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## ORIGINAL ARTICLE

Gender and Employment: Recalibrating Women's Position in Work, Organizations and Society in Times of COVID-19

# Reduced well-being during the COVID-19 pandemic – The role of working conditions

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## Abstract

The COVID-19 pandemic has had diverse impacts on the employment conditions and family responsibilities of men and women. Thus, women and men were exposed to very different roles and associated challenges, which may have affected their well-being very differently. Using data from the National Educational Panel Study and its supplementary COVID-19 web survey for Germany (May–June 2020), we investigate gender differences in the relationship between working conditions and within-changes in subjective well-being. We systematically consider the household context by distinguishing between adults with and without younger children in the household. The results from multivariate change-score regressions reveal a decline in all respondents' life satisfaction, particularly among women with and without younger children. However, the greater reduction in women's well-being cannot be linked to systematic differences in working conditions throughout the pandemic. Kitagawa–Oaxaca–Blinder counterfactual decompositions confirm this conclusion. Further analyses suggest that women's caregiving role, societal concerns, and greater loneliness partly explain the remaining gender differences in altered satisfaction. From a general perspective, our results suggest important gender differences in social life and psychological distress at the beginning of

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the pandemic, which are likely to become more pronounced as the crisis has unfolded.

**KEYWORDS**

coronavirus crisis, employment, gender inequalities, gender roles, NEPS-C, satisfaction

## 1 | INTRODUCTION

As the COVID-19 pandemic spread at the beginning of 2020, most countries implemented restrictions on social and economic activities, including the closure of whole economic sectors, schools, and childcare facilities. These far-reaching changes created substantial inequalities in life circumstances that have reduced average mental health (e.g., Etheridge & Spantig, 2020) and subjective well-being (SWB) (e.g., Brodeur et al., 2021; Nieuwenhuis & Yerkes, 2021). However, not all individuals have been affected equally. In contrast, the pandemic's challenges and stressors may vary systematically across social groups, thereby reinforcing existing social inequalities and leading to an asymmetric impact of the crisis, with the most vulnerable groups being hit hardest (Adams-Prassl et al., 2020).

Gender inequalities in paid and unpaid work have widened throughout the pandemic (for an overview, see UN Women, 2020; for Germany, e.g., Bünning et al., 2020; Czymara et al., 2021; Fuchs-Schündeln & Stephan, 2020; Möhring, Naumann, Reifenscheid, Blom, et al., 2020; Zoch et al., 2021), likely leading to substantial gender differences in well-being. According to the *stress process model* (Pearlin, 1989), these increased gender inequalities involve new stressors that, against the background of disparities in resources to cope with them, should result in gender differences in well-being throughout the pandemic (Clark et al., 2020; Peck, 2020). Indeed, early studies confirm such gender differences in well-being (e.g., Bünning et al., 2020; Fuchs-Schündeln & Stephan, 2020; Huebener et al., 2021, for Germany; Etheridge & Spantig, 2020; Zhou et al., 2020, for the UK; Nieuwenhuis & Yerkes, 2021 for a country comparison). However, research investigating the causes of these gender differences remains rare. Existing studies (a) are mostly based on cross-sectional data and thus are unable to analyze pandemic-related changes in an individual's well-being (e.g., Bünning et al., 2020; Etheridge & Spantig, 2020; Fuchs-Schündeln & Stephan, 2020; Huebener et al., 2021); (b) concentrated either on overall changes or specific subgroups such as mothers and fathers (e.g., Clark et al., 2020; Möhring, Naumann, Reifenscheid, Wenz, et al., 2020); or (c) neglected central dimension of working characteristics. However, gender inequalities in paid and unpaid work are likely to drive the observed differences in well-being during the pandemic.

We extend the literature on gender inequalities during the pandemic and investigate how working conditions have affected pandemic-related changes in well-being among working adults in Germany. Drawing on the stress process model and theories on gender inequalities in the labor market and family sphere, we expect gender differences in altered satisfaction, with stronger reductions among mothers, closely related to inequalities in paid and unpaid work. We contribute to the existing literature by (i) examining gender differences in altered SWB measured as satisfaction with life overall, work and family life; (ii) analyzing gender differences in altered satisfaction with change-score and decomposition models based on panel data with rich pre-crisis measures on satisfaction and individual characteristics; and (iii) investigating whether differences in working conditions during the pandemic are related to gender disparities in altered well-being. We therefore examine the role of a wide range of critical working conditions affected by the crisis, including short-time work, employment in an essential occupation, self-employment, changes in working hours, remote work, and income losses. To account for individual household composition and associated stressors, we focus on four groups: women and men without or with at least one child under 14 years of age in the household.

Studying pandemic-related changes in well-being is essential, as SWB is closely related to mental health (e.g., Etheridge & Spantig, 2020). As mental health is an essential aspect of life course health and economic productivity

(Headey et al., 1993), it impacts the pandemic's general economic and social costs (Bahn et al., 2020). Understanding the relevance and extent of pandemic-related changes in well-being provides important insights for policymakers to design target group-specific pandemic control measures or provide adequate support for those with substantial declines in well-being.

Germany is particularly suitable to study gender differences in well-being during the COVID-19 crisis. Although family policies have become more supportive of women's employment and female employment rates have risen (Zoch, 2021), Germany still represents a modernized male breadwinner regime with persistent inequalities in paid and unpaid work (ibid.). Hence, the German labor market is characterized by a substantial gender pay gap and strongly gender-segregated occupational and sectoral structures (Pettit & Hook, 2009). Given the relatively few COVID-19 infections in the first half-year of 2020, Germany can be placed in the midfield of rigorous pandemic control measures.<sup>1</sup> Given the asymmetric impact of the crisis, with some sectors being hit harder than others, gender differences in employment and occupations have resulted in gender-specific changes in working conditions during the pandemic (e.g., UN Women, 2020; Peck, 2020; Farré et al., 2020 for Spain; Möhring, Naumann, Reifenscheid, Blom, et al., 2020 for Germany). Like in other countries, women in Germany were also more burdened by closed schools and childcare facilities than men (e.g., Fuchs-Schündeln & Stephan, 2020; Huebener et al., 2021; Zoch et al., 2021). This initial situation suggests that work and private life and associated SWB have changed very differently for men and women in Germany during the COVID-19 pandemic.

## 2 | THEORETICAL FRAMEWORK

### 2.1 | Working conditions and subjective well-being

In the sociological-oriented literature, SWB is defined as an individual's emotional response to life circumstances, domain satisfaction and a global judgment of life satisfaction (Diener et al., 1999). Accordingly, life satisfaction represents an important dimension of mental health (Headey et al., 1993) that is highly dynamic and subject to both long-term changes and short-term fluctuations (Sonnentag, 2015). The framework of Pearlin's (1989) *stress process model* decomposes the factors and mechanisms influencing stress outcomes such as physical health, mental health, and SWB into stressors and resources (Nomaguchi & Milkie, 2020). Accordingly, *stressors* refer to stress sources such as perceived difficulties in satisfying demands or normative roles. Stressors appear as long-term chronic problems or major life events, causing changes and fluctuations in SWB. Conversely, *resources* help to cope with stressors because they buffer the negative effects of stressors and thus might raise the level of SWB. They include individual endowments, that is, physical objects, life conditions, personal endowments, that is, mastery, resilience, and energy (Peck, 2020), and structural endowments, that is, support from others, society, or the government (Nomaguchi & Milkie, 2020).

Drawing on the stress process model, we consider abrupt, pandemic-related changes in life and working conditions to be major life events associated with specific stressors and resources. Most recent research indicates that these changes were associated with decreased mental health (e.g., Etheridge & Spantig, 2020) and well-being (e.g., Brodeur et al., 2021; Huebener et al., 2021; Möhring, Naumann, Reifenscheid, Wenz, et al., 2020). Considering the work context, critical factors influencing fluctuations and changes in SWB are job stressors and resources as well as job and personal factors at the interface of work and family (Peck, 2020; Sonnentag, 2015). Conversely, important resources for dealing with job stressors include beneficial working conditions such as remote work, flexible schedules, and work autonomy (ibid.).

### 2.1.1 | Work stressors arising from the pandemic

The economic downturn and changes in the work environment are presumed to be important stressors affecting SWB during the coronavirus crisis. In Germany, working conditions changed significantly for many workers, partly because of the imposed distancing measures and partly because of decreased domestic and export demand due to these measures (Anger et al., 2020). Critical stressors include working in an essential occupation, a pandemic-related increase in working hours, being self-employed and being on short-time work, both of which are often accompanied by a loss of income. To buffer the economic shock, Germany made particular use of a specific labor market policy: *short-time work* (Adams-Prassl et al., 2020). This measure is intended to reduce labor costs for firms with reduced working hours, with workers receiving wage compensation from the government of up to 67% of their previous income. In May 2020, 20% of all dependent employees were exposed to short-time work (Kruppe & Osiander, 2020).<sup>2</sup> Likewise, employees in so-called *essential occupations* were exposed to emerging stressors.<sup>3</sup> They often worked longer hours, experienced increased workload and time pressure, had a higher risk of contagion and were less likely to work remotely than employees in nonessential occupations (Bünning et al., 2020; Farré et al., 2020; Yerkes et al., 2020). Another group under particular pressure and often facing precarious income situations during the crisis were *self-employed* individuals. They were more often forced to work fewer hours or stop working entirely than employees but were poorly protected against financial shortfalls (e.g., Bünning et al., 2020). We extend the existing theory on possible work-related stressors for the new context of the pandemic by hypothesizing that the crisis-related labor market and employment changes created new stressors that are associated with reduced SWB during the pandemic (*hypothesis 1*).

### 2.1.2 | Resources leveling the negative effects on SWB

People may also have had various resources that buffered the negative impact of stressors or even had a positive effect on the level of SWB. While remote work was previously only granted to some employees – mostly men (Lott & Aben-droth, 2020) – working from home expanded considerably during the pandemic (e.g., Collins et al., 2020; Dunatchik et al., 2021; Farré et al., 2020; Frodermann et al., 2020). This massive expansion came as a surprise to most firms and employees, often leaving the latter without a proper workspace at home. Before the pandemic, scholars argued that remote work could reduce commuting time and bring more flexibility in integrating paid and unpaid work. However, during the pandemic, it often blurred the lines between work and private life, particularly for parents who were forced to work while simultaneously caring for their children (Dunatchik et al., 2021; Fuchs-Schündeln & Stephan, 2020). Although this role conflict became a great burden, particularly for working parents (e.g., Clark et al., 2020; Fuchs-Schündeln & Stephan, 2020), remote work allowed them to continue working, thus reducing the risk of job and earning losses while minimizing one's own and others' risk of contagion (e.g., Adams-Prassl et al., 2020). For parents without remote work, the only option in the face of closed facilities was often to reduce their paid work hours to care for children (e.g., Bünning et al., 2020; Collins et al., 2020; Zoch et al., 2021).<sup>4</sup> Overall, we consider pandemic-related changes in working conditions such as reducing working hours, reducing overtime, or working from home to be a resource. In the absence of theory on the role and specific mechanisms of resources leveling the negative effects of the pandemic on SWB, we explore the hypothesis that resources in the work context generally decrease the negative effects of the pandemic on SWB (*hypothesis 2*).

## 2.2 | Gender differences in altered working conditions and SWB

Individual job stressors and resources can have very ambiguous effects regarding the group of employees considered, contextual factors, and the domain of satisfaction (for an overview see Nomaguchi & Milkie, 2020). As men and women face different challenges in everyday life and are exposed to different social roles and expectations, men's

and women's SWB should differ and be influenced by different aspects, including their different working conditions due to persistent inequalities in the labor market. Gender differences in the relationship between working conditions and SWB also partly emerge through compositional differences (Peck, 2020; Sonnentag, 2015), that is, differences in individual characteristics regarding employment, occupation, and specific working conditions. These compositional differences are related to the fact that men and women systematically differ in their distribution over horizontal and vertical labor market positions (e.g., Peck, 2020). In Germany, for example, the care and education sector are women's domains, while men are overrepresented in technical and manufacturing occupations as well as in higher hierarchical positions (Pettit & Hook, 2009). Moreover, men are more likely to be self-employed (Federal Statistical Office, 2019) and typically work more extra hours, while women show higher part-time rates to reconcile work and family life (Pettit & Hook, 2009). In addition to compositional differences, the literature also suggests gendered effects of comparable working conditions on SWB. Accordingly, work-family conflicts due to unfavorable working conditions reduce SWB, particularly for working mothers (Nomaguchi & Milkie, 2020; Sonnentag, 2015).

Given the asymmetric impact of the pandemic's multiple threats on various social groups, sectors, and occupations, we expect that women and men differ significantly in their pandemic-related SWB changes. Presumably, much of the SWB difference is due to compositional differences between men and women, particularly in their employment participation, general work characteristics, and family status (Peck, 2020). In addition, we hypothesize that pandemic-specific job stressors and resources interact strongly at the work-family interface (Sonnentag, 2015) and thus affect women's and men's SWB differently, depending on their different contexts and roles (Nomaguchi & Milkie, 2020).

In contrast to the more negative impact of previous economic crises on men, recent research on the COVID-19 crisis suggests that substantial heterogeneity in pandemic-related employment risks and working conditions across occupations and sectors is associated with stronger implications for women's employment (e.g., Adams-Prassl et al., 2020; Alon et al., 2020; Farré et al., 2020; Peck, 2020; UN Women, 2020). Given a substantial gender segregation in occupations and sectors, women were more likely to work in *essential occupations* and thus experienced higher stress levels due to increased workload and working hours, particularly in the health and retail sector (Bahn et al., 2020; Yerkes et al., 2020). Moreover, women were less likely to be affected by *short-time work* (Anger et al., 2020) but more likely to be on (mostly unpaid) furlough than men (Möhring, Naumann, Reifenscheid, Blom, et al., 2020). However, early studies also identified differences in *coping resources*, with women being more likely than men to *reduce working hours* (Bünning et al., 2020; Czymara et al., 2021; Zoch et al., 2021 for Germany; Collins et al., 2020 for the US) and to switch to *remote work* during the crisis (Frödermann et al., 2020; Möhring, Naumann, Reifenscheid, Blom, et al., 2020). This happened in contrast to pre-pandemic times, when, given the same technical possibilities, women were less likely to be allowed to work remotely than men (Lott & Abendroth, 2020). The illustrated gender differences in pandemic-related working conditions should partially explain differences in SWB between men and women.

However, in addition to differences in pandemic-related working conditions between men and women, similar work *stressors* may also affect men's and women's changes in SWB differently. Since women usually also do much of the family work, even if they also work full-time (e.g., Schober & Zoch, 2019), extra hours and increased stress levels should put more strain on them than on men (Clark et al., 2020). We therefore expect that the negative association between working increased hours or in an essential occupation and reduced SWB is more pronounced for women than men. Conversely, because of dominant gender roles and societal norms, we suspect that an involuntary reduction in working hours, for example, through short-time work or even termination, often accompanied by loss of income, is likely to have stronger negative effects on men's well-being. Despite increasingly egalitarian attitudes and norms, role and identity theories (West & Zimmerman, 1987) suggest that men still tend to identify with the role of the primary breadwinner, particularly in the comparatively traditional context of Germany (Zoch, 2021). Hence, loss of work and income should have a stronger effect on men's satisfaction than women, especially if they have a family and children.

Like the stressors, during the pandemic, the available *resources* also differed for men and women, with women having already less resources relative to men prior to COVID-19 (Peck, 2020). According to previous research, parental well-being is strongly related to the availability of institutional childcare (Fuchs-Schündeln & Stephan, 2020; Nomaguchi & Milkie, 2020). The closure of schools and childcare facilities eliminated an important resource to com-

bine work and family roles, thus shifting the relation between job stressors and resources strongly for parents and particularly mothers (Clark et al., 2020). Because women often do the greater share of family work (e.g., Schober & Zoch, 2019), we suspect that pandemic-related reduced hours and remote work were more often associated with increased family work for women than for men (Fuchs-Schündeln & Stephan, 2020). Moreover, since women worked less frequently from home than men before the pandemic (Lott & Abendroth, 2020), we assume that they far more often did not have the necessary spatial and technical equipment, for example, in the form of their own workroom. In addition, women devoted significantly more time to childcare when they work remotely than remotely working men (Collins et al., 2020; Farré et al., 2020). With more care work, it is also likely that women shared more of their children's problems and concerns, whether through the challenges of home schooling or reduced contact with others (e.g., Clark et al., 2020). It can also be assumed that working mothers were more likely than men to fear negative consequences for their own careers when working reduced hours (ibid). Accordingly, we expect the stress-reducing and thus positive relationship between reduced hours or remote work and SWB to be less pronounced for women than for men (Fuchs-Schündeln & Stephan, 2020).

Taken together, the composition differences across working conditions and their gender-specific effects should result in different SWB for women and men. However, due to our rather explorative approach, we refrain from formulating individual hypotheses for the respective stressors and resources. Instead, we combine the stress process model with the existing literature on gender inequalities in paid and unpaid work to explore the hypothesis that gender differences in pandemic-related working conditions explain large parts of the gender differences in the changed SWB (*hypothesis 3*).

### 3 | DATA AND ESTIMATION STRATEGY

#### 3.1 | The National Education Panel Study

To examine the link between working conditions and changes in SWB, we used data from two independent panel surveys of the German National Educational Panel Study (NEPS). Starting in 2009, the annual NEPS provides longitudinal data on educational processes and returns to education throughout the lifespan (Blossfeld et al., 2011). According to their age and educational level, respondents are observed in six independent sub-studies, so-called *Starting Cohorts*, from early childhood to adulthood. Each starting cohort is surveyed with comparable question programs within each topic. To investigate adults' SWB, we combine data from two annually surveyed Starting Cohorts: NEPS-SC6 "Adults" and NEPS-SC5 "Highly Educated." In 2009, NEPS-SC6 started with more than 17,100 individuals born 1944–1986 with different educational backgrounds. The NEPS-SC5 has surveyed 17,900 young and highly educated individuals biannually since 2010, who began a bachelor's degree in the fall of 2010 and had been working since then. By combining both studies, we examine within-changes in SWB among four groups of adults and how working conditions are associated with these pandemic-related changes.

We examine within-change in respondent satisfaction by using information from two measurement time points for each respondent: a supplementary COVID-19 web survey (conducted additionally May–June 2020) and pre-pandemic information from the last regular wave for the respective NEPS Starting Cohort (NEPS-SC5 conducted March–July 2019 and NEPS-SC6 conducted September 2019–March 2020). A total of 2678 adults from the last regular NEPS-SC6 wave and 2859 adults from the last NEPS-SC5 wave participated in the additional COVID-19 web survey asking about the consequences of the COVID-19 pandemic for respondents' living and working conditions.

Our balanced sample consists of all respondents participating in the COVID-19 web survey and one of the two previous regular NEPS waves. Thus, we can compare SWB during spring 2020 with the most recent pre-pandemic information. Since respondents' constant characteristics were not surveyed again in the web survey, we also built some of our control variables based on information from regular NEPS waves. Being interested in the impact of working conditions, we excluded respondents older than 65 ( $N = 594$ ), in education or vocational training ( $N = 239$ ), and with

inactive or unknown labor force status before the pandemic ( $N = 601$ ). Our final sample consists of 2201 women and 1669 men (1558 respondents from NEPS-SC6 and 2312 from NEPS-SC5).

### 3.2 | Estimation strategy

Our analyses followed a two-step procedure. First, we examined the link between working conditions and individual-level changes in SWB with descriptive and multivariate linear regression models. Descriptively, we compared average satisfaction for all four groups at the two measurement time points: before and during the pandemic. In addition, for all four groups, we graphically represent the distribution of the estimated change scores between the two measurement time points in histograms. Regarding our stepwise multivariate regression models, our baseline models included only the indicator for gender. To investigate whether gender differences in SWB were related to sample composition, we then included individual- and household-level controls. Third, we included various indicators of working conditions during the pandemic. Finally, we included respondents' SWB (low, medium, high) before the pandemic to examine the changes in well-being with respect to potential floor and ceiling effects. To investigate gender-specific patterns in the associations between job characteristics and respondents' changes in well-being, we re-estimated all models with interaction effects for gender and working conditions.

In a second step, we applied a two-fold Kitagawa–Oaxaca–Blinder (KOB) counterfactual decomposition (Jann, 2008) to further investigate gender differences in mean satisfaction. More precisely, we examine whether gender differences in life satisfaction are related to compositional differences, that is, the characteristics of the two groups of men and women (composition effect), or the way these characteristics are correlated (unobserved) with satisfaction formation in men and women (return effect).<sup>5</sup> The KOB decomposition method divides the satisfaction differential between women and men into two parts. The first part is presumed to be related to compositional differences of men and women (therefore referred to as explained part/endowment or composition effect). By analyzing this part, we reveal the proportion of the part of the gender gap that can be attributed to gender differences in the characteristics of men and women. The second part subsumes the observed gender differences due to unobserved predictors (therefore referred to as unexplained part). This second part attributes any remaining proportion of the gender satisfaction gap, which is not explained by observed characteristics, to differences in the formation of satisfaction, that is, how satisfaction is linked to men's and women's observed and unobserved characteristics. Finally, we conducted several robustness checks to thoroughly investigate any remaining gender differences in SWB.

### 3.3 | Measures

We estimated change scores for three well-established items distinguishing the following three domains of SWB: (1) overall life satisfaction and satisfaction with (2) working life and (3) family life (Table 1).<sup>6</sup> Answers to all questions were measured on an 11-point Likert scale, ranging from 0 “completely unsatisfied” to 10 “completely satisfied,” so that higher values indicate higher well-being.<sup>7</sup> We used the indicators as quasi-metrics in linear regressions because, according to previous research, the results are comparable to models with an ordered categorical variable (Ferrer-i-Carbonell & Frijters, 2004).

To account for important differences in other potential stressors and resources due to gendered roles, particularly in the family sphere, our main independent variable distinguished among four groups of respondents: (1) men (reference category) and (2) women without younger children and (3) men and (4) women with at least one child under 14 years of age in the household.<sup>8</sup> Although the first two groups could also have older children living both inside and outside the household, in the following, we refer to the men and women with younger children as *mothers* and *fathers* for a clear distinction.



TABLE 1 Description of dependent variables (weighted)

Item	Respondents without under-14-years old						Respondents with under-14-years old					
	Men			Women			Fathers			Mothers		
	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N
Satisfaction with life												
Pre-corona	7.88	0.94	1336	7.91	1.07	1843	8.23	0.95	333	7.98	1.14	358
During corona	7.24	1.60	1336	7.28	1.58	1843	7.71	1.45	333	6.83	1.59	358
Change	-0.64***	1.5	1336	-0.62***	1.51	1843	-0.52***	1.4	333	-1.16***	1.57	358
Satisfaction with work												
Pre-corona	7.41	1.68	1303	7.44	1.66	1791	7.38	1.75	330	7.31	1.41	331
During corona	7.01	1.95	1303	6.90	2.02	1791	7.00	1.87	330	7.29	1.88	331
Change	-0.40***	1.91	1303	-0.54***	1.97	1791	-0.38***	2.23	330	-0.03***	2.17	331
Satisfaction with family												
Pre-corona	8.08	1.39	1335	8.25	1.44	1838	8.66	1.22	333	8.46	1.40	358
During corona	7.31	1.95	1335	7.49	2.04	1838	8.22	1.69	333	7.51	1.83	358
Change	-0.77	1.55	1335	-0.76	1.85	1838	-0.45	1.53	333	-0.95	1.41	358

Note: \*\*\* $p < 0.05$ .

Source: NEPS SC6 + SC5, weighted.

Our full models included the following individual-level control variables (see Tables S1 and S2 in the Supporting Information): age (linear and quadratic terms), educational attainment, migration background, single household, number of household members, pre-crisis part-time employment (ref. full-time), pre-crisis log household income (in Euros) and residence in East Germany. We operationalize potential pandemic-related stressors or resources from the work context as follows: pandemic-related changes in working hours, working in an essential occupation, working remotely, self-employment and a dummy variable indicating a reduction in household income of more than 10% during the first months of the pandemic. Regarding altered working hours, respondents reported whether they worked the same number of hours, more or fewer hours than before the crisis or currently not at all. If respondents reduced their working hours, they were asked to indicate why. We therefore distinguish reduced working hours in the context of short-time work from other reasons, such as reducing overtime or taking unpaid time off. The idea behind distinguishing between these two types is that short-time work is not decided voluntarily by the respondent but implemented by the employer. A detailed overview of the construction of the variables is included in the Supporting Information (Table S3).

## 4 | RESULTS

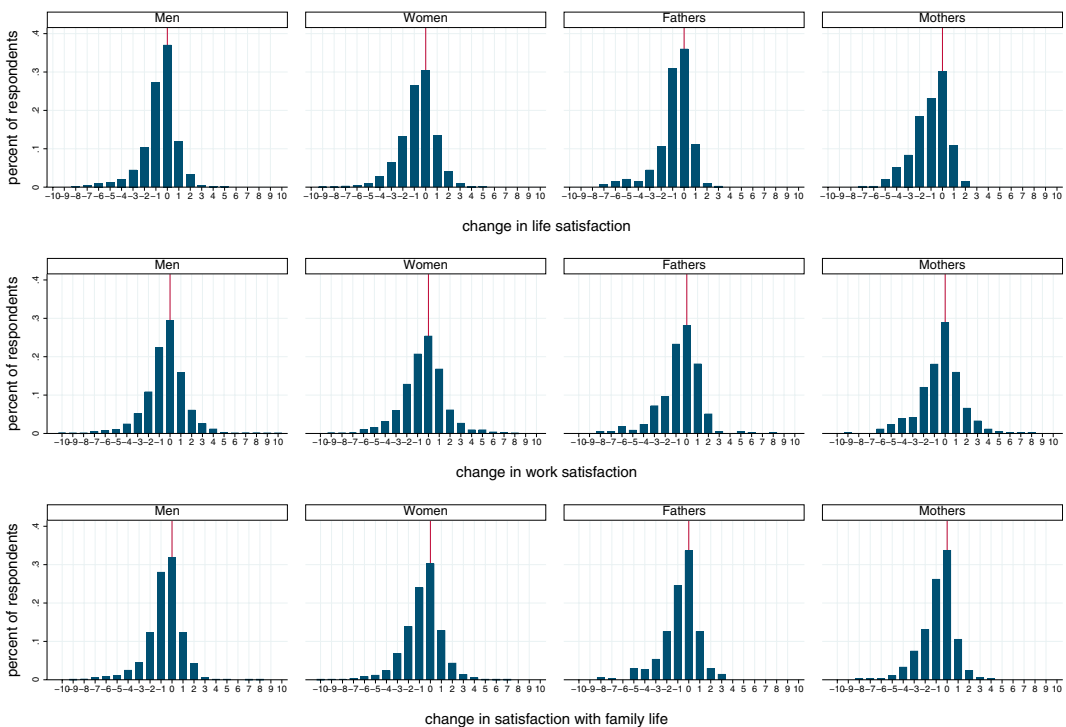
### 4.1 | Descriptive findings

Table 1 presents the weighted means of the three variables capturing satisfaction with overall life, work, and family life before and during May–June 2020. Comparing the three satisfaction dimensions, it is noticeable that all respondents were more satisfied with their family life than with their work or their life as a whole. Even before the crisis (8.08–8.66) but also during the crisis (7.31–8.22), satisfaction scores were highest for family life and lowest for satisfaction with work (pre-crisis 7.31–7.44 vs. 6.90–7.29 during the crisis). During the first months of the pandemic, all

respondent groups showed lower values for each of all three satisfaction domains than before the pandemic. These differences were statistically significant ( $t$ -test,  $p = 0.05$ ). The average reduction in satisfaction was particularly strong for overall life ( $-0.52$  to  $-1.16$ ) and family life ( $-0.45$  to  $-0.95$ ) compared to smaller changes for work ( $-0.03$  to  $-0.54$ ). Comparing the change in satisfaction of men with that of women revealed statistically significant gender differences only for the change in life satisfaction.

Figure 1 displays the distribution of the intra-individual change scores across groups for each satisfaction domain. Across all groups, the largest share of respondents reduced their satisfaction, that is particularly true for mothers. However, we also observe a large proportion of men with and without younger children who reported little or no change in life satisfaction. Conversely, for the work and family domains, gender differences in altered satisfaction seemed to be less pronounced. Altogether, the descriptive results partly confirmed our expectation that men and women have significantly reduced their average satisfaction during the first months of the pandemic, with more pronounced changes among women.

Furthermore, our subsamples of men and women differed considerably in composition (see Table S1 in the Supporting Information): Men were slightly older, more likely to have lower educational levels, lived in larger households and reported higher household income. Women, particularly those with younger children, were more likely to work part-time before the crisis and to work in an essential occupation, whereas men without children were more likely to be self-employed. However, gender differences in further potential stressors, that is, short-time work and income loss, were small. Considering resources, more women reduced their working hours, whereas remote work differed only slightly between men and women. In fact, among those without younger children, women were more likely to work remotely. Overall, the descriptive results suggested that the observed gender differences in SWB before and during



**FIGURE 1** Within-person differences in satisfaction prior and during the Covid-19 pandemic. Negative values indicate a reduced 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 satisfaction. Source: National Educational Panel Study SC6 + SC5, own calculation, unweighted [Colour figure can be viewed at [wileyonlinelibrary.com](https://onlinelibrary.wiley.com)]

the pandemic may partly result from compositional gender differences in the individual characteristics and working conditions.

## 4.2 | Multivariate findings

Table 2 presents the intra-individual change estimates from item-specific multiple linear regression (MLR) models. In the baseline models without further control variables (M1), the estimated constants are substantial and negative, indicating reduced well-being for the reference group of men without children under 14 in the household. The coefficients indicate whether the change in well-being is less (positive estimate) or more pronounced (negative estimate) than for the reference group of men. During the first months of the pandemic, parents, particularly mothers with younger children ( $-0.39$ ), reduced their life satisfaction more than the reference group of men ( $-0.66$ ). However, the differences for fathers ( $-0.16$ ) were only marginally statistically significant. For satisfaction with work, group differences were only substantial for fathers ( $-0.21$ ), but statistically significant only at the 10-percent level. Similarly, fathers ( $-0.08$ ) and mothers ( $-0.14$ ) reported significantly lower satisfaction with family life than men without younger children ( $-0.68$ , reference group); however, the results were not statistically significant.

In a second step, we accounted for compositional differences at the individual and household levels (M2). As a result, the observed changes in life satisfaction turned positive for the reference group of men, while the gender difference between respondents without younger children increased somewhat. Conversely, differences between mothers and men without younger children remained substantial. For satisfaction with work, compositional differences explained some of the differences between men with and without younger children. However, all other correlations remained largely unchanged when accounting for compositional differences.

### 4.2.1 | Working conditions and altered SWB

In a third step, we included the full set of working conditions (M3), which – to our surprise – did not alter the observed group differences for each dimension. To account for potential floor and ceiling effects, we included respondents' satisfaction level before the COVID-19 pandemic (M4). For all three dimensions, lower pre-crisis satisfaction levels were significantly positively associated with respondents' change in well-being. This indicated smaller declines in satisfaction for respondents with lower pre-pandemic satisfaction levels than for those with medium satisfaction scores. Conversely, highly satisfied respondents experienced more pronounced declines in their well-being.<sup>9</sup>

Figure 2 presents the estimates for the associations between the individual working conditions and respondents' satisfaction changes from the full models (M4) by plotting point estimates and their 95% confidence intervals.<sup>10</sup> Intervals crossing the vertical 0-line indicate statistically nonsignificant effects. For all estimated models, the effects, standard errors, number of observations and total number of individuals are reported in Table 2.<sup>11</sup> Regarding potential stressors during the pandemic, short-time work was associated with the strongest decline in domain-specific satisfaction. Increased working hours were linked to decreased satisfaction with life and work; however, this association was statistically significant only for life satisfaction. Surprisingly, respondents working in an essential occupation indicated increased satisfaction, with statistically significant associations for work and somewhat smaller and nonsignificant effects for life satisfaction. Conversely, essential workers significantly reduced their satisfaction with family life. Similarly, self-employed respondents experienced a strong decline in life and work satisfaction. Finally, a reduction of more than 10% of pre-crisis household income was statistically significantly associated with lower satisfaction in all domains. Thus, the results mostly confirmed *hypothesis 1*, which argues that stressors in the form of working conditions reduced SWB during the pandemic.

Conversely, working conditions to cope with increased burdens revealed mostly positive associations with altered SWB. Although the coefficients were small and statistically nonsignificant, reduced working hours were positively as-

TABLE 2 Relationship between work characteristics and satisfaction for three domains (OLS regression)

	Life satisfaction				Satisfaction with work				Satisfaction with Family			
	M1	M2	M3	M4	M1	M2	M3	M4	M1	M2	M3	M4
Women (ref. men)	-0.02 (0.06)	-0.08 (0.06)	-0.08 (0.06)	-0.11* (0.06)	-0.04 (0.07)	-0.06 (0.07)	-0.08 (0.07)	-0.11 (0.07)	-0.03 (0.06)	-0.04 (0.06)	-0.04 (0.06)	0.00 (0.06)
Fathers	-0.16* (0.09)	-0.14 (0.11)	-0.15 (0.11)	-0.07 (0.11)	-0.21* (0.12)	-0.17 (0.14)	-0.22 (0.14)	-0.18 (0.13)	-0.08 (0.10)	-0.15 (0.12)	-0.15 (0.12)	0.02 (0.12)
Mothers	-0.39*** (0.09)	-0.36** (0.11)	-0.36** (0.11)	-0.29* (0.11)	0.01 (0.13)	0.06 (0.15)	0.05 (0.15)	0.06 (0.14)	-0.14 (0.09)	-0.18 (0.11)	-0.16 (0.11)	-0.02 (0.11)
Short-time work			-0.27** (0.09)	-0.27** (0.09)			-0.63*** (0.12)	-0.65*** (0.11)			-0.23* (0.10)	-0.24* (0.10)
Working hours -			-0.02 (0.07)	-0.01 (0.07)			0.04 (0.10)	0.04 (0.09)			0.12 (0.08)	0.10 (0.08)
Working hours +			-0.15* (0.07)	-0.14* (0.06)			-0.09 (0.08)	-0.06 (0.08)			0.01 (0.07)	-0.00 (0.07)
Essential occupation			0.07 (0.05)	0.09* (0.05)			0.14* (0.07)	0.12* (0.07)			-0.14* (0.06)	-0.11* (0.06)
Remote work			0.13* (0.06)	0.14* (0.06)			0.15* (0.08)	0.17* (0.07)			0.09 (0.07)	0.08 (0.06)
Remote work missing			-0.21 (0.14)	-0.21 (0.14)			-0.62** (0.20)	-0.60** (0.19)			-0.05 (0.15)	-0.04 (0.15)
Self-employed			-0.29* (0.12)	-0.23* (0.12)			-0.43** (0.15)	-0.26* (0.13)			-0.11 (0.13)	-0.10 (0.13)
Income reduced in crisis			-0.18** (0.07)	-0.22*** (0.06)			-0.14 (0.09)	-0.16* (0.08)			-0.11 (0.07)	-0.12* (0.07)
Pre-corona satisfaction low (ref. medium)				0.61*** (0.06)				0.93*** (0.07)				0.58*** (0.08)

(Continues)

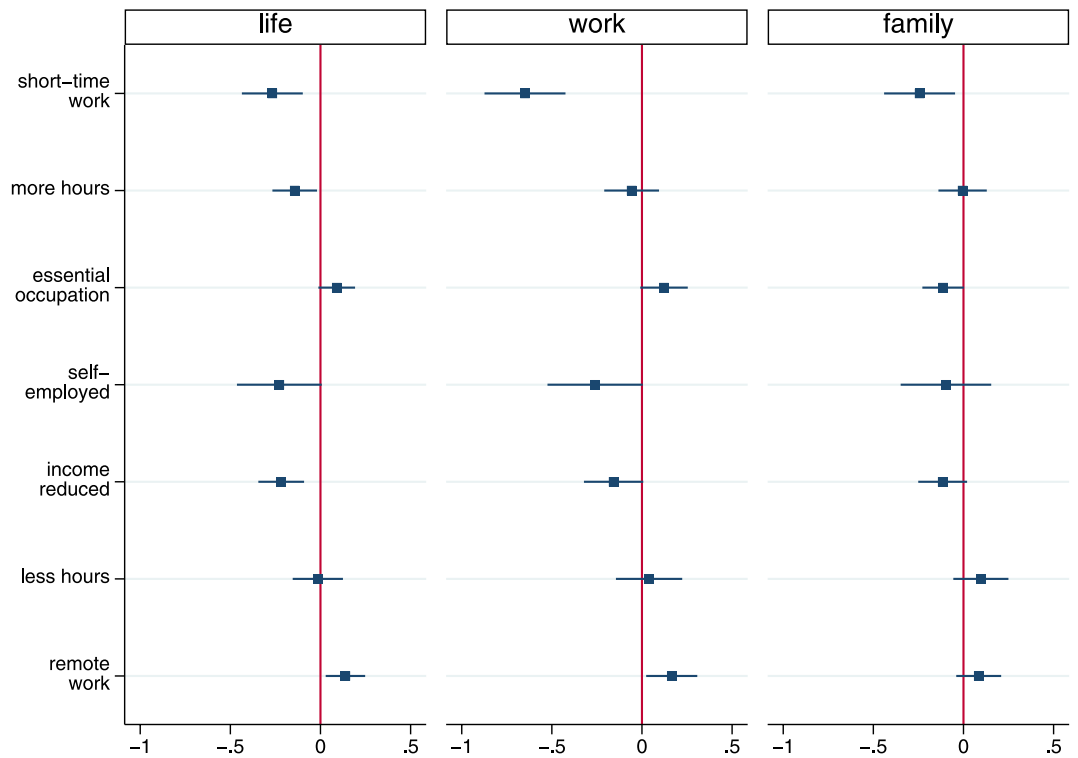
TABLE 2 (Continued)

	Life satisfaction				Satisfaction with work				Satisfaction with Family			
	M1	M2	M3	M4	M1	M2	M3	M4	M1	M2	M3	M4
Pre-corona satisfaction high				-0.45*** (0.06)				-0.61*** (0.07)				-0.47*** (0.06)
_cons	-0.66*** (0.04)	2.01** (0.70)	1.65* (0.71)	0.98 (0.69)	-0.40*** (0.05)	-0.43 (0.90)	-0.55 (0.92)	-1.20 (0.87)	-0.68*** (0.04)	-0.42 (0.76)	-0.62 (0.76)	-0.99 (0.75)
Control variables included	x	✓	✓	✓	x	✓	✓	✓	x	✓	✓	✓
N	3871	3871	3871	3871	3756	3756	3756	3756	3865	3865	3865	3865
r <sup>2</sup> _a	0.00	0.03	0.04	0.10	0.00	-0.00	0.02	0.13	-0.00	0.00	0.01	0.07
p	0.00	0.00	0.00	0.00	0.34	0.48	0.00	0.00	0.49	0.01	0.00	0.00

Note: Standard errors in parentheses. M2 to M4 include the full set of control variables: age, age<sup>2</sup>, education, migration background, pre-crises employment, pre-crises log-household income, single household, number household members, East Germany.

\* $p < 0.10$ , \*\* $p < 0.05$ , \*\*\* $p < 0.001$ .

Source: NEPS SC5 + SC6.



**FIGURE 2** Relationship between work-characteristics and change in satisfaction for three domains (linear regression, full models). 95% confidence intervals. Full models include pre-corona satisfaction, age, age<sup>2</sup>, education, migration background, pre-crises employment, pre-crises log-household income, single household, number household members, East Germany. *Source:* National Educational Panel Study SC6 + SC5, own calculation [Colour figure can be viewed at [wileyonlinelibrary.com](https://onlinelibrary.wiley.com)]

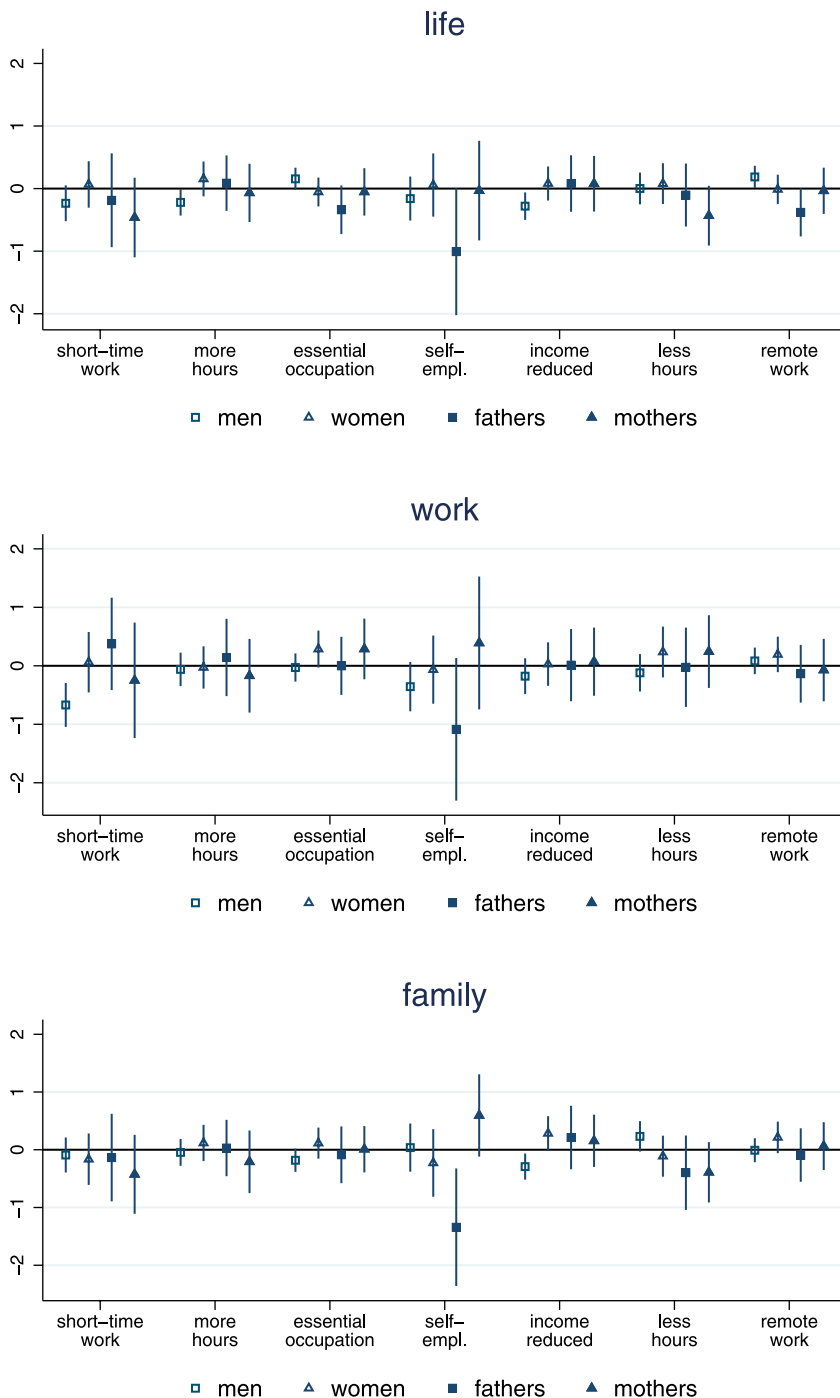
sociated with satisfaction with work and family life. Similarly, remote work increased well-being in all domains, with larger and statistically significant increases in satisfaction with life and work. Hence, the findings support *hypothesis 2*, which argues that resources in the work context buffer the negative effects of the pandemic on SWB.

To illustrate the observed group differences in altered satisfaction, we compared each group's change in satisfaction with the average change of the full sample based on models without and with full controls (see Figure S1 in the Supporting Information). The results with full controls confirmed that women with younger children decreased their life satisfaction more than the rest of the sample ( $p = 0.05$ ; right panel). Conversely, men without younger children in the household slightly increased their life satisfaction compared to all other groups. For the other dimensions, group differences were not statistically significant; however, fathers showed somewhat greater reductions in their work satisfaction.

4.2.2 | Gender differences in working conditions and altered SWB

Re-estimating our models with interaction effects between gender and all working conditions revealed only a few statistically significant group differences in the associations. Figure 3 displays the coefficients of the working conditions on respondents' domain-specific satisfaction changes separately for men (reference group) and women as well as for fathers and mothers with children under 14.

Considering stressors, group differences in the relationship between reduced life satisfaction and working more hours or income loss were mostly small. Conversely, parents with younger children showed more pronounced de-



**FIGURE 3** Interaction effects between work-characteristics and gender for altered satisfaction in three domains (linear regression, full models). 95% confidence intervals. Full models include pre-corona satisfaction, age, age<sup>2</sup>, education, migration background, pre-crises employment, pre-crises log-household income, single household, number household members, East Germany. Reading example: When working remotely, life satisfaction (upper graph) increased significantly for men without younger children whereas this positive effect was smaller for women with and without children (difference statistically nonsignificant) and fathers (difference statistically significant). Source: National Educational Panel Study SC6 + SC5, own calculation [Colour figure can be viewed at [wileyonlinelibrary.com](https://onlinelibrary.wiley.com)]

clines in life satisfaction when working in an essential occupation or short-time. Considering self-employment, fathers showed the most pronounced declines in life satisfaction. Regarding potential resources, working less hours decreased satisfaction even more for mothers compared to mostly small and sometimes even positive increases for the other groups. Similarly, parents with younger children working remotely reported declines in life satisfaction, with more pronounced differences for fathers.

Considering altered satisfaction with work, the results revealed no significant interaction effects at the 5-percent level. However, we found a somewhat more positive association for female essential workers and a more negative relationship for self-employed fathers. Similarly, we found only slightly stronger and opposing changes in satisfaction with family life for self-employed parents and smaller reductions for women with household income loss.

Overall, the interaction effects indicated small and mostly nonsignificant gender differences in the relationship between working conditions and group-specific changes in SWB. Therefore, the findings provide only limited support for *hypothesis 3*, which argues that pandemic-related differences in working conditions should explain large parts of the differences in altered SWB between women and men.

### 4.3 | Decomposing gender differences in life satisfaction

Table 3 presents the results for the counterfactual KOB twofold decompositions of the gender differences in life satisfaction during the first months of the pandemic (see Table S8 in the Supporting Information for detailed decomposition results). The mean differences confirmed the MLR findings presented above, with significantly lower life satisfaction for women. The results are reported from the perspective of women, and hence, the explained part illustrates what women's life satisfaction during the pandemic would be if they had the same characteristics as men. The unexplained part attributes the remaining disparities to the differences in how the formation of life satisfaction is linked to certain observed and unobserved characteristics. In other words, this part illustrates how women's satisfaction would be altered if their satisfaction were linked to characteristics in the way that satisfaction is linked to these characteristics among men.

Surprisingly, the decomposition confirmed that during the pandemic, women would not have had substantially higher life satisfaction if they had the same distribution of characteristics as men (explained part). In fact, the compositional differences in the characteristics explained only a very small share of the observed difference in life satisfaction (explained part in percent). Instead, gender gaps in life satisfaction seemed to result from a gender-specific formation process (unexplained part in percent) based on similar observed and unobserved characteristics.

### 4.4 | Robustness checks

We conducted several robustness checks that reinforced our findings. First, we compared domain-specific satisfaction in spring 2020 with satisfaction in all previous NEPS waves by estimating fixed-effects regressions that by definition account for all constant observed and unobserved characteristics. The results confirmed decreased satisfaction for all domains, with a particularly pronounced decline in mothers' life satisfaction (see Tables S9–S10 and Figure S3 in the Supporting Information). Additionally, we re-estimated all models with additional control variables such as respondents' occupation, working in an occupation that was particularly affected by the COVID-19 pandemic (e.g., the health, sales, hotels and restaurants, or education and teaching sector, based on KldB-2010 3-digit level), and working on a fixed-term contract or different measures of income. We further examined the role of a coronavirus infection or mandated quarantine of the respondents or their relatives as well as the role of respondents' satisfaction with health as an independent variable in our models. However, our findings were robust to all sensitivity checks.

Second, we re-estimated all models after excluding respondents older than 50 years of age to ensure that the chosen reference categories of respondents without children under 14 in the household did not drive the results. Thus,



TABLE 3 Oaxaca–Blinder twofold decomposition results for predicted gender differences in satisfaction

	Satisfaction		
	Life	Work	Family
	M1	M2	M3
Differential			
Men	7.27***	6.99***	7.49***
	(0.04)	(0.05)	(0.05)
Women	7.15***	6.91***	7.57***
	(0.03)	(0.04)	(0.04)
Difference	0.13*	0.08	−0.07
	(0.05)	(0.06)	(0.06)
Decomposition			
Explained	0.00	0.06	0.06
	(0.04)	(0.04)	(0.04)
Unexplained	0.13*	0.02	−0.14*
	(0.06)	(0.07)	(0.07)
Decomposition in percent			
Explained	2.47	77.89	−86.55
	(28.74)	(75.00)	(98.70)
Unexplained	97.53***	22.11	186.55
	(28.74)	(75.00)	(98.70)
Observations	3871	3822	3870

Note: For family satisfaction the negative contribution of the unexplained part results from the reversed but statistically nonsignificant gender difference. The sum of both decomposition parts need to equal the estimated gap, hence the negative value for the unexplained part together with the large explained part result in the large relative decomposition parts exceeding 100%. Standard errors in parentheses.

\* $p < 0.05$ , \*\*\* $p < 0.001$ .

Source: NEPS SC5 + SC6, own calculation.

we reduced the previously possibly very heterogeneous group and excluded respondents who may be parents of older children who live outside the parental household. Although the results for the reduced sample ( $N = 2770$ ) no longer showed statistically significant gender differences for life satisfaction, the effect sizes remained substantial and thus continued to indicate important gender gaps in SWB.

Third, we included the number of children under 14 and whether there were children under 6 years old in the household in all models (see Table S11 in the Supporting Information), which was negatively associated with satisfaction in all domains (despite the very small number of children under 6). As expected, the additional control variable explained the reduced life satisfaction of mothers. However, the lower life satisfaction for women without a younger child remained statistically significant. Additionally, these models revealed a higher life satisfaction for fathers that was substantial in magnitude (0.29+) even if only statistically significant at the 10-percent level.

Previous research has highlighted gender differences in pandemic-related concerns (e.g., Bünning et al., 2020; Clark et al., 2020; Czymara et al., 2021). Hence, we tested the relevance of negative expectations about one's own situation, such as future job loss, loss of income, money problems, health constraints, or further restrictions on civil rights and liberties. Additionally, we tested the relevance of more general concerns about the educational system, healthcare system, labor market, economy, and social inequality. In general, women were more concerned about these societal issues than men and more likely to expect to lose their job or income than men. Conversely, men were more

likely to expect a reduction in their living standards, increased health problems for themselves and relatives and an expected economic hardship for close friends or relatives. However, these gender differences were mostly significant for the larger sample of respondents without younger children ( $t$ -test,  $p = 0.05$ ). Including a mean index of negative expectations about one's own situation showed small but significantly negative associations with satisfaction for all three dimensions and partly explained the decreased life satisfaction of women with and without younger children (see Table S12 in the Supporting Information). Similarly, a mean index on societal concerns showed small but significantly negative associations with satisfaction for all three dimensions (see Table S13 in the Supporting Information). However, both measures did not change our results substantially, indicating that gender differences in SWB are only partly related to stronger individual concerns among women.

As the first months of the pandemic were accompanied by enforced physical distancing in Germany, we investigated the role of altered social life. Respondents were asked how often they had missed the company of others during these months. Both women with and without children felt significantly lonelier than men ( $t$ -test,  $p = 0.05$ ). Thus, we included an additive sum score of loneliness in our models, which displayed substantial significantly negative associations with satisfaction for all three dimensions (see Table S14 in the Supporting Information). Including the sum score explained the decreased life satisfaction of women without younger children. The effects for mothers with younger children decreased somewhat in size and remained statistically significant only at the 10-percent level. The findings therefore suggest important gender differences in altered social life driving some of the observed gender differences in life satisfaction.

## 5 | DISCUSSION AND CONCLUSION

Our study provides evidence on gender differences in altered SWB during the first months of the COVID-19 pandemic in Germany. Our results show a decline in satisfaction with life, work, and family for all respondents. However, comparing the changes for men and women with and without children under 14 years revealed larger declines in life and some declines in work satisfaction for mothers and fathers respectively. Moreover, declines in work satisfaction were more pronounced among fathers. After accounting for compositional differences at the individual, household and work levels, our results illustrate that mothers' life satisfaction and fathers' work satisfaction declined particularly strongly. Conversely, we found no substantial group differences in altered satisfaction with family when accounting for compositional differences. Hence, from a theoretical perspective, our findings provide evidence for heterogeneous crisis effects on SWB that are likely to be driven by gender-specific roles and contexts.

Contrary to our expectations, gender differences in life and work satisfaction were only moderately linked to differences in working conditions. Moreover, the group-specific differences in the relationship between working characteristics and altered satisfaction were rather ambiguous and, if at all, provided only tentative evidence for somewhat stronger negative associations for parents and particularly fathers. Most importantly, the rich set of working conditions could not explain the stronger decline in women's SWB, which is in line with previous studies on mental health (Etheridge & Spantig, 2020). Decomposition analysis confirmed the comparatively small role of observed individual, household, and work characteristics in explaining the satisfaction gaps and indicated gender differences in the formation of satisfaction. Overall, our results provide no evidence that gender differences in satisfaction occurred exclusively due to persistent or even enforced labor market inequalities during the first months of the pandemic in Germany. Nevertheless, our findings additionally suggest gender differences in social life and pandemic-related concerns. Specifically, the results show that at the beginning of the pandemic, women were more concerned about the multiple threats of the crisis and, in addition, felt lonelier than men. These gender differences partly drive the observed gap in life satisfaction, particularly for those without younger children. Hence, our results expand previous research that was unable to fully explain gender differences in altered SWB (e.g., Bünning et al., 2020; Huebener et al., 2021; Möhring, Naumann, Reifenscheid, Wenz, et al., 2020) and thereby provide further evidence that suggests a high relevance of social factors for gender differences in altered SWB during the crisis (Etheridge & Spantig, 2020).

Overall, our results provide additional evidence on gender disparities in SWB during the COVID-19 crisis found in international studies (e.g., Clark et al., 2020; Etheridge & Spantig, 2020; Zhou et al., 2020 for the UK; Brodeur et al., 2021 for Europe) and studies focusing on Germany (e.g., Bünning et al., 2020; Fuchs-Schündeln & Stephan, 2020; Huebener et al., 2021). Moreover, the general satisfaction level is comparable to other studies based on data from spring 2020, with life satisfaction ranging from 6.5 to 7.5 for women and slightly higher levels of 6.9–7.5 for men (Fuchs-Schündeln & Stephan, 2020). Additionally, our heterogeneous results with respect to gender, parenthood and investigated items illustrate the complex association between domain-specific satisfaction and various impact factors, which often depend on the context and investigated subgroups (Fuchs-Schündeln & Stephan, 2020; Nomaguchi & Milkie, 2020). The item-specific findings therefore align with research that highlights the relevance of distinguishing different dimensions of satisfaction (Diener et al., 1999). More broadly, our findings also confirm well-studied gendered roles and identities (e.g., Zoch, 2021). While men's life and work satisfaction seem to be more affected by involuntary reductions in working hours and loss of income, especially in self-employment, women's life satisfaction seems to have particularly decreased in connection with caregiving responsibilities and reduced social life. Finding a particularly pronounced and unexplained decline in mothers' life satisfaction therefore also confirms the most recent studies suggesting a strongly gendered distribution of family work during the pandemic (e.g., Fuchs-Schündeln & Stephan, 2020; Zoch et al., 2021). Given that we observe significantly lower life satisfaction among mothers already in the first months of the pandemic and in the face of further increased uncertainties and long-term burdens while resources, such as government wage replacement benefits, decreased, it is reasonable to assume that satisfaction may have declined even further over the following months of the pandemic.

Although our result of women's lower SWB aligns with other studies on the pandemic, it likely represents a lower bound when comparing altered satisfaction across countries. Compared to contexts that were hardest hit by the pandemic and related labor market changes, such as Spain, Italy, France or the US, infection rates and unemployment rates remained low in Germany. Instead, enormous economic aid and special labor market instruments supported those negatively affected by the lockdown or a decline in demand. These favorable conditions could explain the low level of concern about the societal situation in our data measured at the beginning of the pandemic. Germany thus occupies a comfortable position in international comparison, so our results most likely underestimate the immediate negative impact of the pandemic on overall satisfaction as well as associated gender differences for other contexts.

Overall, the study highlights a particularly pronounced decrease in life satisfaction among mothers of younger children. However, given the small number of respondents, particularly with very young children in the household, and the possible selective survey participation in the supplementary COVID-19 web survey, the results should be interpreted with caution. Moreover, although we exploit variation in panel data, some time-varying information was not measured annually, which did not allow us to estimate panel analysis, such as fixed-effects regression models. Hence, the risk of biased estimates remains due to unobserved characteristics that may correlate with some of the observables. However, by accounting for pre-pandemic satisfaction and compositional differences, our results provide a more robust picture than previous cross-sectional findings on pandemic-related differences in SWB.

Despite these limitations, our findings align with previous studies highlighting the importance of increased gender inequalities during the first months of the COVID-19 pandemic. However, given the early observation period in spring 2020, future research should focus on the medium-term consequences of the pandemic. Since the crisis has penalized certain groups very differently in recent months, it remains to be seen how the satisfaction of women and men has developed. Future work should therefore also concentrate on various possible direct and indirect mechanisms that lead to inequalities in well-being, particularly for more vulnerable groups such as single mothers or those with lower educational attainment.

## ACKNOWLEDGMENTS

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cooperation with a nationwide network. Among others, the data set contains detailed longitudinal information on individuals' educational careers and other individual and household characteristics. This research received no specific grant from any funding agency in the public, commercial, or not-for-profit sectors.

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## CONFLICT OF INTEREST

There is no conflict of interests.

## DATA AVAILABILITY STATEMENT

In this paper, we combine the scientific use files of the NEPS Starting Cohorts 5 and 6 with the recently collected but unpublished respective waves (NEPS-SC5 consortium data B140\_C1 and NEPS-SC6 consortium data B145\_C1) and with the supplementary COVID-19 web survey (Corona\_CAWI\_C3, conducted May–June 2020). All data of the National Educational Panel Study (NEPS) will be available after data publication as Scientific Use Files in 2021 with corresponding data use agreements here: <https://www.neps-data.de/Data-Center/Data-Access>.

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## ENDNOTES

- <sup>1</sup> The first infections occurred at the end of January 2020 and then spread throughout Germany. In mid-March, schools and childcare facilities were closed nationwide. From the end of March to mid-April, non-supply-relevant stores and restaurants were closed, and social distancing measures were implemented. However, individuals could always leave the house, do sports and meet a significantly reduced number of others. Schools and childcare facilities opened slowly and on an irregular basis from May.
- <sup>2</sup> Even though the short-time work was introduced to avoid unemployment and company bankruptcies, it meant uncertainty and financial losses for individual employees. Since we are looking at the effect of short-time work on SWB, we list this instrument under stressors.
- <sup>3</sup> Workers in essential occupations are those who conduct a range of operations and services in sectors that are essential to ensure the continuity of critical functions in a country, such as healthcare, production and distribution of food, drinks and essential goods, public safety and transportation, education and childcare, government, etc.
- <sup>4</sup> In Germany, only workers in essential occupations were allowed to send their children to emergency care during the first lockdown.
- <sup>5</sup> This method is predominantly used to explain the gender pay gap (see Jann, 2008), but is also applied in other areas, for example, explaining differences in attitudes (Zoch, 2021).
- <sup>6</sup> For overall life satisfaction, the question was "All in all, how satisfied are you with your life at the moment?". To capture domain-specific satisfaction, respondents were asked "How satisfied are you with your work/family life?".
- <sup>7</sup> Table S4 in the Supporting Information shows moderate correlation coefficients between the three domains (0.24–0.54).
- <sup>8</sup> Children up to 14 years are often considered as time-intensive to care for or to support with home-schooling. Therefore, in the supplementary COVID-19 web survey, for example, questions on the care situation were only posed to respondents with children under 14 years of age.
- <sup>9</sup> For a more detailed analysis of pre-pandemic levels, see separate models for low, medium, and high scores in all three satisfaction domains in the Supporting Information Table S15.
- <sup>10</sup> See Figure S2 in the Supporting Information for stepwise models that show similar patterns.
- <sup>11</sup> We checked for problems of multi-collinearity of independent variables using the variance inflation factor (VIF values < 3). For details, see full stepwise models of changes in satisfaction with life (Table S5), work (Table S6) and family (Table S7) in the Supporting Information.

## REFERENCES

- Adams-Prassl, A., Boneva, T., Golin, M., & Rauh, C. (2020). Inequality in the impact of the coronavirus shock: Evidence from real time surveys. *Journal of Public Economics*, 189, 104245. <https://doi.org/10.1016/j.jpubeco.2020.104245>
- Alon, T., Doepke, M., Olmstead-Rumsey, J., & Tertilt, M. (2020). *The impact of COVID-19 on gender equality* (working paper no. 26947). National Bureau of Economic Research. <https://doi.org/10.3386/w26947>
- Anger, S., Bauer, A., Bossler, M., Brücker, H., Bruckmeier, K., Dietz, M., Dummert, S., Fuchs, J., Gehrke, B., Grunau, P., Gundacker, L., Gürtzgen, N., Haas, A., Hartl, T., Hauptmann, A., Hausner, K. H., Hutter, C., Jaschke, P., Kosyakova, Y., ... Zika, G. (2020, August 26). *Befunde der IAB-Forschung zur Corona-Krise – Zwischenbilanz und Ausblick*. Institut für Arbeitsmarkt- und Berufsforschung. [https://doku.iab.de/grauepap/2020/IAB\\_Befunde\\_COVID-19.pdf](https://doku.iab.de/grauepap/2020/IAB_Befunde_COVID-19.pdf)
- Bahn, K., Cohen, J., & van der Meulen Rodgers, Y. (2020). A feminist perspective on COVID-19 and the value of care work globally. *Gender, Work and Organization*, 27(5), 695–699. <https://doi.org/10.1111/gwao.12459>
- Blossfeld, H.-P., Roßbach, H.-G., & von Maurice, J. (2011). Education as a lifelong process—The German National Educational Panel Study (NEPS). *Zeitschrift für Erziehungswissenschaft*, 14. (Special issue).
- Brodeur, A., Clark, A. E., Fleche, S., & Powdthavee, N. (2021). COVID-19, lockdowns and well-being: Evidence from Google Trends. *Journal of Public Economics*, 193, 104346.
- Bünning, M., Hipp, L., & Munnes, S. (2020). *Erwerbsarbeit in Zeiten von Corona*. WZB Ergebnisbericht.
- Clark, S., McGrane, A., Boyle, N., Joksimovic, N., Burke, L., Rock, N., & O' Sullivan, K. (2020). "You're a teacher you're a mother, you're a worker": Gender inequality during COVID-19 in Ireland. *Gender, Work and Organization*, 28(4), 1352–1362. <https://doi.org/10.1111/gwao.12611>
- Collins, C., Landivar, L. C., Ruppanner, L., & Scarborough, W. J. (2020). COVID-19 and the gender gap in work hours. *Gender, Work and Organization*, 28(sup. 1: Feminist Frontiers), 101–112. <https://doi.org/10.1111/gwao.12506>
- Czymara, C. S., Langenkamp, A., & Cano, T. (2021). Cause for concerns: Gender inequality in experiencing the COVID-19 lockdown in Germany. *European Societies*, 23(sup1), 68–81. <https://doi.org/10.1080/14616696.2020.1808692>
- Diener, E., Suh, E. M., Lucas, R. E., & Smith, H. L. (1999). Subjective well-being: Three decades of progress. *Psychological Bulletin*, 125(2), 276–302. <https://doi.org/10.1037/0033-2909.125.2.276>
- Dunatchik, A., Gerson, K., Glass, J., Jacobs, J. A., & Stritzel, H. (2021). Gender, parenting, and the rise of remote work during the pandemic: Implications for domestic inequality in the United States. *Gender & Society*, 35(2), 194–205. <https://doi.org/10.1177/08912432211001301>
- Etheridge, B., & Spantig, L. (2020). *The gender gap in mental well-being during the Covid-19 outbreak: Evidence from the UK* (working paper series no. 2020-08). ISER.
- Farré, L., Fawaz, Y., González, L., & Graves, J. (2020). *How the COVID-19 lockdown affected gender inequality in paid and unpaid work in Spain* (discussion paper no. 13434). IZA.
- Federal Statistical Office (2019). *Statistisches Jahrbuch 2019: Kapitel 13 Arbeitsmarkt*. [https://www.destatis.de/DE/Themen/Querschnitt/Jahrbuch/jb-arbeitsmarkt.pdf?\\_\\_blob=publicationFile](https://www.destatis.de/DE/Themen/Querschnitt/Jahrbuch/jb-arbeitsmarkt.pdf?__blob=publicationFile)
- Ferrer-i-Carbonell, A., & Frijters, P. (2004). How important is methodology for the estimates of the determinants of happiness? *The Economic Journal*, 114(497), 641–659.
- Frodermann, C., Grunau, P., Haepf, T., Mackeben, J., Ruf, K., Steffes, S., & Wanger, S. (2020). *Online-befragung von Beschäftigten: Wie Corona den Arbeitsalltag verändert hat*. IAB-Kurzbericht, 2020/13.
- Fuchs-Schündeln, N., & Stephan, G. (2020, August 18). *Bei drei Vierteln der erwerbstätigen Eltern ist die Belastung durch Kinderbetreuung in der Covid-19-Pandemie gestiegen*. IAB-Forum. <https://www.iab-forum.de/bei-drei-vierteln-der-erwerbstae-tigen-eltern-ist-die-belastung-durch-kinderbetreuung-in-der-covid-19-pandemie-gestiegen/>
- Headey, B., Kelley, J., & Wearing, A. (1993). Dimensions of mental health: Life satisfaction, positive affect, anxiety and depression. *Social Indicators Research*, 29(1), 63–82. <https://doi.org/10.1007/BF01136197>
- Huebener, M., Waights, S., Spiess, K. C., Siegel, N. A., & Wagner, G. G. (2021). Parental well-being in times of Covid-19 in Germany. *Review of Economics of the Household*, 19, 91–122. <https://doi.org/10.1007/s11150-020-09529-4>
- Jann, B. (2008). The Blinder–Oaxaca decomposition for linear regression models. *STATA Journal*, 8(4), 453–479. <https://doi.org/10.1177/1536867X0800800401>
- Kruppe, T., & Oslander, C. (2020, June 30). *Kurzarbeit in der Corona-Krise: Wer ist wie Stark betroffen*. IAB-Forum. <https://www.iab-forum.de/kurzarbeit-in-der-corona-krise-wer-ist-wie-stark-betroffen/>
- Lott, Y., & Abendroth, A.-K. (2020). The non-use of telework in an ideal worker culture: Why women perceive more cultural barriers. *Community, Work & Family*, 23(5), 593–611. <https://doi.org/10.1080/13668803.2020.1817726>
- Möhring, K., Naumann, E., Reifenscheid, M., Blom, A. G., Wenz, A., Rettig, T., Lehrer, R., Krieger, U., Juhl, S., Friedel, S., Finkel, M., & Cornesse, C. (2020). *Inequality in employment during the Corona lockdown: Evidence from Germany* [Blog]. JESP European Social Policy. <https://jesp.eu/2020/07/10/inequality-in-employment-during-the-corona-lockdown-evidence-from-germany/>
- Möhring, K., Naumann, E., Reifenscheid, M., Wenz, A., Rettig, T., Krieger, U., Friedel, S., Finkel, M., Cornesse, C., & Blom, A. G. (2020). The COVID-19 pandemic and subjective well-being: Longitudinal evidence on satisfaction with work and family. *European Societies*, 27(4), 1–5617. <https://doi.org/10.1080/14616696.2020.1833066>

- Nieuwenhuis, R., & Yerkes, M. A. (2021). Workers' well-being in the context of the first year of the COVID-19 pandemic. *Community, Work & Family*, 24(2), 226–235. <https://doi.org/10.1080/13668803.2021.1880049>
- Nomaguchi, K., & Milkie, M. A. (2020). Parenthood and well-being: A decade in review. *Journal of Marriage and Family*, 82(1), 198–223.
- Pearlin, L. I. (1989). The sociological study of stress. *Journal of Health and Social Behavior*, 30(3), 241–256. <https://doi.org/10.2307/2136956>
- Peck, J. A. (2020). The disproportionate impact of COVID-19 on women relative to men: A conservation of resources perspective. *Gender, Work and Organization*, 14(4), 1–497. <https://doi.org/10.1111/gwao.12597>
- Pettit, B., & Hook, J. L. (2009). *Gendered tradeoffs: Women, family, and workplace inequality in twenty-one countries*. Russell Sage Foundation.
- Schober, P. S., & Zoch, G. (2019). Change in the gender division of domestic work after mothers or fathers took leave: Exploring alternative explanations. *European Societies*, 21(1), 158–180. <https://doi.org/10.1080/14616696.2018.1465989>
- Sonnentag, S. (2015). Dynamics of well-being. *Annual Review of Organizational Psychology and Organizational Behavior*, 2(1), 261–293. <https://doi.org/10.1146/annurev-orgpsych-032414-111347>
- UN Women. (2020). Will the pandemic derail hard-won progress on gender equality? In G. Azcona, A. Bhatt, S. Davies, S. Harman, J. Smith, & C. Wenham (Eds.), *Spotlight on gender, COVID-19 and the SDGs* (p. 31).
- West, C., & Zimmerman, D. H. (1987). Doing gender. *Gender & Society*, 1, 125–151.
- Yerkes, M. A., André, S. C., Besamusca, J. W., Kruijen, P. M., Remery, C. L., van der Zwan, R., Geurts, S. A., & Geurts, S. A. E. (2020). 'Intelligent' lockdown, intelligent effects? Results from a survey on gender (in)equality in paid work, the division of child-care and household work, and quality of life among parents in The Netherlands during the Covid-19 lockdown. *PLoS One*, 15(11), e0242249. <https://doi.org/10.1371/journal.pone.0242249>
- Zhou, M., Hertog, E., Kolpashnikova, K., & Kan, M.-Y. (2020, June 2). *Gender inequalities: Changes in income, time use and well-being before and during the UK COVID-19 lockdown*. SocArXiv. <https://doi.org/10.31235/osf.io/u8ytc>
- Zoch, G. (2021). Thirty years after the fall of the Berlin Wall—do East and West Germans still differ in their attitudes to female employment and the division of housework? *European Sociological Review*, 37(5), 731–750. <https://doi.org/10.1093/esr/jcab002>
- Zoch, G., Bächmann, A.-C., & Vicari, B. (2021). Who cares when care closes? Care-arrangements and parental working conditions during the COVID-19 pandemic in Germany. *European Societies*, 23(sup. 1), 576–588. <https://doi.org/10.1080/14616696.2020.1832700>

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