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We Are (Not) in the Same Boat: Sociodemographic Differences in Mental and Social Health during the First Year of Coronavirus Pandemic

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Abstract

The study explores changes in mental and social health over two time points during the first year of the coronavirus pandemic, as well as differences in mental and social health among five sociodemographic groups determined by gender, age, socioeconomic status, education and employment status. The online survey was conducted during August and September 2020, and again during January 2021 on a probabilistic sample of adults in Croatia. A total of 958 adults participated in both time points. Our results indicate that, when there are any, changes in mental health are small, while changes in social health are slightly larger. Moreover, the coronavirus pandemic seems to disproportionately affect different socioeconomic groups. Women, young adults, people with low socioeconomic status, with primary education and unemployed generally had worse mental health in the first year of the coronavirus pandemic. Also, some social health indicators deteriorated more among older participants, people with low socioeconomic status, primary education and unemployed. Future studies should continue to monitor changes in mental and social health and appropriate interventions for the most vulnerable should be planned and introduced.

Keywords: pandemic, mental health, social health, sociodemographic characteristics

Introduction

The coronavirus pandemic continues to pose a challenge to individuals and societies. Concerns about being infected and restrictions on everyday activities may influence mental health of individuals as well as how they perceive current and future society. This influence may also be different for different sociodemographic groups.

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Research suggests that the pandemic has created new or deepened existing inequalities between groups (Aknin et al., 2022); nevertheless, those studies are still scarce. Therefore, the aim of this study is to explore the changes in mental and social health indicators on a representative sample of adults in Croatia at two time points during the first year of the pandemic, considering these changes in different sociodemographic groups.

Mental Health during Coronavirus Pandemic

The ongoing disruptions in everyday routines, distressing news and uncertainties related to the pandemic impose major changes that can cause stress and impair mental health (Mohler-Kuo et al., 2021). Research reported significant psychological distress during the early stages of the pandemic (spring of 2020) across the globe (Varma et al., 2021). However, a recent review of high-quality studies (Aknin et al., 2022) suggests that after an initial negative impact, mental health indicators mostly improved. Moreover, indicators such as life satisfaction and loneliness remained generally stable during the first year of the pandemic. Similar results were obtained on Croatia's general adult population (Ajduković et al., 2021) during a fairly relaxed period in July 2020. Depression, anxiety, stress, and adjustment disorder were lower than those reported in previous studies conducted earlier in the pandemic with a non-representative sample (Jokić Begić et al., 2020).

As suggested by a recent meta-analysis, most people have been coping fairly well with the current crisis, but to ensure more valid conclusions about the effects of the coronavirus pandemic on mental health indicators it is crucial to examine the moderating effect of relevant sociodemographic factors (Prati & Mancini, 2021).

Studies are consistent in finding that women are more likely to be negatively affected by the current situation when controlling for other factors (Ellwardt & Präg, 2021; Mohler-Kuo et al., 2021). However, studies on age differences in mental health impact of the pandemic show diverging results. There is evidence that the impact of public health measures increased loneliness and anxiety in the elderly and especially in those with poorer health (Knipe et al., 2020). De Pue et al. (2021) confirmed a huge impact of the coronavirus pandemic on the well-being, activity level and sleep quality of adults aged 64 years or older. In contrast are studies identifying young adults and adolescents as vulnerable groups. Ellwardt and Präg (2021) analysed nine waves of nationally representative survey data from the UK and found that younger people were one of the groups with the highest long-term distress. Similarly, a global cross-sectional survey showed that younger people were more negatively affected during the pandemic (Varma et al., 2021). The economic implications of the coronavirus pandemic have been severe, but people with a lower standard of living are more likely to face existential problems since they cannot afford the downsizing, mass layoffs and lack of access to public health services. Economic hardship, job

uncertainty and unemployment have a negative impact on psychological well-being and mental health (Godinic et al., 2020).

Therefore, we examined the importance of age, gender, socioeconomic status, education level and employment status in different mental health indicators, namely emotional difficulties, quality of life and pandemic-related stress to identify those more affected by the pandemic.

Social Health during Coronavirus Pandemic

While the coronavirus pandemic has a potential to impact mental health of individuals, it also affects society as a whole, and social responses, in turn, influence behaviour and attitudes of individuals.

When it comes to trust during the pandemic, there is evidence that in many countries such as the UK, US, France, Germany and Italy, coronavirus outbreaks were followed by a significant increase in a reported trust towards political authorities (Jennings, 2020). This finding is in line with a well-known *rally 'round the flag effect* according to which international crises are likely to boost, though shortly, the popularity of those in positions of power (Mueller, 1970). At least in some countries, levels of trust increased as the lockdown measures were implemented (Bol et al., 2021). In spite of some inconsistencies, research generally supports the idea that trust and distrust are primarily the result of life experiences which are, somewhat, determined by income, social class and employment status (Delhey & Newton, 2003). Finally, it is worth noting that general social trust is usually a stable and resilient attitude, while trust in specific people in a position of power or organizations might be more changeable, depending on how citizens view their performance.

Living through a pandemic is not only likely to increase trust, at least short-term, but because of the shared experience, it is likely to promote a sense of togetherness and shared identity (Sibley et al., 2020). In order to achieve and maintain high levels of shared identity, it is necessary to address any inequalities (Jetten et al., 2020). For example, it is easier for wealthier people to stay at home during the pandemic, while poorer people need to go out and work (Valentino-DeVries et al., 2020), so the less privileged groups might experience lower levels of a shared identity.

During crises there is a trade-off between individual liberties and well-being of a community. Recently, Alsan et al. (2021) studied to what extent individuals prefer to protect their rights and civil liberties when faced with health insecurity and documented that exposure to health risks leads to a greater willingness to sacrifice rights and liberties. However, the same authors also documented differences among different socioeconomic groups in their willingness to sacrifice rights, i. e. those disadvantaged by income and education were less willing to sacrifice their rights for public welfare. Furthermore, men were less willing to sacrifice their rights compared

to women. Finally, Carriere et al. (2022) note that age may also play a role in willingness to sacrifice one's rights. As age increases, conservatism increases (Thumin, 1972), and support for equal rights decreases (Verkuyten, 2009).

Hence, in order to better understand the behaviour and responses of Croatian citizens during the COVID-19 pandemic, we considered relevant social variables of trust in other people as well as in institutions and organizations, levels of shared identity, and the importance of civil liberties and willingness to give them up.

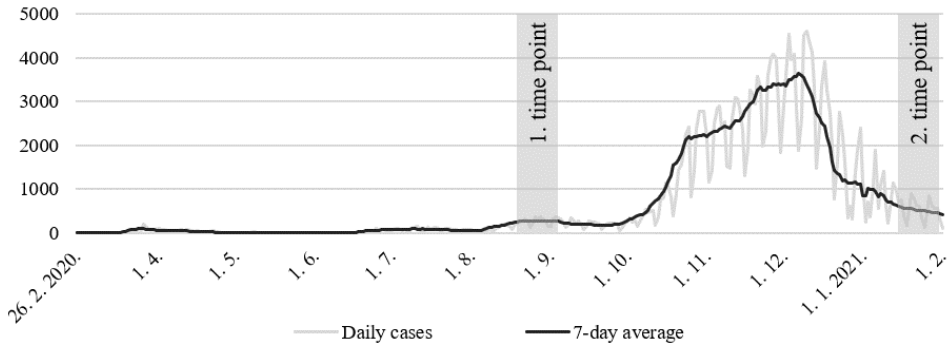
Method

Participants and Procedure

This study is a part of the research project *(Re)building society: A Longitudinal Study of Post-Corona Social Recovery in the Croatian General Population (ReSPoC)* (Čorkalo Biruški et al., 2020, 2021). For the present study we collected data in two time points during the first year of the coronavirus pandemic - first time from August 24th to September 7th, 2020 (T1), and about five months later, from January 15th to January 31st, 2021 (T2). As shown in Figure 1, during T1 there was an increase of daily cases infected by coronavirus, while during T2 daily cases decreased after the major increase in December.

Figure 1

Number of Daily and 7-Day Average Coronavirus Cases in Croatia with Marked Time Points of Data Collection (Data Downloaded from www.koronavirus.hr)



A national probabilistic sample stratified by region and settlement size was collected by the public opinion research agency using computer-assisted web interviewing (CAWI method). Research procedure was approved by the Research Ethics Committee at the Department of Psychology, University of Zagreb. A total of 1,060 adults participated in the first wave of the study. Among them, 958 participated in the follow-up, with a retention rate of 90.4%. With minor deviations, demographic

characteristics (gender and age) of the study sample corresponded to the Croatian population according to the 2011 census. However, there were fewer participants with primary education (or lower) in the sample than in the general population. Such deviations were corrected using the RIM weighting method (random iterative method). Table 1 shows weighted demographic characteristics of the sample since all further analyses were conducted on a weighted sample. Unweighted demographic characteristics can be found in Appendix 1.

Table 1

Demographic Characteristics of the Participants (N = 958)

Variable	weighted %	
	T1	T2
Gender		
Female	50.8	-
Male	49.2	-
Age		
18-29	20.3	-
30-44	28.0	-
45-59	29.7	-
60-74	22.0	-
Education level		
Unfinished or finished primary education	24.5	-
Secondary education	57.5	-
Higher education	18.0	-
Socioeconomic status (SES)		
Below average	24.0	21.1
Average	60.9	64.6
Above average	15.1	14.3
Employment status		
Employed	54.0	58.3
Student	9.3	11.0
Retired	23.2	16.5
Unemployed	11.2	9.8
Unemployed due to the pandemic	2.3	4.4

Note. All demographic data were collected in T1, but information about economic standard and work status were collected also in T2, as shown in the table.

Measures

Demographic Characteristics

Participants provided data on their gender, age, (self-assessed) socioeconomic status (SES), education level and employment status in T1. Age was classified into four categories (18-29, 30-44, 45-59, 60-74). Participants estimated their SES by

comparing it to other Croatian households on a scale from 1 (*significantly below average*) to 5 (*significantly above average*), and their answers were categorised as 1 (*below average*), 2 (*average*) and 3 (*above average*). Participants' education level was categorised as *primary* (*unfinished* and *finished primary education*), *secondary* and *higher* (*university and PhD*), and their employment status as *employed* (*fixed-term employment*, *open-ended employment* and *self-employment*), *student* (*attending secondary school* or *university*), *retired*, *unemployed* (*I have never worked*, *I lost my job before the pandemic* and *I lost my job unrelated to the pandemic*) and *unemployed due to the pandemic*. In T2 we asked participants again only about their SES and employment status, and used that data for analysing the change in mental and social health between two measurement points.

Mental Health Indicators

We included three mental health indicators: emotional difficulties, quality of life and pandemic-related stress.

Emotional difficulties were measured with CORE-YP (Twigg et al., 2009). The scale consisted of 10 items asking participants how they felt over the last week (e.g., *I've felt edgy or nervous*) with response scale from 0 (*not at all*) to 4 (*most or all of the time*). The internal consistency of the scale was $\alpha = .85$ in T1, and $\alpha = .86$ in T2.

Quality of life was measured with a single item (Rose et al., 2009). Participants rated satisfaction with their life in general on a scale from 0 (*very unsatisfied*) to 10 (*extremely satisfied*).

Pandemic-related stress was measured with a scale developed for the purpose of this project. We asked participants to rate how stressful for them were 15 different circumstances related to the pandemic (e.g., *Limited freedom of movement*) on a scale from 1 (*not stressful at all*) to 5 (*very stressful*). Participants had an option to answer 0 if circumstances were not applicable to them. Those participants were later excluded from the analysis. In the analysis we used both total average score and scores on the particular items. The internal consistency of pandemic-related stress was $\alpha = .92$ in T1 and $\alpha = .93$ in T2.

Social Health Indicators

For the purpose of this study, we selected five indicators of social health: social trust (horizontal and institutional), sense of shared identity, importance of democratic values and readiness of citizens to give them up.

We measured *social trust* as *horizontal trust* and *trust toward different persons, institutions and organizations*. *Horizontal trust* was measured using two items assessing the level of trust participants have in people generally and in people they know personally on a scale from 0 (*no trust at all*) to 10 (*complete trust*). In addition, we asked participants to estimate, on the same scale, their level of trust towards 3

groups of institutions – *political* (the average trust towards political parties, the Government, the Parliament, the President and the National Civil Protection Headquarters), *public* (the average trust towards judiciary, police and the educational system) and *independent institutions* (the average trust towards scientists, NGOs, the media and the Catholic Church). The internal consistencies were $\alpha = .87$ in T1, and $\alpha = .88$ in T2 for trust in political institutions, $\alpha = .75$ in T1 and $\alpha = .74$ in T2 for public institutions, and $\alpha = .65$ in T1 and T2 for independent institutions. Since National Civil Protection Headquarters (NCPH) and scientists played important roles in the pandemic, we decided to also analyse those items independently.

Shared identity was measured with the adapted five-item scale by Khan et al. (2015). The scale consisted of five items asking how much Croatian citizens share the same group identity (e.g., *Croatian citizens think of themselves as members of the same group*). Participants assessed how much those items apply to Croatian citizens on a scale from 1 (*it does not apply to Croatian citizens at all*) to 5 (*it applies to Croatian citizens very much*). The internal consistency of shared identity was $\alpha = .88$ in T1 and $\alpha = .88$ in T2.

Finally, we examined how participants felt about different democratic values and civil liberties (e.g., *Freedom*). We asked the participants how important for them are those values and how much would they be willing to give them up if it would help in stopping the pandemic and mitigating its consequences. Both measures were conducted on a scale from 1 (*completely unimportant* and *not ready to give it up at all*) to 4 (*extremely important* and *certainly ready to give it up*). In the further analysis we used total average score on both measures, but also scores on the particular items. Internal consistency was $\alpha = .92$ in T1 and $\alpha = .88$ in T2 for the measure of importance of democratic values and civil liberties, and $\alpha = .95$ both in T1 and T2 for the measure of willingness to give up democratic values and civil liberties.

Data Analysis

Data analysis was conducted by IBM SPSS Statistics (version 27). The differences in perceived mental and social health from T1 to T2 were analysed by paired sample *t*-tests. We used factorial repeated measures ANOVA to test the differences between demographic groups in perceived mental and social health and their change from T1 to T2. Analyses were conducted separately for every indicator of mental and social health. Since a large number of tests increases the probability of Type I error, we will interpret differences between groups only when $p < .01$.

Results

Changes in Average Mental and Social Health from T1 to T2

Table 2 shows changes in means of mental and social health indicators from T1 to T2.

Table 2

Means and Standard Deviations of Variables in Two Measurement Points with Effect Sizes and Correlations for Paired Comparisons

Variable	T1		T2		*r*	*t*	*p*	*d*	*N*
	M	*SD*	*M*	*SD*					
Mental health									
Emotional difficulties	1.44	0.69	1.49	0.69	.58	-2.16	.031	0.07	958
Life quality	**6.64**	**2.73**	**6.95**	**3.07**	**.33**	**-2.80**	**.005**	**0.09**	**958**
Pandemic-related stress	3.13	0.91	3.09	0.91	.60	1.25	.214	-0.06	419
Social health									
Horizontal trust	6.40	1.75	6.46	1.83	.53	-1.12	.265	0.04	958
Trust in political institutions	**3.12**	**2.18**	**2.83**	**2.19**	**.62**	**4.83**	**.000**	**-0.16**	**958**
Trust in public institutions	4.09	2.08	4.02	2.17	.57	1.12	.263	-0.04	958
Trust in independent institutions	4.31	1.88	4.17	1.94	.60	2.50	.013	-0.08	958
National Civil Protection Headquarters	**3.95**	**2.90**	**3.42**	**2.85**	**.60**	**6.39**	**.000**	**-0.21**	**958**
Scientists	6.10	2.51	6.07	2.62	.53	0.43	.671	-0.01	958
Shared identity	**2.84**	**0.86**	**3.30**	**0.80**	**.38**	**-15.55**	**.000**	**0.50**	**958**
Importance of democratic values and civil liberties	3.48	0.52	3.52	0.44	.50	-1.97	.049	0.06	958
Willingness to give up democratic values and civil liberties	1.72	0.76	1.77	0.75	.31	-1.67	.095	0.05	958

Note. The response scales for presented variables are: emotional difficulties 0-4, quality of life 0-10, pandemic stress 1-5, horizontal and institutional trust 0-10, shared identity 1-5, importance and willingness to give up civil liberties 1-4.

Paired sample *t*-tests revealed that the quality of life increased slightly, suggesting that participants were a bit more satisfied with their life in T2 than in T1. Nevertheless, the effect size of this difference is negligible. The average levels of pandemic stress did not significantly change in two time points. However, as portrayed in Appendix 2, there was a significant decrease from T1 to T2 in the stressfulness of particular sources of stress, namely *limited freedom of movement*, *impossibility to work (well enough)*, *adapting work and social life to digital platforms*, *spending the whole day with the household members*, *limited access to daily necessities* and *anxiety when leaving the house*.

Furthermore, there were no differences in horizontal trust, trust in public and independent institutions between two time points. However, data suggests that there

was a decrease in the average levels of trust in political institutions from T1 to T2. There was no significant difference between T1 and T2 in the levels of *trust in scientists*, but the level of *trust in NCPH* decreased significantly. The levels of shared identity showed the greatest increase from T1 to T2. On the other side, there was no change in average levels of importance of civil liberties and willingness to give up on them. Only, the importance of *the rule of law* slightly increased during two time points (Appendix 2).

Mental and Social Health in Different Sociodemographic Groups

In the following paragraphs we present differences among groups with different sociodemographic characteristics. Each group effect we present is significant at $p < .001$, unless said otherwise. Post hoc analyses were conducted using Bonferroni correction for multiple comparisons. The main effects of time were reported in the previous section, so we do not discuss it here. Differences in mental health indicators among various groups are shown in Figure 2.

There were significant main effects of gender ($F = 9.63$, $p = .002$, $\eta^2 = .009$), SES ($F = 24.51$, $\eta^2 = .046$), education ($F = 15.94$, $\eta^2 = .030$) and employment status ($F = 6.74$, $\eta^2 = .026$) on **emotional difficulties**. Women experienced more emotional difficulties than men. However, the greatest difference was found among different socioeconomic groups. People with below-average SES experienced more emotional difficulties than people with average and above-average SES. Post hoc tests also revealed that people with primary education experienced more emotional difficulties than people with secondary and higher education, while people with secondary education experienced more emotional difficulties than people with higher education ($p = .041$). Regarding employment status, people who are unemployed due to the pandemic experienced more emotional difficulties than those employed and retired.

Regarding **quality of life**, there were significant main effects of education ($F = 5.77$, $p = .003$, $\eta^2 = .011$) and employment status ($F = 7.53$, $\eta^2 = .029$). Post hoc tests showed that people with primary ($p = .003$) and secondary education ($p = .035$) had lower quality of life than people with higher education. Also, unemployed, as well as unemployed due to the pandemic had lower quality of life than employed ($p_{unemp(p)} = .002$) and retired ($p_{unemp} = .005$, $p_{unemp(p)} = .013$).

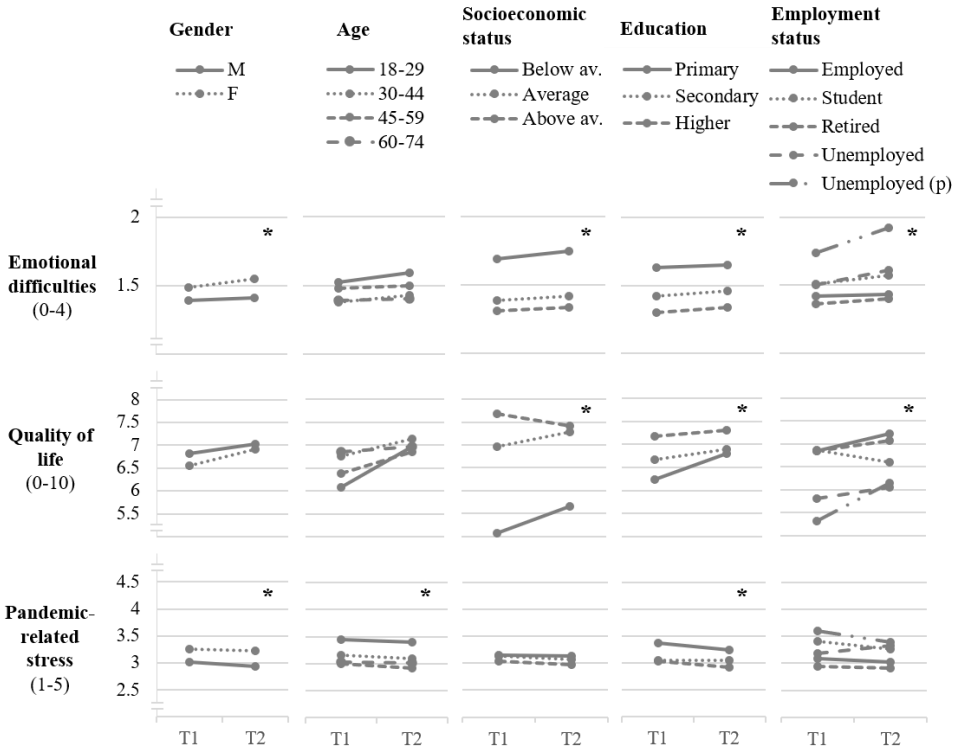
There were significant main effects of gender ($F = 12.47$, $\eta^2 = .027$), age ($F = 6.47$, $\eta^2 = .042$) and education ($F = 5.01$, $p = .007$, $\eta^2 = .022$)[1] on **pandemic-related stress**. More pandemic stress was experienced by women than by men, by 18-29 year-olds than by 45-59 and 60-74 year-olds ($p = .004$), and by people with primary education than by people with secondary ($p = .019$) or higher education ($p = .013$).

[1] There was also significant main effect of employment status on average pandemic stress ($F = 3.59$, $p = .007$, $\eta^2 = .032$), but post hoc tests did not show significant differences between groups.

The results on separate items generally support these findings with some minor deviations as reported in the Appendix 3.

Figure 2

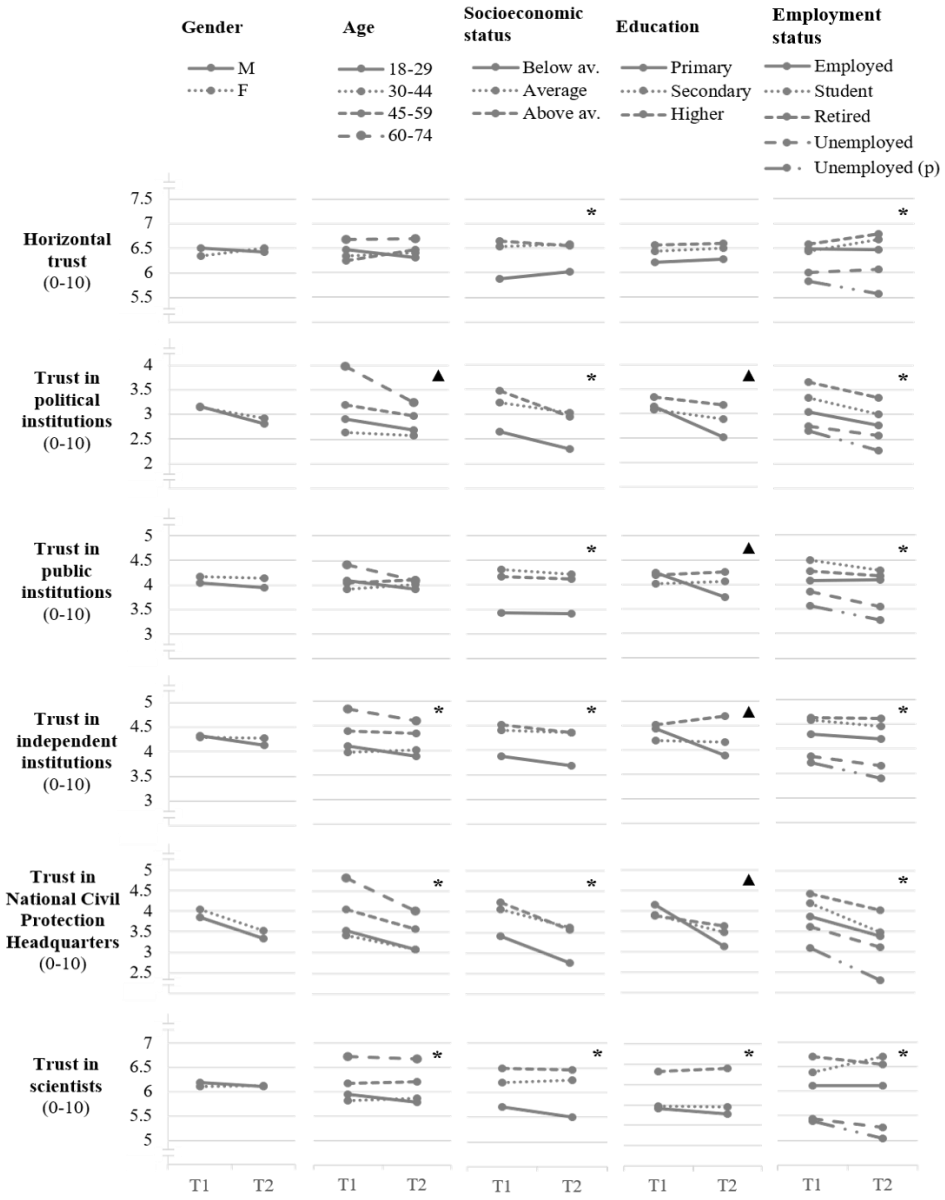
Average Levels of Emotional Difficulties, Quality of Life and Pandemic-Related Stress in T1 and T2 for Different Sociodemographic Groups



Note. T1: the end of August and beginning of September 2020; T2: second half of January 2021; Unemployed (p): unemployed due to the pandemic; * main effect of a particular demographic characteristic significant at $p < .01$.

Figure 3

Average Levels of Horizontal and Institutional Trust in T1 and T2 for Different Sociodemographic Groups



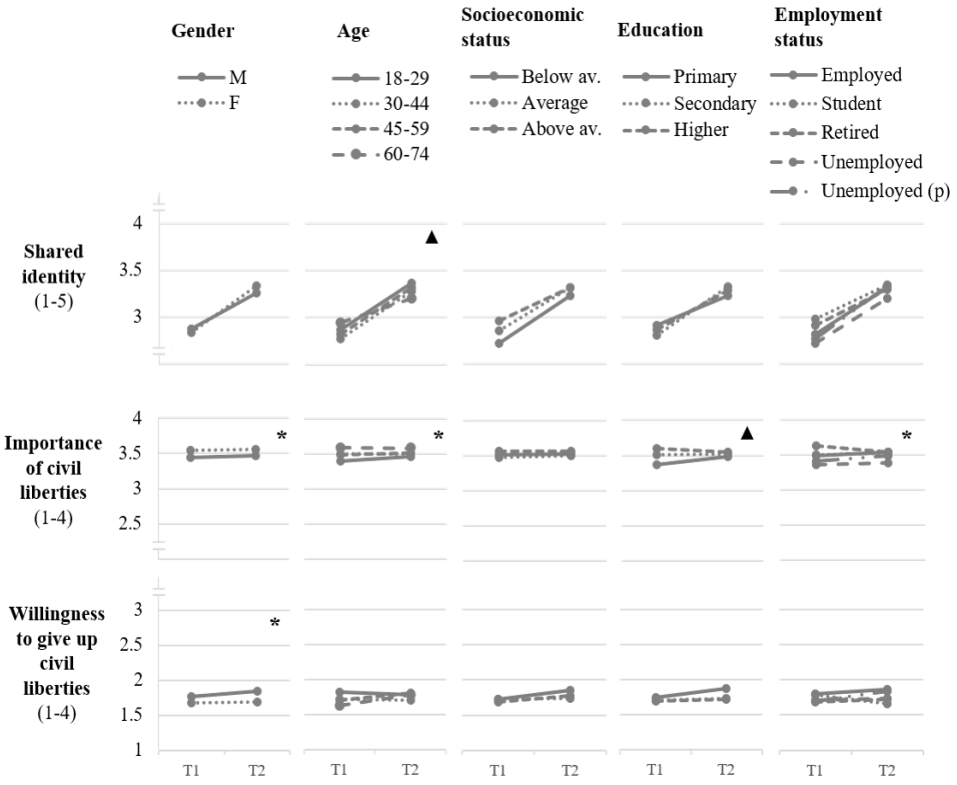
Note. T1: the end of August and beginning of September 2020; T2: second half of January 2021; Unemployed (p): unemployed due to the pandemic; * main effect of a particular demographic characteristic significant at $p < .01$; ▲ interaction effect of a particular demographic characteristic and time significant at $p < .01$.

As portrayed on Figure 3, there were significant main effects of SES ($F = 13.41$, $\eta^2 = .026$) and employment status ($F = 5.70$, $\eta^2 = .022$) on **horizontal trust**. Participants with above average and average status reported more horizontal trust than those with below-average status, as did employed ($p = .01$), students ($p = .013$) and retired compared to the unemployed due to the pandemic. In addition, retired people reported more horizontal trust than unemployed ($p = .009$). Main effects of socioeconomic ($F = 10.08$, $\eta^2 = .019$) and employment status ($F = 5.01$, $\eta^2 = .019$) on **trust in political institutions** were also significant. People with above-average and average SES trust political institutions more than people with below-average SES. Greater trust also had retired people in contrast to unemployed ($p = .007$), unemployed due to the pandemic ($p = .013$) and employed ($p = .005$). Moreover, there were also significant interaction effects of age and time ($F = 6.17$, $\eta^2 = .018$), as well as education and time ($F = 5.09$, $p = .006$, $\eta^2 = .010$). Trust in political institutions decreased significantly only for the oldest group of participants, and for the participants with primary and secondary education. There were significant main effects of socioeconomic ($F = 16.60$, $\eta^2 = .032$) and employment status ($F = 3.50$, $p = .008$, $\eta^2 = .014$) on trust in **public institutions as well**. Post hoc tests revealed that people with above-average and average SES have more trust in public institutions than people with below-average SES, as well as students in contrast to people who are unemployed due to the pandemic ($p = .028$). There was a significant interaction effect of age and time ($F = 14.72$, $\eta^2 = .015$) showing that the trust in public institutions decreased only among participants with primary education. Age ($F = 10.71$, $\eta^2 = .031$), socioeconomic ($F = 11.09$, $\eta^2 = .021$) and employment status ($F = 6.91$, $\eta^2 = .027$) had an effect on trust in **independent institutions**. The oldest participants had more trust in those institutions than the two youngest groups of the participants. Also, 45-59 year-olds trusted them more than 30-44 year-olds ($p = .042$). Again, people with above-average and average SES had more trust in these institutions than people with below-average SES. Finally, students ($p = .01$) and retired trusted independent institutions more than the unemployed and unemployed due to the pandemic. There was also significant interaction effect of education and time suggesting that the trust in independent institutions decreased significantly only for people with primary education. There were significant main effects of age ($F = 7.73$, $\eta^2 = .022$), SES ($F = 8.54$, $\eta^2 = .017$), education ($F = 16.15$, $\eta^2 = .031$) and employment status ($F = 8.35$, $\eta^2 = .032$) on *trust in scientists*. Post hoc tests suggested that more trust in scientists had the oldest group of participants in contrast to 18-29 and 30-44 year-olds, people with average and above-average SES than those with below-average SES. Furthermore, students and retired trusted scientists more in contrast to unemployed and unemployed due to the pandemic, and those employed in contrast to unemployed ($p = .018$). Finally, people with higher education had more trust than people with primary or secondary education. As for *trust in NCPH*, there were significant main effects of age ($F = 10.97$, $\eta^2 = .031$), SES ($F = 7.48$, $p = .001$, $\eta^2 = .015$) and employment status ($F = 4.22$, $p = .002$, $\eta^2 = .016$). Similarly, the most trust in them had the oldest group of participants in contrast to every other age group

($p_{45\text{-}59}$ = .043). More trust had also people with average and above-average SES (p = .008) than people with below-average SES and retired than unemployed due to the pandemic. There was also significant interaction effect (F = 6.28, p = .002, η^2 = .012) suggesting that trust in NCPH decreased only among people with primary and secondary education, but, nevertheless, there was no difference in trust between socioeconomic groups at any measurement point.

Figure 4

Average Levels of Shared Identity, and the Importance and Willingness to Give Up Democratic Values and Civil Liberties in T1 and T2 for Different Sociodemographic Groups



Note. T1: the end of August and beginning of September 2020; T2: second half of January 2021; Unemployed (p): unemployed due to the pandemic; * main effect of a particular demographic characteristic significant at $p < .01$; ▲ interaction effect of a particular demographic characteristic and time significant at $p < .01$.

There was significant interaction effect of age and time on **shared identity**, F = 4.20, p = .006, η^2 = .012 (Figure 4). It seems that the levels of perceived shared identity among Croatian citizens increased for all age groups. The oldest participants had the smallest increase in their perception of shared identity. While they reported

greater perception of shared identity than 30-44-year-olds in the T1, in the T2 they reported less shared identity than the youngest participants. Significant main effects were found for gender (F = 15.50, η^2 = .015), age (F = 6.13, η^2 = .018) and employment status (F = 4.27, p = .002, η^2 = .015) on the **importance of civil liberties**. Civil liberties were more important for women than men and for the oldest participants than the youngest. There was also significant interaction regarding education (F = 6.35, p = .002, η^2 = .012) which revealed that the importance of civil liberties increased only among participants with higher education. As for the **willingness to give up civil liberties**, significant main effect was found only for gender (F = 11.16, η^2 = .011), with men being more willing to give up civil liberties than women. Comparison on the item level is described in Appendix 4.

Discussion

In the present research, we explore changes in selected indicators of mental and social health over two time points during the first year of the coronavirus pandemic as well as differences in those indicators among different sociodemographic groups.

Our participants felt their quality of life even slightly increased and not decreased over time (as could be expected), but this improvement was only small and with negligible effect size. When looking at the average level of pandemic-related stress there was no difference in two time points with the results being almost exactly at the middle point of the scale indicating only moderate levels of stress experienced. Results related to the mental health changes of the Croatian general population indicate that resilience may be more accurate in describing changes in mental health people experienced during the pandemic than vulnerability. Considering the time when we collected the first wave of data (about three months after the lockdown was over and epidemiological measures were considerably alleviated) we may say that even if an initial impact of the onset of the pandemic and the lockdown occurred, we were late to detect this impact, at least on the mental health indicators we used. Similar conclusions were suggested by meta-analytical studies and review of research exploring the psychological impact of the coronavirus pandemic (Aknin et al., 2022; Prati & Mancini, 2021; Robinson et al., 2022).

As for time changes in indicators of social health, when detected, they were also of small effect sizes. There were no changes in horizontal trust in two time points, i.e. the pandemic did not affect general level of trust in others, though otherwise could have been expected since "the others" have been the major source of threat for getting the infection. Similar results showing no change in the generalized trust have been noticed in other contexts as well, e. g. in Norway (Thoresen et al., 2021). Furthermore, it seems that Croatian citizens' trust in public and independent institutions has also been stable over time, although generally lower than horizontal trust. Unlike these stable levels of trust, political trust has sustained the most damage

over time - trust in political institutions that had departed from fairly low levels in T1 became even lower in T2, indicating that Croatian citizens put little faith in what their political institutions have been doing. This mistrust is especially noticeable when looking at the decrease in trust in NCPH, a body established by the Government at the beginning of the pandemic to manage the crisis. A similar decline in trust in political institutions during the pandemic has been reported in other countries throughout the world, though Western European countries experienced quite the opposite in response to COVID-19 lockdowns (Bol et al., 2021). Interestingly, while other actors have suffered significant decline of public trust, trust in scientists has remained moderately high and stable in two time points. Recent survey conducted in twenty countries throughout the world showed that scientists are the most trustful social group globally (Funk et al., 2020).

Very early after the onset of the pandemic many scholars, prominent public figures and opinion-makers raised questions about the ability of a democratic system to "bounce back" and respond efficiently in managing a crisis that imposed harsh restrictions over citizens' behaviours and civil liberties. As recent meta-analysis pointed out, when threatened, people are more inclined to restrict rights for others but also for themselves (Carriere et al., 2022). Our results suggest that the importance of democratic values and civil liberties is highly valuable and stable in the Croatian general population. The same conclusion is possible based on the results about the participants' readiness to give up democratic values and liberties: the citizens are not ready to give them up and on the average level their reluctance to abandon democratic traditions has been stable over time. Though there are studies showing growing dissatisfaction with democracy in the world (e. g. Foa et al., 2020), out results show that the core democratic values are (very) important to citizens and they are not ready to give them up. These results are in line with a study done in several Western European countries showing clear support for democracy even in times of crisis (Bol et al., 2021). This reasoning is supported by the most prominent change in time in our study, i. e. the change in the sense of shared identity. The Croatian citizens experienced an increase in their sense of shared identity, with the largest effect size we obtained at all. Previous findings pointed out that shared community identity is an important factor for effectively responding to the pandemic and for facilitating community resilience (Stevenson et al., 2021). Hence, it would be of utmost importance to maintain this feeling of togetherness among citizens as a valuable resource for the post-pandemic social recovery as well.

A concern that the coronavirus pandemic would not have an equal impact on different populations had been expressed by many very early after the onset of the pandemic. Therefore, we wanted to explore differences in mental health and social indicators among different sociodemographic groups. Our analyses have shown that sociodemographic features were indeed relevant for the most mental health and socio-psychological outcomes. Regarding mental health, it seems that women are more vulnerable than men; they obviously have experienced more emotional

difficulties and pandemic-related stress than men, as corroborated by other studies in Croatia (Ajduković et al., 2021; Jokić-Begić et al., 2021) and elsewhere (e. g. Lotzin et al., 2021). Further, more stress was also experienced by young adults (18-29 years), and more stress and emotional difficulties among those who estimated their standard of living below the average, those less educated and unemployed (either being unemployed because of the coronavirus or for some other reason). It seems that quality of life was not affected differently in men and women and in groups of different ages, but it was affected in the same manner as other mental health indicators in other sociodemographic groups.

Regarding social health indicators, it seems that the most relevant sociodemographic is the self-assessed socioeconomic status (SES) - it has affected results on six of nine indicators. Specifically, those whose standard of living is below the average showed that their trust in other social actors has been deeply disturbed: they trusted less other people in general, but also in political and other public institutions, in independent institutions as well, and also in scientists. Our results are in line with previous studies, showing positive association between social status and trust (e.g. Brandt et al., 2015; Foster & Frieden, 2017). Besides corroborating previous data, our results call for an important warning: not only that economically deprived groups suffered more in the crisis; it is also likely their recovery is going to be much slower due to fewer resources, weaker social ties and social capital in general unless important supporting mechanisms are not engaged. Relatedly, a similar effect on social outcomes has the employment status: those unemployed were less trustful towards all groups and institutions. As far as the relationship between other sociodemographic characteristics and social outcomes is concerned, it seems that age of the participants has also some relevance, at least for some of the indicators. Specifically, those younger tend to trust less in independent institutions, NCPH and, interestingly, scientists (The Public Face of Science, 2018). Moreover, our research suggests that democratic values and civil liberties are less important to those younger, probably because they have been enjoying those values and liberties their whole life and maybe tend to take them for granted, unlike the oldest participants. Finally, it seems that gender also plays a role in determining relationship towards democratic values: they are more important to women and women are also less ready to give them up, which probably reflects a tendency of women to support and endorse values and policies that promote equality, including gender inequalities (cf. Hansen & Goenaga, 2021).

The results of this study contribute to existing knowledge about mental and social health changes and their sociodemographic determinants during the coronavirus pandemic. When there are any, changes in mental health seem to be very small. Women, young adults, people with below-average SES, with primary education and those unemployed generally had worse mental health during the pandemic. Regarding social health, the changes are somewhat larger, especially for shared identity. Low SES and unemployment seem to be important determinants of

lower institutional trust. Furthermore, the oldest participants and those with primary education showed the greatest decline in trust over time.

Though the general public survey allows us to have a more accurate picture of sociodemographic determinants of mental and social health changes during the pandemic, there are also important limitations. First, we have no pre-pandemic measures of the selected indicators in Croatia before the pandemic, so we may not be sure if the differences among groups we found were present before. Moreover, the follow-up period was relatively short, so we may not be sure if differences we found would persist further in time. Nevertheless, we were able to confirm that the impact of the pandemic was not equally distributed among different sociodemographic groups. Therefore, future studies are needed to monitor changes in mental and social health further so appropriate interventions aimed at those vulnerable may be planned and introduced.

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Appendix 1

Table 3

Demographic Characteristics of the Participants (N = 958)

Variable	unweighted %	
	T1	T2
Gender		
Female	52.7	-
Male	47.3	-
Age		
18-29	22.7	-
30-44	27.7	-
45-59	26.8	-
60-74	22.9	-
Education level		
Unfinished or finished primary education	15.7	-
Secondary education	58.1	-
Higher education	26.2	-
Socioeconomic status (SES)		
Below-average	21.9	20.1
Average	61.4	64.2
Above-average	16.7	15.7
Employment status		
Employed	54.5	56.7
Student	10.6	11.7
Retired	22.8	18.5
Unemployed	9.6	8.4
Unemployed due to the pandemic	2.5	4.7

Note. All demographic data were collected in T1, but information about economic standard and work status were collected also in T2 as shown in the table.

Appendix 2

Table 4

Means and Standard Deviations of Items in Two Measurement Points with Effect Sizes and Correlations for Paired Comparisons

Variable	T1		T2		*r*	*t*	*p*	*d*	*N*
	M	*SD*	*M*	*SD*					
Pandemic-related stress									
Uncertainty about how long will pandemic last	3.79	1.17	3.70	1.19	.42	2.17	.030	-0.07	893
Worry about relatives and/or friends	3.71	1.13	3.71	1.13	.45	0.13	.899	-0.004	918
Limited freedom of movement	**3.59**	**1.26**	**3.46**	**1.30**	**.39**	**2.73**	**.007**	**-0.09**	**892**
Limited access to regular health care and/or medication	3.46	1.30	3.37	1.22	.35	1.97	.049	-0.07	884
Impossibility to meet other people	3.42	1.25	3.46	1.23	.40	-1.03	.302	0.03	918
Impossibility to travel	3.29	1.31	3.31	1.31	.47	-0.37	.711	0.01	871
Limited access to daily necessities	**3.27**	**1.21**	**2.99**	**1.21**	**.43**	**6.48**	**.000**	**-0.22**	**903**
Impossibility to do my job (well enough)	**3.11**	**1.23**	**2.96**	**1.22**	**.38**	**2.96**	**.003**	**-0.10**	**807**
Educating children at home	3.01	1.41	2.97	1.40	.45	0.71	.477	-0.03	581
Anxiety when leaving the house	**2.96**	**1.33**	**2.67**	**1.35**	**.47**	**6.45**	**.000**	**-0.22**	**896**
Adapting work and social life to digital platforms	**2.91**	**1.30**	**2.72**	**1.26**	**.37**	**3.83**	**.000**	**-0.13**	**830**
Lack of privacy	2.89	1.33	2.82	1.28	.40	1.54	.124	-0.05	857
Loneliness	2.86	1.32	2.86	1.35	.48	0.13	.896	-0.004	859
Boredom	2.83	1.34	2.86	1.34	.47	-0.52	.604	0.02	876
Spending the whole day with the household members	**2.67**	**1.37**	**2.47**	**1.29**	**.47**	**4.45**	**.000**	**-0.15**	**905**
Importance of democratic values and civil liberties									
Freedom	3.71	0.57	3.74	0.50	.31	-1.56	.120	0.05	958
Human rights	3.66	0.58	3.71	0.51	.38	-2.24	.026	0.07	958
Nature conservation	3.58	0.64	3.59	0.59	.44	-0.79	.432	0.03	958
Equality	3.55	0.66	3.55	0.60	.35	-0.11	.917	0.003	958
Social justice	3.54	0.65	3.57	0.59	.43	-1.60	.111	0.05	958
Inviolability of property	3.50	0.68	3.55	0.62	.37	-2.37	.018	0.08	958
Gender equality	3.47	0.72	3.46	0.72	.40	0.32	.749	-0.01	958
Pacifism	3.43	0.73	3.45	0.64	.41	-1.08	.283	0.04	958
The rule of law	**3.40**	**0.76**	**3.49**	**0.69**	**.40**	**-3.55**	**.000**	**0.11**	**958**
National equality	3.36	0.76	3.38	0.69	.38	-0.90	.367	0.03	958
Democratic and multi-party system	3.16	0.82	3.18	0.82	.39	-0.68	.500	0.02	958

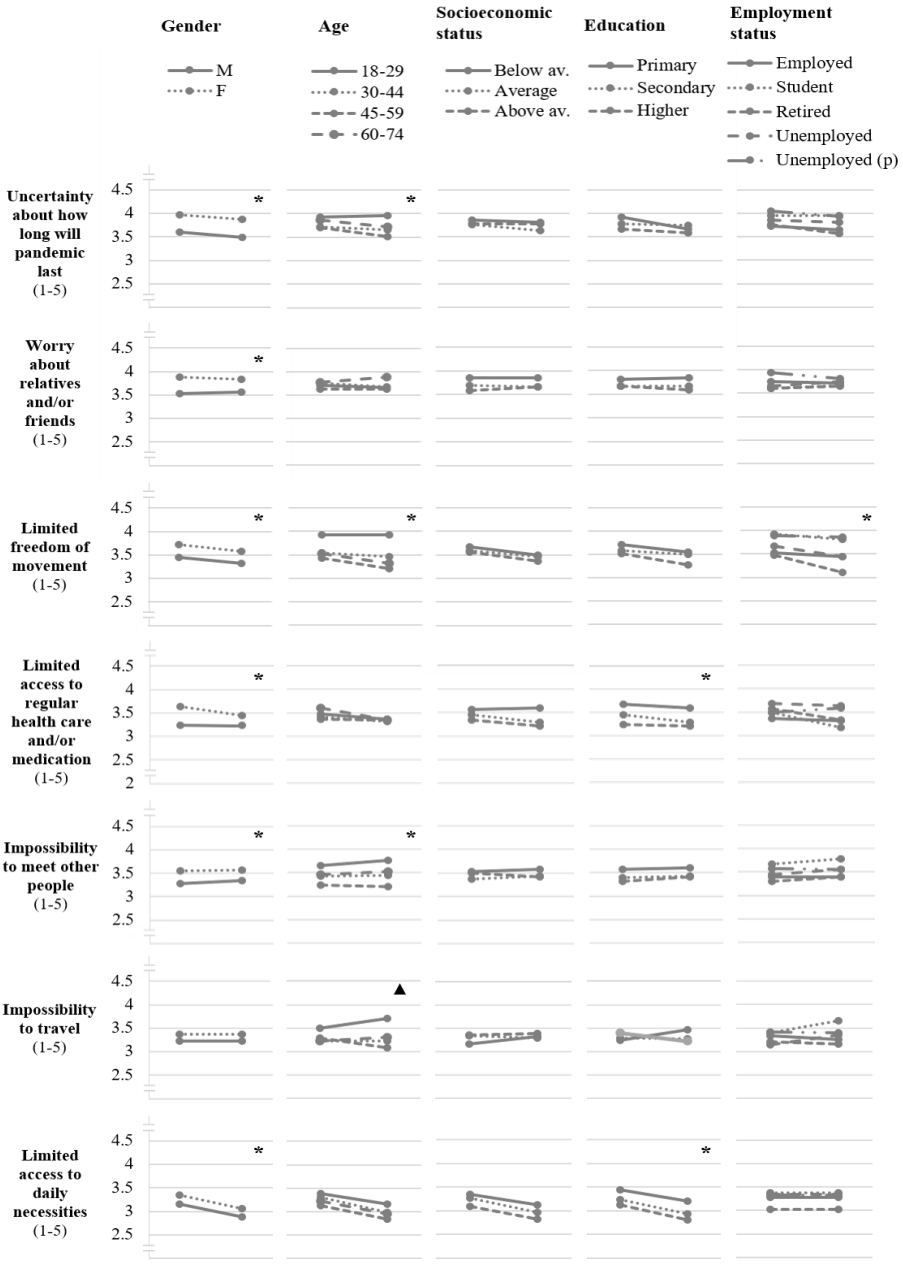
Variable	T1		T2		*r*	*t*	*p*	*d*	*N*
	M	*SD*	*M*	*SD*					
Willingness to give up democratic values and civil liberties									
Democratic and multi-party system	2.07	1.01	2.06	0.95	.31	0.22	.823	-0.01	958
National equality	1.83	0.97	1.80	0.90	.28	0.80	.422	-0.03	958
The rule of law	1.78	0.94	1.75	0.95	.31	0.91	.362	-0.03	958
Gender equality	1.75	0.95	1.81	0.95	.29	-1.64	.101	0.05	958
Nature conservation	1.73	0.95	1.81	0.93	.29	-2.32	.020	0.07	958
Pacifism	1.71	0.89	1.78	0.92	.27	-1.81	.071	0.06	958
Social justice	1.68	0.90	1.75	0.91	.26	-2.01	.044	0.07	958
Inviolability of property	1.66	0.87	1.73	0.89	.22	-1.96	.050	0.06	958
Equality	1.63	0.92	1.70	0.92	.27	-2.03	.043	0.07	958
Freedom	1.57	0.93	1.66	0.97	.25	-2.60	.010	0.08	958
Human rights	1.55	0.89	1.63	0.94	.23	-2.18	.029	0.07	958

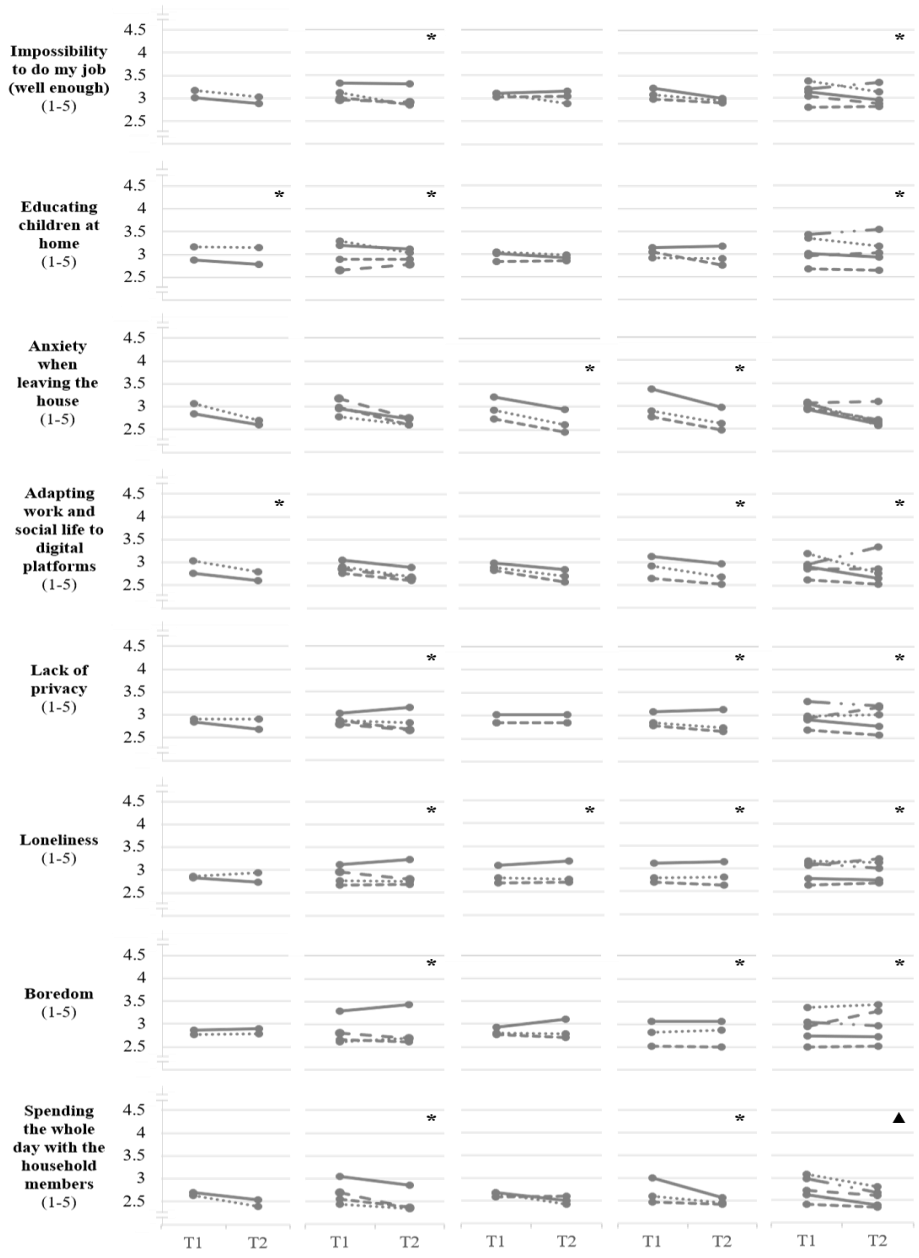
Note. The response scales for presented variables are: pandemic stress 1-5, importance and willingness to give up civil liberties 1-4. The items about pandemic stress, the importance and the willingness to give up civil liberties are sorted by size in T1, from highest to lowest.

Appendix 3

Figure 5

Average Levels of Pandemic Stress Indicators in T1 and T2 for Different Demographic Groups





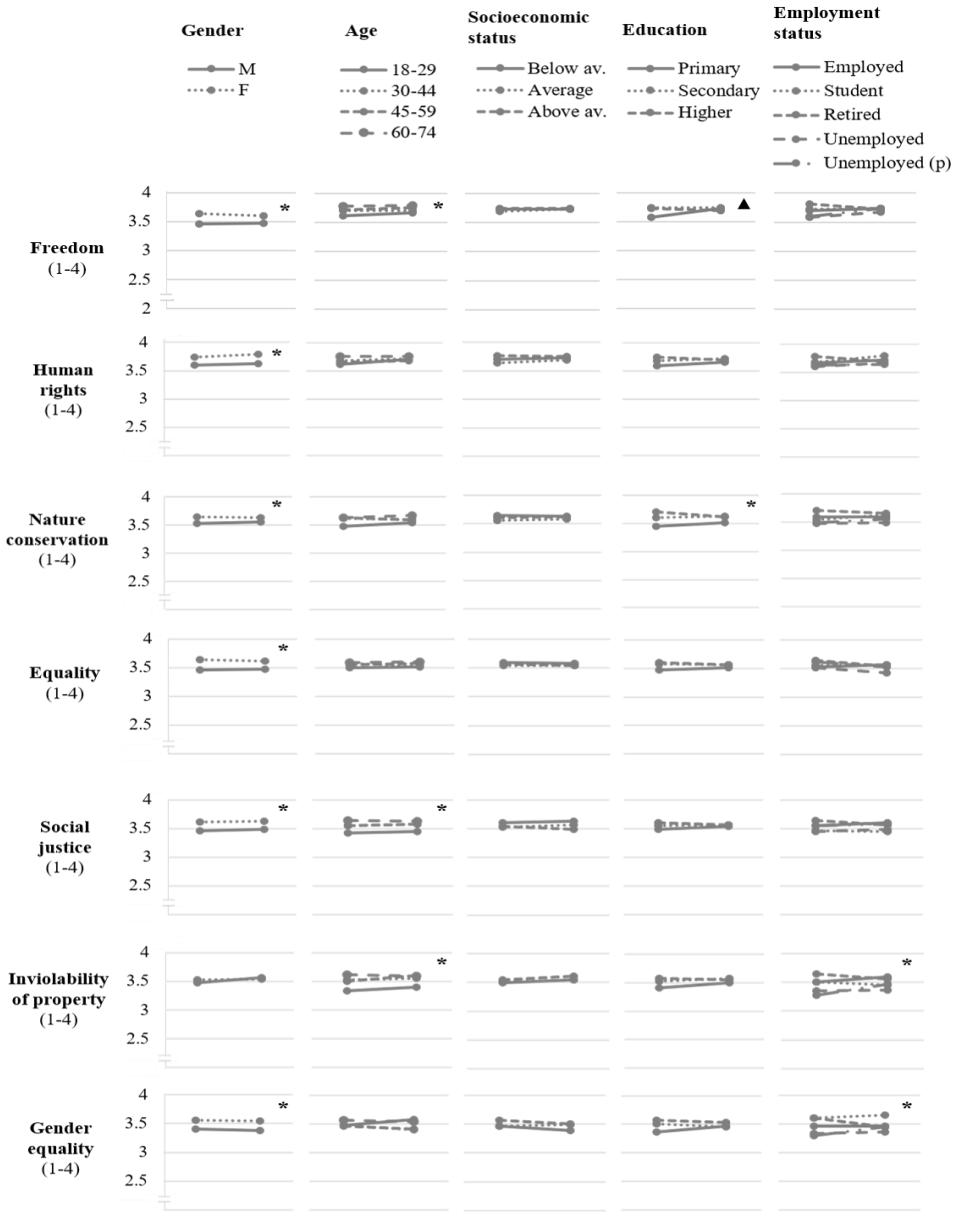
Note. T1: the end of August and beginning of September 2020; T2: second half of January 2021; Unemployed (p): unemployed due to the pandemic; * main effect of a particular demographic characteristic significant at $p < .01$; ▲ interaction effect of a particular demographic characteristic and time significant at $p < .01$.

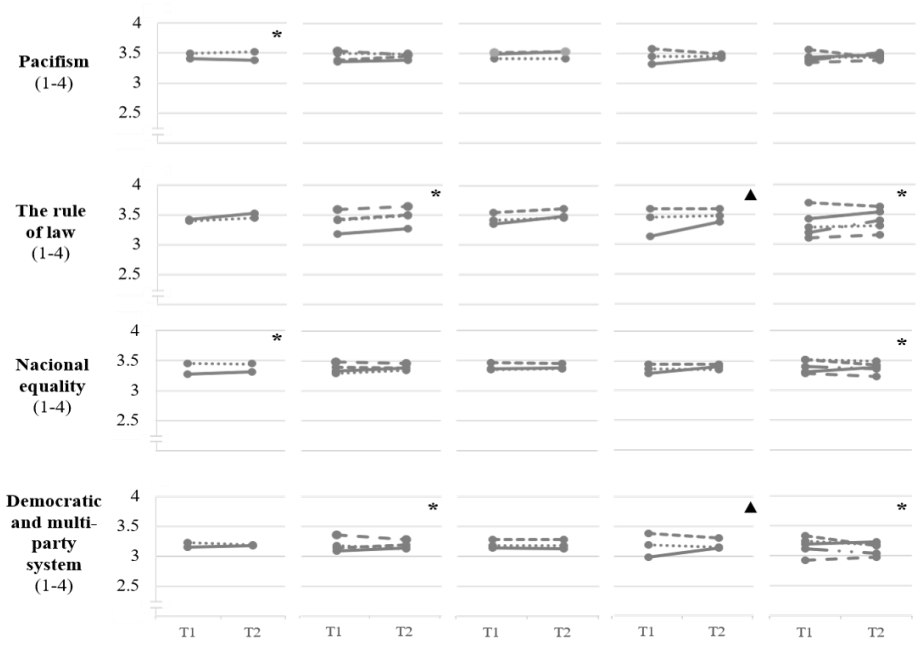
As portrayed in Figure 5, women reported being more upset than men with *limited freedom of movement, impossibility to meet other people, limited access to daily necessities, limited access to regular healthcare and/or medication, educating children at home, worry about relatives and/or friends, uncertainty about how long will pandemic last* and with *adapting work and social life to digital platforms*. The youngest participants were more upset than all other age groups with *impossibility to do their job well enough, limited freedom of movement, impossibility to meet other people, spending the whole day with the household members* and with *boredom*. The same group was more upset with *lack of privacy* than 45-59 and 60-74-year-olds, and with *loneliness* than 30-44- and 45-59-year-olds. They were also more upset with *uncertainty about how long will pandemic last* but only in contrast to 45-59-year-olds. *Educating children at home* was more stressful for 18-29-year-olds and 30-44-year-olds than the oldest group of participants. Moreover, there was a significant interaction of age and time on *impossibility to travel*. The stress caused by the impossibility to travel increased for the youngest participants, decreased for 45-59-year-olds and stayed the same for other age groups. There were significant main effects of socioeconomic status on some pandemic stress items. People with below-average status were more upset with *loneliness* and *anxiety when leaving the house* than those with average and higher status. As suggested by the total results, post hoc tests showed that participants with lower education were more upset with some circumstances during the pandemic than participants with secondary or higher education. Those are: *limited access to daily necessities* and *to regular healthcare and/or medication, lack of privacy, loneliness* and *anxiety when leaving the house.* There were significant main effects of education on *boredom* and *adapting work and social life to digital platforms*. Participants with primary and secondary education were more affected by boredom than participants with higher education. Additionally, people with primary education were more upset with *adapting work and social life to digital platforms* than people with secondary and higher education, and people with secondary education more than people with higher. There were also significant interactions between education and time. Results suggest that the stress caused by *spending the whole day with the household members* decreased among participants with primary and secondary education. Regarding employment status, students were generally more upset with *impossibility to do their job well enough, educating children at home* (than retired), *impossibility to meet other people, spending the whole day with the household members, limited freedom of movement, loneliness,* and *boredom* (than retired and employed). In addition, unemployed people were more upset with *lack of privacy* than retired and with *loneliness* and *boredom* than retired and employed. Also, the unemployed due to the pandemic were more upset with *educating children at home, lack of privacy* and *limited freedom of movement* than the retired.

Appendix 4

Figure 6

Average Levels of the Importance of Specific Civil Liberties in T1 and T2 for Different Demographic Groups

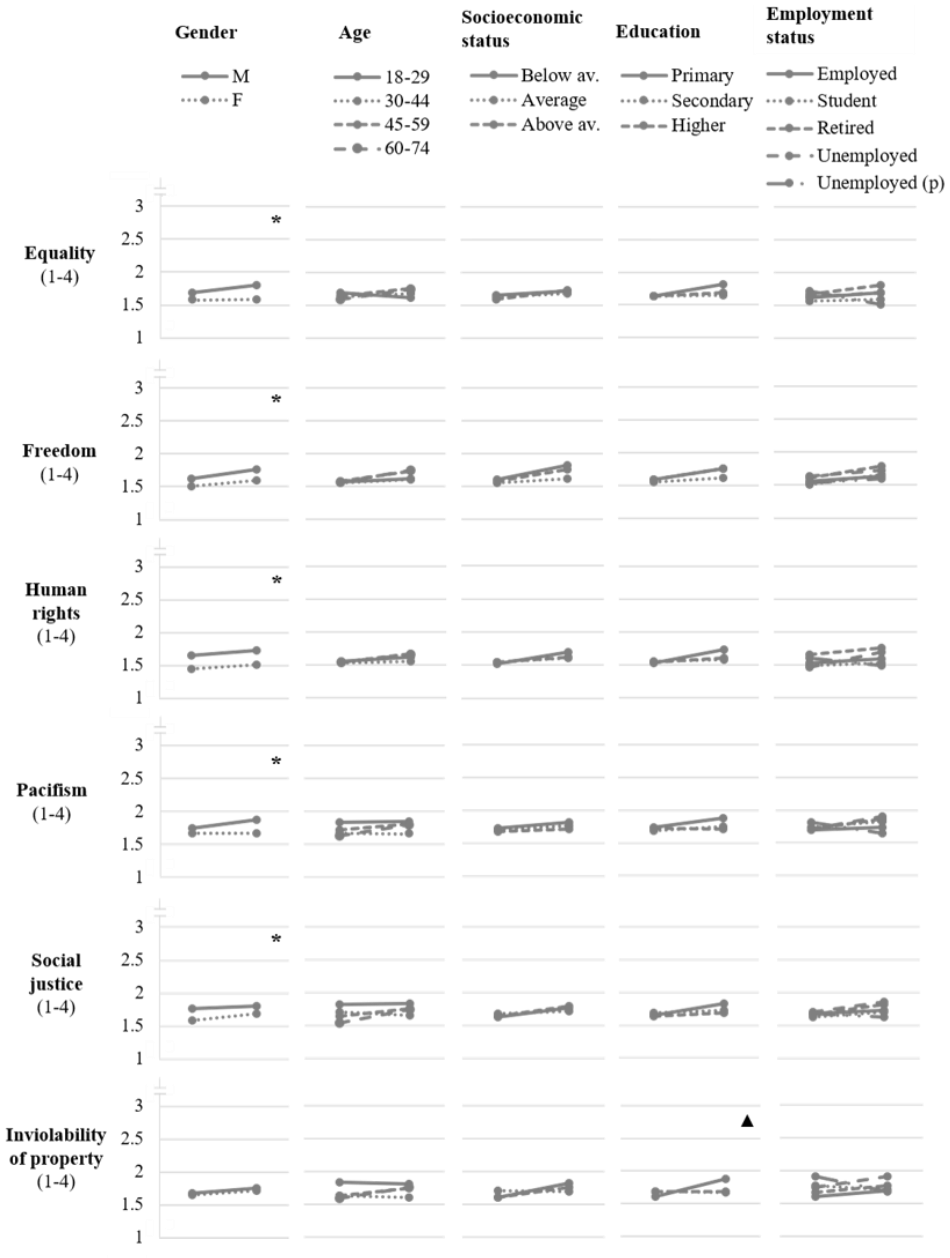


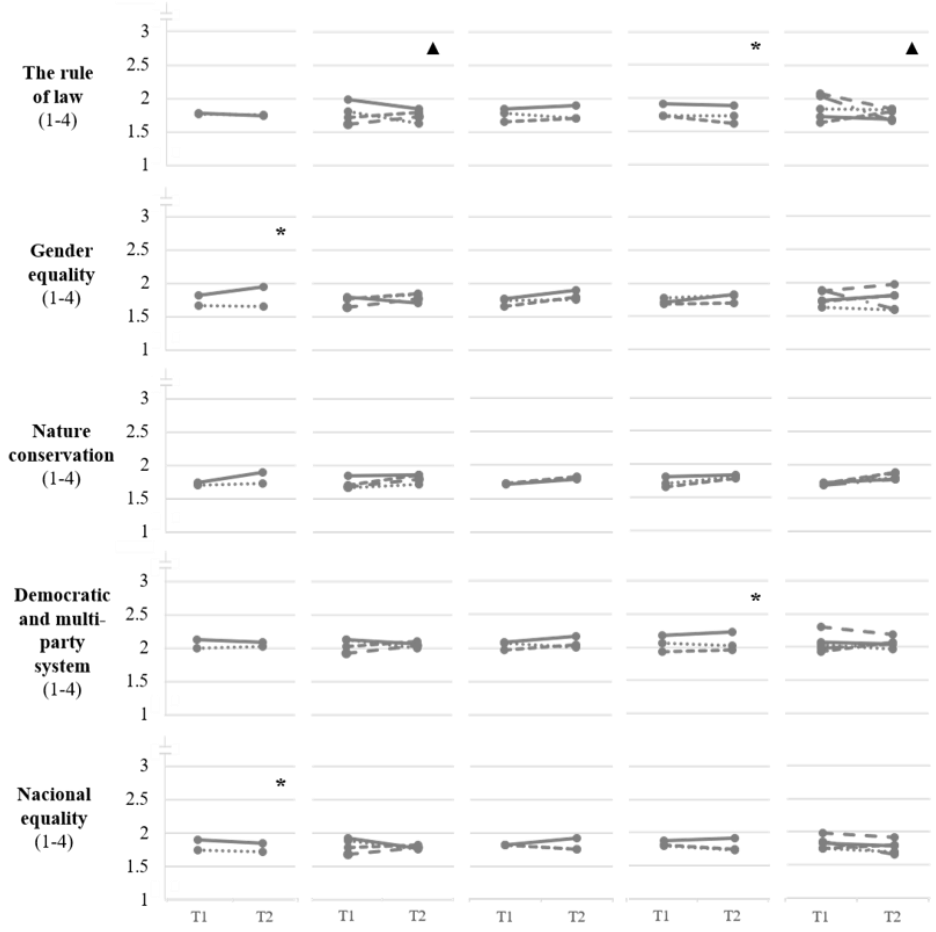


Note. T1: the end of August and beginning of September 2020; T2: second half of January 2021; Unemployed (p): unemployed due to the pandemic; * main effect of a particular demographic characteristic significant at $p < .01$; ▲ interaction effect of a particular demographic characteristic and time significant at $p < .01$.

Figure 7

Average Levels of the Willingness to Give Up Specific Civil Liberties in T1 and T2 for Different Sociodemographic Groups





Note. T1: the end of August and beginning of September 2020; T2: second half of January 2021; Unemployed (p): unemployed due to the pandemic; * main effect of a particular demographic characteristic significant at $p < .01$; ▲ interaction effect of a particular demographic characteristic and time significant at $p < .01$.

Comparisons on the item level (Figure 6 and 7) revealed that women value all civil liberties more than men except *inviolability of property*, *the rule of law* and *democratic and multi-party systems* where there were no differences between them. Accordingly, men were more willing to give up all civil liberties than women, except for the same three mentioned above where there was, again, no difference between them. When considering age, post hoc tests suggested that 60-74-year-olds value *democratic and multi-party system* more than all other participant groups, *the rule of law* more than 45-59- and 30-44-year-olds, *national equality* more than 30-44-year-olds and *freedom* more than 18-29-year-olds. All age groups value *social justice*, *inviolability of property*, *the rule of law* more than 18-29-year-olds. The significant

interaction effect of education and time was found for the importance of *freedom, pacifism, nature conservation, the rule of law, democratic and multi-party system.* The importance of freedom, pacifism, the rule of law and democratic and multi-party system increased from T1 to T2 only for people with primary education. Interaction of employment status and time was also significant for *inviolability of property*. The importance of inviolability of property increased between two measurement points only for people who are employed. Also, there were significant main effects of the willingness to give up *the rule of law* and *democratic and multi-party system,* with post hoc tests suggesting that people with primary education were more willing to give them up than people with secondary or higher education. Finally, there were differences among employment status groups on the importance of some of the civil liberties. Students value *gender equality, national equality, democratic and multi-party system* more than the unemployed. Similarly, those retired value *national equality* and *democratic and multi-party system* more than the unemployed. They also consider *the rule of law* more important than every other group. Those employed also appreciate *the rule of law* more than the unemployed and students, and *democratic and multi-party system* more than the unemployed.