Are we back to normal yet? The impact of the COVID-19 pandemic on mental health with a specific focus on schizotypal traits in the general population of Germany and the UK, comparing responses from April/May vs. September/October

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Conflict of Interest
All authors declare no competing financial interests.

Ethical statement
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NOTE: This preprint reports new research that has not been certified by peer review and should not be used to guide clinical practice.
Abstract

Studies reported a strong impact on mental health during the first wave of the COVID-19 pandemic in March–June, 2020. In this study, we investigated the impact of the pandemic on mental health in general and on schizotypal traits specifically in general population samples of the UK (N 1st timepoint=239, N 2nd timepoint= 126) and Germany (N 1st timepoint= 543, N 2nd timepoint=401) over two timepoints, April/May and September/October 2020. We were able to show that whereas general psychological symptoms (global symptom index, GSI) and percentage of responders above clinical cut-off for further psychological investigation declined from the first to the second timepoint in both countries, schizotypy scores (Schizotypal Personality Questionnaire) were increased at the second timepoint. We investigated potential predictors, using regression models. For schizotypy, we detected a doubling or more of the estimated impact from the first to the second timepoint, including stronger perceived loneliness, increased use of drugs, stronger financial burden, and decreased regular exercise and sleep. These effects predicted GSI, however with a lower increase of impact from the first to the second timepoint. We furthermore found that living in the UK was a predictor for higher schizotypal scores or GSI. However, the results are highly comparable between the two countries. In conclusion, this study shows that while the general psychological impact decreases, potentially showing a normative response to an exceptional situation; schizotypy scores increase, revealing a stronger impact of loneliness, drug use, and financial burden. This development might create an increased risk for developing psychosis in some individuals. The development of the general psychological and schizotypy scores over time requires further attention and investigation.

Keywords COVID-19 pandemic, Mental Health, Schizotypy, Depression, Psychosis, SPQ, SCL-27
1. Introduction

The highly infectious severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) developed into a worldwide pandemic by March 2020 precipitating a global health crisis with more than 107 million cases and 2.4 million deaths by February 2021 (Daly et al., 2020; JHU, 2021). Due to the high risk of infection and the rapid spread of the virus, governments across the world were compelled to implement restrictions and social distancing measures to keep the number of cases and, consequently, hospitalisations as low as possible. The main aim of this strategy was to prevent health systems from being overburdened and “buy time” to develop treatments and vaccines (Han et al., 2020; Kissler et al., 2020). This led to unprecedented changes to everyday life for the people around the world. In many countries, people were forced to withdraw from usual face-to-face social activities on a large scale, and schools, nurseries, and retailers and workplaces were closed, with worker required to work at home. The number of permitted social contacts was limited (Kissler et al., 2020). However, the measures taken by countries differed and even countries within Europe with similar developments within the pandemic used different strategies in order to deal with the hitherto unknown situation.

According to Plümper and Neumeier (2020) government-strategies can be differentiated based on two dimensions: the time to response and the level of stringency of the lockdown policy. Germany, for example, went into lockdown rapidly in Spring 2020 and managed to control the increase of infections efficiently, whereas the UK delayed lockdown and faced a much higher plateau (Balmford et al., 2020). At the beginning of the pandemic, in March 2020, the government in the UK pondered with the idea of implementing what has since become known as the Swedish strategy, which avoids a lockdown and allows a relatively high number of infections, in order to reach herd immunity (Plümper & Neumayer, 2020). These strategies might have substantially contributed to the variation in case numbers and deaths experiences in each country.

At the start of the pandemic, the World Health Organisation and many researchers communicated warnings about the consequences of mitigation and suppression measures on mental well-being and psychic health (Pfefferbaum and North, 2020; WHO, 2020; Xiong et al., 2020). As expected, the severe restriction of social contacts as well as the fear of the virus or the impact on living conditions had a measurable impact on the mental health of general populations all over the world (Bu et al., 2020; Smith et al., 2020; Xiong et al., 2020). During the first lockdown increased levels of perceived stress and mental distress, COVID-19 related fear, general anxiety and depression and a general decline in mental wellbeing were measured in many countries including, Germany and the UK (Bäuerle et al., 2020; Smith et al., 2020; Proto and Quintana-Domeque, 2021). Female gender, younger age, being part of an ethnic minority and a low socioeconomic status were associated with a high risk for experiencing mental distress (Bäuerle et al., 2020; Fancourt et al., 2020; Simha et al., 2021). However,
also living in a specific country was associated with lower stress: for example Adamson and colleagues (2020) found higher perceived stress levels in the UK than in Germany.

The results of our own study from April-May 2020, confirmed these findings revealing a higher psychological and socioeconomic impact of the pandemic on people resident in the UK versus Germany (Knolle et al., 2020). However, both countries reported similarly strong subjective ratings of symptom worsening, with 25% of all responders reported increased levels of anxiety and depressive symptoms (Symptom Check List, SCL-27 (Hardt and Gerbershagen, 2001)), and nearly 10% reported worsening of subclinical psychotic-like experiences (Schizotypal Personality Questionnaire, SPQ (Raine, 1991)). Especially, the findings on the subjective worsening of subclinical psychotic-like experiences, commonly referred to as schizotypy, are interesting, as to our knowledge no other study has investigated this topic within the scope of the current pandemic.

Schizotypy describes a latent personality trait, which reflects an underlying vulnerability of developing psychosis or schizophrenia-spectrum disorders (Chapman et al., 1994; Debbané and Barrantes-Vidal, 2015). Based on a recent review by Preti and colleagues (Preti et al., 2020) the current pandemic poses an especially large risk for people suffering from paranoid or high schizotypal traits, as the measures taken to prevent the spread of the virus might ultimately lead to increased anxiety and depressive symptoms, increased avoidance behaviours, stronger disruption of social contacts, and delayed return to normality in these individuals. Furthermore, studies show links between recent adverse life events (Beards et al., 2013; Betz et al., 2020) or isolation and loneliness (Chau et al., 2019; Le et al., 2019) and schizotypy or psychosis-like experiences. Both these aspects are present in the current pandemic. Furthermore, there is preliminary evidence for an increase in the development of first-episode psychosis (Kozloff et al., 2020) and reactive psychotic disorders in previously healthy individuals (Valdés-Florido et al., 2020) following the months after start of the pandemic. We therefore expect to detect an impact of the current crisis on schizotypy traits measured in the general population.

Conversely, when incidence levels of infections decreased during the summer and, as a result, relaxations of the restrictions were initiated (Han et al., 2020; Hetkamp et al., 2020), this also positively impacted the reported mental health status in the general population across both countries. Some studies found a reduction of these scores to a level comparable before the pandemic (Hetkamp et al., 2020) while others still measured elevated but no longer worsening levels (Daly et al., 2020; Fancourt et al., 2020; O’Connor et al., 2020). Especially when comparing countries results differ due to the use of different questionnaires or different overall developments of the progression of the pandemic. In this study, we, therefore, investigate the development of the impact of the COVID-19
pandemic and the accompanying lockdown on mental health comparing the general population of UK and Germany over two timepoints – the first one during the first lockdown (April/May 2020) and the second after the summer (September/October 2020) when a majority of restrictions had been lifted. Specifically, we examine whether reported levels of depressive symptoms and anxiety, and, in particular, schizotypal symptoms normalise over the summer following the reduction of the restrictions using the same questionnaire as in the first timepoint. Whereas we are hypothesis to see scores decrease in reported levels of anxiety and depression, we are expecting to see no change in SPQ-scores from the first to the second timepoint. In addition, all mental health scores were compared between the Germany and the UK to provide insight into the impact of political action on the well-being of the population.

2 Methods

2.1. Study design and procedure

The questionnaire used in this study assessing mental and psychological health and COVID-19 exposure was designed as an online survey using EvaSys (https://www.evasys.de, Electric Paper Evaluationssysteme GmbH, Luneburg, Germany). The questionnaire was available in German and English. For participant recruitment we used a snowball sampling strategy to reach the general public. For the first timepoint, data collection took place from 27/04/2020 -31/05/2020 and completion of the survey took approximately 35 min; for the second timepoint, data collection took place from 10/09/2020 – 18/10/2020, and the completion of the survey took approximately 15 min. Participation was voluntary. Participants did not receive any compensation.

Ethical approval was obtained from the Ethical Commission Board of the Technical University Munich (250/20 S). All participants provided informed consent.

2.2. Outcome

As described in Knolle et al, 2020 in detail, the survey consisted of three parts. The first part, partially comprised of the Coronavirus Health Impact Survey (CRISIS, http://www.crisissurvey.org/) and demographic variables. In the second part, we assessed the general mental health status (global severity of symptom index (GSI-27)) using the Symptom Check List (SCL) with 27 items (Hardt and Gerbershagen, 2001; Hardt, Dragan and Kappis, 2011), assessing GSI and its sub-scores. In the third part, using the dichotomous version of the Schizotypy Personality Questionnaire (SPQ, (Raine, 1991)) we evaluated total schizotypic symptoms (SPQ-total).

2.3 Statistical analysis
Statistical analysis and visualisations were computed using R and R Studio (R Core Team, 2016; RStudio, 2020). We first describe demographics and COVID-19 exposure variables, using frequency analysis. For the country comparison we used Wilcoxon rank sum tests or Chi-square test of independence to explore differences between the countries (UK, Germany) and timepoints (April/May and September/October 2020) on the demographics and the COVID-19 exposure variables.

To further explore the differences between the countries and timepoints in CRISIS variables we conducted robust ANOVAS (Mair and Wilcox, 2020) with country (UK, Germany) and timepoint (before pandemic (i.e. subjective rating acquired during the first timepoint), April/May, September/October) as between-subjects factor.

To identify possible predictors for experiencing general strain and mental distress, we furthermore applied Gaussian regression models to assess the associations between the outcome and predictor variables. Our outcome variable was GSI-27 (General Symptom Index) score, which describes the total expression over all SCL-27 items. In the first basic model we explored the impact of demographic variables (age, gender, education, country of residence, living area, parenthood) and prior physical and mental health problems on GSI scores. The second model was used to investigate the impact of healthy and harmful behaviours on the outcome variable. For this purpose we added sleeping hours per night, days with physical exercise per week, drug, alcohol, media consumption and the degree of perceived loneliness to the basic model conducted previously as predictor variables. In the third model, we examined the effects of COVID 19 pandemic and associated restrictions using the following variables: perception of the burden of restrictions, stressful relationship changes, financial impact of the Pandemic, hope for a soon end and suspect of COVID-19 disease. In addition we also included the degree of trust in government in the second timepoint.

We investigated possible predictors for an expression of schizotypic symptoms using Poisson regression models. The dependent variable was the total SPQ-score. We used the same three models as for the investigation of the SPQ as for the GSI.

In order to investigate stressful changes in social and family relationships, we used the sum of the degrees of stress experience of the deterioration in social and family relationships. Excessive media consumptions received a positive expression if at least one of the categories of media consumption (television, social media or videogames) was used for more than four hours per day. The drug score was calculated on the basis of at least one use of marijuana, tranquillisers or other drugs like heroin or other opiates.

3. Results
3.1 Whole Sample Description

The first survey (April/May 2020) was complete by 860 participants. Two participants did not provide consent and were excluded. 6 participants did not consent to sharing the data publicly, and are included in the analysis but will be removed from the open-access data set. In this paper we focused on the comparison of respondents resident in the UK (N=239) and in Germany (N=543). In the first survey the majority of respondents were female (72%), 25% were male, 3% diverse or did not provide the information. The age ranged from 18 to 92 years, with a mean 43 (SD 15.5) years and a median of 41 years. The majority of participants were well educated, 60% had a master degree or higher, and 25% had completed a professional college or a bachelor degree. 48% reported to live in large cities, 12% in suburbs of large cities, 19% in small cities, and 21% in rural areas.

The second survey (September/October 2020) was completed by 550 participants. 22 were excluded from the analysis as they gave not consent to the participation and one he or she did not provide information about the current residency. 69 % of the participants were female, 25% male and 6% did not provide the information. The age ranged from 18 to 93 years (M= 42, SD=16.1). Most of the participants had their current residency in Germany (76%, N=401) and 24% in the UK (N=126). The majority of the sample were well educated, with 45% reporting to have a master’s degree or higher and 39% to have completed a professional college or a bachelor degree. 39% lived in a city, 13% in suburbs, 18% in towns and 28% in villages or rural areas.

Since participation at the first timepoint was not required for taking part in the second survey, the two samples are partially overlapping. 127 responders participated in both surveys. The samples did not differ significantly in terms of age ($X^2$=100.8, $p=.989$) and gender ($W = 192786$, $p = .635$) between the timepoints, but in the second survey significant more participants came from Germany ($X^2= 8.55$, $p = .014$), their living area was more rural ($W = 182331$, $p=.002$) and the sample was less educated ($W = 218690$, $p = .018$). All descriptive and statistical results are described in Table 1.

3.2 COVID 19 infection

At the first timepoint, 0.2% of the German sample reported a positive COVID-19 test result, 0.7% diagnosis, but no test, and 14.4% possible symptoms of a COVID-19 infection. 83.8% stated that they had not suspected COVID-19. In the UK sample, 2.5% reported a medical diagnosis of COVID-19 and 18.8% of possible symptoms. None of the respondents reported having received a positive test result. 78.7% reported that they had not previously suspected COVID-19.
At the second timepoint, 0.8% of the German sample reported being positively tested for COVID-19, 0.5% reported receiving a positive diagnosis, without a test, and 16% reported symptoms that could indicate a COVID-19 infection. 82.0% reported not having suspected COVID-19. In the UK sample, 0.8% reported having received a positive diagnosis, without a test, of COVID-19 and 20.6% had recently experienced symptoms of COVID-19 infection. None of the UK respondents reported having received a positive test result. 77.0% reported no signs of possible COVID-19 infection. All results are described in Table 1.

3.2 Results of robust ANOVAs

GSI scores differed significantly between the two countries (p <.001) and timepoints (p =.04) with higher GSI scores at the first timepoint and increased scores in the UK sample compared to the German sample (see Figure 1). There was no interaction effect. The results of the robust ANOVAS are shown in Table 2.

Figure 1: Raincloud plot for GSI across country and timepoint, showing data distribution (the ‘cloud’), jittered raw data (the ‘rain’), mean and standard error.

In a norm sample (Hardt et al., 2004), 10-15% of the screened population reach the clinical cut-off on the different sub-dimensions, and require additional psychological investigation. As shown in Figure 2,
there are significant differences between the countries (F(1, 7464 = 237.96, p < .001) and timepoints (F(1, 7464 = 12.58, p < .001). For the sub-dimension of dysthymic symptoms (DYS), the rate fell from 68.38% to 58.82% in the UK responders and from 37% to 30% in the German responders who lay above the clinical cut-off; for depressive symptoms (DEP) from 51% to 50% in the UK and from 39% to 27% in the German responders; for symptoms of social phobia (SOP) from 37% to 34% in the UK and from 24% to 19% in German responders; for symptoms of mistrust (MIS) from 29% to 26% in the UK and from 26% to 22% in the German sample; and for agoraphobic symptoms (AGO) from 52% to 32% in the UK and from 23% to 12% in the German responders. Interestingly, the vegetative symptoms (VEG) increased from 26% to 35% in the UK and from 14% to 16% in the German responders.

Figure 2: Percentage of responders above clinical cut-off by country and timepoint. Dotted lines represent the percentage of the norm population above threshold (10-15%). DYS: dysthymic symptoms, DEP: depressive symptoms, SOP: symptoms of social phobia, MIS: symptoms of mistrust, AGO: agoraphobic symptoms, VEG: vegetative symptoms.

SPQ scores (Figure 3) also differed significantly between countries with higher scores in the UK sample (p = .01). We found a trend towards an increase from the first to the second timepoint could be observed between the timepoints (p = .06). When comparing the highest 10% of SPQ scores across the two timepoints, we found that the highest 10% were individuals scoring 26 points and higher on during the first timepoint. During the second timepoint, we identified a right shift with the highest
10% being individuals scoring 31 points and higher. The results of the robust ANOVAS are shown in Table 2.

Figure 3: Raincloud plot for total SPQ across country and timepoint, showing data distribution (the ‘cloud’), jittered raw data (the ‘rain’), mean and standard error.

3.3 Effects of predicting variables on psychological symptoms using the General Symptom Index of the Symptom Check List – 27-points (SCL)

3.3.1 Effects of Demographic Variables and prior physical and mental health problems on GSI scores (Model 1)

At both timepoints, age (TP1: p < .001, TP2: p = .001), country of residence (TP1 p = .005, TP2 p < .001) and pre-existing physical (TP1: p = .002, TP2: p = 0.005) and mental health problems (TP1: p < .001, TP2: p < .001) were significant predictors for GSI scores, with increasing age and country of residence Germany as protective factors, while pre-existing physical and mental health were revealed as risk factors. Female gender had a protective effect on the GSI score only at the first timepoint (TP1: p = .031, TP2: p = .779) and increasing education level only at the second timepoint (TP1: p = .962, p < .001). At the first timepoint we found that living in a town significantly increased the GSI scores
compared to living in a large city (p = .045). Children had no significant influence on the outcome at either timepoint (TP1: p = .256, TP2: p = .439). See Table 3.

Based on these results, we controlled for the predictors age, gender, education level, country of residence, having children at home, physical and mental health problems in the following two models.

3.3.2 Effects of harmful and healthy behaviours GSI scores (Model 2)

After controlling for possibly confounding demographic variables from the previous basic model, at both timepoints drug consumption was a risk factor for GSI scores (TP1: p = .005, TP2: p < .001), as well as excessive media use (TP1: B = 0.12, t = 3.34, p < .001, TP2: B = 0.13, t = 2.38, p < .001). No effect was found for alcohol consumption (TP1: B = 0.02, t = 0.32, p = .740). Sleeping between 6 and 8 hours (TP1: p < .001, TP2: p < .001) and more than 8 hours (TP1: p < .001, TP2: p < .001) compared to sleeping less than 6 hours had a protective impact on GSI scores. There was no effect of physical exercise on GSI scores. Feeling lonely was a risk factor for increased GSI scores both on medium levels (TP1: p = .046, TP2: p < .001) and high levels (TP1: p = .003, TP2: p < .001) at both timepoint. See Table 3.

3.3.3 Effects of the COVID-19 pandemic on GSI scores (Model 3)

In this third model, we investigated the impact of factors related to the COVID-19 pandemic on GSI scores. The perception of the restrictions as being stressful was a risk factor for increased GSI scores at both timepoints (TP1: p < .001, TP2: p = .013). Financial problems due to the crisis significantly predicted GSI scores, and increased from the first to the second timepoint. At the first timepoint, only major financial impact was a risk factor (p = .042) for GSI. At the second timepoint, both major financial impact (p < .001) and medium impact (p < .001) predicted GSI. Deteriorations in relationships that were experienced as stressful had a negative impact on outcome at both timepoints, with very stressful changes having a greater impact (TP1: p < .001, TP2: p < .001) on GSI than stressful changes only (TP1: p < .001, TP2: p < .001). The suspicion of COVID-19 disease or the diagnosis had a negative influence on GSI scores at both timepoints (TP1: p = .009, TP2: p < .001). Being hopeful for a soon end of the pandemic did not have a significant impact on GSI scores. For the second timepoint, we also included the degree of trust in the government to lead the country well out of the crisis in our model. However, this predictor had no significant effect on GSI scores. See Table 3.

3.4 Effects of predicting variables on psychological symptoms using the Schizotypal Personality Questionnaire (SPQ)

3.4.1 Effects of Demographic Variables and prior physical and mental health problems on SPQ scores (Model 1)
At both timepoints, increasing age (TP1p < .001, TP2: < .001), higher education levels (TP1: p < .001, TP2: p<.001) and female gender (TP1: p = .088, TP2: <.001) were protective factors. The current country of residence was a significant predictor only at the second timepoint: living in Germany had a protective effect on the SPQ score (TP1: p = .677, TP2: <.001). Having children revealed to be a protective factor at the first timepoint but not at the second timepoint (TP1: p = .001, TP2: p = .573). At the first timepoint, living in a suburban (TP1: p = .035) or rural area (TP1: p = .025) compared to a big city were risk factors for increased SPQ scores, while at the second timepoint, living in a small town (TP1: p = .001) or rural area (TP1: p < .001) compared to a big city had a protective effect on SPQ scores. In addition, there was a trend towards an increased SPQ score when living in a suburb compared to a large city (TP1: p = .074). See Table 4.

In the two subsequent models, we controlled for age, gender, country of residence, place of residence, having pre-existing physical and mental health problems as possible confounding variables.

3.4.2 Effects of harmful and healthy behaviour SPQ scores (Model 2)

After controlling for possibly confounding variables drug consumption (TP1: p < .001, TP2: p<.001) as well as excessive media use (TP1: p<.001, TP2: p<.001) were risk factors for increased SPQ scores at both timepoints, whereas alcohol consumption (p = .004) and medium physical exercise (p=.036) had a protective effect only at the first timepoint. Physical Exercise at least five times per week had a positive impact on both timepoints (TP1: p=.002, TP2: p<.001). Sleeping between six to eight hours (TP1: p=.001, TP2: p<.001) and more than eight hours (TP1: p<.001, TP2: p < .001) both had a positive impact on SPQ-scores compared to sleeping less than six hours. See Table 4.

3.4.3 Effects of the COVID-19 pandemic on SPQ scores (Model 3)

After controlling for confounds, there was a negative impact of mistrust in Government of leading the country successfully out of the crisis on the second timepoint (p < .001). Perceiving the restrictions as stressful (p = .043) and being hopeful for a soon end (p = .022) only had negative effects on SPQ scores on the second timepoint. Medium financial impact of the CRISIS only had a significant impact in the second survey (p<.001), whereas major financial were risk factors for SPQ scores at both timepoints (TP1: p < .001, TP2: p < .001). Very stressful relationship changes had only an impact on the outcome in the second survey (p < .000). The suspicion or diagnosis of being infected with COVID 19 lead to an increase of SPQ scores at both timepoints (TP1: p < .001, TP2: p = .001). See Table 4.

4. Discussion

This study investigated the impact of the COVID-19 pandemic on mental health generally and schizotypy specifically in general population in the UK and Germany at two time points, the first
during widespread societal restrictions aimed at curbing the spread of the virus (April/May 2020), and
the second at a time when the majority of these restrictions had been lifted (September/October
2020). The impact was quantified using an online survey including questions on the impact on life
circumstances, as well as two psychological questionnaires, the Symptom Check List (SCL-27) assessing
general psychological symptoms, including depressive symptoms, and symptoms of anxiety, and the
Schizotypal Personality Questionnaire (SPQ), assessing schizotypy traits. Furthermore, we assessed the
social and economic impact of the pandemic.

We found that the general psychological symptoms (mainly depressive and anxiety symptoms)
measured using the Global Symptom Index (GSI, main measure of SCL-27) significantly declined from
the first to the second timepoint in both countries. While during the first timepoint 25-68% of
responders lay above the clinical cut-off for further psychological investigation based on the sub-
scores of the SCL-27, in the second timepoint only 12-40% of responders were above clinical
threshold. In a normative sample the 10-15% of a cohort reach or exceed the clinical cut-off (Hardt et
al., 2004). Schizotypy, however, increased significantly, by 4 points in UK responders, 13.6 to 17.4,
and by 1 point in German responders, from 12.3 to 13.2. Following the Meehlian Model of Schizotypy
(Grant et al., 2018), we compared the highest 10% across the two timepoints. During the first
timepoint, we found that the highest 10% were individuals scoring 26 points and higher on the SPQ,
while during the second timepoint we identified a right shift which the highest 10% being individuals
scoring 31 point and higher on the SPQ.

These results confirm our hypotheses. On the one hand, we found that general psychological
symptoms (depressive symptoms and symptoms of anxiety) decreased significantly or stabilised over
the summer, as also reported in other studies (Fancourt et al., 2020; Wang et al., 2020). Fancourt and
colleagues (2020) report for an only-UK cohort that symptoms depression and anxiety stabilised with
the introduction of lockdown easing measures from July 2020. In contrast, we detect a clear decline in
symptoms strength which might be explained by timepoint of data collection, which was conducted in
two months after the Fancourt study, in September/October 2020. The ability to have social contacts,
to resume ones profession, to send children to child care, etc might have a direct alleviating effect.
This shows the possibility that the measured increase in symptoms of anxiety and depression also
resembles a normative psychological response to an exceptional situation. Investigating the sub-
scores of the symptom check list (SCL-27) in our study, we found the strongest decrease in
agoraphobic symptoms; in the UK sample, these symptoms decrease by 20% and in the German
sample by 10%. This sub-score of the SCL-27, specifically assesses phobic fears of being among others
or supressing actions that could create risks for one’s health, like going outside. These behaviours are
expected responses during a pandemic, and are therefore likely to reduce when the risk of infection
The only sub-score of the SCL-27 which increased where vegetative symptoms, like dizziness, heart racing, stomach ache, sickness etc. These symptoms strongly relate to psychosomatic symptoms, which have been reported to have increased significantly in front-line workers (Marinaci et al., 2020; Yi et al., 2020). On the other hand, we found that schizotypy scores stayed the same or even increased, which is highly interesting, considering that already during the first timepoint nearly 10% of the responders indicated a subjective increase of symptoms. Recent work shows the impact of adverse life events or loneliness on developing psychotic-like experiences (Beards et al., 2013; Chau et al., 2019; Le et al., 2019; Betz et al., 2020). The social and life-changing consequences of this pandemic (i.e., general reduction of social interaction, job insecurity, experiencing health problems) might therefore provide a long-term risk in those individuals with high schizotypy scores. However, this hypothesis requires rigorous longitudinal investigations. Furthermore, an additionally explanation could be that individuals with increased schizotypal symptoms, withdraw from social interactions, might consume more alcohol, as indicated by our regression models, and therefore take longer to reverse the habits established during the first lockdown and therefore showing a worsening of symptoms and a delay to return to baseline.

In order to identify risk factors for the psychological impact of the pandemic, we ran three sets of regression models. For GSI, we first setup a basic model: During the first timepoint we identified age as a protective factor, and being female, living in the UK, reporting lower mental and physical health prior to the pandemic and living in a town compared to a big city as risk factors. During the second timepoint, we identified an additional risk factor which was lower education. These results, except for living in the UK, confirm previous findings (Adamson et al., 2020; Bäuerle et al., 2020; Bu et al., 2020; Fancourt et al., 2020; Smith et al., 2020; Proto and Quintana-Domeque, 2021; Simha et al., 2021). In a second model controlling for the significant factors of the basic model, we investigated harmful and healthy behaviour. We identified the same protective factors and risk factors for both timepoints. Excessive media consumption and drug consumption contributed to a worsening of the GSI, while longer sleep (>6) had a protective impact. Interestingly the effect of drug consumption doubles from the first to the second timepoint. A recent study on substance use and COVID-19 related fear and worry, shows a strong association between newly initiated substance use and increased measures of fear and worry (Rogers et al., 2020). Those individuals with highest use and fear and worry scores used substances as necessary coping strategies, which might provide an explanation for the increased impact of drug use on GSI in the second timepoint in our study. Regular sleep of more than 6 hours and healthy sleep routines are usually predictive of better mental health (Milojevich and Lukowski, 2016), it is therefore not surprising that this is the same during a pandemic. Furthermore, we found
that excessive media consumption predicts GSI, which confirms previous findings (Bendau et al., 2020). In a third model controlling for the significant factors of the basic model we investigated social and economic impact of the COVID-19 pandemic. We found that while the restrictions themselves and the change in social contacts posed a strong stressor during the first timepoint, it was mainly the financial impact, the change in social contacts and the increased risk of infections which posed the greatest risk during the second timepoint. Already during the first peak in April, Witteveen and Velhorst (Witteveen and Velthorst, 2020) linked economic hardship to increased levels of depression and anxiety. During the first peak the economic burden might still be compensated for, however, with the continuing pandemic this burden increases and significantly contributes to mental health decline.

We ran similar regression models to detect potential predictors for schizotypy. In the basic model, we identified similar predictors for both timepoints. While higher age, higher education, and being female were protective factors at both timepoints, mental and physical health status before the pandemic were risk factors. The impact of having children changed with the continuing of the pandemic from being proactive to being a risk factor; also being a UK resident became a risk factor at the second timepoint. Living in towns or rural areas was protective compared to big cities. The impact of annual income was only recorded at the second timepoint, lower income was a significant risk factor at the second timepoint. Gender differences and younger age have been associated with schizotypy previously (Bora and Baysan Arabaci, 2009), also urbanicity (Fett et al., 2019) as well as lower socioeconomic status (Loch et al., 2017) is often linked to psychotic-like experiences.

In the second model we examined whether harmful and healthy behaviours predicted schizotypy. Controlling for the significant factors of the basic model, we found the same predictor for both timepoints. While excessive media consumption and drug consumption imposed a risk for higher schizotypy, more exercise and sleep above 6h were protective. Interestingly, however, the impact of drug consumption doubled in the second timepoint and the protective effect of more exercise nearly tripled. The effect of drug use on schizotypy confirms earlier findings reporting that regular cannabis users score higher on schizotypy and psychosis ratings (Nunn et al., 2001). However, it is a critical finding as drug use is also associated with higher conversion from schizotypy to psychosis (Hjorthøj et al., 2018). Therefore these results are clinically relevant and requires attention in the course of the pandemic. Regular exercise has been identified as an alleviating intervention for early psychosis (Firth et al., 2018), and should be promoted rigorously during a crisis like the current.

The third model investigates the impact of COVID-19 related measures. Here, we see significant worsening from the first to the second timepoint. The impact of financial hardship triples, which is independent from annual income. This shows that financial hardship creates a stressor which imposes
a risk not only in people with lower socioeconomic status (Loch et al., 2017), but across a wider range of socioeconomic statuses. Furthermore, stress related the change in social contact more than doubled from the first timepoint to the second. This might have been expected that with the continuing course of the pandemic, social isolation might increase, and with that, potentially loneliness too. Loneliness significantly interacts with schizotypy, and has been clinically linked to risk-for psychosis (Chau et al., 2019; Le et al., 2019). Again, this finding is of great clinical relevance and furthermore requires the attention of decision makers in a situation like the current.

In all models we included the country of residence as a predictor, it was a significant predictor in most of the models for the first timepoint and in all models of the second timepoint. All main findings remain the same when excluding the country of residence from the models (see supplement materials), suggesting that the overall impact, and especially its’ directionality, is comparable across both countries, but slightly increased in the UK. The reason for why UK residents might suffer a stronger mental health burden is multifold. The delayed start of implementing restrictions and due to that the higher numbers of infections and death (Balmford et al., 2020), followed by a higher unemployment and greater loss in gross income (Bauer and Weber, 2020; Mayhew and Anand, 2020), but also general differences in the health care system might contribute (Kuhlmann et al., 2009).

Independently, however, the effects are highly similar, which might be due to the comparability of the samples, and the higher proportion of well-trained and socioeconomically-secure responders in both samples.

This study has potential limitations. First, we used an online data collection methods, therefore, people without or with limited access to computers, or less well-versed using these methods would be excluded from the sample. However, in order maximally ease the accessibility of the questionnaire we provided an online version with smart-phone compatible formatting. Second, we used a snowball sampling method for both timepoint with partially overlapping responders, therefore, the sample is not fully representable of the general population. The results of the study should therefore be interpreted considering the sample’s demographics. Third, comparing two countries is problematic as the countries vary on a large number of factors that are not and cannot be accounted for in detail. Therefore, any differences between the countries presented in this study might be linked to baseline differences. However, by specifically asking for a subjective change considering a pre- verses during-pandemic time-point, we minimised this confound. Fourth, we used a self-reporting survey without clinical in-person verifications. Social distancing measures complicate such verification. However, by using a completely voluntary and anonymous format, as well as standardised questionnaires we are minimising potential effects. And fifth, we are presenting simple regression models without testing for interactions. This approach may not present conclusive results, however, it does allow for comparison
with other studies following the same approach, and to generate hypothesis for future research rather than definitive inference.

In conclusion, we were able to show that whereas general psychological symptoms and percentage of responders above clinical cut-off for further psychological investigation declined over the summer, following the first peak of the pandemic, schizotypy scores still increased into the second timepoint. We furthermore found that UK responders were suffering from a stronger mental health burden than responders from Germany. The financial burden, drug use, the impact of loneliness, and previous mental and physical health problems predicted schizotypy, and general psychological symptoms most strongly, but were stronger on the second timepoint for schizotypy compared to general psychological symptoms. The differences in the scores over time requires further attention and investigations, to understand whether the impact on schizotypy increases further, and potentially creating a higher risk for developing psychosis.
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|                      | TP2          | Difference between | Difference between Timepoints |
|----------------------|--------------|--------------------|------------------------------|
|                      | UK           | GER                | W/X^2 | p   | W/X^2 | p   |
| **N**                | 239          | 543                | 126   | 401 |        |     |
| **Prozent**          |              |                    |       |     |        |     |
| Mean                 | 39           | 45.4               | 40.90 | 42.67 | 237.2 | <.001 *** | 100.9 | .989 |
| SD                   | 16           | 14.9               | 16.17 | 1.14 |        |     |
| **Gender**           |              |                    |       |     |        |     |
| Female               | 73.6%        | 71.3%              | 65.87%| 70.32%| 159158 | .865 | 190794 | .786 |
| Male                 | 24.3%        | 25.8%              | 28.57%| 24.19%|        |     |
| other/NA             | 2.1%         | 3%                 | 5.56% | 5.49%|        |     |
| **Education**        |              |                    |       |     |        |     |
| School leavers       | 0.4%         | -                  | -     | -   | 162346 | .207 | 218690 | .017 * |
| 8-years              | 19.3%        | 13.1%              | 15.87%| 14.46%|        |     |
| Prof. college/ Bachelor | 31.8%      | 21.6%              | 38.89%| 30.42%|        |     |
| Master or higher     | 47.3%        | 65%                | 44.44%| 54.61%|        |     |
| Missing              | 1.3%         | 0.4%               | 0.79% | 0.50%|        |     |
| **Children**         |              |                    |       |     |        |     |
| Yes                  | 21.3%        | 30.8%              | 28.57%| 30.17%| 155440 | .013 * | 196510 | .540 |
| Missing              | 1.3%         | 2.6%               | 0.79% | 1.00%|        |     |
| **Living Area**      |              |                    |       |     |        |     |
| City                 | 20.5%        | 60.2%              | 26.19%| 42.89%| 227803 | <.001 *** | 182331 | .002 ** |
| Suburb               | 8%           | 13.1%              | 11.90%| 13.97%|        |     |
| Town                 | 36.4%        | 10.9%              | 27.78%| 14.71%|        |     |
| Village or rural Area| 34.7%        | 15.7%              | 33.33%| 25.94%|        |     |
| Missing              | 0.4%         | 18%                | 79.00%| 2.49%|        |     |
| **Suspected infection** |            |                    |       |     |        |     |
| Positive Test        | -            | 0.2%               | -     | 0.75%| 160840 | .024 * | 205006 | .614 |
| Diagnosis            | 2.5%         | 0.7%               | 0.79% | 0.50%|        |     |
| Symptoms             | 18.8%        | 14.4%              | 20.63%| 15.96%|        |     |
| No infection         | 78.7%        | 83.8%              | 76.98%| 82.04%|        |     |
| Missing              | -            | 0.9%               | 1.59% | 0.75%|        |     |
. p <.100, * p <.050, ** p <.010, *** p <.001
Table 2. Overview of means and robust ANOVAs of GSI and SPQ scores, all CRISIS variables and questions concerning life changes due to COVID

|                      | Mean | Robust ANOVA/ M-estimator | Post-hoc |
|----------------------|------|---------------------------|----------|
|                      | Before | Timepoint 1 | Timepoint 2 | significance | Country (timepoint comparison) | Before (country comparison) | TP1 (country comparison) | TP2 (country comparison) | Country x Before | Country x TP1 | Country x ITP2 |
|                      | UK | GER | UK | GER | UK | GER | Mean | Psi | Mean | Psi | Mean | Psi | Mean | Psi |
| GSI                  | 0.8 | 0.54 | 0.75 | 0.44 | .000*** | .043* | .973 | 0.6*** | .2* | 0.0 |
| SPQ                  | 13.6 | 12.25 | 17.36 | 13.20 | .011** | .061* | .240 | 5.7** | -3.8* | -2.5 |
| **Behaviour**        |      |      |      |      |      |      |      |      |      |      |
| Sleep week           | 2.06 | 2.06 | 2.1 | 2.07 | 1.86 | 2.02 | 1 |      |      |      |      |
| Sleep weekend        | 2.41 | 2.36 | 2.3 | 2.33 | 2.33 | .118 | .197 | .232 | 0.3 | -0.3 | 0.0 | 0.3 | -0.3 | 0.0 | 0.3 |
| Exercise             | 2.84 | 2.46 | 3.0 | 2.55 | 2.48 | 2.29 | .000*** | .000*** | .312 | 1.0*** | -0.2 | 0.5*** | 0.8*** | 0.0 | 0.2 | 0.2 |
| Outside              | 3.89 | 3.88 | 3.6 | 3.00 | 3.64 | 3.90 | .121 | .258 | .534 | 0.5 | 0.4** | 0.2 | -0.2 | 0.2* | 0.3* | 0.0 |
| **Cognition**        |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Happy content        | 3.48 | 3.48 | 2.8 | 2.75 | 2.90 | 3.11 | .183 | .000*** | .250 | -0.2 | 1.5*** | 1.6*** | -0.5** | 0.0 | 0.2 | 0.2 |
| Concerned            | 2.23 | 2.28 | 2.9 | 3.00 | 2.59 | 2.59 | .098 | .000*** | .161 | -0.3* | -1.5*** | -0.7*** | 0.8*** | 0.2 | -0.0 | -0.2 |
| Enjoy activities     | 3.65 | 3.86 | 2.6 | 3.02 | 2.79 | 3.45 | .000*** | .000*** | .028 | -1.3** | 1.9** | 1.3*** | -0.6** | 0.2 | 0.5*** | 0.3* |
| Relaxed              | 2.91 | 2.43 | 3.4 | 2.89 | 3.29 | 2.67 | .001** | .000*** | .794 | 1.6** | -0.9** | -0.6*** | 0.3 | 0.0 | -0.2 | -0.2 |
| Restless             | 1.95 | 1.89 | 2.3 | 2.20 | 2.25 | 2.02 | .015** | .001** | .490 | 0.4** | -0.7** | -0.4** | 0.3* | -0.1 | -0.2 | -0.1 |
| Tired                | 2.57 | 2.62 | 2.8 | 2.78 | 2.74 | 2.83 | .400 | .006* | .858 | -0.2 | -0.4** | -0.4** | 0.0 | 0.0 | 0.0 | 0.0 |
| Focused              | 2.43 | 2.29 | 3.3 | 2.72 | 2.97 | 2.55 | .000** | .000** | .016 | 1.1** | -1.3** | -0.8** | 0.5* | -0.4** | -0.3* | 0.1 |
| Irritated            | 2.02 | 2.37 | 2.5 | 2.72 | 2.37 | 2.49 | .000** | .000** | .140 | -0.66 | -0.9** | -0.5** | 0.4** | -0.2 | -0.2 | -0.1 |
| Lonely               | 1.64 | 1.73 | 2.2 | 2.20 | 2.43 | 2.04 | .607 | .000** | .559 | -0.1 | -2.5** | -2.1** | 0.4* | 0.1 | 0.0 | -0.1 |
| Negative Thoughts    | 2.65 | 2.55 | 2.9 | 2.94 | 2.82 | 2.70 | .177 | .000** | .607 | 0.23 | -0.7** | -0.3** | 0.4* | 0.1 | 0.0 | -0.1 |
| **Media consumption**|      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| TV digital Media     | 2.8 | 2.8 | 3.26 | 3.10 | 3.18 | 2.94 | .384 | .384 | .384 | 0.0 | 0.0** | 0.0* | 0.0 | 0.0** | 0.0* | 0.0 |
| Social Media         | 2.5 | 2.1 | 2.81 | 2.42 | 2.73 | 2.46 | .000** | .026* | .554 | 1.1** | -0.7** | -0.6 | 0.0 | 0.0 | 0.1 | 0.1 |
| Videogame            | 1.3 | 1.2 | 1.55 | 1.28 | 1.53 | 1.26 | 1 |      |      |      |      |      |      |      |      |      |      |
| Substance use      | Alcohol | Tobacco | Marihuana | Opiate | Heroin | Life changes |
|--------------------|---------|---------|-----------|--------|--------|--------------|
| Print media        | 2.0     | 2.4     | 2.13      | 2.57   | 2.20   |              |
|                    | 2.42    | .000 ** | .010 *    | .041 * | -1.5*  | -0.8*        |
|                    | .000    | .517    | .878      | 3.4**  | 0.6    | 0.1          |
|                    |         |         |           |        | 0.7    | 0.2          |
|                    | 0.2     |         | 0.7       | 0.07   |        |              |
| Alcohol            | 4.3     | 3.9     | 4.36      | 4.16   | 4.24   |              |
|                    | 3.84    | .000 ** | .517      | .878   | 3.4**  |              |
|                    | .000    | .517    | .878      | 3.4**  | 0.6    | 0.1          |
|                    |         |         |           |        | 0.7    | 0.2          |
|                    | 0.2     |         | 0.7       | 0.07   |        |              |
| Tobacco            | 1.5     | 1.8     | 1.39      | 1.93   | 1.93   | i            |
|                    | 1.86    |         |           |        |        |              |
| Marihuana          | 1.2     | 1.2     | 1.21      | 1.19   | 1.47   | i            |
|                    | 1.13    |         |           |        |        | 0.1          |
| Opiate             | 1.0     | 1.0     | 1.01      | 1.02   | 1.09   | 1.06         |
| Heroin             |         |         |           |        |        |              |
| Life changes       |         |         |           |        |        |              |
| Time Outside       | 3.47    | 3.83    | 3.71      | 4.11   | .111   |              |
|                    | .151    | .811    |           | -0.8** | -0.5*  |              |
| Restrictions       | 2.92    | 2.86    | 2.78      | 2.59   | .071   | .080         |
| stressfull         |         |         |           |        | .008*  |              |
| Quality of         | 3.23    | 3.04    | 3.14      | 2.96   | .043*  | .415         |
| family             |         |         |           |        | .739   | .3*          |
| relationships      |         |         |           |        |        | 0.4**        |
| Change of          | 2.84    | 2.47    | 2.16      | 2.11   | .038*  | .020*        |
| family (stressful) |         |         |           |        | .080   |              |
| Quality social      | 2.79    | 2.71    | 2.43      | 2.52   | .280   | .000 **      |
| of relationships   |         |         |           |        | .045   |              |
| Change of          | 3.05    | 2.57    | 2.28      | 2.23   | .008*  | .025         |
| social relations    |         |         |           |        | .000** |              |
| (stressful)        |         |         |           |        | .15**  |              |
| Financial impact   | 2.05    | 1.96    | 1.82      | 1.60   | .000** | .457         |
|                    |         |         |           |        | .457   |              |
| Concerned life      | 2.04    | 2.44    | 1.86      | 2.08   | .000** | .011*        |
| stability           |         |         |           |        | .265   | -1.5**       |
| Financial impact   |         |         |           |        | 1.4*   |              |
| No money for       | 0.03    | 0.03    | 0.04      | 0.03   |        |              |
| food               |         |         |           |        |        |              |
| Hopeful for        | 2.91    | 2.51    | 1.78      | 2.03   | .013*  | .000**       |
| a soon end         |         |         |           |        | .000   | -0.8*        |
|                    |         |         |           |        | 2.4**  | 1.4**        |

\( \psi = \psi_{i\hat{h}at}, C = \text{Country}, TP = \text{Timepoint}, . p<.10, * p<.05, **p<.01, ***p<.001, I = \text{interaction}, \text{GER} = \text{Germany}, \text{UK} = \text{United Kingdom}, I = \text{could not be calculated due to Insufficient dispersion or change} \)
Tab. 3. Overview over all three conducted models (Basic Model, Harmful and Healthy Behavior, COVID-19 Impact) at both timepoints for GSI scores

|                     | Timepoint 1 |                          | Timepoint 2 |                          |
|---------------------|-------------|--------------------------|-------------|--------------------------|
|                     | Basic Model | Harmful and healthy      | Basic Model | Harmful and healthy      |
|                     |             | behaviour                |             | behaviour                |
|                     |             | COVID-19 Impact          |             | COVID-19 Impact          |
| BIC                 | 874.4       | 804.2                    | 641.2       | 567.4                    |
| B                   | -8.74       | -8.04                    | -9.74       | -9.56                    |
| t                   | 5.6***      | 5.2***                   | 7.0***      | 5.6***                   |
| Intercept           | 0.67        | 0.68                     | 1.15        | 0.97                     |
| Age                 | 0.00        | -3.8***                  | 0.00        | -3.3***                  |
| Gender              | Male        | Reference                | Female      | Reference                |
| Highest Education   | 0.00        | 0.0                      | 0.00        | 0.3                      |
| Country             | UK          | Reference                | GER         | Reference                |
|                     |             |                          | 0.14        |                          |
|                     | Pre-existing physical health problems | 3.1** | 2.4* | 0.11 | 2.5* | 0.18 | 2.8** | 0.14 | 2.4* | 0.18 | 3.2** |
|                     | Pre-existing mental health problems | 0.50 | 11.3*** | 0.38 | 8.9*** | 0.45 | 10.5*** | 0.46 | 7.5** | 0.32 | 5.9*** | 0.37 | 7.1*** |
| Children at home    | No          | Reference                | Yes         | Reference                |
| Living area         | Suburb      | Reference                | City        | Reference                |
|                     | 0.06        | 1.1                      | 0.09        | 1.3                      |
|                     | 0.09        | 1.8                      | 0.12        | 2.3*                     |
|                     | 0.12        | 2.3*                     | 0.06        | 0.9                      |
|                     | 0.10        | 2.0*                     | 0.04        | 0.7                      |
|                     | 0.03        | 0.8                      | 0.05        | 0.5                      |
| Alcohol             | 0.00        | 0.5                      | 0.01        | 0.7                      |
| Drug consumption    | Never       | Reference                | At least once | Reference            |
|                     |             |                          | 0.1         | 2.1*                     |
| Excessive Media use | No          | Reference                | Yes         | Reference                |
|                     |             |                          | 0.1         | 2.8*                     |
| Exercise            | 0 days      | Reference                |             |                          |
|                          | 1-4 days | > 4 days | Sleep | < 6 h | 6-8h | > 8h | Trust in Government | Yes | Reference | No | 0.00 | -0.1 | Loneliness | Not | Reference | Medium | 0.12 | 2.9** | | | | | Very | 0.36 | 8.3*** | Restrictions perceived as stressful | No | Reference | Yes | 0.02 | 5.4*** | 0.05 | 2.5* | Financial impact | No | Reference | Medium | 0.01 | 0.1 | | | Major | 0.09 | 2.0* | 0.59 | 7.0*** | Hope for a soon end | No | Reference | Yes | -0.01 | -0.4 | | | yes | -0.03 | -0.4 | Stressful relationship changes | Yno | Reference | Few | 0.15 | 4.1*** | | | Many | 0.32 | 5.6*** | | | | Suspected of COVID 19 | No | Reference | Yes | 0.11 | 2.6* | | | | Yes | 0.19 | 3.0*** |

B = Estimate, .  p <.100, * p <.050, ** p <.010, *** p <.001
Tab. 4. Overview over all three conducted models (Basic Model, Harmful and Healthy Behavior, COVID-19 Impact) at both timepoints for SPQ scores

|                          | Timepoint 1 | Timepoint 2 |
|--------------------------|-------------|-------------|
|                          | Basic Model | Harmful and Healthy Behavior | COVID-19 Impact | Basic Model | Harmful and Healthy Behavior | COVID-19 Impact |
| BIC                      | 7056.5      | 6908.2      | 6833.2       | 5268.1      | 4949.3                      | 4495.3         |
| Intercept                | 2.97        | -40.5***    | 2.92         | 33.9***     | 2.81            | 43.0***        | 3.78            | 42.9***        | 3.48            | 32.3***        | 3.45            | 32.6***        |
| Age                      | -0.01       | -9.2***     | -0.01        | -6.6***     | -0.01          | -9.0***        | -0.01          | -7.7***       | -0.01          | -5.9***        | -0.01          | -6.7***        |
| Gender                   |             |             |              |              |                |                |                |                |                |                |                |                |
| Male                     |             |             |              |              |                |                |                |                |                |                |                |                |
| Female                   | -0.04       | -1.7        | -0.06        | -2.3*       | -0.04          | -1.7          | -0.17          | -6.1***       | -0.16          | -5.4***        | -0.15          | -5.2***        |
| Highest Education        | -0.05       | -5.2***     | -0.04        | -4.1***     | -0.07          | -4.0***       | -0.12          | -12.4***      | -0.07          | -6.3***        | -0.09          | -8.3***        |
| Country                  |             | Reference   |              |              |                |                |                |                |                |                |                |                |
| UK                       | 0.01        | 0.4         | 0.02         | 0.6         | 0.03           | 1.2           | -0.15          | -5.2***       | -0.06          | -2.1*          | -0.12          | -3.2**         |
| Pre-existing physical health problems | 0.22 | 8.2*** | 0.17         | 6.3*** | 0.23           | 8.2*** | 0.20            | 6.0*** | 0.19           | 5.5*** | 0.24           | 6.8***         |
| Pre-existing mental health problems | 0.44 | 17.0*** | 0.37         | 13.6*** | 0.43           | 16.2*** | 0.56            | 19.1*** | 0.43           | 13.5*** | 0.42           | 12.9***        |
| Children at home         |             | Reference   |              |              |                |                |                |                |                |                |                |                |
| No                       | -0.08       | -3.4***     | -0.06        | -2.3*       | -0.09          | -3.7***       | 0.02           | 0.6           | 0.02           | 0.72           | -0.13          | -4.1***        |
| Living area              |             | Reference   |              |              |                |                |                |                |                |                |                |                |
| City                     |             | Reference   |              |              |                |                |                |                |                |                |                |                |
| Suburb                   | 0.07        | 2.1*        | 0.10         | 2.9**       | 0.10           | 2.3**         | 0.07           | 1.8           | 0.04           | 0.89           | -0.07          | -1.6           |
| Town                     | 0.00        | 0.3         | 0.02         | 0.6         | -0.02          | -0.5          | -0.13          | -3.4***       | -0.09          | -2.3*          | -0.11          | -2.9**         |
| Rural Area               | 0.07        | 2.2*        | 0.08         | 2.6*        | 0.08           | 2.6*          | -0.13          | -3.9***       | -0.11          | -3.5***        | -0.09          | -2.6*          |
| Alcohol                  | -0.01       | -2.8**      | 0.00         | -3.3        |                |               |                |                |                |                |                |                |
| Drug consumption         |             | Reference   |              |              |                |                |                |                |                |                |                |                |
| No                       |             |             |              |              |                |                |                |                |                |                |                |                |
| Yes                      | 0.08        | 2.5*        | 0.16         | 4.5***      |                |               |                |                |                |                |                |                |
| Excessive Media consumption | No |             | Reference   |              |                |                |                |                |                |                |                |                |
| Yes                      | 0.22        | 9.0***      | 0.21         | 6.4***      |                |               |                |                |                |                |                |                |
| Exercise                 |             | Reference   |              |              |                |                |                |                |                |                |                |                |
|                          | 1-4 days |       |       |       |       |       |       |       |       |
|--------------------------|----------|-------|-------|-------|-------|-------|-------|-------|-------|
|                          | -0.06    | -2.1* |       |       |       |       |       |       |       |
| Min. 5 days              | -0.09    | -2.8**|       |       |       |       |       |       |       |
|                          | -0.21    | -4.1***|       |       |       |       |       |       |       |
| Sleep                    |          |       |       |       |       |       |       |       |       |
| < 6 h                    |          |       |       |       |       |       |       |       |       |
| Reference                |          |       |       |       |       |       |       |       |       |
| 6-8h                     | -0.06    | -2.0* |       |       |       |       |       |       |       |
|                          | -0.27    | -7.6***|       |       |       |       |       |       |       |
| > 8h                     | -0.01    | -3.5***|       |       |       |       |       |       |       |
|                          | -0.29    | -6.2***|       |       |       |       |       |       |       |
| Loneliness               |          |       |       |       |       |       |       |       |       |
| Not at all               |          |       |       |       |       |       |       |       |       |
| Reference                |          |       |       |       |       |       |       |       |       |
| Medium                   | 0.02     | 0.7   |       |       |       |       |       |       |       |
|                          | 0.07     | 1.8   |       |       |       |       |       |       |       |
| Very                     | 0.14     | 4.8***|       |       |       |       |       |       |       |
|                          | 0.26     | 7.6***|       |       |       |       |       |       |       |
| Trust in Government      |          |       |       |       |       |       |       |       |       |
| Yes                      |          |       |       |       |       |       |       |       |       |
| Reference                |          |       |       |       |       |       |       |       |       |
| Not at all               |          |       |       |       |       |       |       |       |       |
|                          | -0.15    | -2.5***|       |       |       |       |       |       |       |
| Restrictions perceived as stressful | | | | | | | | | |
| No                       |          |       |       |       |       |       |       |       |       |
| Reference                |          |       |       |       |       |       |       |       |       |
| Yes                      |          |       |       |       |       |       |       |       |       |
|                          | -0.03    | -1.3  |       |       |       |       |       |       |       |
| Financial impact         |          |       |       |       |       |       |       |       |       |
| No                       |          |       |       |       |       |       |       |       |       |
| Reference                |          |       |       |       |       |       |       |       |       |
| Medium                   |          |       |       |       |       |       |       |       |       |
|                          | -0.04    | -0.3  |       |       |       |       |       |       |       |
|                          | 0.31     | 7.9***|       |       |       |       |       |       |       |
| Major                    |          |       |       |       |       |       |       |       |       |
|                          | 0.45     | 9.2***|       |       |       |       |       |       |       |
| End                      |          |       |       |       |       |       |       |       |       |
| No                       |          |       |       |       |       |       |       |       |       |
| Reference                |          |       |       |       |       |       |       |       |       |
| Yes                      |          |       |       |       |       |       |       |       |       |
|                          | -0.04    | -1.4  |       |       |       |       |       |       |       |
|                          | -0.13    | -2.5* |       |       |       |       |       |       |       |
| Stressful relationship changes | | | | | | | | | |
| No                       |          |       |       |       |       |       |       |       |       |
| Reference                |          |       |       |       |       |       |       |       |       |
| Few                      |          |       |       |       |       |       |       |       |       |
|                          | 0.03     | 1.1   |       |       |       |       |       |       |       |
|                          | 0.06     | 1.9   |       |       |       |       |       |       |       |
| Many                     |          |       |       |       |       |       |       |       |       |
|                          | 0.02     | 0.4   |       |       |       |       |       |       |       |
|                          | 0.37     | 8.3***|       |       |       |       |       |       |       |
| Suspected of COVID 19    |          |       |       |       |       |       |       |       |       |
| No                       |          |       |       |       |       |       |       |       |       |
| Reference                |          |       |       |       |       |       |       |       |       |
| Yes                      |          |       |       |       |       |       |       |       |       |
|                          | 0.1      | 3.5***|       |       |       |       |       |       |       |
|                          | 0.16     | 4.9***|       |       |       |       |       |       |       |

*B = estimate, . p <.100, * p <.050, ** p <.010, *** p <.001*