückgang des Wohlbefindens. Umgekehrt sind kleine Kinder im Haushalt und persönliche Sorgen für beide Elternteile mit einem geringeren Wohlbefinden verbunden. Der deutlichere Rückgang des Wohlbefindens von Müttern lässt sich jedoch nicht durch eine höhere Verantwortung bei der Kinderbetreuung oder veränderte Arbeitsbedingungen erklären.

**Schlussfolgerung:** Ein stärkerer Rückgang des Wohlbefindens deutet auf eine besondere Belastung für berufstätige Mütter hin. Dies kann jedoch nicht allein auf geschlechtsspezifische Ungleichheiten bei der Veränderung von bezahlter und unbezahlter Arbeit in den ersten Monaten der Pandemie zurückgeführt werden.

**Schlagwörter:** Kinderbetreuung, Lebenszufriedenheit, geschlechtsspezifische Arbeitsteilung, Corona-Krise, NEPS-C

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