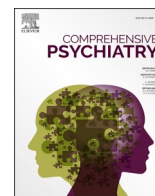




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## Managing the COVID-19 pandemic in people with mental disorders: An exploratory telephone interview study in a psychiatric outpatient department

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### ARTICLE INFO

#### Keywords:

Mental disorder  
Pandemic (COVID-19)  
COVID-19 lockdown  
Psychiatry  
Depressive symptoms  
Medical care provision

### ABSTRACT

**Background:** The COVID-19 pandemic and associated lockdown measures reduced well-being in the general population significantly and led to an increase in anxiety and depression symptoms, however, results on the impact on people with mental disorders are heterogeneous to date. The aim of this study was to investigate the mental health status, social support, perceived stress, and the medical care provision of people with mental disorders during the time period immediately after the first COVID-19 lockdown in spring 2020 in Germany.

**Methods:** Participants were people with mental disorders currently receiving treatment in the psychiatric outpatient department of the University Hospital Leipzig, Germany. Structured telephone interviews were administered to assess depressive symptoms, self-rated medical care provision, attitudes and social and emotional aspects of the pandemic (social support, perceived stress, loneliness, resilience, and agreeableness).

**Results:** A total of  $N = 106$  people completed the telephone interview. The most frequent clinician-rated diagnoses were attention deficit disorder/attention deficit hyperactivity disorder (ADD/ADHD;  $n = 29$ , 27.4%) and obsessive-compulsive disorder (OCD;  $n = 24$ , 22.6%). The mean Patient Health Questionnaire-9 sum score was 10.91 ( $SD = 5.71$ ) and the majority of participants ( $n = 56$ , 52.8%) reported clinically relevant depressive symptoms. A low self-rated medical care provision was significantly associated with higher depressive symptom load. In a regression analysis, higher perceived stress levels and low medical care provision significantly predicted depressive symptoms. Furthermore, 38.1% ( $n = 40$ ) reported to feel relieved as a result of the restrictions and, due to previous experience in dealing with crisis, half of the participants ( $n = 53$ , 50.5%) stated they were better able to deal with the current situation than the general population.

**Conclusions:** This study emphasizes the importance of maintenance of medical care provision for people with mental disorders, as cancelled or postponed treatment appointments and perceived stress were associated with higher depressive symptoms. Regular treatment services showed to have a protective effect. In addition, a majority of people with mental disorders felt prepared for managing the COVID pandemic due to existing crisis management abilities. These resources should also be taken into account for further future treatment considerations.

Trial Registration: German Clinical Trials Register (DRKS00022071).

### 1. Introduction

The COVID-19 pandemic was and still is associated with great uncertainty and far-reaching, governmental limitations such as lockdown, social distancing, and mandatory face mask use for people around the

globe. Burdensome issues are manifold and range from fear of contracting the virus oneself or worrying about relatives, fear of financial losses or loss of the workplace, to the challenges of dealing with a lack of physical contact with family and friends. Symptoms of emotional distress and anxiety can be triggered by public health events, including

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<https://doi.org/10.1016/j.comppsy.2022.152313>

Available online 9 April 2022

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the COVID-19 pandemic, even in healthy people [1]. A recent systematic review showed that the COVID-19 pandemic leads to lower well-being and to an increase in anxiety and depression in the general public [2]. It is not only older people and people with comorbid physical conditions who are at risk of COVID-19. COVID-19 is also more severe and fatal for people with serious mental disorders [3]. Further, the aforementioned pandemic-related measures such as lockdown, social distancing, and mandatory face mask use also have been shown to have an impact on mental health. For the general population in Vietnam, the impact of the COVID-19 pandemic and national social distancing was not only associated with a high rate of household income loss, but also with impairments in some areas of quality of life, so that an increase in anxiety and depression was evident in relation to the comparison sample [4]. In comparison, another study on the psychological effects of the partial lockdown in Vietnam found low prevalences of depression, anxiety, and stress in the population [5]. In addition, a survey of physical and mental health in Poland and China, whose use of face masks differs, found, among other things, increased levels of post-traumatic stress disorder (PTSD) symptoms in both countries [6].

The situation of a pandemic is a new experience for all people, which is associated with many challenges [7]. Community support or social support belong to the determinants of mental health [8]. There is a lot of scientific work that proves the impact of social relationships on health (e.g., [9]). The limitations or even the elimination of this important protective factor as well as quarantine has consequences for the mental health of healthy people [10], but even more so for people with a mental disorder. In quarantine and isolation, a history of mental disorders is associated with an increased risk of negative mental health outcomes [11]. Moreover, even physical symptoms similar to COVID-19 infection are a risk factor for negative mental health consequences [12].

During the first lockdown in Germany (March and April 2020), there were a number of governmental measures to stop the spread of the virus. The measures were comparable to those in other European countries such as UK or Spain. During the lockdown in Germany, contact with other people was reduced to a minimum (i.e., people in the own household, plus one person from another household). Leaving the flat was only allowed for work, shopping for daily necessities, important (medical) appointments and outdoor sports. Only shops for daily needs were open [13].

In addition to the initial restrictions at the time of the lockdown in Germany, the entire health care system was also faced with major challenges (e.g., [14]). Overall, the COVID-19 pandemic has disrupted or stalemated critical mental health services in 93% of countries worldwide. At the same time, demand for mental health services was increasing [15]. In many places, only urgent visits to health care centers were possible, and day clinics and outpatient facilities were closed [16]. Especially for these people, the loss of daily structure can very easily cause crisis situations [17] and a deterioration of symptoms. The importance of these developments in a context of high demand for mental health services is further illustrated by a study conducted during the initial phase of the COVID-19 pandemic with strict lockdown measures in China. In this study, people with mental disorders experienced significantly more PTSD-symptoms, anxiety, depression, stress, and insomnia than healthy controls. In addition, they were significantly more burdened by worries about physical health, anger, impulsivity, and intense suicidal ideation than healthy controls [18].

Another study also found that people who already had a mental disorder before the COVID-19 pandemic reported a worsening of psychiatric symptoms [2]. In contrast, a telephone survey of people with mental disorders at a psychiatric outpatient center in Sweden, found that the majority of participants reported no change in their psychiatric symptoms and a high level of subjective well-being. Only a minority of participants reported to need acute support [19].

Overall, to date, there are only a limited number of studies examining the impact of the COVID-19 pandemic on people with mental disorders compared to studies examining the impact of the COVID-19

pandemic on the general population. Furthermore, the data is very heterogeneous and ranges from moderate consequences with minor symptom exacerbations (e.g., [20,21]) to symptom exacerbations in about 50% of the respondents with mental disorders (e.g., [22,23]).

The aim of this study was to investigate the attitudes, mental health status, perceived burdens, and the medical care situation of people with mental disorders during the COVID 19 pandemic lockdown in March and April 2020 in Germany in a telephone interview study. In addition, the association between barriers in receiving medical care provision and depressive symptoms as well as potential predictors of depressive symptoms were examined.

Based on existing studies, it was hypothesized that lower medical care provision, lower social support, a higher perceived stress level, lower resilience, and higher perceived loneliness in the time period immediately after the lockdown would be associated with higher levels of depressive symptoms. Further potential predictors of depressive symptoms will be investigated exploratively.

Since it is known that major depression is associated with significant difficulties in accessing primary care [24], that people with mental disorders experience higher stress levels than people without mental disorders during the COVID-19 pandemic [18], and also during the lockdown in the general population loneliness is correlated with depression [25], we included these variables in our statistical analysis. Furthermore, as a large number of studies exist that show in different samples that loneliness is a risk factor for depressive symptoms, while resilience and social support have a protective effect (e.g., [26]), we included these variables in the analysis as well.

## 2. Methods

### 2.1. Participants and procedure

The telephone survey was conducted with  $N = 106$  participants between June 12 and September 4, 2020 by two independent trained psychologists. Inclusion criteria were: age of 18 years or older; meeting diagnostic criteria for any psychiatric disorder and currently receiving treatment at the psychiatric outpatient department of the University Hospital Leipzig, Germany; sufficient knowledge of the German language; adequate ability to hear and speak; and availability for a telephone call. There were no exclusion criteria defined.

A total of  $n = 276$  people who were being treated for mental disorders at the psychiatric outpatient department of the University Hospital Leipzig at the time of the telephone interviews were contacted. The participants were selected from the internal database of the psychiatric outpatient department, according to the specialized area in which they were treated, in order to cover as broad a spectrum of diagnoses as possible with the interviews. The outpatient department comprises five specialized areas in which people with mental disorders are being treated depending on their diagnosis (i. e., affective disorders, anxiety and obsessive-compulsive disorders, schizophrenia, attention deficit disorders/attention deficit hyperactivity disorders, general). During the recruitment period, people with mental disorders from each specialized area who had an appointment on the respective recruitment day were contacted. This process was repeated several times during the recruitment period in order to recruit participants from all specialized areas. Of the  $n = 276$  persons contacted,  $n = 110$  (39.9%) could not be reached by telephone,  $n = 45$  (16.3%) declined to participate in the telephone interviews, and  $n = 15$  (5.4%) were interested but still did not participate in the interviews. In total,  $n = 106$  (38.4%) people participated in the telephone interviews.

The two most frequently mentioned reasons for refusing to participate (multiple answers possible) were lack of interest in the telephone interview ( $n = 18$ ) and lack of time or the duration of the interview ( $n = 9$ ).

Informed consent from all participants was recorded via telephone prior to the interview. The study was approved by the Ethical Committee

of the Medical Faculty, Leipzig University (May 19, 2020, 234/20-ek) and was registered at the German Clinical Trials Register (DRKS00022071). The telephone interview was fully structured and all answers were simultaneously entered into an online questionnaire (survey tool by Questback) by the interviewing psychologist.

At the University Medical Center Leipzig, Germany, psychiatric outpatient contacts were kept to a minimum and carried out via telephone if possible. Outpatient group therapies could no longer take place, resulting in a loss of a day-structuring and therapeutic support for many people with mental disorders. At the time of the interviews, there were still several lockdown measures such as restricting or banning group events, hygiene measures such as wearing a face mask, social distancing, and quarantine for contact persons.

## 2.2. Measures

All participants were asked for sociodemographic information (age, gender, marital status, being parent, residential status, educational level, migration status), and psychiatric diagnosis. Psychiatric diagnosis was self-reported based on the diagnosis or diagnoses the person was currently receiving treatment for. In addition, the main clinician-rated diagnosis for which participants received treatment was used. The diagnostic procedure was based on the applicable guidelines (e.g., [27–29]), which require, for example, a comprehensive exploration and anamnesis, psychopathological assessment, exclusion of organic causes and the use of standardised structured interviews. Furthermore, the following measures were included in the structured telephone interview:

### 2.2.1. COVID-19 pandemic and lockdown: Attitudes, restrictions, and self-rated medical care provision

Items from an existing questionnaire from a cohort study were used for the interview and adapted to the pandemic and lockdown situation [30].

Participants were asked about their attitudes towards the COVID-19 pandemic and the associated government restrictions and their individual affectedness by the pandemic and the restrictions (e.g., restrictions in lifestyle aspects such as healthy eating, physical activities and social activities).

Furthermore, self-reported medical care provision (general practitioner, psychiatrist, psychotherapist, psychiatric outpatient department) within the last three months was assessed, including cancelled appointments and changes in treatment that had taken place. In addition, there were few open-ended questions in which participants were asked about positive and negative aspects of the pandemic.

Participants were also asked if they knew people who had been infected with the coronavirus or were in quarantine, and if they themselves had COVID-19 at the time of the interview.

### 2.2.2. Depressive symptoms

The Patient Health Questionnaire-9 (PHQ-9; [31]) was used to assess depressive symptoms during the last 14 days on a 4-point Likert scale from 0 = „not at all“ to 3 = „nearly every day“. Higher sum scores indicated more severe depressive symptoms.

### 2.2.3. Social and emotional aspects of the COVID-19 pandemic and lockdown

The German adaptation of the Enriched Social Support Inventory (ESSI; [32]) was administered to measure the perceived social support on a 5-point Likert scale from 1 = “none of the time” to 5 = “all of the time”. Higher sum scores indicate a higher level of social support. According to the English original version of the ESSI, low social support is defined as scores  $\leq 18$ , if at least two items are answered with  $\leq 3$  [33].

A German adaptation of the UCLA 3-Item loneliness scale (UCLA-3-LS; [34]) was used to assess subjectively perceived loneliness and social isolation on a 3-point Likert scale from 1 = “hardly ever” to 3 = “often”. Higher sum scores indicate a subjectively higher level of loneliness.

The Brief Resilience Scale (BRS; [35]) was used to measure the mental resistance to overcome challenges with the help of individual resources (resilience) on a 5-point Likert scale from 1 = “strongly disagree” to 5 = “agree”. A total sum score is calculated and higher values indicate more resilience.

The Perceived Stress Scale 4 (PSS-4; [36]) was used to assess the individual’s perceived stress level over the last month on a 5-point Likert scale from 0 = “never” to 4 = “very often”. A mean score is calculated, with higher scores indicating a higher subjective stress level.

An excerpt from the German version of the Big Five Inventory 2 (BFI-2; [37]) was used to assess agreeableness, one of the five dimensions of personality, on a 5-point Likert scale from 1 = “disagree strongly” to 5 = “agree strongly”. Higher values indicating more agreeableness, i.e., a tendency to be good-natured, cooperative and compliant [38].

## 2.3. Statistical analysis

Statistical analyses were performed using IBM SPSS Statistics version 26.0. A two-tailed  $\alpha = 0.05$  was applied to statistical testing.

First, descriptive statistics of the total sample were calculated. The mean duration of the telephone interviews was 49.18 ( $SD = 24.65$ ) minutes. All participants were included in the statistical analysis, there were no drop-outs. Due to one missing value, the analysis of the attitudes towards the COVID-19 pandemic was calculated with a sample size of  $n = 105$ .

A one-way ANOVA with post-hoc-analysis was performed to compare three defined groups of self-rated medical care provision regarding their levels of depressive symptoms (PHQ-9 sum score). The three groups were: no difficulties in obtaining medical care provision; small difficulties in obtaining medical care provision; medium to strong difficulties in obtaining medical care provision/no medical care provision.

An exploratory multiple linear regression analysis was calculated to investigate potential predictors (gender, age, educational level, marital status, residential status, being parent, self-rated medical care provision, clinician-rated diagnosis, psychiatric comorbidity status, perceived stress [PSS-4 sum score], social support [ESSI sum score], loneliness [UCLA-3-LS sum score], and resilience [BRS sum score]) of depressive symptomatology (PHQ-9 sum score). Categorical variables with more than two categories were dichotomized (educational level, marital status, residential status, being parent, and psychiatric comorbidity status) and dummy variables were coded (self-rated medical care provision: no difficulties in obtaining medical care provision, small difficulties in obtaining medical care provision, medium to strong difficulties in obtaining medical care provision/no medical care provision; clinician-rated diagnosis: attention deficit disorder/attention deficit hyperactivity disorder [ADD/ADHD], obsessive-compulsive disorder [OCD], anxiety disorder, bipolar depression, unipolar depression, schizophrenia and delusional disorder, personality disorder, schizoaffective disorder, eating disorder, post-traumatic stress disorder [PTSD], other). For self-rated medical care provision, the same categories were used in the multiple linear regression analysis as in the ANOVA. All predictor variables were entered into the model simultaneously. Data was checked for outliers. Dependent and independent variables were normally distributed, normal distribution of the residuals was given. Homoscedasticity could be assumed and multicollinearity was not given (Variation Inflation Factor [VIF]  $\leq 10$ ; correlation matrix check,  $r \leq 0.85$ ). Due to its exploratory nature, the regression analysis was calculated despite the small sample size and the resulting low power. All effect sizes were interpreted as suggested by Cohen [39].

## 3. Results

### 3.1. Sample characteristics

Overall,  $N = 106$  participants (female:  $n = 58$  [54.7%]; male:  $n = 48$

[45.3%]; see Table 1) of the psychiatric outpatient department of the University Hospital Leipzig, Germany, took part in the telephone interview. The age of the participants ranged between 20 and 78 years ( $M = 39.49$ ,  $SD = 13.30$ ). The most frequent clinician-rated diagnoses (main diagnosis) were ADD/ADHD ( $n = 29$ ), OCD ( $n = 24$ ), and anxiety disorder ( $n = 11$ ). The most frequently self-reported diagnoses (multiple choice) were unipolar depression ( $n = 48$ ), ADD/ADHD ( $n = 30$ ), OCD ( $n = 26$ ), and anxiety disorder ( $n = 23$ ).

### 3.2. Medical care provision

About half of the participants ( $n = 51$ , 48.1%) reported that they were able to keep appointments with their general practitioner in the time period immediately after lockdown and that there were no changes due to the pandemic. The same held true for unchanged appointments with a psychiatrist ( $n = 44$ , 41.5%), a psychotherapist ( $n = 27$ , 25.5%), and for appointments in the psychiatric outpatient department ( $n = 47$ , 44.3%).

Overall, nearly half of the participants ( $n = 50$ , 47.6%) reported no difficulties receiving medical care provision during lockdown. Small difficulties were reported by 33.3% ( $n = 35$ ) and medium to strong difficulties or not having received medical care provision at all (because all planned treatments were postponed) was stated by 19.1% ( $n = 20$ ).

A one-way ANOVA was performed to compare the three groups of self-rated medical care provision regarding their levels of depressive symptoms (PHQ-9). The level of reported depressive symptoms differed significantly between the three groups,  $F(2,102) = 4.291$ ,  $p = .016$ ,  $\eta^2 = 0.121$ . The post-hoc-analysis revealed significantly lower levels of depressive symptoms ( $p = .014$ ) in the group with no difficulties in obtaining medical care provision ( $M = 9.80$ ,  $SD = 5.15$ ) than in the group reporting medium to strong difficulties or not having received medical care provision ( $M = 14.0$ ,  $SD = 5.83$ ).

### 3.3. Attitudes of people with mental disorders towards the COVID-19 pandemic

No participant reported to be infected with or to have recovered from the coronavirus at the time of the interview. Of all interviewed participants,  $n = 4$  (3.8%) were not sure if they were infected with the coronavirus at the time of the interview. Of all respondents,  $n = 79$  (74.5%) said they did not know anyone who had been infected with the coronavirus, and  $n = 7$  (6.6%) knew people in their own household or family who had been infected.

None of the participants was in quarantine because of the coronavirus at the time of the interview and  $n = 88$  (83.0%) stated that they did not know anyone who was in quarantine because of the coronavirus. Of the participants  $n = 4$  (3.8%) answered that they knew someone in their own household or family who was in quarantine.

More than half of the participants ( $n = 65$ , 61.9%) reported to be worried or very much worried about the virus. The vast majority of the sample ( $n = 90$ , 85.7%) reported to support the government measures mainly or entirely and 82.9% ( $n = 87$ ) felt that the government measures taken were appropriate and not excessive. The majority of the interviewed ( $n = 84$ , 80%) stated that people with mental disorders are particularly affected by the corona crisis. About three quarters ( $n = 78$ , 74.3%) of participants stated that people with a mental disorder are particularly affected by government measures to contain the crisis. An increase in individual problems as a result of the restrictions was indicated by about half ( $n = 54$ , 51.4%) of the participants. In contrast, 38.1% ( $n = 40$ ) of the interviewed reported a feel of relief as a result of the restrictions. Due to previous experience in dealing with crisis, half of the participants ( $n = 53$ , 50.5%) stated they were better able to deal with the current situation than the general population.

The pandemic and the associated restrictions did not affect the healthy diet of 75.5% ( $n = 80$ ) and the physical activities of 39.6% ( $n = 42$ ) of the participants. Due to pandemic and existing measures, 37.7%

**Table 1**  
Sample Characteristics.

N = 106	
Gender [n (%)]	
Female	58 (54.7)
Male	48 (45.3)
Age [M (SD); years]	39.49 (13.30)
Educational level [n (%)]	
Lower secondary education (or lower)	36 (34)
Upper secondary education (or comparable)	70 (66)
Marital status [n (%)]	
Married	30 (28.3)
Not married	76 (71.7)
Residential status [n (%)]	
Not alone	66 (62.3)
Alone	40 (37.7)
With children	24 (22.6)
Without children	82 (77.4)
Migration [n (%)]	
Self	8 (7.5)
Parents	4 (3.8)
Being Parent [n (%)]	
Yes	43 (40.6)
Children: 6–18 years	23 (21.7)
Children <6 years	11 (10.4)
Self-rated medical care provision* [n (%)]	
No difficulties	50 (47.6)
Smaller difficulties	35 (33.3)
Medium difficulties	12 (11.4)
Strong difficulties	3 (2.9)
No medical care	5 (4.8)
Psychiatric comorbidity status** [n (%)]	
Yes	52 (50)
No	52 (50)
Mental disorder, clinician-rated diagnosis [n (%); main diagnosis]	
ADD/ADHD	29 (27.4)
OCD	24 (22.6)
Anxiety disorder	11 (10.4)
Bipolar depression	10 (9.4)
Unipolar depression	9 (8.5)
Schizophrenia and delusional disorder	9 (8.5)
Personality disorder	4 (3.8)
Schizoaffective disorder	3 (2.8)
Eating disorder	2 (1.9)
PTSD	2 (1.9)
Other	3 (2.8)
Mental disorder, self-report [n (%); multiple choice]	
Unipolar depression	48 (45.3)
Bipolar depression	12 (11.3)
Anxiety disorder	23 (21.7)
OCD	26 (24.5)
Personality disorder	10 (9.4)
ADD/ADHD	30 (28.3)
Schizophrenia	6 (5.7)
Eating disorder	3 (2.8)
PTSD	3 (2.8)
Schizoaffective disorder	3 (2.8)
Other	14 (13.2)
Depressive Symptoms [PHQ-9; M (SD)]	10.91 (5.71)
Perceived Stress [PSS-4; M (SD)]	8.35 (3.42)
Social Support [ESSI; M (SD)]**	20.87 (3.98)
Loneliness [UCLA-3-LS; M (SD)]**	5.29 (1.97)
Resilience [BRS; M (SD)]**	2.73 (0.93)
Agreeableness [BFI-2; M (SD)]**	3.85 (0.49)

Note. PHQ = Patient Health Questionnaire-9 sum score, Perceived Stress = Perceived Stress Scale-4 sum score, Social Support = ENRICHED Social Support Inventory sum score, Loneliness = University of California Los Angeles Loneliness Scale sum score, Resilience = Brief Resilience Scale sum score, Agreeableness = excerpt from the German version of the Big Five Inventory 2; OCD = obsessive-compulsive disorder; ADD/ADHD = attention deficit disorder/attention deficit hyperactivity disorder; PTSD = post-traumatic stress disorder.

\* Sample size  $n = 105$  due to missing data.

\*\* Sample size  $n = 104$  due to missing data.

(n = 40) of people with mental disorders felt strongly or very strongly and 46.2% (n = 49) moderately to slightly restricted in their social activities.

The positive effects of the pandemic and related measures most frequently mentioned by the participants were deceleration and more calm (in social contacts; fewer people out in public, etc.; n = 30, 28.3%). Another positive impact mentioned by the participants was more flexibility in arranging various duties due to new freedoms (e.g., home office; n = 27, 25.5%).

### 3.4. Prediction of depressive symptoms

An exploratory multiple linear regression analysis examined predictors of depressive symptoms (see Table 2). The R<sup>2</sup> for the overall model was 0.59, F(23, 74) = 4.6, p < .001. Higher perceived stress levels as measured by the PSS-4 (p < .001), and self-reported medium to strong difficulties or not having received medical care provision (p = .011) significantly predicted higher levels of depressive symptoms, while all other variables did not show significant predictive effects (all p > .05).

## 4. Discussion

This study provides a unique insight into the attitudes, self-rated medical care provision, and predictors of depressive symptoms of 106 people with mental disorders in a psychiatric outpatient department of a German University Hospital in the time period immediately after the first lockdown during the COVID-19 pandemic.

Regarding attitudes towards the pandemic, the results show that despite all the implications and challenges associated with government measures, there was strong support for these measures to contain the virus among the participants. The analyses indicated that people with mental disorders reporting medium to strong difficulties in obtaining medical care provision or not having received medical care provision during the COVID-19 pandemic were significantly more affected by depressive symptoms than people with mental disorders who had no difficulties receiving medical care provision. Further, the perceived

stress level and medium to strong difficulties or not having received medical care provision were identified as significantly predicting depressive symptoms.

The results show that people with mental disorders are affected by the COVID-19 pandemic and government measures and the pandemic poses new challenges to those affected and to the (mental) health care system in general.

### 4.1. Attitudes of people with mental disorders towards the COVID-19 pandemic

The majority of people with mental disorders expressed concern about the virus. Although about three quarters of participants indicated that they are particularly affected by pandemic government measures, there was strong support for these measures to contain the virus, despite the impact on personal life. The fact that at the same time some of the participants reported a feeling of relief due to the restrictions may be related to the type of mental disorder. It is possible that people with a bipolar disorder and in manic phases, but also with addictive disorders suffer more from the loss of daily structure and leisure activities, whereas people with social phobia or obsessive-compulsive disorder might initially benefit from some of the restrictions. Interestingly, half of the participants viewed themselves as better at crisis management than the general population due to their crisis experiences. Thus, a resource of the group of people with mental disorders becomes visible here. It was also possible to show another resource. Despite all the restrictions and hardships, about a quarter of the participants can also recognize positive effects of the pandemic and experience more slowing down and more flexibility in organizing their daily lives. It is important to take these resources into account in future treatment considerations.

### 4.2. Medical care provision

The importance of medical care for people with a mental disorder, even in times of a pandemic, is made clear by the available data. In this study it was shown that people with mental disorders who had no

**Table 2**  
Multiple regression analysis for predictors of PHQ-9 sum score (n = 98).

Variable	Unstan-dardized B	SE B	Standar-dized β	95% Confidence Interval (CI)		t	p
Gender	1.26	1.02	0.11	-0.77	3.30	1.24	0.219
Age	-0.02	0.05	-0.03	-0.12	0.09	-0.28	0.783
Educational level	-1.06	1.09	-0.09	-3.22	1.11	-0.97	0.333
Marital status	-0.21	1.39	-0.00	-2.78	2.74	-0.02	0.988
Residential status	-0.37	1.12	-0.03	-2.60	1.86	-0.33	0.742
Being parent	-2.03	1.13	-0.18	-4.33	0.16	-1.85	0.068
Self-rated medical care provision*	0.05	1.03	0.01	-2.00	2.10	0.05	0.960
Self-rated medical care provision**	3.65	1.39	0.27	0.88	6.41	2.62	0.011
Main diagnosis							
OCD	-1.16	1.37	-0.09	-3.89	1.57	-0.85	0.398
Anxiety disorder	-0.62	1.63	-0.04	-3.86	2.63	-0.38	0.705
Bipolar depression	2.82	1.79	0.16	-0.75	6.39	1.58	0.119
Unipolar depression	3.28	1.90	0.17	-0.50	7.06	1.73	0.088
Schizophrenia and delusional disorder	-1.31	1.95	-0.07	-5.18	2.57	-0.67	0.504
Personality disorder	3.82	2.55	0.14	-1.26	8.89	1.50	0.138
Schizoaffective disorder	-2.82	2.61	-0.09	-8.02	2.39	-1.08	0.284
Eating disorder	5.36	3.43	0.14	-1.48	12.20	1.56	0.123
PTSD	-0.95	3.34	-0.02	-7.62	5.71	-0.29	0.776
Other	-1.46	2.77	-0.05	-6.97	4.06	-0.53	0.600
Psychiatric comorbidity status	1.94	1.08	0.18	-0.21	4.09	1.79	0.077
Perceived stress (PSS-4)	0.86	0.17	0.54	0.53	1.19	5.18	<0.001
Social support (ESSI)	-0.04	0.13	-0.03	-0.29	0.21	-0.32	0.750
Loneliness (UCLA-3-LS)	-0.15	0.28	-0.06	-0.71	0.41	-0.55	0.587
Resilience (BRS)	0.28	0.63	0.05	-0.98	1.53	0.44	0.664
F	4.60						
R <sup>2</sup> (R <sup>2</sup> adjusted)	0.59 (0.46)						
p	< 0.001						

Note. Perceived Stress = Perceived Stress Scale-4 sum score, Social Support = ENRICHED Social Support Inventory sum score, Loneliness = University of California Los Angeles Loneliness Scale sum score, Resilience = Brief Resilience Scale sum score, \* no difficulties, \*\* medium to strong difficulties/no medical care provision.

difficulties getting medical care provision during the lockdown had lower levels of depressive symptoms than people who had moderate to strong difficulties or did not receive medical care provision due to cancellation and postponement of appointments. In line with that finding, self-reported moderate to strong difficulties receiving medical care provision or not having received medical care provision were identified as predicting depressive symptoms, even after controlling for possible confounding effects of sociodemographic and clinical variables.

This is an important finding, as depressive symptoms do not only occur in the context of affective disorders. They occur in the context of a variety of mental disorders and, in addition to a general deterioration in mental health, are also found in a large proportion of the general population under conditions of a pandemic and lockdown (see [40–42]), as well as in subgroups such as university students [43]. Stable treatment seems to be of central importance across all mental disorders in order to prevent the development or increase of depressive symptoms.

An important task fulfilled by the psychiatric treatment appointments and the diverse offers of a psychiatric institutional outpatient clinic is its day structuring function. Many day-structuring activities such as occupational activity or social contacts may be limited or non-existent in people with mental disorders. Treatment has several important functions here. People with mental disorders have fewer social contacts than people without mental disorders. More than half of the people with a severe mental disorder are lonely [44].

Individual and group therapy services represent an important therapeutic support for people with mental disorders and are also associated with a major day-structuring function [17]. Moreover, people with mental disorders are often unable to work due to their disorder. In Germany, from 2000 to 2019, there was a 137% increase in days absent from work due to mental disorder [45].

Treatment is multimodal and includes many other aspects besides medication and psychotherapy. The structural and social components of treatment are also central for people with mental disorders. People with mental disorders, who have often been using these offers for many years, benefit from the direct contacts, which were however largely affected by the structural changes due to pandemic measures. This led to a destabilization of the people with mental disorders whose medical care was affected by major changes. The present study shows that medical care and its limitations are decisively linked to the health status of the people with mental disorders. This illustrates the importance of providing secure medical care and is in line with the conclusions of Winkler et al. [46], who emphasize the importance of therapeutic offers (as far as hygiene regulations and contact restrictions allow) and active contact with people with mental disorders during pandemic restrictions.

To counteract the possible spread of COVID-19 that can result from face-to-face contacts and therapies, various hospitals have started to introduce online psychotherapy [47]. This is another way to meet the need for care. Cognitive behavioural therapy is often considered the gold standard in psychotherapy (e.g., [48]) and generally has a very strong evidence base (e.g., [49]). Internet-delivered cognitive behaviour therapy (ICBT) is evidence-based for a variety of psychiatric problems, and an individually adapted ICBT has shown promising results for the treatment of psychiatric problems related to the COVID-19 pandemic [50]. There are many possible applications and only recently a meta-analysis provided strong evidence for the effectiveness of digital cognitive behavioural therapy for insomnia (CBT-I) [51]. In addition, there is evidence that internet-based cognitive-behavioural therapy may be equivalent or even superior to other treatment options in terms of cost-effectiveness (e.g., [52–54]).

#### 4.3. Perceived social support and stress level

Perceived stress level was identified as a predictor of higher levels of depressive symptoms. People with a mental disorder who perceive more stress are more affected by depressive symptoms than people with less perceived stress. This result does not seem surprising at first sight. A

recent systematic review [2] revealed that the COVID-19 pandemic leads to lower well-being and to an increase in anxiety and depression in the general population. The majority of people suffer from fears, uncertainty, social distance, loneliness, threatening news, and the effects of political measures [14]. In addition, there are various stressors, such as home office and homeschooling, and, there is no perspective on how long the pandemic will last, which is an additional stress factor. For people already suffering from a mental disorder, these destabilizing factors add to a pre-existing burden and can contribute to a deterioration of pre-existing symptoms. In line with these results, a study in Italy from April 2020 indicates that people with a severe mental disorder were more affected (higher levels of COVID-19-related stress, anxiety and depressive symptoms) than non-psychiatric participants [55]. Against the backdrop of all these burdens, the changes in the health system due to pandemic restrictions are once again coming into sharper focus [14]. When in times of increased stress, treatment appointments are postponed or therapies are cancelled, this can cause additional stress and exacerbate the symptoms. This is a downward spiral that could be mitigated or stopped by various services such as, regular telephone or online/Video contacts [56].

No other variables, including social support, predicted depressive symptoms in this study. This is an interesting finding, as social support is an important protective factor for mental health (e.g., [57]). Especially in times of the COVID-19 pandemic, which is associated with challenges such as childcare, home schooling, home office, and contact restrictions, social support should be very important. In line with that, an online survey of people who were in social isolation or social distancing during the COVID-19 pandemic showed an inverse relationship between social support and depression [58]. In the present study, people with many different mental disorders reflecting the sample of outpatients were interviewed. It is possible that the importance of social support varies depending on the disorder and thus might influence the result found. For example, research shows that a deficit in social support might be of greater importance for people with depressive disorders than for people with psychoses [59]. Moreover, it was shown that the impact of social support on the development of mental disorders after life events varies depending on the specific disorder. Specifically, social support from friends or family was associated with a lower likelihood of suffering from panic disorder and psychological distress after certain life events [60]. In contrast, almost no direct or buffering effect of social support was found for other mental disorders, specifically, major depressive disorder, generalized anxiety disorder, and alcohol abuse or dependence [60].

#### 4.4. Implications for the health care system

In light of the low number of studies investigating the effects of the pandemic on people with mental disorders our results provide unique insights into the attitudes and self-rated medical care provision of people with mental disorders who are treated in a psychiatric outpatient department. To date, there are only a limited number of studies looking at the impact of the COVID-19 pandemic on people with mental disorders, especially those receiving outpatient treatment, and data is heterogeneous. Especially in psychiatric outpatients, the continuation of treatment is very important, not only because of the day structuring effects of regular appointments, but also to prevent symptom exacerbations up to inpatient stays.

The present results highlight the importance of maintaining stable treatment, especially during a dynamic pandemic situation and rapidly changing measures. The health care system needs to adapt to these new demands in order to adequately address the needs of those affected. The field of e-mental health is of central importance here. This is also illustrated by studies and current research [61–65]. Acceptance by professionals and users is increasing and e-health offerings are becoming more diverse. For example, the use of digital mental health tools in the United States increased largely in the early stages of the COVID-19

pandemic. At the same time, with the increased use of these services, additional efforts are required to ensure the quality of the services [66]. Further efforts to ensure quality in increasing services and to implement evidence-based services are needed, as well as further research on the conditions under which people with mental disorders can best benefit from changed therapy conditions.

#### 4.5. Strengths and limitations

Main strengths of this study are the large sample size and the use of fully structured interviews including validated questionnaires. Interviewing people with mental disorders can be difficult. Depending on the disorder(s), various burdens ranging from concentration problems to mistrust can occur and make a survey difficult. Data collection with personal structured interviews is a more elaborate survey method than a questionnaire. The fact that the participants were already in treatment at the outpatient clinic might have made it easier for them to open up to the interviewer than it would have been with a questionnaire. In addition, the feedback from the interviewed was mostly positive, despite the length of the interviews. The interest in the opinion and condition of people with mental disorders during the pandemic and the perceived importance of the topic were just some of the positive feedback repeatedly expressed by the participants. Further, the study provides insights into the medical care situation and the well-being of a burdened group under the special conditions of a pandemic and lockdown. Another limitation is that not all patients being treated in the outpatient department were contacted for study participation. However, the recruitment followed a systematic approach and just under 40% of the people contacted took part in the interviews, which is a relevant proportion, nevertheless, selection bias cannot be ruled out. Another limitation must be taken into account with regard to the explorative multiple linear regression analysis. Due to the sample size and the number of predictors, the results are to be considered with reservations. However, since it is an explorative analysis, it also provides interesting starting points for further studies and the classification of the results.

Another limitation is that the interviews took place in the period immediately after the lockdown and making retrospective statements is always associated with certain biases. The respondent sample is very heterogeneous, which is also related to the heterogeneity of mental disorders. This is both a strength and a limitation. The impact of the COVID-19 pandemic and the lockdown can have different effects depending on the disorder. At the same time, a psychiatric outpatient clinic is a contact point for people with all mental disorders and tries to reflect everyday clinical life. There is also a lack of data to compare the situation of people with mental disorders during the lockdown with the time before the lockdown. Further interviews during the lockdown would be helpful to provide important insights into how people with mental disorders experience the further course of the pandemic and how quickly and successfully new forms of treatment can be integrated into the health system.

Given the ongoing of the COVID-19 pandemic and the progress that has been made in vaccine development and use, it would be interesting in follow-up studies to also investigate the attitudes of people with mental disorders towards COVID-19 vaccines (see e.g. [67]), which may be helpful in considering this vulnerable group in further vaccination campaigns.

## 5. Conclusion

Overall, it can be summarized that people with mental disorders of this sample are burdened by the COVID-19 pandemic and the restrictions during and after the first lockdown. This emphasizes the importance of continuing treatment, even during a lockdown.

To date, there is only a limited number of studies focusing on the impact of the pandemic and its limitations on the mental health of people with mental disorders and data remains heterogeneous.

Many people who have a mental disorder do not seek appropriate medical treatment. The stigma of a mental disorder is often discussed as a cause here [68]. The participants in these interviews have overcome this hurdle, as have many other people with mental disorders. It is therefore very important to take their needs into account when discussing new pandemic measures. A special focus should also be given to the fact that every second participant felt better prepared for dealing with a crisis than the general population due to personal experience with former mental health crisis.

Treatment should be accessible and available in a timely manner, while adhering to the hygiene concept (e.g., outside walks, activities in nature). Psychiatric interviews for diagnostic assessments and treatment recommendations conducted via videoconferencing can be comparable to face-to-face contacts in their effectiveness in improving health outcomes [69]. Therefore practitioners should also use and establish this form of contact (e.g., by telephone or video). Of course, this requires time and personnel capacities; in consequence, the outpatient psychiatric sector should also be increased in personnel in times of a pandemic. Especially as it has been observed that a large number of those affected benefited from an increase in the frequency and intensity of therapeutic talks and could be stabilized as a result [46]. Taking into account the special conditions during a pandemic, telephone contacts, home treatment, and online therapy are possible options. Further research is urgently needed to ensure psychiatric care provision for people with mental disorders under continuing restrictions, including new e-mental health treatment approaches in routine care like online therapy or chat groups. The transition from research into routine treatment needs to be urgently accelerated.

#### Funding sources

This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sector.

#### Ethics approval and consent to participate

The research project was approved by the Ethical Committee at the Medical Faculty, Leipzig University (19th May 2020, 234/20-ek). The study was registered at the German Clinical Trials Register (DRKS00022071). Informed consent has been obtained from all participants and had been recorded via telephone prior to the interview. All methods were carried out in accordance with relevant guidelines and regulations.

#### Availability of data and materials

The datasets used and/or analyzed during the current study are available from the corresponding author on reasonable request.

#### Authors' contributions

LK, GS, and CR-K designed the study. LK, SB and RM performed the interviews and the statistical analysis. LK, EK, SB, RM, GS, and CR-K discussed the results and contributed to the final manuscript. All authors have approved the final manuscript.

#### Declaration of Competing Interest

None.

#### Acknowledgements

We acknowledge support from Leipzig University for Open Access Publishing.

We acknowledge support from Nicola Vivienne Glumann, M.Sc. for her contribution to the statistical analysis.



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