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ORIGINAL ARTICLE

Depression, Anxiety, and Phobia of COVID-19 in Post-stroke Patients during COVID-19 Pandemic

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Abstract

Introduction: This study aimed to assess depression, anxiety, and coronaphobia in post-stroke patients and to explore the potential influencing factors.

Methods: The study included patients aged ≥18 years who had a clinical diagnosis of stroke with a mini-mental state examination score ≥24 and were able to communicate in Turkish on the telephone. Coronaphobia was assessed with the COVID-19 phobia scale (CP19-S), while anxiety and depression were evaluated with the hospital anxiety and depression scale (HADS).

Results: The HADS scores showed that 45.5% of patients had a severe risk for depression while 19.5% had a severe risk for anxiety. According to the results of binary logistic regression analysis, risk factors for depression are anxiety and coronaphobia. Multiple linear regression analysis indicated that Barthel index levels and anxiety were found to predict coronaphobia, while depression and coronaphobia were found to predict anxiety.

Discussion and Conclusion: Post-stroke patients, particularly younger, physically independent or partially dependent, and unemployed patients, are psychologically affected by the COVID-19 pandemic. Early detection of psychological problems and their risk factors might help predict long-term outcomes and could pioneer early interventions of rehabilitation treatment strategies; it may also contribute to the protection of mental health.

Keywords: Anxiety; Coronaphobia; COVID-19; Depression; Post-stroke.

The current new coronavirus disease 2019 (COVID-19) outbreak has brought physical, psychological, social, and economic challenges. The first case was detected on March 11 in Türkiye. Since then, the anxiety caused by the disease has led to the depletion of alcohol, cologne, and mask stocks in the country. Such critical events may affect the mental health of society. There are studies showing that mental health problems were seen during the COVID-19 pandemics[1,2]. It has been reported that generalized anxiety disorder (GAD) and depressive symptoms were more common in young individuals compared to the elderly, and sleep problems were more common in healthcare workers during the COVID-19 pandemic[1]. A recent systematic review and meta-analysis reported a 32% prevalence of anxiety and a 34% prevalence of depression in the general population[3].

The pandemic also triggers fear of being infected with COVID-19. The American Psychiatric Association (APA)

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defined specific phobia as an intense and irrational fear of a specified object or situation. Based on the definition and classification, coronaphobia may be defined as a persistent and extreme fear of the coronavirus, which can be classified as a particular type of the DSM-V specific phobia. Individuals with specific phobias are at increased risk for the development of other mental disorders and are reported to have other anxiety disorders, mood disorders (such as major depression, bipolar disorder, dysthymia), pain disorder, eating disorder, substance-related disorders, personality disorders, somatic symptom, and related disorders[4].

People with chronic illnesses and previous psychiatric illnesses had higher anxiety and depression prevalence during the pandemic[5]. We also know depression and anxiety are important mental health issues in post-stroke patients. Post-stroke depression (PSD) affects one-third of patients[6,7]. Post-stroke anxiety (PSA) prevalence rates range from 9.8% to 29.3%[6,8]. It has been indicated significant correlations between depression and anxiety in the post-stroke period and lifetime[7]. Clinical studies have revealed that PSD has a negative impact on the rehabilitation and recuperation of motor and cognitive deficits following a stroke and significantly increases the likelihood of relapse of neurovascular events[9]. Studies on PSD showed that past psychiatric history, pre-morbid neurotic personality traits, social isolation[10], history of depression before stroke, disability after stroke, cognitive impairment, stroke severity, lack of social or family support, and anxiety were the risk factors[11]. In a prospective study showing the impact of the COVID-19 pandemic on the rates of PSD and PSA, it was observed PSA rates were higher than the normal period[12]. Results of another study suggest that the level of anxiety and depressive symptoms increased in elderly individuals who are socially isolated and have insufficient social support[13].

This patient population, who already spent most of their time at home, has become dependent on home completely and socially isolated due to the precautions required by the pandemic. Based on the above-mentioned evidence, depression, anxiety, and phobia of COVID-19 may increase in post-stroke patients due to being in the risky group and measures taken against the COVID-19 pandemic. To the best of our knowledge, no previous studies have investigated the psychological state in chronic post-stroke patients during the COVID-19 pandemic. Therefore, we aimed to evaluate the depression, anxiety, and phobia of COVID-19 in post-stroke patients and potential influencing factors during the pandemic.

Materials and Methods

We screened post-stroke patients who were followed in the stroke outpatient clinic of the Physical Medicine and Rehabilitation Department of Fatih Sultan Mehmet Research and Training Hospital. We included patients who (1) were aged ≥18 years, (2) had a clinical diagnosis of stroke, (3) had a mini-mental state examination (MMSE) score ≥24, and (4) were able to communicate in Turkish on the telephone. We excluded patients (1) with MMSE<24, (2) who have aphasia, and (3) who decline phone calls. We conducted phone interviews with 90 post-stroke patients who met the inclusion criteria, 77 of which agreed to participate in the interview. They were informed about the study at the beginning of the telephone interview. Informed consent was obtained from all patients contacted. A pre-designed form was used to question the health and social state of the patients who agreed to participate in the study during the COVID-19 pandemic period. The form included socio-demographic features, physical characteristics, and detailed medical histories (such as their residence, people living with and spending time with them, their caregivers during the pandemic, and their status of taking supplements as a precaution against COVID-19). In addition, the phobia of the Covid-19 virus was assessed using the COVID-19 phobia scale (CP19-S), while anxiety and depression were evaluated using the hospital anxiety and depression scale (HADS). Furthermore, Brunnstrom recovery stages, Barthel index, and functional ambulation classification (FAC) scores within the prior 6 months were extracted from patient files to explore the mobilization of the patients. This study was conducted by tenets of the Declaration of Helsinki. The study was approved by the Ethics Committee of Fatih Sultan Mehmet Training and Research Hospital (FSMEAH-KAEK 2020/41). The study protocol is registered on clinicaltrials.gov (NCT04560413).

Measures

Hospital Anxiety and Depression Scale (HADS)

The HADS evaluation includes overall 14 questions (score range 0–3), which are scored to separately estimate anxiety and depression states (7 questions each). The HADS aims to determine the current presence and tendency to anxiety or depression at the time of diagnosis rather than establishing an objective diagnosis. HADS scores of 8–10 are widely accepted to indicate mild symptoms while scores of 11–16 suggest moderate anxiety or depression and scores ≥16 indicate severe anxiety or depressive symptoms[14]. The Turkish reliability and validity were examined by Aydemir

et al.[15]. The predictive values for the Turkish version were found to be 7 points for depression and 10 for anxiety. These cut-off values were applied in the present study.

COVID-19 Phobia Scale (C19P-S)

The C19P-S is a self-reported instrument using a 5-point Likert-type scale to assess the levels of COVID-19 phobia. All items are rated on a 5-point scale from "strongly disagree (1)" to "strongly agree (5)." The scores on the scale can range between 20 and 100 and a higher score indicates a greater phobia in the relevant subscales and total scale. The scale examines four main factors: psychological, psycho-somatic, economic, and social[16].

Brunnstrom Recovery Stage

It is a 6-stage scale used to assess motor improvement in the arm, hand, and lower extremity, as well as to determine the current motor stage of the stroke patient. Higher values indicate better motor improvement[17].

Barthel Index

The Barthel index consists of 10 items that address a patient's ability in feeding, bathing, grooming, dressing, bowel and bladder control, toileting, chair transfer, ambulation, and stair climbing. In the Barthel index ranging from 0 to 100, scores 0–20 points indicate "complete dependence" whereas 21–61 points indicate "high dependence"; 62–90 points for "moderate dependence", 91–99 points for "mild dependence" and 100 points for "complete independence"[18]. The Turkish validity and reliability of the Barthel index were proven[19].

The Functional Ambulation Classification (FAC)

FAC is the only scale that classifies the gait of stroke patients into ambulation categories (0=non-ambulatory, 5=independent functional ambulation)[20].

Statistical Analysis

Statistical analyses were performed using IBM SPSS Statistics 26 (SPSS IBM) programs. Normality analysis was tested with the Shapiro-Wilk test. Spearman's rank correlation analysis was used in analyzing relations between non-parametric values. Multiple linear regression analysis was used to identify the factors associated with anxiety and coronaphobia while binary logistic regression was used to identify factors associated with depression. P value <0.05 was considered statistically significant.

Results

Overall, 77 patients (35 women [45.5%] and 42 men [54.5%]) were included in the study. The mean (M) age±standard deviation (SD) was 55.7±13.01 years and M±SD time passed from stroke was 6.36±7.06 years. Of the patients, 58.4% were moderately dependent. Table 1 presents demographic and clinical characteristics, Brunnstrom stages, FAC, Barthel Index scores, MMSE, C19P-S, and HADS scores. HADS scores showed that 45.5% of patients had a severe risk for depression while 19.5% had a severe risk for anxiety. None of the patients had been diagnosed with COVID-19 in the study. There were only 9 patients whose close family, relatives, or neighbors were diagnosed with COVID-19.

There was no statistically significant difference based on gender and side of paresis in terms of subscales of HADS and C19P-S ($p>0.05$). A statistically significant difference between the employment status was determined in terms of HADS-A ($p<0.05$). The anxiety values were significantly lower in retired patients than in unemployed individuals ($p<0.05$). However, there was no significant difference between the employed and unemployed as well as employed and retired in terms of HADS-A ($p>0.05$) (Table 2). There was also no statistically significant difference between employment status in terms of all C19P-S subscales ($p>0.05$). There was a statistically significant negative correlation between age and the economic C19P-S values (R:-0.349 p:0.002). A positive, significant correlation between the stroke duration and the economic C19P-S subscale values was observed (R:0.265; p:0.020). No significant correlation was determined between stroke duration and other C19P-S subscales ($p>0.05$).

There was no statistically significant difference between the presence of comorbidity and HADS-D, HADS-A, and C19P-S subscales ($p>0.05$). Our findings showed no significant difference between smoking, anti-hypertensive, anti-diabetic, anti-coagulant, anti-arrhythmic, antithrombotic medication, muscle relaxant use, and other drug use and HADS-A, HADS-D, all C19P-S subscales ($p>0.05$). Only the psychology C19P-S subscale values were significantly higher in patients taking antithrombotic medication than those not taking ($p<0.05$).

There was no significant difference between gender, employment status, side of paresis, residence of the patients, people living with and spending time with them, their caregivers during the pandemic, their status of taking supplements as a precaution against COVID-19 and all C19P-S subscales ($p>0.05$). Our findings showed that people whose close family, relatives, or neighbors were diagnosed with COVID-19 had lower social ($p=0.041$) and total C19P-S ($p=0.028$) subscale values than people whose close family, relatives, or neighbors were not diagnosed with COVID-19.

Table 1. Sociodemographic and clinical features of the participants

	Min-max	Mean±SD
Age	22-80	55.7±13.01
Stroke duration (years)	1-52	6.36±7.06 (4)
Brunstrom arm	1-6	3.48±1.38 (3)
Brunstrom hand	1-6	2.58±1.58 (2)
Brunstrom lower extremity	2-6	3.88±1.29 (4)
FAC	0-5	4.04±1.4 (5)
MMSE	24-30	25.39±1.70 (25)
C19P-S		
Psychological	6-30	18.51±6.37 (18)
Somatic	5-21	6.49±3.33 (5)
Social	1-25	16.69±5.81 (17)
Economic	4-18	5.82±2.84 (5)
Total	20-92	47.71±14.29 (45)
HADS		
Depression	0-19	6.56±4.89 (5)
Anxiety	0-20	5.64±5.24 (4)

	n	%
Risk of depression		
Low	42	54.5
High	35	45.5
Risk of anxiety		
Low	62	80.5
High	15	19.5
Gender		
Female	35	45.5
Male	42	54.5
Education		
Illiterate	4	5.2
Elementary school	52	67.5
High school	11	14.3
University	10	13
Employment status		
Employed	4	5.2
Unemployed	36	46.8
Employment status		
Retired	37	48.1
Etiology		
Ischemic	52	67.5
Hemorrhagic	25	32.5
Side of paresis		
Right	25	32.5
Left	52	67.5
Barthel indeksi		
Totally dependency	2	2.6
Severe dependency	11	14.3
Moderate dependency	45	58.4
Mild dependencey	11	14.3
Independency	8	10.4
Comorbidity		
Yes	66	85.7
No	11	14.3
Comorbid chronic illness (n=66)		
Hypertension	51	77.3
Diabetes Mellitus	24	36.4
CVD	28	42.4
Others	19	28.8
Smoking		
Yes	16	20.8
Previous smoking	23	29.9
Never smoking	38	49.4
Drug using (n=75)		
Antihypertensive	49	65.3
Anti-diabetic	23	30.7
Antithrombotic	42	56
Anticoagulant	17	22.7
Antidepressant	17	22.7
Anti-arrhythmic	15	20
Others	46	61.3
Myorelaxant	27	36

SD: Standard deviation; FAC: Functional ambulation classification; MMSE: Mini-mental state examination; C19P-S: COVID 19 phobia scale; HADS: Hospital depression anxiety scale; CVD: Coronary vascular disease.

No statistically significant correlations were determined between all Brunnstrom stages, FAC stages, Barthel index of patients and HADS-A and HADS-D ($p>0.05$). There was also no significant correlation between Brunnstrom arm and hand stages and all C19P-S subscales ($p>0.05$) but a positive, significant correlation between the Brunnstrom lower extremity stages and the somatic C19P-S subscale values was observed ($p<0.05$). There was a significant positive correlation between the FAC stages and somatic, economic, and total C19P-S subscales ($p<0.05$). There was a significant positive correlation between the Barthel index and psychologic, somatic, and total C19P-S subscales ($p<0.05$). There was no statistically significant correlation between MMSE scores and HADS-A, HADS-D as well as all C19P-S subscales ($p>0.05$) (Table 3).

According to the results of binary logistic regression analysis, risk factors for depression are HADS-A and C19P-S. We did not reach enough significance about the low level of education as a risk factor for depression

Table 2. Evaluation of HADS scores according to gender, employment status, side of paresis and relatives of patients with COVID 19

	HADS	
	Depression	Anxiety
	Mean±SD (median)	Mean±SD (median)
Gender		
Female	6.37±5.11 (5)	6.26±5.45 (5)
Male	6.71±4.76 (5.5)	5.12±5.07 (3.5)
p[1]	0.670	0.292
Employment status		
Yes	7.25±6.4 (7.5)	9±7.39 (9)
No	6.47±5.01 (6)	6.56±4.83 (6)
Retired	6.57±4.76 (5)	4.38±5.2 (2)
p[2]	0.971	0.033*
Side of paresis		
Right	6.96±5.57 (6)	6.16±5.64 (5)
Left	6.37±4.58 (5)	5.38±5.08 (4)
p[1]	0.806	0.604
Relatives of patients with SARS-CoV-2		
Yes	5.44±5.61 (4)	3.67±3.5 (2)
No	6.71±4.82 (6)	5.9±5.4 (5)
p[1]	0.399	0.316

[1]: Mann Whitney U Test; [2]: Kruskal Wallis Test; *: p<0.05. HADS: Hospital depression anxiety scale; SD: Standard deviation; SARS-CoV-2: Severe acute respiratory syndrome coronavirus 2.

Table 3. Correlation of HADS and C19P-S Subscales with Brunnstrom stages arm, hand, lower extremity, FAC, Barthel index, MMSE

	Brunstrom arm	Brunstrom hand	Brunstrom lower extremity	FAC	Barthel index	MMSE
HADS						
Depression						
r	0.056	0.005	-0.045	-0.011	0.020	-0.033
Anxiety						
r	0.181	0.125	0.073	0.002	0.044	-0.063
C19P-S						
Psychological						
r	0.142	0.119	0.181	0.196	0.300*	-0.006
Somatic						
r	0.081	0.061	0.228*	0.344*	0.305*	0.047
Social						
r	0.121	0.094	0.096	0.198	0.184	0.043
Economic						
r	0.081	-0.019	0.172	0.298*	0.220	0.103
Total						
r	0.145	0.099	0.166	0.266*	0.299*	0.001

Spearman Rho correlation analysis, *: Significant p<0.05. HADS: Hospital depression anxiety scale; C19P-S: COVID 19 phobia scale; FAC: Functional ambulation classification; MMSE: Mini-mental state examination.

(Table 4). Tables 5 and 6 show the multiple linear regression analysis to determine the potential predictors of anxiety and coronaphobia. The analysis indicated that the Barthel index and HADS-A were found to predict coronaphobia while HADS-D and total C19P-S were found to predict anxiety.

Table 4. Results of logistic regression analysis on factors significantly associated with depression

	According to HADS depression vs non depression		p
	OR	95% CI	
C19-S somatic	1.560	(1.042-2.336)	0.031
HADS anxiety	1.445	(1.190-1.753)	<0.001
Education	0.420	(0.175-1.010)	0.053
Q1	0.696	(0.399-1.213)	0.201

Nagelkerke R Square=0.546. Q1: What was your mobilization status before the pandemic?; HADS: Hospital depression anxiety scale; OR: Odds ratio; CI: Confidence interval; C19P-S: COVID-19 phobia scale, Q: Question.

Table 5. Linear regression analyses of clinical predictors of HADS-A

			95.0% CI for B		
	B	β	Lower bound	Upper bound	p
(Constant)	-3.907		-6.849	-0.966	0.010
C19-S	0.116	0.316	0.055	0.177	<0.001
HADS-D	0.613	0.573	0.436	0.791	<0.001

R Square 0.524; Adjusted R Square=0.512; F=40.807 (p<0.001). HADS: Hospital depression anxiety scale; CI: Confidence interval; C19P-S: COVID 19 phobia scale.

Table 6. Linear regression analyses of clinical predictors of C19-S

			95.0% CI for B		
	B	β	Lower bound	Upper bound	p
(Constant)	26.746		-6.849	-0,966	<0.001
Barthel index	4.406	0.274	0.055	0.177	0.006
HADS-Anxiety	1.253	0.460	0.436	0.791	<0.001

R Square 0.295; Adjusted R Square=0.276; F=15.502 (p<0.001). C19P-S: COVID 19 phobia scale; CI: Confidence interval; HADS: Hospital depression anxiety scale.

Discussion

The present study analyzes levels of depression, anxiety, and coronaphobia in post-stroke patients. We found that risk factors for depression are anxiety and coronaphobia. Analysis indicated that Barthel index score and anxiety were found to predict coronaphobia while depression and coronaphobia were found to predict anxiety.

Psychological problems are expected to increase during a pandemic. Results of a study regarding HADS scores showed that 23.6% of patients had severe risk for depression while 45.1% had severe risk for anxiety in this sample of Turkish society. The results also show the most psychologically affected groups by the COVID-19 pandemic are women, individuals with previous psychiatric illness, individuals living in urban areas, and those with an accompanying chronic disease[21]. In a recent study among 50 post-stroke participants, clinically significant PSD was found in 36%, while PSA in 32% during the pandemic[12]. The HADS is frequently used for the assessment of depression and anxiety in stroke patients[9,14,22]. In the present study, the depression rate was assessed higher than the literature[6,7,12,21]. This may be due to the fact that our patients were not able to go out due to the precautions dictated by the pandemic, that they could not meet with their immediate family, and that they might have been influenced by news reflected in the media[8]. In our patients, the anxiety rate

was found to be close to the anxiety rate reported in previous studies. Anxiety is reported to be more common in the first year of stroke[10]. The mean stroke duration was 6.36±7.06 years in our patients. Therefore, it was observed that this rate did not increase in our patients who were in the chronic period despite the COVID-19 pandemic. This result may be due to our patients having to abide by the rules and precautions imposed by authorities and not being able to go out, as these factors might have saved them from additional anxiety about being infected with the virus. Nevertheless, there is a rise in the rates of PSA but no increase in PSD rates during the COVID-19 pandemic in the study of Ahmed et al.[12] in contradiction with our results.

Studies exploring risk factors of PSD suggest that the most common risk factors include aphasia, dominant hemispheric lesions, and previous personal/family history of depression[6], age (<70 years), gender, level of handicap, level of independence, neuroticism, and severity of stroke[10,23]. Studies exploring predictors of PSA show that the most common associated factors are female gender, age under 65 years, stroke severity, inability to work, pre-stroke treatment for depression, smoking[24], depression, early anxiety (i.e., in the acute phase after stroke). Although female gender and younger age are considered risk factors for depression and anxiety, no significant difference was found in terms of gender and age in our study. A recent systemic review reported that recent studies about the relationship between gender and depression are inconclusive as these studies are not homogenous and do not provide clear data[5]. We found that risk factors for depression are anxiety and coronaphobia. It is expected that anxiety and phobia are risk factors for depression[4,11,25]. However, while low education level is known to be a protective factor for depression[26], we could not reach the same results. This may be explained by increased awareness of COVID-19. This awareness is possibly a result of media influence and the rather late spreading of confirmed COVID-19 cases in Türkiye.

The present study showed depression and coronaphobia are predictors of anxiety during a pandemic. Depression is a known predictor of anxiety[24]. Fear of having an unknown disease may have triggered anxiety. Nevertheless, it is worrisome that coronaphobia creates anxiety in such a short time. We could not draw any conclusion about the relation between residence, caretaker status of our patients, and depression-anxiety levels of the patients. Of our patients, 96.1% had stayed at their home during the process and 55% of the patients were given care by their family members. We determined that the sample size of patients is insufficient and studies with a larger sample size should be conducted in order to reach a conclusion regarding these factors.

No meaningful relationship was found between the side of paresis and the HADS subscales. Although there are studies reporting that PSD is more common in left hemisphere lesions in the literature[22], there are also publications that could not detect the relationship between the affected hemisphere and depression[23]. Contrary to previous studies, no relationship was found between the scales showing the mobilization status of the patients and their depression and anxiety in our study[9,22,24]. This result may be associated with our patients being in the chronic period, getting used to the mobilization situation, and accepting it. Furthermore, Ahmed et al.[12] also concluded that they could not establish a relation between the severity of symptoms, after 3 months, with increasing PSA symptoms. The anxiety of retired patients was found to be lower than those who are unemployed. It is known that unemployment itself is associated with poorer mental health[27]. In addition, people with financial difficulties or receiving financial support or benefits have higher anxiety scores during the pandemic[5].

Mowbray H. reported that fear of the unknown leads to a higher anxiety level in both healthy people and those with pre-existing mental health problems, where unjustified public fear may lead to discrimination, stigmatization, and scapegoats[28]. There are no studies investigating phobia in post-stroke patients during these outbreaks. Our study revealed that anxiety and independence are predictors of coronaphobia. People with high anxiety levels can be prone to develop coronaphobia. On the other hand, patients who are more physically independent are also more likely to be at higher risk of coronaphobia. This result may be explained by the fact that they are more socially active. There was only a significant relationship between HADS-D and the somatic subscale of C19P-S in post-stroke patients. The relationship between depression and somatic symptoms was previously shown[29].

Moreover, individuals with specific phobias show decreased quality of life, including impairments in occupational and interpersonal functioning as individuals with other anxiety disorders[4,25]. In our study, we found that the economic factor of the C19P-S was higher in younger patients. This result showed that younger patients are more concerned about the future and economic consequences of the pandemic. Higher scores in the economic factor of C19P-S in long-suffering

stroke patients may be associated with their economic dependence on another person for a certain time. More mobilized patients, according to FAC and Brunnstrom stages for the lower extremity, were determined to have higher COVID-19 phobia scale scores. As anticipated, the phobia scale of patients without mobility and with limited mobility was less than that of more mobilized patients. No relationship was found between gender, employment status, MMSE results of the patients, and coronaphobia. On the other hand, larger studies focusing on these situations are required in order to reach a decisive conclusion.

The present study shows that post-stroke patients are psychologically affected by the COVID-19 pandemic. These patients may be supported with telemedicine (learning the general conditions and complaints of patients by phone) and telerehabilitation, which is a suitable alternative to usual rehabilitation care during the pandemic period[30]. In a study, telehealth has been proven to have several benefits such as convenience, access, and privacy, which also particularly help in overcoming depression and related mental health problems[31].

Limitation

The present study has several limitations, including failure to assess the psychological conditions of patients before the outbreak and a small sample size insufficient to draw a conclusion regarding some risk factors such as age, gender, comorbidity, residence, and caretaker status of our patients.

Conclusion

In conclusion, the pandemic has a greater effect on particularly younger patients, physically independent or partially dependent patients, and unemployment groups. It is very important for post-stroke patients to develop and implement social solutions and policies during such pandemic periods. Early detection of coronaphobia, depression, anxiety, and its risk factors might be useful to predict long-term outcomes and could pioneer early interventions of rehabilitation treatment strategies; it may contribute to the protection of mental health overall. Telemedicine can be an effective method to collect data about patients' conditions during such periods. Online psychological support should be provided to post-stroke patients by mental health specialists. The responsible physician for these patients, who are followed up routinely every 3–6 months, may control them by telephone or online meetings during such pandemics. Our study, conducted in the early stages of the COVID-19 pandemic, may be useful for better support of this patient group by healthcare organizations in a possible future pandemic.

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