Mental Health Burden of the COVID-19 Outbreak in Germany: Predictors of Mental Health Impairment

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Abstract

Introduction: COVID-19 is causing an enormous psychological burden for most people. This study aims to assess individual changes in mental health and health status before and after the COVID-19 outbreak, and to explore potential predictors of change. **Methods:** A cross-sectional study in Germany (n = 15 037) were conducted. Demographics, depression and anxiety symptoms (PHQ-2, GAD-2), distress (DT), and health status (EQ-5D-3L) were assessed. Additionally, all instruments used were adapted to measure the participants' mental health and health status before the COVID-19 outbreak. COVID-19-related fear, trust in governmental actions to face COVID-19, and the subjective level of information about COVID-19 were examined. **Results:** Overall, the participants showed a significant increase in depression and anxiety symptoms, and distress, while health status deteriorated since the COVID-19 outbreak. Impairment in mental health was predicted by COVID-19-related fear. Pre-existing mental illness predicted an increase in depression symptoms and a deterioration in health status. Trust in governmental actions and the subjective level of information predicted less increase in psychological burden. **Conclusions:** Our data revealed that there have been changes in mental health and health status at an individual level since the outbreak of COVID-19. In order to maintain mental health, the observed predictors should be addressed.

Introduction

Since the first cases of the novel coronavirus disease in 2019 (COVID-19), elicited by the severe acute respiratory syndrome Coronavirus 2 (SARS-CoV-2), were reported in December 2019 in the city of Wuhan, China, the virus has spread rapidly around the world.[1,2] On March 11, 2020, the World Health Organization declared COVID-19 as the first pandemic since H1N1 in 2009/2010.[3] So far, there have been over 11 669 259 infections worldwide, with 539 906 deaths reported.[2] The virus has led to a global crisis affecting not only mortality rates, but also the economy, and the lives of each individual. To date, little is known about medications and vaccinations to effectively combat the virus.[4] Therefore, as in many other countries, the government of Germany has implemented several restrictions, limitations, and prohibitions to "flatten the curve" and stop the virus from spreading. It is reasonable to assume that these measures of social distancing and quarantine as well as daily reports about COVID-19 elevate personal distress and affect the mental health of the German public.[5-8] Existing interventions aimed at offering low-threshold support are important in order to maintain mental health and support those in need during the ongoing COVID-19 pandemic.[9-11]

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Recently published literature on the psychological impact caused by the COVID-19 pandemic on people's mental health has shown increased depression and anxiety symptoms, poor sleep quality, and distress.[12-15] Frontline medical staff in China were especially likely to report poor mental health during the ongoing pandemic.[16,17] Furthermore, a longitudinal study conducted in China revealed that the perceived psychological impact on mental health persists up to 1 month after the outbreak of the virus.[18] After lockdown and social distancing, people need a psychological support system when returning to work.[19] However, most of the studies investigating the mental health burden during the COVID-19 pandemic are derived from Asian samples. A recent Italian study conveys initial data about the mental health burden in a Western population sample.[20] Specifically, they report elevated levels of sleep disturbances (57.1%), generalized anxiety (32.1%), and distress (41.8%). In Germany, increased symptoms of generalized anxiety (44.9%) and depression (14.3%), distress (65.2%), and COVID-19-related fear (59%) were highly prevalent.[8] These findings are comparable to data from Chinese samples.[12,14]

Despite the rapidly growing amount of literature on mental health issues during the ongoing pandemic, researchers face a problem when interpreting such data. In fact, no longitudinal study exists which compares the changes in mental health at an individual level before and after the outbreak of COVID-19. Due to the sudden nature of the virus outbreak, this issue is clear and natural consequence of the unexpected. This study aims to present an approach where a large sample rates their mental health before and after the COVID-19 outbreak. Besides the assessment of change to the mental health burden borne by the German public since the COVID-19 outbreak, this is the first study to pursue an approach discovering predictors of change, which are highly relevant in regard to public health.

Methods

Study Design and Ethics

Over a period of 8 weeks (March 10th–May 5th 2020), a cross-sectional online survey was distributed via online newspapers, social media, and print media. The survey period covered various levels of governmental restrictions to public life and their easing. Electronic informed consent was obtained before the survey began. Participation was voluntary, anonymous, and participants could withdraw from the study at any time. The study was conducted in accordance with the Declaration of Helsinki, and the Ethics Committee of the Essen Medical Faculty agreed to conduct the study (20-9307-BO).

Measures

The survey takes about 12 min to complete and consists of several modules, including demographic data, for example,

gender, age, marital status, having a child under 18, educational level, and occupational status. To assess mental health burden, validated measures were used in the survey, namely *Patient Health Questionnaire-2* (PHQ-2),[21] *Generalized Anxiety Disorder-2* (GAD-2),[22] and *Distress Thermometer* (DT).[23] The visual analogue scale from the *European Quality of Life 5 Dimensions 3 Level* (EQ-5D-3L) questionnaire was applied to assess the individual health status.[24] The PHQ-2 consists of 2 items screening the frequency of depression symptoms over the past 2 weeks on a 4-point Likert-scale (0 = never to 3 = nearly every day). A sum score of ≥ 3 points to major depression symptoms.[21] The GAD-2 consists of 2 items assessing the frequency of anxiety symptoms over the past 2 weeks on a 4-point Likert-scale (0 = never to 3 = nearly every day). According to previous validation samples, a sum score of ≥ 3 points to severe generalized anxiety symptoms.[22] The GAD-2 and PHQ-2 are instruments commonly used in current COVID-19 research to screen for anxiety and depression symptoms.[25] The DT involves 1 visual analogue scale 0 = no distress to 10 = extreme distress experienced in the past week. A score ≥ 4 indicates heightened distress.[23] Health status was assessed using the visual analogue scale from the EQ-5D-3L, "0 = the worst health you can imagine" to "100 = the best health you can imagine."[24] In addition, all the above named instruments were adapted to assess the participants' mental health burden and health status before the COVID-19 outbreak. Therefore, individual, retrospective assessments of personal mental health and health status were conducted. Furthermore, participants could rate their COVID-19-related fear on a 7-point Likert-scale (1 = very low to 7 = extremely high).

Trust in governmental actions to face COVID-19 (I think Germany is well prepared to face COVID-19; I think all government measures are being taken to combat COVID-19; I have confidence in the governmental system in Germany) and the *subjective level of information regarding COVID-19* (I feel informed about COVID-19; I feel informed about measures to avoid an infection with COVID-19; I understand the health authorities' advice regarding COVID-19) were assessed using a seven-point. Likert-scale (1 = complete disagreement to 7 = complete agreement). The reliability for both scales was tested using Cronbach's α as an indication of internal consistency. Both scales showed high internal consistency with Cronbach's α = 0.825 and Cronbach's α = 0.801, respectively. The scale-scale correlation was $r = 0.464$, $P < .001$.

Statistical Analysis

The data analysis was performed using SPSS Statistics 26 Software (IBM, Armonk, NY). First, sum scores for the PHQ-2 and GAD-2 as well as mean scores for the named scales, DT, the EQ-5D-3L visual analogue item, COVID-19-related fear, and the 2 scales of trust in governmental actions and subjective level of information were computed. Descriptive statistics

were performed for characteristics of the participants, including socio-demographic data and scores of psychometric tools. T-Tests (paired-samples t-Test) were performed for the comparison of mental health (PHQ-2, GAD-2, and DT) and health status (EQ-5D-3L) before and after the outbreak. The level of significance was set at $\alpha = 0.05$ (2-sided tests) and effect sizes are reported as Cohen's d. To detect at least 1 small effect (d $\geq$ 0.10), a total sample size of 1579 would be required at α level of 0.05 and a power of ~99%. As per guidelines by Sawilowsky, a Cohen's d of around 0.2 is considered small, 1 of around 0.5 is considered medium-sized, and 1 of around 0.8 is considered a large effect.[26] Considering the present sample size (n = 15 704), we assume that a violation of the normal distribution assumption of residuals does not have a negative effect on the regression estimates.[27] Homoscedasticity was tested with the Breusch-Pagan test. In a second step, difference values of PHQ-2, GAD-2, DT, and EQ-5D-3L were computed, indicating the difference of mental health burden before and after the outbreak of COVID-19. Accordingly, separate multiple regression models were performed with the variables; preexisting mental illness (yes vs. no), COVID-19-related fear, trust in governmental actions, and subjective level of information predicting the change in mental health and health status (difference values of PHQ-2, GAD-2, DT, and EQ-5D-3L). Socio demographic variables were excluded from the multiple regression models since variance inflation factor (VIF) values for testing collinearity were VIF > 10.[28]

Results

The survey was accessed 18 895 times with 15 704 completed surveys (83% completion rate). Of the 15 704 participants, 15 037 were residing in Germany and were at least 18 years old. These 15 037 respondents were included in further analysis. 10 633 (70.07%) of the participants were female, 4353 (28.9%) were male, and 51 (0.3%) were gender queer. Of the 15 037 participants, 2076 (13.8%) were aged 18 to 24 years, 3 725 (24.8%) were aged 25 to 34 years, 3 459 (23.0%) were aged 35 to 44 years, 2 846 (18.9%) were aged 45 to 54 years, 2 151 (14.3%) were aged 55 to 64 years, and 780 (5.2%) were aged 65 years or older. Table 1 shows an overview of all the demographics.

Prevalence of Generalized Anxiety Symptoms, Depression Symptoms, and Distress Before and After the COVID-19 Outbreak

The prevalences of various degrees of mental health burden and health status before and after the outbreak, in general, stratified by gender, and age are shown in Tables 2a-2c. The overall prevalence of major depression symptoms (PHQ-2 sum scores $\geq$ 3) increased from 7.6% to 14.3% after the

Table 1. Demographic Characteristics.

	n	%
Sex		
Female	10633	70.7
Male	4353	28.9
Inter/ diverse	51	0.3
Age categories		
18 to 24 years	2076	13.8
25 to 34 years	3725	24.8
35 to 44 years	3459	23.0
45 to 54 years	2846	18.9
55 to 64 years	2151	14.3
65 to 74 years	662	4.4
$\geq$75 years	109	0.8
Marital status		
Single	4300	28.6
Married	6391	42.5
In a relationship	3129	20.8
Divorced/separated	922	6.1
Widowed	197	1.3
Other	98	0.7
Children under 18 years		
Yes	4281	28.5
No	10756	71.5
Educational level		
University education	6403	42.6
Higher education entrance qualification	4921	32.7
Secondary education	2761	18.4
Lower secondary education	655	4.4
No qualification	47	0.3
Other	244	1.6
City size (population)		
100 000 residents	8396	55.8
20 000 residents	3417	22.7
5000 residents	1645	10.9
<5000 residents	1579	10.5
Occupation		
Not employed	1544	10.3
Health-care related job	2195	14.6
Other	11257	75.1
Diseases		
Somatic	3577	23.8
Psychiatric	1976	13.1
None	9484	63.1
Total	**15037**	**100.0**

outbreak. Moreover, the prevalence of severe generalized anxiety symptoms (GAD-2 sum scores $\geq$ 3) rose from 9.0% to 19.7% after the outbreak of COVID-19. Elevated levels of distress (DT score of $\geq$ 4) after the outbreak were reported by 65.2% of respondents, while the prevalence of elevated distress before the outbreak was 51.8%.

Table 2a. Prevalence of Generalized Anxiety Symptoms, Depression Symptoms, and Distress Before and After the COVID-19 Outbreak.

	Before COVID-19 outbreak	After COVID-19 outbreak
PHQ-2		
°<3	13 896 (92.4%)	12 880 (85.7%)
°≥3	1141 (7.6%)	2157 (14.3%)
GAD-2		
°<3	13 677 (91.0%)	12 070 (80.3%)
°≥3	1360 (9.0%)	2967 (19.7%)
DT		
°<4	7247 (48.2%)	5238 (34.8%)
°≥4	7790 (51.8%)	9799 (65.2%)
Total	15 037 (100.0%)	15 037 (100.0%)

Abbreviations: DT: Distress Thermometer, a score of ≥ 4 indicates elevated distress; GAD-2: Generalized Anxiety Disorder Scale-2, sum scores of ≥3 indicate severe generalized anxiety symptoms; PHQ-2: Patient Health Questionnaire-2, sum scores of ≥ 3 indicate major depression symptoms.

Table 2b. Prevalence of Generalized Anxiety Symptoms, Depression Symptoms, and Distress Before and After the COVID-19 Outbreak Stratified by Gender.

	Before COVID-19 outbreak			After COVID-19 outbreak		
	Female	Male	Inter/Divers	Female	Male	Inter/Divers
PHQ-2						
°<3	9762 (91.8%)	4098 (94.1%)	36 (70.6%)	9025 (84.9%)	3822 (87.8%)	33 (64.7%)
°≥3	871 (8.2)	255 (5.9%)	15 (29.4%)	1608 (15.1%)	531 (12.2%)	18 (35.3%)
GAD-2						
°<3	9538 (89.7%)	4100 (94.2%)	39 (76.5%)	8226 (77.4%)	3804 (87.4%)	40 (78.4%)
°≥3	1095 (10.3%)	253 (5.8%)	12 (23.5%)	2407 (22.6%)	549 (12.6%)	11 (21.6%)
DT						
°<4	4969 (46.7%)	2262 (52.0%)	16 (31.4%)	3423 (32.2%)	1797 (41.3%)	18 (35.3%)
°≥4	5664 (53.3%)	2091 (48.0%)	35 (68.6%)	7210 (67.8)	2556 (58.7%)	33 (64.7%)
Total	10633	4353	51	10633	4353	51

Abbreviations: DT: Distress thermometer, a score of ≥ 4 indicates elevated distress; PHQ-2: Patient Health Questionnaire-2, sum scores of ≥ 3 indicate major depression symptoms; GAD-2: Generalized Anxiety Disorder Scale-2, sum scores of ≥3 indicate severe generalized anxiety symptoms;

Changes in Mental Health and Health Status Before and After the outbreak of COVID-19

Mean values and standard errors of mental health parameters and health status before and after the COVID-19 outbreak are shown in Figure 1. The results of the t-Tests (paired-samples t-Test) comparing mental health burden before and after the outbreak of COVID-19 show a significant increase in depression symptoms (t (14985) = −25.50, $P < .001$, d = 0.23), generalized anxiety symptoms (t (14985) = −43.16, $P < .001$, d = 0.42), and distress (t (14985) = −52.33, $P < .001$, d = 0.44) as well as a significant deterioration in health status (t (14985) = 20.20, $P < .001$, d = 0.16).

Predictors of Change in Mental Health and Health Status

The results of the multiple regression models predicting the difference values of PHQ-2, GAD-2, DT, and EQ-5D-3L

are shown in Tables 3a-3d. Significant predictors for the increase in depression symptoms are suffering from mental illness, COVID-19-related fear, trust in governmental actions, and subjective level of information. However, the model provides an explained variance of only 1.4%. Significant predictors for the change in generalized anxiety symptoms are COVID-19-related fear, trust in governmental actions, and the subjective level of information with an explained variance of 5.0%. Significant predictors for the difference in distress in the whole sample are COVID-19-related fear, trust in governmental actions, and subjective level of information with an explained variance of 4.4%. Significant predictors for the difference in health status are suffering from mental illness, COVID-19-related fear, trust in governmental actions, and the subjective level of information. The model provides an explained variance of 1.0%. Preexisting mental illness leads to an increase in depression symptoms and a deterioration in health status. Furthermore, COVID-19-related fear causes an increase in

Table 2c. Prevalence of Generalized Anxiety Symptoms, Depression Symptoms, and Distress Before and After The COVID-19 Outbreak Stratified By Age.

	Before COVID-19 outbreak						After COVID-19 outbreak					
	18 to 24	25 to 34	35 to 44	45 to 54	55 to 64	64+	18 to 24	25 to 34	35 to 44	45 to 54	55 to 64	64+
PHQ-2												
°<3	1715 (82.6%)	3443 (92.4%)	3245 (93.8%)	2691 (94.6%)	2049 (95.3%)	753 (96.5%)	1529 (73.7%)	3202 (86.0%)	3005 (86.9%)	2520 (88.5%)	1912 (88.9%)	712 (91.3%)
°≥3	361 (17.4%)	282 (7.6%)	214 (6.2%)	155 (5.4%)	102 (4.7%)	27 (3.5%)	547 (26.3%)	523 (14.0%)	454 (13.1%)	326 (11.5%)	239 (11.1%)	68 (8.7%)
GAD-2												
°<3	1695 (81.6%)	3346 (89.8%)	3209 (92.8%)	2650 (93.1%)	2029 (94.3%)	748 (95.9%)	1465 (70.6%)	2948 (79.1%)	2783 (80.5%)	2340 (82.2%)	1832 (85.2%)	702 (90.0%)
°≥3	381 (18.4%)	379 (10.2%)	250 (7.2%)	196 (6.9%)	122 (5.7%)	32 (4.1%)	611 (29.4%)	777 (20.9%)	676 (19.5%)	506 (17.8%)	319 (14.8%)	78 (10.0%)
DT												
<4	877 (42.2%)	1747 (46.9%)	1512 (437%)	1359 (47.8%)	1174 (54.6%)	578 (74.1%)	676 (32.6%)	1282 (34.4%)	1024 (29.6%)	986 (34.6%)	831 (38.6%)	439 (56.3%)
≥4	1199 (57.8%)	1978 (53.1%)	1947 (56.3%)	1487 (52.2%)	977 (45.4%)	202 (25.9%)	1400 (67.4%)	2443 (65.6%)	2435 (70.4%)	1860 (65.4%)	1320 (61.4%)	341 (43.7%)
Total	2076	3725	3459	2846	2151	780	2076	3725	3459	2846	2151	780

Abbreviations: DT: Distress thermometer, a score of ≥ 4 indicates elevated distress; GAD-2: Generalized Anxiety Disorder Scale-2, sum scores of ≥3 indicate severe generalized anxiety symptoms; PHQ-2: Patient Health Questionnaire-2, sum scores of ≥ 3 indicate major depression symptoms.

depression symptoms, generalized anxiety symptoms, and distress as well as a deterioration in health status. In contrast, trust in governmental actions to face COVID-19 and the subjective level of information regarding COVID-19 cause less increase in depression symptoms, generalized anxiety symptoms, and distress as well as less deterioration in health status.

Discussion

This is the first study attempting to compare mental health outcomes before and after the COVID-19 outbreak. The study shows that symptoms associated with a mental health burden such as depression, generalized anxiety symptoms, and distress are more prevalent after the outbreak compared to before the outbreak. In fact, participants rated their depression symptoms significantly higher compared to prior to COVID-19. The difference in mean value should be considered a small effect. Furthermore, generalized anxiety symptoms as well as distress increased since the outbreak. Mean value differences from generalized anxiety symptoms and distress before and after the outbreak are considered medium-size effects. Health status deteriorated since the outbreak with a small effect size. These results strengthen previous findings from cross-sectional studies in different countries, indicating increased prevalence of mental health burden during the ongoing COVID-19 pandemic.[8,14,20]

Further analysis of the data suggested predictors for changes in mental health and health status since the COVID-19 outbreak. Preexisting mental illness leads to an increase in depression symptoms and decrease in health status since the COVID-19 outbreak, while high COVID-19-related fear causes an increase in depression symptoms, generalized anxiety symptoms, and distress as well as a decrease in health status. In contrast, trust in governmental actions and the subjective level of information cause less increase in depression symptoms, generalized anxiety symptoms, and distress as well as less decrease in health status. Explained variance of the observed changes in mental health and health status is small. These findings substantiate results from previously published articles on the mental health burden of mentally ill patients during the COVID-19 pandemic,[29] the impact of governmental announcements on mental health during the pandemic,[30] and high levels of COVID-19-related fear.[8] Important to discuss, are the changes of mental health over time during the pandemic.[29] It seems to be clear that mental health varies over time under such evolving circumstances. Therefore, the time of study participation has a great impact on the individuals. In contrast to this acumination, Chinese data collected during the initial state of the pandemic could show that mental health burden persist for up to 1 month after the outbreak.[18]

The rapidly growing body of literature concerning mental health issues during the COVID-19 pandemic shows a clear mental health burden experienced by the public during the ongoing pandemic.[12-18] To be specific, high prevalence of depression symptoms, anxiety, and poor sleep quality have been shown in different samples.[14] One longitudinal study investigating the mental health burden in China showed that depressive and anxiety symptoms as
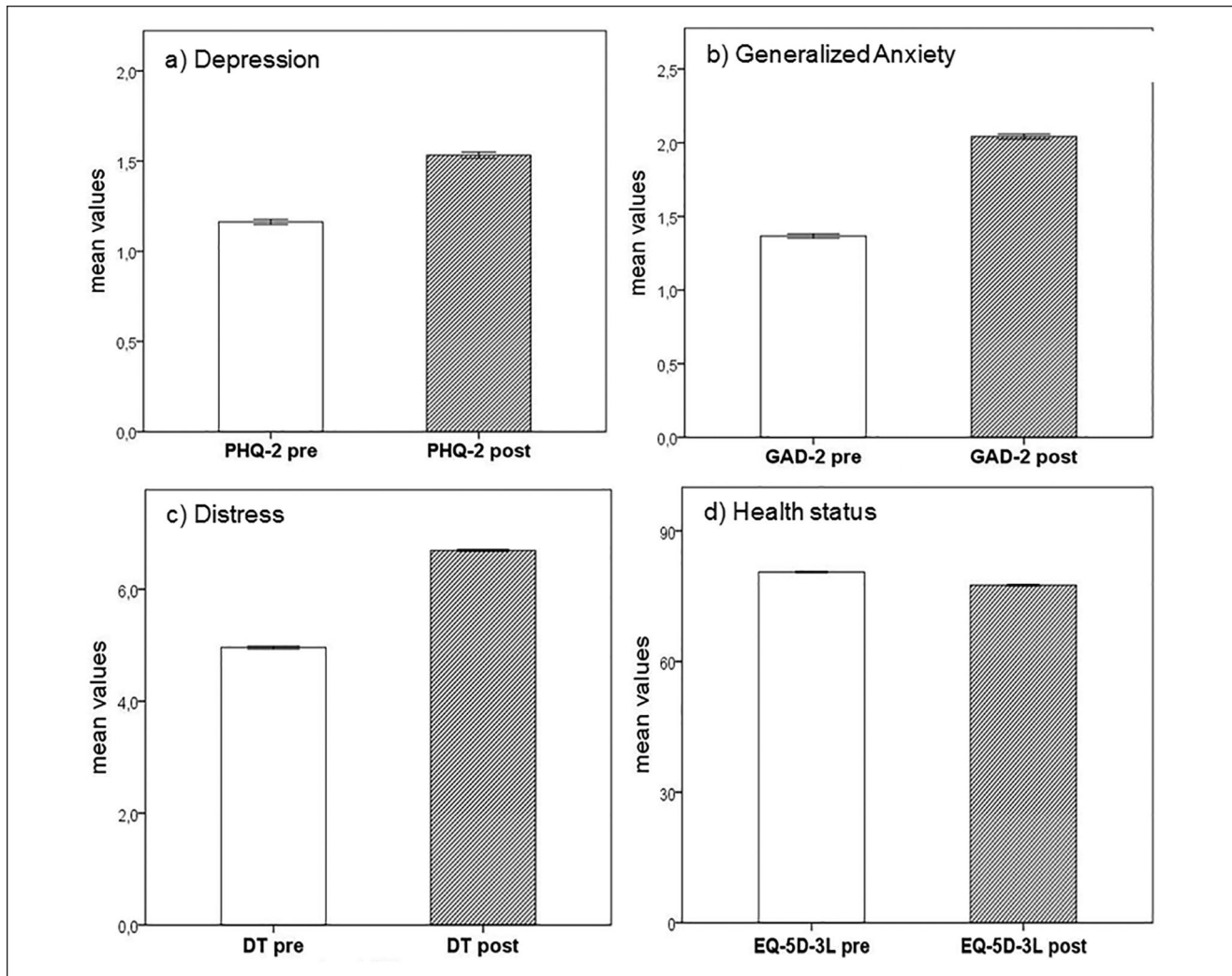
Figure 1. Alterations in mental health between before and after the COVID-19 outbreak.
Mean values and standard errors (SE) $+/-1$ as error bars from before (pre) and after (post) the COVID-19 outbreak of PHQ-2 = Patient Health Questionnaire-2, $M_{PHQ-2\ pre} = 0.91$ versus $M_{PHQ-2\ post} = 1.14$ (panel a); GAD-2 = Generalized Anxiety Disorder Scale-2, $M_{GAD-2\ pre} = 1.06$ versus $M_{GAD-2\ post} = 1.52$ (panel b); DT = Distress Thermometer, $M_{DT\ pre} = 3.91$ vs. $M_{DT\ post} = 4.94$ (panel c); EQ-5D-3L = European Quality of Life 5 Dimensions 3 Level, $M_{EQ-5D-3L\ pre} = 82.32$ versus $M_{EQ-5D-3L\ post} = 80.27$ (panel d).

well as distress persist up to 1 month after the outbreak.[18] Furthermore, 1 study reported that psychiatric patients are more anxious, depressed, and stressed than the general population.[29] Nevertheless, due to the sudden nature of the virus outbreak, no data exists on changes in mental health at an individual level.

The main strength of the current study is that it is 1 of the largest to date to examine the mental health of people in a western country during the COVID-19 pandemic. In fact, this is the first study so far addressing issues of changes in mental health and health status on an individual level since the COVID-19 outbreak. The completion rate (83%) is high when compared with the average completion rates in online survey studies,[31] which reflects the public interest in this topic during the COVID-19 pandemic.

Nevertheless, limitations need to be considered. An online survey was used to collect the data, which was distributed via online and analogue channels. Thus, the possibility of selection bias needs to be considered. The instruments used to collect data regarding mental health and health status before the COVID-19 outbreak were not validated as no such instruments existed at the time the study was conceptualized and launched. To deal with this, all instruments to assess mental health and health status in the present study were adapted to our research question. Furthermore, the pre period lacks a clear definition what before the outbreak means. Nevertheless, in this retrospective assessment of the individual mental health before 1 of the major changes in the current century, we do not think it is mandatory to define an exact date. In this study design, it

Table 3a. Regression Coefficients Predicting an Increase in Depression Symptoms (PHQ-2).

	ba	SEa	t-value	P-value
Intercept	0.591	0.054	10.871	<.001
Mental illness	0.081	0.027	2.983	.003
COVID-19-related fear	0.046	0.005	9.074	<.001
Trust in government	−0.017	0.007	−2.299	.021
Subjective level of information	−0.088	0.010	−8.802	<.001

Note. Dependent Variable: PHQ-2 (difference between before and after COVID-19 outbreak). Total R^2 = .014, $F(4)$ = 52.886, P < .001, n = 15 067.
aUnstandardized regression coefficients.

Table 3b. Regression Coefficients Predicting an Increase in Generalized Anxiety Symptoms (GAD-2).

	ba	SEa	t-value	P-value
Intercept	0.348	0.062	5.630	<.001
Mental illness	0.009	0.031	0.291	.771
COVID-19-related fear	0.153	0.006	26.368	<.001
Trust in government	−0.038	0.008	−4.702	<.001
Subjective level of information	−0.072	0.011	−6.342	<.001

Note. Dependent Variable: GAD-2 (difference between before and after COVID-19 outbreak). Total R^2 = .050, $F(4)$ = 198.394, P < .001, n = 15 067.
aUnstandardized regression coefficients.

Table 3c. Regression Coefficients Predicting an Increase in Distress (DT).

	ba	SEa	t-value	P-value
Intercept	1.548	0.116	13.363	<.001
Mental illness	−0.013	0.058	−0.226	.821
COVID-19-related fear	0.241	0.011	22.089	<.001
Trust in government	−0.096	0.015	−6.257	<.001
Subjective level of information	−0.204	0.021	−9.631	<.001

Note. Dependent Variable: DT (difference between before and after COVID-19 outbreak). R^2 = .044, $F(4)$ = 173.495, P < .001, n = 15 067.
aUnstandardized regression coefficients.

was important to consider the participants individual feelings of mental health before "the outbreak", which could be the time before more cases in Germany were known or before the closing of the shops, whatever had the most impact on the mental health of the individual. We found it foremost important that the question made clear that the participant needed to recall their mental health. In addition, our results are not based on longitudinal, but on cross-sectional data. The recall-bias should be considered.

Table 3d. Regression Coefficients Predicting a Deterioration in Health Status (EQ-5D-3L).

	ba	SEa	t-value	P-value
Intercept	−2.610	0.603	−4.328	<.001
Mental illness	−1.644	0.301	−5.464	<.001
COVID-19-related fear	−0.505	0.057	−8.901	<.001
Trust in government	0.307	0.080	3.862	<.001
Subjective level of information	0.300	0.111	2.711	0.007

Note. Dependent Variable: EQ-5D-3L (difference between before and after COVID-19 outbreak). Total R^2 = .010, $F(10)$ = 39.939, P < .001, n = 15 067.
aUnstandardized regression coefficients.

However, a more methodologically sophisticated way does not exist due to the sudden onset of the virus outbreak. Last, it is important to consider that determinates of change in mental health are still not clear. Reasons of individual changes in mental health could be broad and different (eg societal shutdowns, masking). It is therefore important not to attributes all of the measured impacts as attributable to "COVID-19." Future work should consider these issue while conceptualizing the instruments.

Conclusion

In conclusion, this study shows the increased mental health burden and deterioration in health status in the German public since the COVID-19 outbreak. Trust in governmental actions to face COVID-19 and the subjective level of information regarding COVID-19 were predictors of a less significant increase in mental health burden. In contrast, increase in depression and anxiety symptoms, distress, and deteriorated health status seem to be influenced by the mental health status, and by COVID-19-related fear. It is important for health care institutions and authorities to address the observed predictors in order to restore as well as maintain mental health during the ongoing pandemic.

Declaration of Conflicting Interests

Funding

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