Working Life During the Pandemic: Experienced Changes and their Implications for Occupational Well-being among Employees in Switzerland

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ABSTRACT

The COVID-19 pandemic has brought unprecedented changes to numerous aspects of work such as working conditions, workload, income, nature of duties, or work-home balance that may eventually pose significant risks to employee well-being and career development. Using a person-centred approach, we examined how these changes cluster together, defining the experiences of different employee sub-groups. We then compared these groups regarding their background characteristics and selected aspects of occupational well-being (i.e., job satisfaction, job insecurity, turnover intention, work engagement, and exhaustion).

A sample of professionally active adults (N = 600; 55% women) completed a baseline cross-sectional survey, while a subsample (n = 426) further responded to brief daily questionnaires, reporting their job satisfaction, engagement, and exhaustion over a course of five workdays.

Results suggested three different patterns (i.e., latent classes) of pandemic-related changes at work. They characterized workers who experienced a strong decline in their workload and income ('precarious'), those who experienced an increase in workload and a change in the quality of working conditions ('challenged'), and those whose work situation was mostly unaffected ('status quo'). These worker groups differed regarding their personal and professional background as well as occupational well-being outcomes. Those more strongly affected by the pandemic (the challenged or precarious pattern) were more likely to show initial background vulnerabilities, while those in the status quo group were more likely to benefit from working from home and reported the least detrimental outcomes. We discuss the implications of these findings within the conservation of resources and career sustainability frameworks.

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KEYWORDS:

quality of working conditions; COVID-19; sustainable careers; occupational stressors; person-centred approach

TO CITE THIS ARTICLE:

Urbanaviciute, I., Gander, F., & Massoudi, K. (2023). Working Life During the Pandemic: Experienced Changes and their Implications for Occupational Well-being among Employees in Switzerland. *Swiss Psychology Open,* 3(1): 4, pp. 1–17. DOI: https://doi.org/10.5334/spo.39

INTRODUCTION

The COVID-19 pandemic has brought substantial changes to the organization of work, touching upon its key aspects such as quality of working conditions, workload, income, nature of duties, and work-home balance. While possibly not all negative, many of them are likely to result in longer-term modifications of working modalities, contributing to what may be a 'new normality' at work (Carillo et al., 2021; OECD, 2021). This inevitably poses a challenge for employee well-being and career development that cannot be ignored. Yet, despite the considerable interest in work-related consequences of the pandemic (Möhring et al., 2021; Rudolph et al., 2021; Trougakos et al., 2020), empirical evidence about how various alterations brought by the COVID-19 crisis have been experienced from a personal point of view is still fragmented and would benefit from a more thorough analysis. In the present study, we maintain that the changes caused by the pandemic do not occur in isolation but accumulate in different subpopulations, and therefore argue for identifying different configurations of such changes. To that end, we adopted a person-centred approach (see Howard & Hoffman, 2018), which allows to derive an empirically based grouping of employees with regard to their pandemic-related experiences at work. This is important for both theoretical and practical reasons, because it helps to unravel those sub-groups that have been affected the most and leads towards a better understanding of potential risks to the quality of their working lives.

The current study specifically answers three research questions. First, we examined the number and type of patterns (i.e., latent classes) of employees' experienced changes in the above-mentioned work aspects. This provided us with an empirical illustration of how people's working lives were transformed by the pandemic. Second, we sought to demonstrate the role of personal (i.e., age, gender, having children) and professional (i.e., tenure, skill level, remote work) characteristics in predicting one type of pattern over the other, which reveals either protective factors or additional vulnerabilities occurring in the face of extra-organizational stressors. Third, we compared employee subgroups with different patterns of experienced change in order to understand the implications of the pandemic for their occupational well-being.

Drawing on an integrative work stress and sustainable careers theoretical framework, the current study aims at adding to the literature in several ways. Our main aim is to respond to the call for a 'worker-centric' investigation of the pandemic, which places an accent on the often-overlooked heterogeneity of employee population and the risks they encounter in disruptive circumstances (Allen et al., 2021; Kanfer et al., 2020). Our study illustrates such heterogeneity by revealing employee subgroups characterized by distinct pandemic-related experiences and contributes to a better understanding of people's differential reactions to crises by investigating well-being outcomes based on both overall (cross-sectional) and aggregated day-to-day indicators. Daily measurements offer the possibility to study experiences in the natural context and in real time. Moreover, aggregating them helps to achieve more precision by reducing random errors in measurement. Thus, our approach may help resolve some inconsistencies in the literature regarding the impact of the pandemic on employees' psychological well-being (see Wang et al., 2021). We also make a timely contribution to the research on sustainable working lives beyond the pandemic context. The current study sheds light on how conservation versus loss of important work resources may define the person's vulnerability to unexpected external stressors. As a result, we provide fresh empirical insights regarding the role of change in the status quo of one's work situation in their occupational well-being from the career sustainability perspective, which has attracted increasing scientific interest in recent years (e.g., De Vos et al., 2020).

UNDERSTANDING PERSONAL ENCOUNTERS OF THE PANDEMIC: A PERSON-CENTRED APPROACH

Having started its global spread in the early months of 2020, the COVID-19 pandemic represents a major disruptive event that has brought unprecedented turbulences to the world of work and beyond. While Switzerland did not apply extremely strict lockdown measures (at least, on a global scale), the implemented restrictions have nonetheless posed numerous challenges for businesses and people working therein (Giauque et al., 2022; Hale et al., 2021). Looking from an individual perspective, some sources have classified the pandemic as a career shock (Akkermans et al., 2020) and a resource threat for workers (Zacher & Rudolph, 2021), with a growing concern about its impact on the quality of working lives, career development, and the future of work overall (Kniffin et al., 2021; Rudolph et al., 2021). Among the consequences of the pandemic, one thing particularly stands out: it has caused a *change* in a number of aspects surrounding the conditions and organization of work as well as employee-employer relationships. Recent studies have repeatedly underlined aspects that pertain to financial security (Phetmisy & King, 2021; Sinclair et al., 2021), workspace and work design (Allen et al., 2021; Wang et al., 2021), workload (Kuntz, 2021), and work-family balance (Brenner et al., 2021; Rigotti et al., 2020), to name just a few. Whereas changes in them are not necessarily all detrimental, it is safe to say that they were rapid and unexpected. Due to the exceptional circumstances in which they emerged, these changes have generated a considerable amount of uncertainty about the future, which poses a risk to many

employees' career development and well-being, thereby increasing their vulnerability (Cubrich & Tengestal, 2021; Kanfer et al., 2020).

Although each one of the above-mentioned work aspects, taken separately, may contribute to employee well-being, they do not occur in isolation in real life. Rather on the contrary, they co-occur in defining the quality of one's work situation. It is therefore crucial to inspect personal encounters of the pandemic in closer detail. At this point, a person-centred investigation is especially valuable because it offers an integrative representation of changes that people have experienced during this challenging period. For example, a decrease in workload often might go along with a decrease in income and a deterioration of working conditions for the same person. In the context of the COVID-19 pandemic, this means that for some subgroups of workers, a multitude of work-related changes may have combined into a potentially negative scenario. Notably, it is possible that this has especially hit those workers who were more vulnerable to begin with, which poses the risk of cumulative (dis) advantages (e.g., it has been suggested that people with precarious work are more vulnerable to the effects of the pandemic; see Rudolph et al., 2021). An advantage of person-centred methods (such as latent class analyses) is that they enable the researchers to identify distinct, and potentially high-risk, sub-groups emerging from the data, showing how individuals share similarity within the group and differ from members of other groups regarding the investigated aspects (Howard & Hofmann, 2018; Spurk et al., 2020). A person-centred approach thus unravels the so-called unobserved heterogeneity of the sample, which is critical to recognize for it depicts the variety of ways in which the COVID-19 outbreak may have threatened the sustainability of one's working life. In order to provide a better understanding of the threats encountered by different types of workers, the first step in the current study was therefore to explore the grouping (i.e., latent classes) that characterize employees based on the patterns of changes they have encountered in their work situation during the pandemic.

> *Research Question 1:* What are the main employee subgroups regarding their experienced change patterns at work during the pandemic?

To be more specific, in this step we aimed at selecting (1) a broad array of work-related indicators that might have changed following the government measures in reaction to the COVID-19 outbreak, and we (2) focused on external, more or less objective changes (e.g., changes in work arrangements), but did not include purely subjective changes (e.g., changes in stress level). In Switzerland, examples of pandemic containment measures included changes in work schedules and partial unemployment (which may lead to changes in workload and income), transformation of the usual work and schooling routines (which might go along with work-home balancing challenges), and changes in the ways of working and increased safety concerns (which may reflect in the quality of working conditions). Based on this reasoning, we assessed changes regarding workload, income, quality of working conditions, the nature of duties, and work-home balance. Since most of these aspects may change in both directions, we expected the identified patterns to reflect not only the extent but also the valence of the experienced change, such that they represent employee heterogeneity regarding the modification of the quality of their working life and serve as a basis for further analyses.

PERSONAL AND PROFESSIONAL PREDICTORS

Our second aim was to investigate background characteristics as potential predictors of the vulnerabilities that may be reflected in the identified change patterns. Rudolph et al. (2021) have thoughtfully noted that the pandemic allows for a re-examination of the quality of work lives, with a special emphasis on the underlying risks of precarity. In this vein, some authors have advocated an investigation of social, demographic, and occupational factors that may predispose the person to inequity in the labour market during the pandemic (Dhanani et al., 2021). Gender, age, skill/income level, or exposure to health risks—such as contact versus remote work—are a few to mention (Allen et al., 2021; Juchnowicz & Kinowska, 2021; Wachtler et al., 2021). Importantly, these factors are often intertwined and need to be interpreted in concert to reflect how they intersect (Moen et al., 2020). For instance, gendered precarious work experiences during the lockdown may be partly due to women being exposed to wage disparities or childcare duties (Cubrick & Tengesdal, 2021; Meyer et al., 2021). Similarly, while older workers are generally considered more vulnerable, age-based implications of the pandemic cannot be understood without considering the wider context in parallel, such as skill and experience level, and the opportunity for remote work (Kanfer et al., 2020). The latter is particularly important, as it has been recognized as a potentially protective factor during the pandemic (Rieth & Hagemann, 2021).

Based on the above, and also drawing on prior studies that distinguish among different configurations of decent and precarious work (e.g., Blustein et al., 2020), we selected to investigate two groups of characteristics as predictors of the experienced change patterns (i.e., latent class membership), which allows to account for the variety of factors that may contribute to employees' susceptibility to precarity (versus resilience) in the face of disruptive events. Specifically, gender, age, and minor children at home were included as *personal* predictors, whereas skill level, tenure, and opportunity of working remotely during the pandemic were analyzed

as *professional* predictors. Our exploratory research question regarding them is as follows:

> *Research Question 2:* How is personal and professional background linked to the different patterns of the pandemic-induced change at work?

PSYCHOLOGICAL IMPLICATIONS FOR OCCUPATIONAL WELL-BEING

A third question in the current study concerns the outcomes of the pandemic-induced changes at work. As noted by Zacher and Rudolph (2020), the COVID-19 outbreak represents not only a health and economic crisis, but it also has an underlying psychological aspect to it that manifests in people's subjective well-being. Moreover, since the pandemic is an extra-organizational stressor (cf. Kuntz, 2021), its psychological implications are likely to be far-reaching and affect a range of aspects, pertaining to both instant (day-to-day) well-being at work and the sustainability of one's working life overall. To elaborate on these outcomes, we have drawn on an integrative theoretical framework comprising the principles of conservation of resources (COR) and career sustainability, which helps to better understand the repercussions of employees' experienced changes in their work situation.

The theoretical reasoning behind COR (Hobfoll, 2001) highlights a fundamental role of resources (i.e., central aspects that people value) in human lives. Resources can be classified into objects, personal characteristics, conditions, and energies. In the work domain, their examples range from tools and conditions necessary for performance to status or money acquired through work. They are essential for optimal functioning; therefore, a loss of resources evokes strain and an effort to protect or compensate what is lost (Hobfoll et al., 2018; Westman et al., 2004). The notion of COR has been extensively used to explain the detrimental effects of stressful job situations on employee outcomes (see Hobfoll et al., 2018 for a review). Empirical evidence accumulated in organizational settings reveals several salient effects. First, it has been substantially proven that a threat to or deprivation of important work-related resources (e.g., due to organizational stressors) compromises employee health and well-being (e.g., Alarcon, 2011; Barling & Frone, 2017). Second, having some kind of control over the job situation serves a preventive purpose because it may help preserve resources (e.g., Kuijpers et al., 2020) and attenuate stress (e.g., Griep et al., 2021). With this evidence at hand, COR theory is also of great relevance for explaining occupational well-being outcomes in times of crises that represent extra-organizational stressors. Extreme situations—such as the COVID-19 pandemic—can significantly deplete valuable resources and unravel the underlying patterns of vulnerability within the population (Hite & McDonald, 2020; Zacher & Rudolph, 2021). Most work-related aspects that we included in our latent class analyses can indeed be considered a form of resources (e.g., adequate working conditions, salary, work-home balance) for they define the quality of work. Hence, the identified change patterns should be reflective of either resource loss or gain, with corresponding implications for occupational well-being. Furthermore, because our investigated changes and their outlook are largely beyond the control of the individual and demand intensive adaptation efforts, coping with them on a daily basis is presumably energy draining. For this reason, we expected differences among the identified change patterns regarding proximal 'energetic' aspects of well-being, such as day-to-day exhaustion and work engagement, as well as affective aspects such as daily satisfaction with the workday. Exhaustion refers to a loss of mental and physical energy (Bakker et al., 2014), and it may be assumed to be more pronounced among employees who faced negative or large in scope change patterns. By way of contrast, work engagement represents a fulfilling, energizing mental state at work (Schaufeli et al., 2002). Thus, along with workday satisfaction, it should be linked to less extreme or more positively valenced change patterns.

Furthermore, drawing on the sustainable careers perspective (De Vos et al., 2020), at least several distal occupational outcomes can be expected that denote sustained well-being at work (or a lack thereof). Notably, the above-referred theoretical framework maintains perceived continuity as a basis of career sustainability. In times of the pandemic, this very principle has been seriously challenged introducing a turmoil in career development landscapes and threatening the status quo of people's job situation. Increased job insecurity and turnover intention are especially likely in such scenarios, representing an anticipated involuntary or voluntary discontinuity of the employment situation, respectively. Defined as the perceived threat of losing the job and the worries related to this threat (De Witte, 2005), job insecurity should vary as a function of precarity reflected in the identified change patterns (especially those that might include changes in duties and decreased workload). In a similar way, one may expect turnover intention to be more pronounced in patterns with 'negative' changes in one's work situation, whereas the reverse may be assumed for job satisfaction. To reflect sustained well-being, the latter was assessed as a global rather than aggregated daily construct in the present study, which represents a 'happiness' indicator within the sustainable careers framework (De Vos et al., 2020). Note that the above-presented rationale allows for expecting differences in outcome indicators depending on the type of employees' experienced change patterns. However, the exact type of such patterns was not a priori determined, and this precludes us from raising specific

hypotheses. For this reason, we posed an open research question instead, which is in line with the exploratory nature of our investigation:

> *Research Question 3:* How do employees with different patterns of experienced work-related change differ in terms of their occupational well-being outcomes (i.e., day-to-day and overall job satisfaction, day-to-day work engagement, day-to-day exhaustion, job insecurity, and turnover intention)?

METHOD

PROCEDURE AND SAMPLE

In the current study, we used the data from a two-phase online survey on employee well-being, conducted within the framework of the National Centre of Competence in Research LIVES (NCCR LIVES). The NCCR LIVES is a large-scale collaborative research framework between several research institutions in Switzerland, encompassing a variety of disciplines to study the development of vulnerability over the life course. Data for this study were collected as part of a subproject designed to examine the role of personal and professional resources in addressing occupational disadvantages and promoting career development. The data were collected in the French- and German-speaking regions of Switzerland. Data collection, which was organized by the authors with the assistance of student helpers, took place during the second wave of the COVID-19 pandemic and lasted from November 2020 to April 2021. The participants were professionally active adults, part of them were recruited from a large contact pool managed by an external polling institute, and the rest were contacted with the help of student research assistants. The survey link was distributed by means of the invitation letter sent either by post or by email. The participation was voluntary, participants provided informed consent, and the data were collected anonymously, with a digital code identifying each participant. Besides being professionally active, no specific inclusion or exclusion criteria were applied. Upon the full completion of the survey, participants received a compensation of 40 CHF. They could choose to either donate it to a non-profit organization or receive a gift card in this amount. According to the guidelines of the university where this research was conducted, no formal ethics approval was required for this study.

The sample at Phase 1 consisted of 600 participants (mean age 46 years, *SD* = 11.23, 55% women). During this phase, they completed a baseline questionnaire that measured various personal and work-related characteristics. Phase 2 was a diary study that asked participants to complete surveys on five selected working days within one month's time. This phase consisted of both within-day and end-of-day assessments. For the within-day assessments, participants were prompted by e-mail or text messages at three random time points during the working day. The link for completing the survey was valid for 30 minutes upon receiving the prompt. For the end-of-day assessment, participants received a survey link every day at 7 pm and could respond until midnight. In total, 426 participants (mean age 46.21, *SD* = 11.06, 54% women) agreed to proceed to Phase 2 and responded to at least one day's questions. Since our research questions mainly concern Phase 1 data, we used the full sample in these analyses. In the case when daily data were concerned (i.e., Research Question 3), aggregated data of the Phase 2 sample was used. Figure 1 gives an overview over what measures were assessed in which study phase.

	Phase 1	**Phase 2**	
	(Cross-Sectional)	(Aggregated over 5 Days)	
Measures		*Within-Day (3 per Day)*	*End-of-Day (1 per Day)*
Background Variables	x		
Changes in Work Aspects	x		
Turnover Intention	x		
Job Insecurity	x		
Job Satisfaction	x		x
Work Engagement		x	
Exhaustion			x

Figure 1 Variables in the Present Study.

MEASURES

Background variables, measured at Phase 1, included personal characteristics such as participants' age, gender, and children, as well as professional characteristics such as tenure in years, skill level (assessed as an ordinal variable ranging from 1 – manual/technical workers to 5 – top managers), and obligation to work from home during the pandemic (1 – yes, 0 – no).

Change in work aspects. Changes at work during the COVID-19 pandemic were assessed at Phase 1. A set of 1-item questions was used measuring the following aspects: changes in quality of (physical) working conditions, changes in workload, changes in income, additional challenges in work-home balance, and changes in the nature of duties. All aspects were treated as nominal variables. The coding of responses for quality of working conditions, workload, and income was as follows: -1 – *a decrease*, 0 – *no change*, 1 – *an increase*. Challenge in work-home balance was coded 0 – *no change*, 1 – *a slight increase*, 2 – *a large increase*. The nature of duties was a dichotomous variable, where 0 – *no change*, 1– *change*. Similar one-item questions have been used in several data collections examining the COVID-19 pandemic (e.g., Kühne et al., 2020).

Turnover intention was measured with a one-item scale, used in similar surveys within the NCCR LIVES (Maggiori et al., 2016). The respondents were asked about their intention to look for a new employer in the year to come ("How likely are you to seek a new job/employer in the coming year?"). The responses were based on a Likert type scale, ranging from 1 – *very weak intention* to 5 – *very strong intention*. Arnold and Feldman (1982) report a good prediction of similar items of turnover intentions with actual turnover one year later.

Job insecurity was assessed at Phase 1 with the quantitative Job Insecurity Scale originally developed by De Witte (2000) and validated by Vander Elst et al. (2014). It consists of four items measuring the perceived threat of losing one's job in the near future and worries related to this threat. A sample item: "Chances are, I will soon lose my job". A Likert type scale was used for response coding, where 1 – *strongly disagree*, 5 – *strongly agree*. Internal consistency in the present sample was $\omega = .91$.

Job satisfaction was measured at both phases, using 1-item measures. At Phase 1, we asked about overall job satisfaction ("Overall, how satisfied are you with your work?"), evaluated on a 5-point Likert type scale from 1 – *very dissatisfied* to 5 – *very satisfied*. At Phase 2, satisfaction with the workday ("Overall, I felt satisfied with my workday") was measured using a 7-point Likert type response scale from 1 – *not at all* to 7 – *completely*. Wanous et al. (1997) report good convergent validity for single-item measures of job satisfaction with multi-item scales.

Work engagement was measured during Phase 2. We used the ultra-short measure validated by Schaufeli *et al*. (2017), which assesses the key aspects of work engagement (i.e., energy, absorption, dedication) with one item each. The items were adjusted to fit daily measurements in the current study. A sample item: "At this moment, I feel bursting with energy". Responses were recorded on a 7-point Likert type scale, ranging from 1 – *not at all* to 7 – *completely*. Because Phase 2 data were clustered (i.e., repeated measurements clustered within subjects), composite reliability ω was estimated for work engagement, following the approach by Geldhof et al. (2014). At the between-person level, ω was equal to .93, which indicates good reliability.

Exhaustion was measured during Phase 2 with four items adapted to daily measurements from the Burnout Assessment Tool (BAT; Schaufeli et al., 2020). A sample item: "I felt mentally exhausted". Responses were recorded on a 7-point Likert type scale, ranging from 1 – *not at all* to 7 – *completely*. At the between-person level, the reliability coefficient ω was equal to .91, which indicates good reliability.

Further, participants completed additional measures not relevant for the purpose of the present study. Because the survey could be filled out in two languages, all multi-item scales were tested for measurement invariance across the German and French-speaking participant groups and met the requirements for either partial (work engagement and job insecurity) or full (exhaustion) metric invariance. These results are available from the corresponding author upon request.

STATISTICAL ANALYSES

The data were analyzed with Mplus v8.4. To address Research Question 1, we conducted latent class analyses (LCA), with changes in work aspects (cross-sectional data) as categorical class indicators. The analyses were run using 5,000 random sets of starting values, 1,000 iterations, and 200 final optimizations (Hipp & Bauer, 2006). Starting from a one-class model, we gradually increased the number of classes, comparing them to a *k*-1 class model. Model comparisons were based on fit indices such as information criteria, likelihood ratio tests, and entropy (see Nylund et al., 2007). The Akaike Information Criterion (AIC), the Bayesian Information Criterion (BIC), and the Sample-adjusted BIC (SABIC) with lower values were indicative of a better model fit. Furthermore, significant statistics from the Lo-Mendell-Rubin adjusted likelihood ratio test (LMR) and the Bootstrap Likelihood Ratio Test (BLRT) suggested that a model with *k* classes was superior to the *k*-1 class model, and entropy values that were on the higher-end (i.e., approaching 1) showed higher classification quality. In order to choose the best-fitting latent class model, we additionally assessed the size and interpretability of latent classes.

To address Research Question 2, personal and professional characteristics were tested as predictors

of class membership in the best-fitting latent class model. To do so, the auxiliary R3STEP command was used (Asparouhov & Muthén, 2014). It uses multinomial logistic regression to estimate the association between the covariates and latent classes. Similarly, to address Research Question 3, cross-sectional and the person's aggregated weekly mean scores of occupational well-being outcomes were compared across classes in the best-fitting latent class model with the BCH command (Bakk & Vermunt, 2016), which uses Wald tests to examine the equality of means in outcome indicators across groups.

RESULTS

DESCRIPTIVE STATISTICS

Descriptive statistics for all variables are provided in Table 1 (see also Appendix for supplemental information). It displays either the frequencies of the nominal variables or means and standard deviations of discrete variables. The correlation matrix revealed mostly small and moderate correlations, which means that there was no major overlap between the study variables. Among more notable exceptions were the association between age and tenure, which are naturally interrelated, and the (negative) correlation between daily work engagement and exhaustion, which in theory represent the opposite sides of employee well-being.

LATENT CLASS ANALYSES

A comparison of alternative latent class models (see Table 2) suggested the optimal number of three classes. Except the AIC, the information criteria reached their lowest point in the 3-class solution. This solution also showed significant LMR and BLRT test statistics, whereas in the adjacent 4-class model the BLRT test was non-significant. This means that the latter did not outperform the 3-class model. The three identified classes were quite well interpretable and adequate in size. As illustrated in Figure 2, the first class (37.3%) characterized participants with a high probability of having experienced an increase in workload and work-home balancing issues, a change (increase or decrease) in the quality of working conditions and nature of duties at work, and no change in income during the pandemic. We named it the 'challenged' class. The second class was the largest (41.3%) and contained participants who had a high probability of having experienced no change in the above-mentioned work aspects. We labelled it the 'status quo' class. Participants in the third class (21.4%) were those who had a high probability of having experienced a decrease in workload, quality of working conditions and income, and a slight increase in work-home balancing challenge. We labelled it the 'precarious' class.

PREDICTORS AND OUTCOMES OF CLASS MEMBERSHIP

As shown in Table 3, except tenure, all the investigated personal and professional characteristics were predictive of class membership. Regarding personal characteristics, older participants showed higher odds of being unaffected (the status quo class) versus challenged by the pandemic, men were more likely to be classified in the precarious versus challenged class (a reversed pattern was applicable to women), and those with minor children had higher odds of being in the challenged class than in the status quo class. Regarding professional characteristics, participants with higher skill level were more likely to fall in the challenged class as compared to those in the status quo and precarious classes (see Appendix for more details on skill level distribution across classes). Working from home was linked to higher odds of being unaffected by the pandemic.

The results from outcome analyses are summarized in Table 4. Among the cross-sectionally measured occupational well-being outcomes, only overall job satisfaction did not differ significantly between the identified classes. Turnover intention was the lowest in the status quo class and it significantly differred from the remaining classes. Job insecurity was the highest among participants in the precarious class, and its mean levels were significantly different from those in the status quo and challenged classes. Fewer differences were observed for the aggregated mean scores of day-to-day occupational well-being outcomes. Participants in the challenged class demonstrated significantly higher levels of daily exhaustion than those in the remaining classes. However, although the most elevated levels of daily job satisfaction and work engagement were observed in the status quo class, they did not differ significantly from the other classes.

DISCUSSION

INTERPRETATION OF THE MAIN FINDINGS

The current study unravels the underlying heterogeneity among workers in Switzerland with regard to the changes they experienced in their work situation following the COVID-19 outbreak. In doing so, we contribute to the growing literature on the psychological consequences of the pandemic (e.g., Meyer et al., 2021; Möhring et al., 2021; Zacher & Rudolph, 2020), highlighting a range of occupational vulnerability and sustainability manifestations that have occurred among employees during the lockdown. In the following paragraphs, we provide an overview of these results and discuss their theoretical and practical implications for employee well-being.

Table 1 Descriptive statistics.

Notes: JS = job satisfaction. Multi-categorical changes in work aspects were turned into dummy variables. Point biserial correlations were calculated between the dichotomous and continuous variables.
*** $p < .001$, ** $p < .01$, * $p < .05$.

	M (*SD*)/COUNT (%)	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.
Personal background characteristics															
1. Age	46.00 (11.23)														
2. Gender (male)	268 (44.7%)	.16***													
3. Children (yes)	264 (44%)	.05	.10*												
Professional background characteristics															
4. Skill level	3.03 (1.15)	.05	.09*	.13**											
5. Tenure	10.15 (9.07)	.48***	.13**	.08	–.05										
6. Work from home	258 (43%)	–.08	.03	.08	.30***	–.11**									
Changes in work aspects Quality of working conditions:															
7. Decrease	183 (30.5%)	<.01	.11*	.07	.05	–.04	.10*								
8. Increase	162 (27%)	–.16***	–.15***	–.04	.05	–.05	.05	–.40***							
Changes in workload:															
9. Decrease	137 (22.8%)	–.06	–.03	–.11**	–.10*	–.06	–.06	.16***	–.13**						
10. Increase	220 (36.7%)	–.04	–.06	.07	.09*	–.02	–.05	.01	.25***	–.41***					
Changes in income:															
11. Decrease	128 (21.3%)	.01	.07	–.03	–.05	.01	–.06	.14**	–.06	.45***	–.18***				
12. Increase	33 (5.5%)	–.10*	<.01	–.02	–.02	–.03	.01	–.05	.03	–.11**	.17***	–.13**			
Work–home balance challenge:															
13. Slight increase	300 (50%)	–.07	.06	.08*	<.01	–.03	–.01	.03	–.03	.02	.03	.01	–.02		
14. Large increase	122 (20.3%)	–.09*	–.04	.20***	.09*	–.02	.13**	.13**	.07	–.01	.11**	.11**	–.03	–.51***	
Change in duties:															
15. Yes	238 (39.7%)	–.01	–.07	–.05	–.04	.01	–.21***	.08	.11*	.11**	.22***	.12**	<.01	.04	.07
Cross-sectional outcomes															

(Contd.)

	M (*SD*)/COUNT (%)	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.
16. Overall JS	3.87 (1.12)	.01	.09*	−.03	.17***	.05	.07	.01	−.06	.01	−.02	−.04	.01	−.01	−.09*
17. Turnover intention	1.93 (1.23)	−.26***	−.13**	−.02	−.03	−.22***	.08	.07	.08	.10*	.02	.09*	−.02	.02	.13**
18. Job insecurity	2.49 (0.60)	.06	.01	.10*	−.12**	−.05	.02	.11**	−.04	.16***	−.04	.27***	−.08*	.02	.13**
Aggregated day-to-day outcomes															
19. Workday JS	5.13 (1.03)	.11*	.05	−.02	.02	.19***	−.05	−.13**	.07	−.01	−.05	.01	.06	.04	−.16**
20. Work engagement	4.29 (1.13)	.23***	.06	.11*	.06	.20***	−.07	−.12**	−.01	−.03	<.01	−.02	.03	−.01	−.05
21. Exhaustion	6.25 (1.08)	−.19***	−.10*	<.01	−.07	−.15**	−.02	.08	.09	−.02	.13**	−.01	.03	.07	.11*
	M (*SD*)/COUNT (%)	**15.**	**16.**	**17.**	**18.**	**19.**	**20.**								
Cross-sectional outcomes															
16. Overall JS	3.87 (1.12)	−.04													
17. Turnover intention	1.93 (1.23)	.07	−.24***												
18. Job insecurity	2.49 (0.60)	.12**	−.20***	.30***											
Aggregated day-to-day outcomes															
19. Workday JS	5.13 (1.03)	−.01	.19***	−.27***	−31***										
20. Work engagement	4.29 (1.13)	−.05	.22***	−.35***	−17***	.62***									
21. Exhaustion	6.25 (1.08)	.13**	−.17**	.14**	.24***	−.34***	−.22***								

FIT INDICES COMPARED MODELS	AIC	BIC	SABIC	ENTROPY	LMR (*P*-VALUE)	BLRT (*P*-VALUE)	SMALLEST PROFILE (%)
1 class	5502.985	5542.557	5513.985	N/A	N/A	N/A	N/A
2 classes	5351.582	5435.124	5374.804	.570	<.001	<.001	40.5%
3 classes	5243.094	5370.605	5278.538	.682	<.001	<.001	21.4%
4 classes	5240.442	5411.923	5288.108	.743	.043	.150	6.2%
5 classes	5244.509	5459.959	5304.397	.778	.037	1.000	5.4%
6 classes	5249.880	5509.299	5321.990	.779	.145	.667	5.2%

Table 2 Comparison of alternative latent class models.

Note: N/A – not applicable for a one-class (baseline) model.

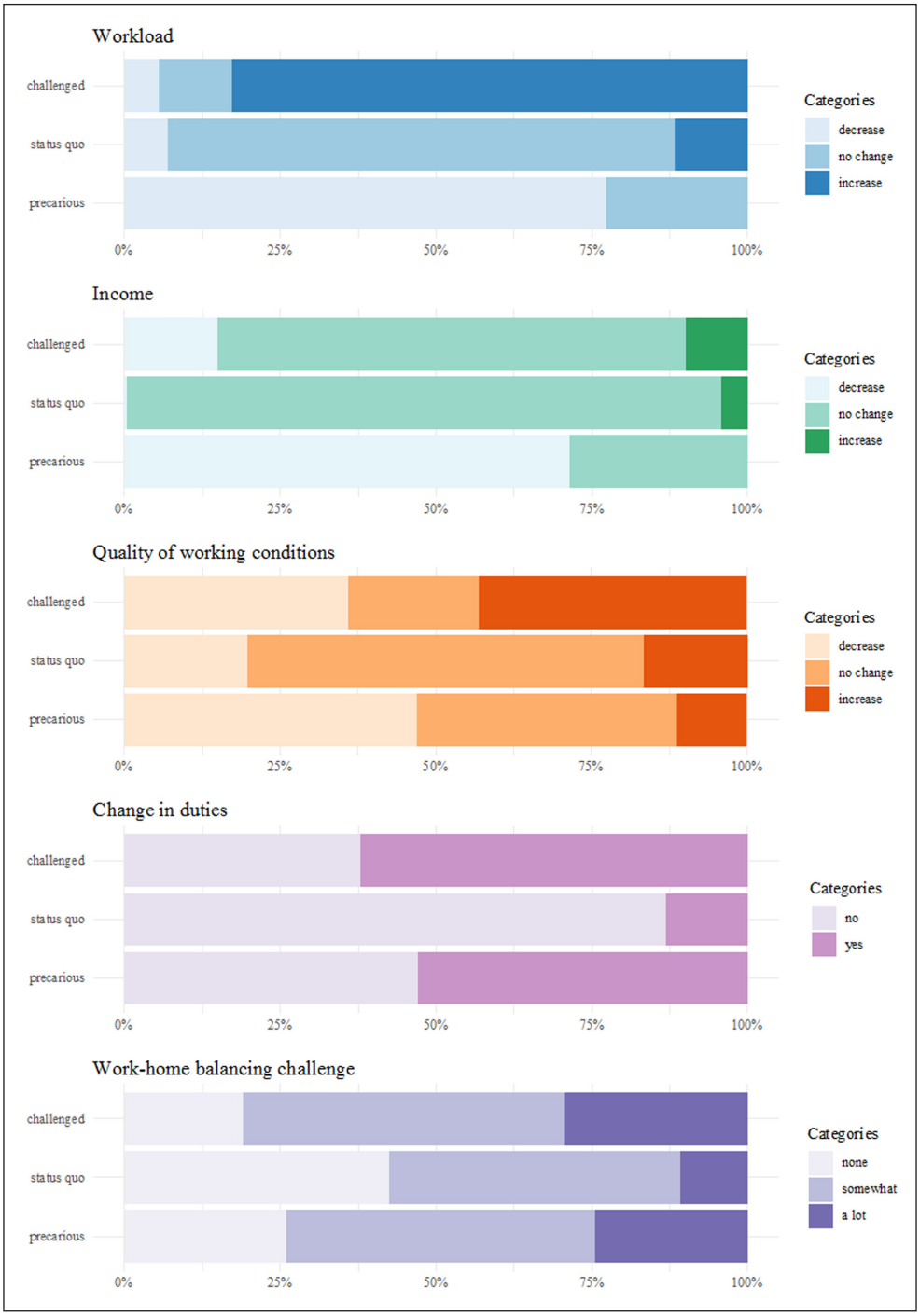

Figure 2 Latent Classes (Challenged, Status Quo, Precarious) Denoting Experienced Changes at Work During the Pandemic.

PREDICTOR VARIABLES	COMPARED CLASSES†	ODDS RATIO	95%CI
Personal characteristics:			
Age	2 vs. 1	1.031	[1.003; 1.059]
Gender (male)	3 vs. 1	1.770	[1.023; 3.061]
Children (yes)	1 vs. 2	1.685	[1.008; 2.815]
Professional characteristics:			
Skill level	1 vs. 3 1 vs. 2	1.372 1.396	[1.061; 1.772] [1.104; 1.766]
Tenure	ns	ns	ns
Work from home (yes)	2 vs. 1	2.320	[1.346; 3.999]

Table 3 Background characteristics as predictors of latent class membership.

Notes: † Reference class appears on the right side. Class 1 = challenged, Class 2 = status quo, Class 3 = precarious. Only significant results are summarized, based on higher odds of belonging to a given class over the reference class. Example: Older participants are more likely to be classified in the status quo than the challenged class. CI = confidence intervals. Ns = no significant effects found.

OUTCOME VARIABLES	CLASS 1 'CHALLENGED'	CLASS 2 'STATUS QUO'	CLASS 3 'PRECARIOUS'	OVERALL COMPARISON
Overall job satisfaction	3.78	3.94	3.87	1.37(2)
Turnover intention	2.05^{a}	$1.68^{a,b}$	2.18^{b}	10.74(2)**
Job insecurity	1.97^{a}	1.85^{b}	$2.28^{a,b}$	10.71(2)**
Daily workday satisfaction	5.02	5.21	5.17	1.66(2)
Daily work engagement	4.25	4.39	4.17	1.95(2)
Daily exhaustion	$3.46^{a,b}$	2.91^{a}	3.08^{b}	13.74(2)**

Table 4 Mean level comparisons of occupational well-being outcomes across the latent classes.

Notes: The analyses were based on the BCH procedure. Shared superscript letters indicate which classes significantly differ from each other on a given outcome (e.g., with regard to turnover intention, class 1 differs from class 2 but not class 3). Overall comparison refers to the overall between-group tests, indicating Wald χ^2 statistic and degrees of freedom in parentheses. Aggregated day-to-day scores were used in daily outcome analyses. ** $p < .01$.

Notably, our study focuses on employees' experienced changes in external working conditions (versus psychosocial job characteristics) that have resulted from the COVID-19 situation and actions taken to control it. Our results revealed that these changes were not independent, but indeed clustered into different patterns with varying levels of experienced precarity. We observed one pattern of neutral valence with little to no change at work (the status quo class) and two patterns with a rather broad scope of changes that were either predominantly negative (the precarious class) or mixed in terms of valence (the challenged class). Such findings partially correspond to other studies that investigated employees' well-being profiles in times of the pandemic, demonstrating that its implications were not the same for all (e.g., Harju et al., 2021). Remarkably, our study did not reveal a positive change pattern, most participants falling into the neutral 'status quo' class. The second largest 'challenged' pattern represented an increase in various job challenges (such as bigger workload and change of duties), but it did not contain major hindrances (such as loss of income). The 'precarious' class was the most detrimental and the smallest one. However, it still contained more than 20% of the sample, which indicates that a sizeable portion of the workforce may have encountered major risks such as loss of working hours, income, and quality of working conditions.

Our study further clarifies who was most likely to be exposed to one pattern over the other. Childcare and home-based schooling are often mentioned in the literature as key aspects that employees were facing during the lockdown (Rieth & Hagemann, 2021). Accordingly, our findings showed that younger workers and those having minor children were more likely to belong to the challenged class than to the status quo class. Moreover, while not without its own challenges for well-being (e.g., Möhring et al., 2021), being able to work from home seems to be an important protective factor allowing people to preserve the status quo of their work situation. This may indeed serve as an advantage

in times of crisis because those not having the possibility to transfer their work to remote settings (e.g., frontline workers and essential service personnel) are considered particularly at risk (Allen et al., 2021). It is notable that highly skilled workers generally had higher odds of being exposed to the challenged versus any other pattern of work-related change. This pattern is characterized by increased workload and change in duties; hence, it should have been applicable to many mid- and higher-level professionals, who had to adapt their ways of working and learn to effectively manage their teams in unusual settings over a very short term. Our findings also require some intersectional perspective as some predictive effects are better interpreted in light of other predictors. For instance, men showed higher odds of belonging to the precarious class versus the challenged class, which could be partly explained by occupational skill level distribution across classes. The precarious class hosts a relatively large percentage of blue-collar workers, some of which (e.g., road workers) are likely to be dominated by men (as shown in the Appendix, we indeed observed the highest proportion of men in the lowest and highest skill categories).

From a theoretical point of view, the identified change patterns represent different degrees of vulnerability (in terms of resource preservation and loss) and help explain the implications of the pandemic for different groups of workers. First, it is important to note that only negative, but not positive occupational well-being outcomes differed significantly across the latent classes; this may be explained by the fact that our person-centred analyses revealed no positive change patterns, thus highlighting stressor-strain responses. Drawing on both COR (Hobfoll, 2001) and sustainable careers theory (De Vos et al., 2020), the challenged and precarious change patterns may be interpreted as predisposed to ill-being outcomes due to exposure to new job challenges and/or hindrances (i.e., stressors) that are beyond one's control. Hence, they both represent a vulnerability situation. By way of contrast, the status quo class may be thought of an example of occupational sustainability. In this class, employees' work situation has been relatively unaffected by the pandemic, which implies that they were able to preserve the resources necessary for maintaining the quality of their working lives. Indeed, turnover intention was the least expressed in this class and was significantly higher in both other classes, whereas job insecurity was especially salient among workers in the precarious class and posed less issues to those in the remaining classes. This is in line with the theoretical reasoning and prior empirical evidence suggesting that pandemic-induced economic stressors, such as short-time work, are potent triggers of occupational uncertainties (Möhring et al., 2021; Rudolph et al., 2021). Based on the above, we may consider the precarious pattern of change a prominent threat to the continuity of the career path, with an elevated risk to sustainable careers and occupational well-being as such. It is worrying that this change pattern was somewhat more frequently observed among individuals with other vulnerability characteristics (e.g., lower skilled jobs). This may indicate an underlying cumulative disadvantage through which those with initial precarities are exposed to a higher risk of loss and further precarity (O'Rand, 2009), and thus may be more heavily impacted by the pandemic.

Our findings regarding day-to-day exhaustion also warrant a separate comment. In the current study, the most elevated levels of exhaustion were observed in the challenged class, and they did not differ significantly between the precarious and status quo classes. This contributes to prior empirical evidence showing that daily job and home demands during telework may be related to emotional exhaustion (e.g., Abdel Hadi et al., 2021) and strain experiences (Giauque et al., 2022). As noted in previous paragraphs, the challenged class was defined by a mixed pattern of changes associated with exposure to various new demands. While this pattern of change does not necessarily threaten key job resources, it implies an increased consumption of energetic resources (such as keeping up with high workloads, adapting to changes in duties), which explains its relation to exhaustion. Apart from representing an energetic outcome, exhaustion also signals occupational health impairment (Bakker et al., 2014). Hence, while affecting the less disadvantaged part of the workforce (in terms of higher skill level jobs), this pattern seems to have its own psychological costs that are not necessarily compensated by positive well-being outcomes.

PRACTICAL IMPLICATIONS

The changes assessed in the current study have different underlying causes that are either directly or indirectly related to the pandemic and its containment measures. Some of these changes represent major shifts in the labour market (e.g., obligation to work from home), while others are related to organizational policies and employment conditions (e.g., work-home balance, alterations in work rate). Moreover, some of these changes may persist even after the crisis has been resolved. They include, for example, transformations in working methods and interactions, emergence of new forms of employment, intensified use of information and communication technologies and virtual platforms, dissolving geographical boundaries, and similar aspects. Hence, in terms of practical implications, we should call for corresponding practices at the managerial, organizational, and structural levels to help people's sustained adjustment to such changes should they result in permanent modifications of their working life. For instance, the literature has highlighted the role

of leadership in fostering employee health and well-being in times of the pandemic (Rudolph et al., 2021). Leadership skills will be key in a post-pandemic world as well, especially when it comes to supporting flexibility (e.g., in terms of working schedules and modes) and promoting healthy and productive new ways of working (e.g., through remote team management, feedback, trust-building practices). Likewise, at the organizational level, more effort will likely be needed towards adopting a truly flexible and inclusive working culture that is favourable for employees' latitude (Kniffin et al., 2021), diversity (Brenner et al., 2021), and family-friendly norms (Rudolph et al, 2021).

It must be, however, noted that the pandemic may have accelerated some pre-existing detrimental tendencies in the labour market that are beyond individual managers' control. One illustration of it is an increase in precarious forms of work that manifest in reduced-hour temporary contracts and certain types of platform work (see also Allen et al., 2021). In this case, structural measures are needed to protect the most vulnerable individuals from being entrapped in the vulnerability cycle and potentially abusive employment relationships. Moreover, supportive actions are essential for employee resilience and faster recovery from the recent crisis (Kuntz, 2021).

As illustrated by the present findings, certain groups of workers have faced a particularly negative pattern of change in their work situation during the pandemic, with notable threats to employability and sustained well-being. These issues must be noted and carefully addressed to avoid further complications. Indeed, the problem here is twofold. First, one could assume that for some workers the momentary decrease in workload (e.g., due to the economic slowdown) may result in a long-term decrease of their job opportunities through downsizing and digitalization/robotization practices. It is thus important to ensure access to life-long education and vocational guidance for the most vulnerable ones to support their sustainable careers. Second, while in some sectors the slowdown may have been temporary, it has given high turnover rates and created an insecurity culture that may bring a host of deleterious effects in the long run, such as decreased work morale, an increase in occupational health risks, and difficulties for businesses to retain their employees. This is not a desirable 'new normal' and organizations could benefit from this period to reset their working cultures so that they are more sustainable, humane, and prosocial value-oriented (e.g., Hite & McDonald, 2020).

LIMITATIONS AND FUTURE DIRECTIONS

Several limitations must be taken into account when interpreting the results of the current study. First, we have mostly focused on analyzing changes in external employment conditions because they were drastically affected by the COVID-19 pandemic. It is, however, true that the quality of work situation is also determined by psychosocial task and job characteristics (such as autonomy, task stimulation and interdependence, social relationships, growth and development opportunities), and the crisis has presumably changed the subtle balance between them. In addition, there may be other aspects that have become relevant during the pandemic (e.g., changes in leadership roles). Therefore, further person-centred research on configurations of changes in the psychosocial work environment would be a valuable addition to the current findings as well as those that have attempted to identify employee well-being profiles (e.g., Harju et al., 2021).

Likewise, the scope of our study is limited to objective personal and professional predictors of the pandemic-induced change patterns at work. The list of potential antecedents could be still expanded to include individual difference variables (e.g., personality and individual resource characteristics) as well as organizational characteristics (e.g., organizational climate or leadership practices) that may be useful for identifying broader personal and occupational factors that are important determinants of people's experiences of critical situations.

Another important limitation is that our sample consisted only of individuals who were employed at the time of the study. Therefore, those who lost their jobs during the pandemic and who were likely to have been most affected occupationally are not represented in our sample. It should be also noted that the current study relies on a retrospective approach assessing perceived changes at work and their magnitude. While such an approach informs about how the pandemic is seen and subjectively experienced by the study participants, it is not exempt from shortcomings (e.g., people may differ in how they interpret change). It may be the case that people who already considered quitting their job (turnover intention) interpreted small changes in working conditions or workload more drastically. Similarly, all data relied on self-reports and are therefore subject to common method bias. These limitations should be kept in mind when interpreting or comparing the results presented in this paper.

Further, several concepts in the current study were measured by single items (e.g., turnover intention, job satisfaction). While previous studies using these or very similar measures supported their validity, interpretation of our results should consider the potentially lower reliability of single-item measures, which could lead to underestimation of effects.

Finally, despite the benefits of diverse well-being outcomes that combine overall and aggregated daily indicators, the current analyses are based on a rather static perspective that does not allow for testing changes in latent class membership or outcome developments

over time. Longitudinal extensions would enrich this line of research and they should be considered in future studies aiming to unravel the stressor-strain dynamics in a post-pandemic world.

CONCLUSION

Overall, our results corroborate earlier findings that people have been differently hit by the COVID-19 pandemic and that their experienced changes at work may be clustered into distinct patterns: those who experienced strong declines in workload and income (the precarious pattern), those who mostly experienced increases in workload and changes in the quality of working conditions (the challenged pattern), and those who were widely unaffected (the status quo pattern). Findings on background characteristics suggested that employees who were younger, lower skilled, raising minor children, and/or having no possibility for telework were generally more likely to encounter a pattern of marked changes in their work situation. Also, those who were more strongly affected by the pandemic reported higher levels of exhaustion, job insecurity, and turnover intentions, while no differences regarding work engagement or job satisfaction emerged. Our results place an emphasis on stressor-strain responses and suggest that the pandemic may have been particularly detrimental to individuals with initial vulnerabilities.

ADDITIONAL FILE

The additional file for this article can be found as follows:

- **Appendix.** Supplemental descriptive information. DOI: https://doi.org/10.5334/spo.39.s1

TRANSPARENCY STATEMENT

We reported how we determined the sample size and the stopping criterion. We reported all experimental conditions and variables. We report all data exclusion criteria and whether these were determined before or during the data analysis. We report all outlier criteria and whether these were determined before or during data analysis.

PREREGISTRATION

No part of the study procedures was pre-registered prior to the research being conducted. No part of the study analyses was pre-registered prior to the research being conducted.

ETHICS AND CONSENT

This study was carried out in accordance with the recommendations of the Swiss Psychological Association. All subjects gave written informed consent in accordance with the Declaration of Helsinki. According to the guidelines of the University of Lausanne, no formal ethics approval was required, as this study does not belong to research on human beings using physiological measures or aiming at the diagnostic of a pathology.

ACKNOWLEDGEMENTS

The authors are grateful to Julie Schulthess, Tim Rohr and Lennart Koch for their assistance with data collection.

FUNDING INFORMATION

This contribution benefited from the support of the Swiss National Centre of Competence in Research LIVES—Overcoming vulnerability: Life course perspective, financed by the Swiss National Science Foundation (grant number: 51NF40-185901).

COMPETING INTERESTS

The authors have no competing interests to declare.

AUTHOR CONTRIBUTIONS

IU: Conceptualization, Methodology, Investigation, Data Curation, Formal analysis, Visualization, Writing—Original Draft, Writing—Review and Editing;

FG: Conceptualization, Methodology, Investigation, Visualization, Writing—Review and Editing;

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TO CITE THIS ARTICLE:
Urbanaviciute, I., Gander, F., & Massoudi, K. (2023). Working Life During the Pandemic: Experienced Changes and their Implications for Occupational Well-being among Employees in Switzerland. *Swiss Psychology Open,* 3(1): 4, pp. 1–17. DOI: https://doi.org/10.5334/spo.39

Submitted: 26 February 2022 **Accepted:** 06 March 2023 **Published:** 23 March 2023