



Who is most affected by the Corona crisis? An analysis of changes in stress and well-being in Switzerland

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ABSTRACT

This study analyses the consequences of the Covid-19 crisis on stress and well-being in Switzerland. In particular, we assess whether vulnerable groups in terms of social isolation, increased workload and limited socioeconomic resources are affected more than others. Using longitudinal data from the Swiss Household Panel, including a specific Covid-19 study, we estimate change score models to predict changes in perceived stress and life satisfaction at the end of the semi-lockdown in comparison to before the crisis. We find no general change in life satisfaction and a small decrease in stress. Yet, in line with our expectations, more vulnerable groups in terms of social isolation (young adults, Covid-19 risk group members, individuals without a partner), workload (women) and socioeconomic resources (unemployed and those who experienced a deteriorating financial situation) reported a decrease in life satisfaction. Stress levels decreased most strongly among high earners, workers on short-time work and the highly educated.


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Introduction

The Covid-19 crisis affected people's well-being in many ways across the world. Switzerland was also strongly affected by the pandemic and by the consequences of the measures it took to contain it. The Italian-speaking canton of Ticino and the French-speaking cantons of Geneva and Vaud were particularly strongly affected by the first wave of the pandemic, with mortality rates per million people by the end of April two to three times higher than the European average (908 in Ticino, 530 in Geneva,

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504 in Vaud compared with 163 in Switzerland as a whole and 264 in Europe). Intensive care units were close to full occupancy in the most affected cantons by the end of March. Schools, public institutions and non-essential retailers were closed between 8 March and 10 May 2020. Authorities recommended individuals to stay at home, outdoor activities were allowed as long as not more than five individuals gathered and physical distancing was assured. The pandemic has strongly hit the Swiss economy (SECO 2020) leading to a strong recession and to unprecedented levels of short-time work and increased unemployment. Nonetheless, the decline of the gross domestic product by 10.5 percent in the first six months of 2020 was lower than the EU average (−16.5%, Eurostat 2020).

This study focuses on the question whether confinement measures and economic consequences might have affected the wellbeing of some groups more than others, and might hence have put some groups more than others at risk to experience vulnerability (Settersten *et al.* 2020). Identifying the characteristics of at-risk groups is a first step to better understand the mechanisms that make certain groups particularly vulnerable (Spini *et al.* 2017). This study addresses the question whether the Covid-19 crisis has negatively affected the well-being of individuals living in Switzerland in terms of increased stress levels and lower life satisfaction, and which sociodemographic and socio-economic groups have been most affected. The study is based on longitudinal data from the Swiss Household Panel (SHP; Tillmann *et al.* 2016) which observed the same individuals before and during the Covid-19 crisis.

Short-term effects of the Covid-19 crisis on stress and well-being for vulnerable groups

Policy measures affected the well-being of the entire population living in Switzerland to some extent (Ehrler *et al.* 2020). We characterize the groups likely to be more strongly affected using the concept of vulnerability which can be defined as a

weakening process and a lack of resources in one or more life domains that, in specific contexts, exposes individuals or groups to (1) negative consequences related to sources of stress, (2) an inability to cope effectively with stressors, and (3) an inability to recover from stressors or to take advantage of opportunities by a given deadline. (Spini *et al.* 2017: 8)

Given the centrality of stress for vulnerability (see also Pearlin 1999), we look at perceived stress as an outcome measure, as well as at life satisfaction, a commonly used indicator of well-being (Diener *et al.* 1999).

We assess vulnerability in terms of *social isolation*, increased *workload* resulting from the Covid-19 crisis, and limited or decreasing *socioeconomic resources*.

Social isolation

Although the well-being of young people was not impacted in the last financial crisis in Switzerland (Simona-Moussa and Ravazzini 2019), Daly *et al.* (2020) show that during the Corona crisis mental health problems augmented most notably among individuals aged 18–34 in the UK. Adolescents and young adults might suffer more from school closure and be to some extent socially marginalized due to the consequences of the pandemic (Settersten *et al.* 2020). In addition, those above the age of 65 and those at risk to have severe health consequences from a Covid-19-infection were strongly advised to self-isolate. Because of the negative effects of social isolation on well-being due to confinement measures (Mengin *et al.* 2020), especially young and old age groups might be negatively affected. Second, living alone or having no partner is likely to be a risk factor for social isolation when confinement measures encouraged people to stay at home. Therefore, we hypothesize stronger increases in levels of stress and decreases in levels of life satisfaction for the following individuals: adolescents or young adults isolated due to school closure, individuals living alone, without a partner, and individuals belonging to a risk group, including people aged 65+ (*social isolation hypothesis*).

Workload

The *workload* has increased for a large part of the population and work-life balance has been impacted by school closures and the obligation to work from home (Craig and Churchill 2020; Czymara *et al.* 2020). In particular, there are indications that gender-related inequalities are exacerbated through the Covid-19 crisis. Women are overrepresented in the work sectors predominantly impacted by the Covid-19 crisis (International Labour Organization (ILO) 2020a). Moreover, the lockdown measures have increased the amount of unpaid care done by women, especially with respect to child care and home schooling (Czymara *et al.* 2020). In line with this, findings from the UK show that among women mental health problems increased during the Covid-19 pandemic (Daly *et al.* 2020). Second, working from home might have both negative and positive consequences for workload. On the one hand, it might

complicate work-life balance, on the other hand, it might introduce more flexibility and reduces commuting. Similarly, short-time work could have ambiguous effects on stress and wellbeing, as it increases the time available for family and leisure but is accompanied by a decrease in income and more job insecurity. We hypothesize a stronger increase in stress and reduction in life satisfaction for women, individuals living in households with children, individuals who work from home and those on short-time work (*workload hypothesis*).

Socioeconomic resources

The Covid-19 crisis produced financial and economic vulnerability (for the theoretical background, see Spini *et al.* 2017; Turner *et al.* 1995), especially for those in less stable labour market situations and with low income. During the 2008 financial crisis in Switzerland, for example, the self-employed, low educated, and unemployed individuals showed lower levels of subjective well-being, although no change could be observed over time (Simona-Moussa and Ravazzini 2019). During the Covid-19 crisis, Switzerland experienced serious disruptions in the labour market, with rapidly increasing unemployment, even though it has implemented many policy measures to counter these disruptions (SECO 2020; ILO 2020b). Although welfare spending and labour market policies moderate the effects of unemployment (Stuckler *et al.* 2010), there is a clear established link between unemployment (Oesch and Lipps 2013), job insecurity (Burchell 2011), and low income (Diener *et al.* 1993) on the one hand, and lower subjective well-being on the other hand. The self-employed may also be more strongly affected, as their income-replacement rate is much lower than for employees (ILO 2020c). Individuals with low education, finally, can be considered as vulnerable because the labour market is more competitive and contracts often more precarious; also, they were more often in jobs not suitable for working from home, exposing them to a higher risk of infection. Related to economic resources, we expect that accommodation size turned into a marker of inequality during lockdown measures with individuals in smaller accommodations reporting stronger reduction in well-being. In sum, we hypothesize that life satisfaction decreased and stress increased more among individuals with a more vulnerable socio-economic position (the lower educated, low earners, the unemployed, employees on short-term-contracts, employees in the private sector and the self-employed) (*socioeconomic resources hypothesis*).

Sample

We use data from the Swiss Household Panel (SHP), an annual panel survey among a probability-based sample of the Swiss population living in private households.¹ The study started in 1999 and added refreshment samples in 2004 and 2013 (see Tillmann *et al.* 2016 for details), an additional sample was added at the end of 2020. All household members as of 14 years old are invited to participate. During the Covid-19 crisis, the SHP conducted an additional survey among respondents to the previous panel wave of 2019. 8'782 persons from 5'540 households received an invitation to complete a web questionnaire. Nonrespondents to the web questionnaire received a reminder with a paper version of the questionnaire. With 5859 responding individuals (aged 14–99), the response rate amounts to 66.7%.

In this study we use two waves of data collection: the most recent panel wave that was conducted between 2 September 2019 and 3 March 2020 (95% of individual interviews were completed before December 17) (*Wave 1*) and the special Covid-19 survey that was collected between 12 May and 30 June 2020 (95% of questionnaires were completed before June 20) (*Wave 2*). While in Wave 1 data were mainly collected by telephone (95% telephone, 5% web), Wave 2 was fully self-administered, with 67% responding by web and 33% filling out a paper questionnaire. Wave 2 was conducted after the peak of the first wave of the pandemic, which was at the end of March 2020, and during which political measures were gradually lifted. Compulsory school started partially on May 11, public institutions reopened on June 8.

We found only little selectivity in responding to the Covid-19 questionnaire, based on information from the previous Wave 1. The respondents to the Covid-19 survey were somewhat more likely to be female, older, married and holding Swiss nationality. They were also more likely to have a higher income, be higher educated (only marginally so), not active on the labour market and to come from smaller households. Self-employed sample members had a lower response propensity. Health, social participation and variables related to working conditions were not significantly related to response.

We restricted our sample to individuals aged 18 or older.² To limit bias from item non-response, we imputed missing values of independent

¹The population living in institutions such as old age homes are not part of the study.

²This selection was necessary as some questions were asked only to individuals who were at least 18 years old.

variables using imputation by chained equation (Azur *et al.* 2011). The variables with most missing values were household income (6.7%), Covid-19 risk group (6.4%), number of rooms (4.4%) and having a partner (4.5%).

Measures

We measured changes in stress and well-being with two dependent variables: the difference in perceived stress and in life satisfaction between Wave 1 (the previous wave) and Wave 2 (the Covid-19-questionnaire; change score). *Perceived stress* was captured with the question how often respondents felt stressed during the last two weeks, with answers ranging from never (1) to very often (5). *Life satisfaction* was measured on a scale from 0 'not at all satisfied' to 10 'completely satisfied'. Item non-response was less than 1% for perceived stress and 1% for life satisfaction.

We included the following independent variables measured mostly in Wave 2. For *social isolation*, we included age (recoded into 18–25, 26–45, 46–55, 56–65, 66–75 and 76 and older), belonging to a Covid-19 risk group (self-assessment, yes/no), single-person household (yes/no), and partner status (living with the partner, not living with the partner, no partner). To measure *workload*, we included gender, the presence of children in the household, whether individuals were in short-time work (yes/no), and whether they worked partially or completely from home (yes/no). *Socioeconomic resources* were measured by educational level (compulsory, upper secondary, tertiary), working status (dummy variables: employed, self-employed, unemployed or looking for a job, inactive, in education), work in temporary position, and work for a public employer (both yes/no). We included net equalized annual household income (modified OECD scale, natural logarithm), and change of the financial situation since the beginning of the Corona crisis, with 0 indicating 'very much worsened', 5 'no change', and 10 'very much improved'. We also included the number of rooms per person in the respondent's accommodation. Household income, number of rooms and job characteristics were measured in wave 1.

Control variables

As the pandemic had different health impacts in different parts of Switzerland, we controlled for linguistic region (French, German, Italian speaking). Moreover, all models controlled for nationality (Swiss or

other), survey mode in Wave 1 (telephone or web) and month of questionnaire completion in Wave 2 (May or June 2020). The mode switch from mainly telephone to web needs to be included in the models, as survey modes administered by interviewers yield more socially desirable results (Klausch *et al.* 2013).

Methods

We used change score models, which are OLS regressions using the change as dependent variable. We considered both change variables (stress, life satisfaction) as continuous variables. By exploiting the change within individuals, this model reduces omitted variable bias (Morgan and Winship 2014). We introduced the independent variables with a stepwise approach, adding socioeconomic resources in a second step to test to what extent any decreases in wellbeing in relation to vulnerability in terms of social isolation and workload are explained by fewer socioeconomic resources. We used survey weights in all analyses to correct for selectivity in participation.

Results

We first look at population means of the dependent variables controlled for survey mode. Table 1 depicts means before the crisis, during the crisis and the mean change between the two time points. Overall, the Covid-19 crisis did not change life satisfaction significantly but, surprisingly, it reduced stress levels significantly. This suggests that the Covid-19 crisis may have had some positive consequences as well.

The OLS regressions shown in Table 2 confirm that the Covid-19 crisis affects population groups differently and allow to identify the most vulnerable groups. To discuss the results, we refer to marginal effects of the complete model for all groups (see online appendix, Supplementary material).

Table 1. Mean values of dependent variables before the crisis, during the crisis and change.

	Range	n	Before crisis	During crisis	Change
Perceived stress	1–5	5843	2.80 (.04)	2.41 (.04)	–.39*** (.08)
Life satisfaction	0–10	5776	8.00 (.05)	7.96 (.05)	–.04 (.09)

Note: Standard errors in parenthesis, weighted statistics. To correct for survey mode, estimates are based on pooled OLS regression. Source: Swiss Household Panel (own calculation).

Table 2. Change in well-being during the Covid19 pandemic.

	Perceived stress				Life satisfaction			
	M1		M2		M1		M2	
<i>Social isolation</i>								
Covid-19 risk group	0.080*	(2.06)	0.058	(1.48)	-0.206**	(-4.00)	-0.198**	(-3.83)
Single household	0.012	(0.23)	0.049	(0.86)	-0.014	(-0.19)	-0.016	(-0.21)
Partner (No partner)								
Living with partner	0.059	(1.17)	0.083	(1.62)	0.086	(1.27)	0.080	(1.17)
Partner not in household	0.039	(0.69)	0.051	(0.90)	0.162*	(2.17)	0.172*	(2.31)
Age group								
18–25 years	-0.027	(-0.38)	-0.115	(-1.43)	-0.482**	(-5.10)	-0.457**	(-4.30)
26–45 years (Reference)								
46–55 years	-0.069	(-1.59)	-0.060	(-1.35)	0.099	(1.74)	0.093	(1.60)
56–65 years	0.010	(0.21)	-0.002	(-0.03)	0.159*	(2.48)	0.135*	(2.01)
66–75 years	0.075	(1.28)	0.003	(0.05)	0.369**	(4.81)	0.284**	(3.13)
76 years and older	0.172**	(2.71)	0.081	(1.08)	0.477**	(5.68)	0.386**	(3.90)
<i>Workload</i>								
Gender (Ref: male)	0.006	(0.20)	-0.023	(-0.79)	-0.066	(-1.72)	-0.084*	(-2.15)
Children in the household	-0.075	(-1.80)	-0.097*	(-2.25)	-0.029	(-0.52)	-0.047	(-0.83)
Work from home	-0.149**	(-4.05)	-0.074	(-1.77)	0.070	(1.44)	0.069	(1.24)
Short time work	-0.149**	(-3.06)	-0.151**	(-2.86)	0.036	(0.56)	0.061	(0.88)
<i>Socioeconomic resources</i>								
Education (Ref: compulsory)								
Upper Secondary			-0.086	(-1.70)			-0.050	(-0.74)
Tertiary			-0.138*	(-2.50)			-0.109	(-1.49)
Income (net equivalised household income)			-0.094**	(-2.97)			-0.080	(-1.92)
Change in of financial situation			-0.038**	(-2.83)			0.069**	(3.92)
Rooms per person			-0.022	(-1.18)			-0.001	(-0.05)
Working status (Ref. employed)								
Self-employed			0.003	(0.05)			0.165	(1.91)
Unemployed/looking for a job			-0.066	(-0.59)			-0.597**	(-4.03)
Inactive			0.116*	(2.11)			0.046	(0.64)
In education			0.058	(0.84)			-0.202*	(-2.22)
Fixed term contract*employed			-0.022	(-0.29)			0.184	(1.80)
Public sector*employed			0.010	(0.24)			0.029	(0.53)
<i>Controls</i>								
Swiss nationality (Ref: other)	0.092*	(2.31)	0.098*	(2.43)	-0.146**	(-2.79)	-0.165**	(-3.12)
Linguistic region (Ref: French)								
German	0.117**	(3.51)	0.136**	(4.04)	-0.062	(-1.41)	-0.063	(-1.43)
Italian	0.272**	(4.13)	0.237**	(3.57)	-0.132	(-1.51)	-0.135	(-1.54)
Telephone interview	0.221**	(3.46)	0.211**	(3.32)	-0.206*	(-2.45)	-0.198*	(-2.35)
Corona interview in June (Ref: May)	0.026	(0.85)	0.017	(0.57)	0.204**	(5.10)	0.200**	(4.97)
Constant	-0.579**	(-6.19)	0.561	(1.57)	0.094	(0.76)	1.102*	(2.34)
Observations	5633		5633		5594		5594	
R-squared	0.029		0.037		0.027		0.036	

Note: Change-score models. Dependent variables refer to change, survey weights applied. T-values in parentheses. See the online appendix (Supplementary material) for marginal effects used for the discussion of the results.

** $p < 0.01$, * $p < 0.05$. Source: Swiss Household Panel (own calculation).

We first address the effects of *social isolation* on stress and life satisfaction. Individuals who are at risk of severe illness from Covid-19 reduced perceived stress to a lower extent (-0.12 points) than individuals not in a risk group (-0.18 points), but this difference is no longer significant after including socioeconomic resources. The Covid-19 risk group also showed a significant decline in life satisfaction (-0.22 points) whereas the group not at risk remained stable.

We found no support of single-person households being vulnerable groups in terms of stress and life satisfaction. This might be because Switzerland has never implemented strict confinement measures. However, individuals without a partner declined in life satisfaction (-0.16 points) and differed significantly from individuals with a partner outside of the household (no change).

Age is an important factor explaining changes in life-satisfaction during the Covid-19 crisis. While the youngest respondents (18–25 years) showed a relatively strong downturn (reduction of 0.6 points), life satisfaction increased for retired individuals (by 0.2 points for 66–75 year olds, by 0.3 points by those 76 and older), although it should be noted that this effect is controlled for by being part of the Covid-19 risk group, which was the case for the majority of older adults. Stress reduction was weakest among the age groups after retirement age, but this effect disappeared once we controlled for socioeconomic resources.

We find only weak support for effects of *workload*. While there were no gender differences for stress, life satisfaction declined more strongly for women (-0.16) than for men (-0.06). The other indicators of workload did not affect life satisfaction, but showed some effects on stress. In contrast to our expectations, families with children reduced stress more strongly (-0.24) than households without children (-0.14), but these groups differed only significantly once we controlled for socioeconomic resources. Working from home was related to stress reduction in the first model, but not in the full model. This difference between the models can be explained by high earning individuals being more likely to work from home. Finally, short-time workers reduced their stress more strongly (-0.3 points) than employees (-0.2 points), which might reflect more time for family and leisure and thus a reduction of work-family conflicts. Short-time work did not have negative effects in terms of life satisfaction.

Last, the results strongly support our expectation that *socioeconomic resources* moderate the effects of the Covid-19 crisis. Individuals with low education, low household income before the crisis and a deteriorating

financial situation experienced reduced stress to a weaker extent than other groups. A deterioration of the financial situation was also related to decreasing life satisfaction. The living conditions in terms of rooms per person were not related to well-being. The working status was related to life satisfaction with a strong decrease for the unemployed (-0.72) and to a lower extent for those in education (-0.28). Workers in stable employment (permanent contract or working in the public sector) experienced no change in stress or life satisfaction. We did not find that the self-employed experienced a general reduction in their well-being.

Discussion

The aim of this study was to better understand to which degree vulnerable groups (Spini *et al.* 2017) defined by indicators of social isolation, workload and socioeconomic resources, have been affected differently by the Covid-19 crisis. Based on the Swiss Household Panel, we assessed the effect on two indicators of well-being: perceived stress and life satisfaction.

An interesting finding of our study is that across the board, perceived stress decreased rather than increased. In line with our hypotheses, this effect was more pronounced for privileged groups such as the higher educated and higher earners. The overall decrease in stress stands in sharp contrast to the perception of the Covid-19 crisis as a stressful event (Centers for Disease controls and prevention 2020). A study with a focus on stress resulting from the Covid-19 crisis in Switzerland found a general trend of increasing stress that persisted even when confinement measures were reduced (de Quervain *et al.* 2020). Yet, this latter study was not based on a representative sample and did not measure stress before the crisis. Our study measured changes in stress longitudinally from a representative sample and paints a different picture than studies in which respondents could self-select into the study.

There are several possible explanations why we find that overall stress levels have declined during the pandemic in Switzerland. Due to semi-lockdown measures, daily life slowed down considerably for a large part of the population, which may have reduced time pressure. With many services down, there were fewer options available and hence fewer choices to make. Also, there is evidence that in times of recession people take more time for recreational activities (Colman and Dave 2013) and the study by De Quervain *et al.* (2020) points to this, too.

The *social isolation* hypotheses were mostly confirmed: The Covid-19 risk group, the youngest age group and individuals without a partner experienced a particularly strong reduction in life satisfaction. Yet, against our expectations we did not find any effects for single-person households. A main finding is the strong negative effect of the crisis on the subjective well-being of younger age groups, especially those younger than 25. This confirms results from the UK (Daly *et al.* 2020). Possible explanations for these results are the lack of contacts and socializing outside the household, but also a decline in labour market perspectives.

Regarding the *workload* indicators, our study found that living with children, working from home and short time work did not affect well-being and stress strongly. We did, however, find a more pronounced decrease in life satisfaction for women. This is in line with findings that the Covid-19 crisis impacts the mental health of women negatively (Daly *et al.* 2020), due to specific challenges such as increase in unpaid care work (Czymara *et al.* 2020). With regards to other workload variables, as we expected, working from home and short time work might have both negative and positive aspects. Future research should conduct more fine-grained analyses and interactions between different variables to identify who can take advantage from working and spending more time at home.

Our hypotheses related to indicators of *socioeconomic resources* were relevant both for stress and life satisfaction. A deteriorating financial situation and unemployment were related to the strongest negative effects on life satisfaction, which underlines the protective effects of employment during economic crises (Axelrad *et al.* 2017). Along with our expectations, the higher educated and higher earners experienced the greatest reduction in stress.

Our study has a number of limitations. First, important vulnerable groups are not represented in the survey, such as old persons living in care homes or persons without residence permit who cannot apply for any assistance. Furthermore, individuals with low income and foreigners are underrepresented in our survey. Second, the survey was conducted at a time when case numbers had fallen sharply and it became clear that the health care system could cope with the situation. It is possible that individuals would have reported higher stress and lower well-being scores in the first weeks of the restriction measures. Going beyond these relatively short-term changes, future waves of the SHP will allow to study longer-term changes in stress levels and life satisfaction. Third, whereas our results give a diversified picture regarding the short-term impact of the

crisis on different population groups, we did not test any mechanisms and hence cannot explain why specific individuals experience greater change in outcomes. Future research should focus on mechanisms such as dynamics and organization within households during the crisis, psychological moderators such as worries and clinical symptoms as well as coping strategies and health behaviour.

Notwithstanding these limitations, our study provides a first dynamic assessment of stress and wellbeing in the wake of the Covid-19 crisis in Switzerland, showing not only that the burden of the crisis is not divided equally, but that it has exacerbated existing inequalities.

Disclosure statement

No potential conflict of interest was reported by the author(s).

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