

# Mental health in pre-COVID-19 and during the COVID-19 pandemic: a comparative study using symptom checklist-90-R

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**Abstract.** – **OBJECTIVE:** The aim of this study is to search the psychopathological effects of the Coronavirus disease on the patients with psychiatric symptoms on the COVID-19 pandemic process.

**PATIENTS AND METHODS:** The study was designed according to the data obtained from 323 patients (171 women and 152 men) who participated in the study pre-COVID-19 period and 423 patients (205 women and 218 men) who participated in the study during COVID-19 period. All participants underwent the Symptom Checklist-90-Revised (SCL-90-R) examination. The SCL-90-R is a psychiatric screening tool that measures the level of reactions elicited by the compulsion or negative stress of individuals. The SCL-90-R was utilized to define psychiatric symptoms and evaluate psychological problems, statistically compared to patient groups with similar demographic and socio-cultural characteristics (education level, marital status).

**RESULTS:** There were no statistically significant differences in participants' characteristics for the mean age distribution, marital status, education level, and smoking habits between the groups of pre-COVID-19 and during COVID-19 period ( $p>0.05$ ). When comparing the scores of the participants' SCL-90-R Psychological Symptom Screening Scale and its sub-dimensions before and during the COVID-19 period, no statistically significant difference was found between the scores of the participants in both groups ( $p>0.05$ ). 187 patients (52.97%) had the disease, and 166 patients (47.03%) did not have the disease during COVID-19 period. It was observed that there was statistically significant difference for obsessive-compulsive and depression scores of the SCL-90-R scale between the participants who had or had not COVID-19 ( $p<0.05$ ). It was higher in the first group. There was a statistically significant difference between the depression, anxiety and phobic anxiety scores of the vaccinated compared to the unvaccinated participants ( $p<0.05$ ).

**CONCLUSIONS:** Psychological symptoms general and subscales during the COVID-19 pan-

dem were similar to pre-pandemic levels according to the SCL-90-R. This is important for planning mental health provisions and for long-term impact of the COVID-19 pandemic.

*Key Words:*

COVID-19, Coronavirus disease pandemic, SARS-CoV-2, Symptom checklist-90-R, Psychiatry, Mental health.

## Introduction

The extraordinary situation continues due to the new "severe acute respiratory syndrome" SARS-CoV-2 (severe acute respiratory syndrome coronavirus-2), called the ongoing coronavirus disease 2019 (COVID-19)<sup>1</sup>. COVID-19 or Coronavirus disease pandemic has generated a very serious and grave global concern regarding the public health in the whole world. Coronavirus disease was declared a pandemic by the World Health Organization (WHO) due to the speed and severity of the virus on March 11, 2020<sup>2</sup>. COVID-19 has spread worldwide with substantial consequences for public health. Adults with comorbidities are at greatest risk for severe disease and death<sup>3</sup>; however, poor information is available about the consequences of SARS-CoV-2 infection in mental disease.

Guidelines have been provided by various medical societies about COVID-19, they differ in recommended management strategies for protection psychological symptoms<sup>4,5</sup>. The patients with paranoid personality disorders are always suspicious and have an inclination to misinterpret knowledge and acting in both directions, either in underestimating or overestimating the risk of contagion with COVID-19 pandemics. Also, the patients with dissocial personality disorders are chronically intolerant of restrictions and regulations about keeping self and others safe and they can put other at risk of COVID-19 infection<sup>6,7</sup>.

We aimed at investigating the increase in individual psychiatric problems before and during coronavirus pandemic process by comparing between the periods using Symptom Checklist-90-Revised questioner. The checklist-90-revised (SCL 90-R) is an instrument that measures the level of psychological symptoms in individuals and which areas these symptoms are related to mental disease<sup>8</sup>. The SCL-90-R is a valid method for comparison to the patient groups with similar demographic and sociocultural characteristics, statistically. The SCL-90-R is also a suitable tool for the out-patients to define psychiatric symptoms and for evaluating psychological problems.

This study designed to search the psychopathological effects of the Coronavirus disease on the patients with psychiatric symptoms and to contribute the knowledge on negative influence of COVID-19 on mental health.

### Patients and Methods

The study was designed according to the data obtained from 323 patients (171 women and 152 men) who participated in the study pre-COVID-19 period and 423 patients (205 women and 218 men) who participated in the study during COVID-19 period. All participants underwent the Symptom Checklist-90-Revised (SCL-90-R) examination.

Before and during the COVID-19 pandemic, the SCL-90-R questionnaire was used as a psychiatric screening tool to measure the levels of reactions elicited by the compulsion or negative stress that the patients with psychiatric symptoms were exposed to. The study was managed to the validity and reliability aspect of the personal information SCL-90-R scale in out-patients who were evaluated and followed-up by the same psychiatrist (YG). All patients gave written informed consent, and the study was approved by Istanbul Training and Research Hospital Ethics Committee.

The SCL-90-R questionnaire results were obtained before the COVID-19 pandemic between March 1, 2018 and March 1, 2020, retrospectively and the SCL-90-R questionnaire results were compared to the results obtained during the COVID-19 pandemic between March 31, 2020 and March 31, 2022, prospectively.

The study was designed according to the data obtained from 323 patients who participated in the study pre-COVID-19 period and 423 patients who participated in the study during COVID-19 period. The SCL-90-R was utilized to define psychiatric symptoms and evaluate psychological problems, statistically compared to patient groups with similar demographic and sociocultural characteristics. Demographic and social (education level, marital status) factors were recorded and statistically compared between the groups (Table I).

**Table I.** Participants' characteristics.

Variable	Before COVID-19 n (%)	During COVID-19 n (%)	<i>p</i>
Sex			
Male	152 (47.1%)	218 (51.5%)	
Female	171 (52.9%)	205 (48.5%)	
Age			
18 >	26 (8.0%)	16 (3.8%)	<i>p</i> > 0.05
19-29	84 (26.0%)	112 (26.5%)	<i>p</i> > 0.05
30-39	98 (30.3%)	137 (32.4%)	<i>p</i> > 0.05
40-49	67 (20.7%)	81 (19.1%)	<i>p</i> > 0.05
50-59	31 (9.6%)	39 (9.2%)	<i>p</i> > 0.05
60 <	17 (5.3%)	38 (9.0%)	<i>p</i> > 0.05
Education Level			
Secondary and lower	110 (37.4%)	138 (33.3%)	<i>p</i> > 0.05
High school	1 (27.5% <sup>5</sup> )	106 (25.6%)	<i>p</i> > 0.05
University	103 (35.0%)	170 (41.1%)	<i>p</i> > 0.05
Marital Status			
Married	193 (59.8%)	247 (58.4%)	<i>p</i> > 0.05
Single	119 (36.8%)	153 (36.2%)	<i>p</i> > 0.05
Widow	11 (3.4%)	23 (5.4%)	<i>p</i> > 0.05
Smoking			
Nonsmoker	138 (43.9%)	177 (42.4%)	<i>p</i> > 0.05
Smoker	176 (56.1%)	240 (57.5%)	<i>p</i> > 0.05

*p* > 0.05: statistically non-significant.

**Definition of Symptoms**

The Symptom Checklist-90-Revised (SCL-90-R) questionnaire is used as an instrument identifying the symptoms and the evaluation of psychological problems. This test is also used for monitoring the patient’s progress or treatment outcome.

The scale is a self-report questionnaire SCL-90-R consisting of 90 items and 10 sub-units answered in a five-point Likert scale between “never” and “too much”. These subunits are somatization, obsessive-compulsive, interpersonal sensitivity, depression, anxiety, anger-hostility, phobic anxiety, paranoid thought, psychotic and additional items (reflecting symptoms related to sleep disorders, appetite disorders, guilt) (World Health Organization).

Somatization subunit items contain features related to bodily functions. Obsessive compulsive subunit items are related to unwanted thoughts and behaviors that the person cannot stop thinking or doing. Interpersonal sensitivity subunit items are related to the individual’s feelings of self-humiliation or inadequacy. Depression subunit items contain general pessimism, lack of motivation, suicidal thoughts and decreased interest in life. Anxiety subunit is related to extreme anxiety. Anger-hostility subunit items contain feelings of aggression and anger. Phobic anxiety subunit items are related to the persistent fear response of the individual to a specific object or situation. Paranoid thought subunit contains articles on skeptical and hostile thoughts, and fears. Psychotic subunit

includes items related to introversion, alienation from social life, and schizoid lifestyle. Additional substances subunit contains sleep disorders, appetite disorders and guilt-related items.

**Measurement of Symptoms**

The measurement tool of Symptom Checklist-90-Revised (SCL-90-R) consists of ten parts including nine main symptom scales and additional items and includes 90 symptoms with five-point Likert-type responses. Each item in psychological symptom screening list is answered according to the expression options as not at all (0), very little (1), moderately (2), quite a lot (3), extremely (4). Each item is scored on a scale from 0 to 4 based on how much an individual bothering and is evaluated by giving 0, 1, 2, 3, 4 points, respectively. The higher the score the individual gets from the scale, the more advanced the individual has psychological symptoms. The score of the subunits in the symptom screening list is found by dividing the scores obtained from the questions containing that subscale by the number of questions. Subscale scores are calculated from the weighted averages of the items they cover.

The measurement method of SCL-90-R including 90 symptoms evaluates ten symptomatic dimensions: somatization, obsessive-compulsive disorder, interpersonal sensitivity, depression, anxiety, hostility, phobic anxiety, paranoid ideation, psychoticism and additional items are listed in Table II.

**Table II.** The measurement method of Symptom Checklist-90-Revised.

Subscales	Related Items
Somatization	1, 4, 12, 27, 40, 42, 48, 49, 52, 53, 56, 58
Calculation of Scores	$(1+4+12+27+40+42+48+49+52+53+56+58) / 12$
Obsessive-Compulsive	3, 9, 10, 28, 38, 45, 46, 51, 55, 65
Calculation of Scores	$(3+9+10+28+38+45+46+51+55+65) / 10$
Interpersonal Sensitivity	6, 21, 34, 36, 37, 41, 61, 69, 73
Calculation of Scores	$(6+21+34+36+37+41+61+69+73) / 9$
Depression	5, 14, 20, 22, 26, 29, 30, 31, 32, 54, 71, 79
Calculation of Scores	$(5+14+15+20+22+26+29+30+31+32+54+71+79) / 13$
Anxiety	17, 23, 33, 39, 57, 72, 78, 80, 86
Calculation of Scores	$(2+17+23+33+39+57+72+78+80+86) / 10$
Anger-Hostility	11, 24, 63, 67, 74, 81
Calculation of Scores	$(11+24+63+67+74+81) / 6$
Phobic Anxiety	13, 25, 47, 50, 70, 75, 82
Calculation of Scores	$(13+25+47+50+70+75+82) / 7$
Paranoid Ideation	8, 18, 43, 68, 76, 83
Calculation of Scores	$(8+18+43+68+76+83) / 6$
Psychoticism	7, 16, 35, 62, 77, 84, 85, 87, 88, 90
Calculation of Scores	$(7+16+35+62+77+84+85+87+88+90) / 10$
Additional Items	19, 44, 59, 60, 64, 89
Calculation of Scores	$(19+44+59+60+64+66+89) / 7$

### Statistical Analysis

Psychological, demographic and sociocultural data were assessed. Similar comparisons were performed before and during COVID-19 periods. For descriptive purposes, the baseline univariate comparisons were performed to identify each subscale.

Statistical analysis was performed using the computer software SPSS 26.0 for windows (SPSS Corp., Armonk, NY, USA). Data are expressed as mean values  $\pm$  standard deviation for continuous variables and as numbers with percentage for categorical variables. The evaluation of non-parametric data (discrete variables) was compared using the  $\chi^2$  test, and the evaluation of parametric data (continuous variables) was compared using a two-tailed *t*-test. Univariate analysis and logistic regression analysis were performed to identify the potential risk factors associated with somatization, obsessive-compulsive, interpersonal sensitivity, depression, anxiety, anger-hostility, phobic anxiety, paranoid thought, psychotic and additional (reflecting symptoms related to sleep disorders, appetite disorders, guilt) subscales. A *p*-value of 0.05 or less was considered to be significant.

Categorical variables were calculated as numbers and percentages. Normal distribution skewness and kurtosis values in numerical variables were calculated by calculating. In this context, it has been observed that the general and sub-dimensions of SCL-90-R comply with the normal distribution rules. The reliability analysis of the SCL-90-R Psychological Symptom Screening Scale and its subscales were performed. Reliability analysis is a concept that reveals the consistency of all questions in a survey with each other and their homogeneity in measuring the formation under consideration. In the reliability

analyses performed, the  $\alpha$  coefficient is expected to be above 0.70<sup>9</sup>. Accordingly, the reliability of the SCL-90-R and its subscales used in the study were found generally sufficient, except additional items. In this study, the Cronbach Alpha internal consistency coefficient of the entire Cronbach's alpha values were found to be 0.970 and 0.969, before the COVID-19 and during the COVID-19 period, respectively. The correlations of the scale with general and all subscales' indicators were found to vary between 0.617 and 0.970. The test-retest reliability analysis results of general and subscales of SCL-90-R measurement are listed in Table III.

### Results

There were no statistically significant differences for the mean age distribution, marital status, education level, and smoking habits between the groups of pre-COVID-19 and during COVID-19 period ( $p > 0.05$ ) (Table I).

When the SCL-90-R and subscale scores of the participants were compared according to their gender in the pre-COVID-19 period, it was seen that the general, somatization, obsessive-compulsive, depression, anxiety, phobic anxiety and additional items scores of women were higher than men, and there was a statistically significant difference ( $p < 0.05$ ).

When the SCL-90-R and subscale scores of the participants were compared according to the gender of the participants during the COVID-19 period, it was observed that the general, somatization, obsessive-compulsive, depression and additional item scores of women were higher than men, and there was a statistically significant difference ( $p < 0.05$ ).

**Table III.** Reliability analysis results of general and subscales of Symptom Checklist-90-Revised.

Variable	Before COVID-19 Cronbach's Alpha	During COVID-19 Cronbach's Alpha	N
SCL-90-R General	0.970	0.969	90
Somatization	0.892	0.895	12
Obsessive-Compulsive	0.801	0.821	10
Interpersonal Sensitivity	0.844	0.846	9
Depression	0.876	0.876	13
Anxiety	0.860	0.853	10
Anger-Hostility	0.833	0.834	6
Phobic Anxiety	0.825	0.806	7
Paranoid Thought	0.755	0.764	6
Psychoticism	0.808	0.790	10
Additional Items	0.650	0.617	7

When the SCL-90-R and subscale scores were compared according to the age of the participants in the pre-COVID-19 period, no difference was found between the scores ( $p>0.05$ ), except for depression. There was a difference between the depression scores of the participants according to their age in the pre-COVID-19 period ( $p<0.05$ ). It was determined that the depression scores of the participants aged 18 or younger were lower than the depression scores of the participants aged 20-29 and 50-59.

When the SCL-90-R and subscale scores were compared according to the age of the participants during the COVID-19 period, no difference was found between the scores ( $p>0.05$ ), except for anger-hostility. There was a difference between the anger-hostility scores of the participants according to their age during the COVID-19 period ( $p<0.05$ ). It was observed that the anger-hostility scores of the participants aged 18-29 were higher than the anger scores of the participants aged 30-39, 50-59, and those aged 60 and over.

When the SCL-90-R and subscale scores were compared according to the educational level of the participants in the pre-COVID-19 period, no difference was found between the scores ( $p>0.05$ ). When the SCL-90-R and subscale scores were compared according to the educational level of the participants during the COVID-19 period, no difference was found between the scores ( $p>0.05$ ), except for phobic anxiety. There was a difference between the phobic anxiety scores of the participants according to their age in the pre-COVID-19 period ( $p<0.05$ ). It was observed that the phobic anxiety scores of the high school graduates were higher than

the phobia scores of the university graduates. When the SCL-90-R and subscale scores were compared according to the marital status of the participants in the pre-COVID-19 period, no difference was found between the scores ( $p>0.05$ ), except for somatization. In pre-COVID-19 period, it was observed that the somatization scores of the married participants were higher than the somatization scores of the single participants ( $p<0.05$ ). When the SCL-90-R and subscale scores were compared according to the marital status of the participants during the COVID-19 period, statistically significant differences were observed between the general, somatization, obsessive-compulsive, interpersonal sensitivity, anxiety and psychoticism scale scores according to the marital status of the participants ( $p<0.05$ ). Married participants' general scale scores were higher than widowed participants, somatization scores were higher than single participants, and anxiety and psychoticism scores were higher than single and widowed participants. It was observed that the obsessive-compulsive scores of the single participants were higher than the married and widowed participants, and the interpersonal sensitivity scores of the widowed participants.

When comparing the scores of the participants' SCL-90-R Psychological Symptom Screening Scale and its sub-dimensions before and during the COVID-19 period, no statistically significant difference was found between the scores of the participants in both groups ( $p>0.05$ ) (Table IV).

The exposed COVID-19 disease status distributions of the participants was as follows:

**Table IV.** Descriptive statistics of general and subscale of Symptom Checklist-90-Revised.

Variable	Before COVID-19 n = 323 mean ± SD	During COVID-19 n = 423 mean ± SD	p	t
SLC-90-R General	1.38 ± 0.72 (0.09-3.73)	1.31 ± 0.70 (0.00-3.20)	0.398	0.847
Somatization	1.31 ± 0.93 (0.00-3.92)	1.17 ± 0.90 (0.00-3.83)	0.125	1.536
Obsessive-Compulsive	1.68 ± 0.85 (0.00-3.90)	1.57 ± 0.87 (0.00-4.00)	0.408	0.828
Interpersonal Sensitivity	1.31 ± 0.91 (0.00-4.00)	1.23 ± 0.90 (0.00-4.00)	0.402	0.839
Depression	1.78 ± 0.93 (0.00-3.77)	1.69 ± 0.90 (0.00-3.77)	0.408	0.828
Anxiety	1.46 ± 0.92 (0.00-4.00)	1.46 ± 0.90 (0.00-3.80)	0.753	-0.315
Anger	1.37 ± 0.97 (0.00-4.00)	1.32 ± 0.97 (0.00-4.00)	0.854	0.184
Phobic Anxiety	0.92 ± 0.93 (0.00-4.00)	0.82 ± 0.86 (0.00-3.86)	0.130	1.519
Paranoid Thought	1.31 ± 0.93 (0.00-4.00)	1.24 ± 0.91 (0.00-4.00)	0.463	0.735
Psychotic	0.95 ± 0.79 (0.00-3.60)	0.89 ± 0.76 (0.00-3.90)	0.478	0.710
Additional Items	1.46 ± 0.83 (0.00-3.86)	1.44 ± 0.80 (0.00-3.43)	0.803	-0.249

$p < 0.05$ : statistically significant,  $t$ : Paired Sample  $t$ -test.

**Table V.** Participants' status of exposed COVID-19.

Variable	COVID-19 (+) n = 187 (52.97%) mean ± SD	COVID-19 (-) n = 166 (47.03%) mean ± SD	p	t
SLC-90-R General	1.37 ± 0.72	1.23 ± 0.66	<b>0.047</b>	1.992
Somatization	1.27 ± 0.96	1.10 ± 0.86	0.075	1.786
Obsessive-Compulsive	1.67 ± 0.89	1.43 ± 0.80	<b>0.009</b>	2.615
Interpersonal Sensitivity	1.28 ± 0.89	1.16 ± 0.83	0.196	1.295
Depression	1.78 ± 0.89	1.60 ± 0.86	<b>0.049</b>	1.973
Anxiety	1.54 ± 0.88	1.39 ± 0.92	0.116	1.574
Anger	1.36 ± 0.98	1.26 ± 0.97	0.306	1.026
Phobic Anxiety	0.86 ± 0.85	0.74 ± 0.85	0.194	1.302
Paranoid Thought	1.24 ± 0.87	1.20 ± 0.90	0.660	0.440
Psychotic	0.95 ± 0.78	0.82 ± 0.71	0.100	1.650
Additional Items	1.50 ± 0.87	1.40 ± 0.80	0.2	1.197

p < 0.05: statistically significant, t: Paired Sample t-test.

187 patients (52.97%) had the disease, and 166 patients (47.03%) did not have the disease. According to their COVID-19 exposure status in during COVID-19 patients, it was revealed that the general, obsessive-compulsive and depression scores of the SCL-90-R scale of the participants who had COVID-19 were higher and statistically significant difference compared to the participants who did not have COVID-19 (p<0.05) (Table V).

When comparing the scores of the SCL-90-R Psychological Symptom Screening Scale and its subscales according to the vaccination status of the participants against the COVID-19 virus during COVID-19 period, it was observed that there was a statistically significant difference between the depression, anxiety and phobic anxiety scores of the vaccinated compared to the unvaccinated participants (p<0.05) (Table VI).

## Discussion

The Symptom Checklist-90-Revised (SCL-90-R) is a psychiatric screening tool that measures the level of the reactions elicited by the compulsion or negative stress of individuals. The SCL-90-R is a widely used symptomatic distress questionnaire. The SCL-90-R represents a multidimensional psychological test instruments for the assessment of psychological symptoms and psychological distress. In addition, available sensitivity to pharmacologic, psychotherapeutic, and other treatment interventions, as well as to clinically meaningful variations in psychopathology and psychological distress levels, provide endorsement for these tests instruments as effective for both psychiatric screening functions and clinical outcomes measurement. This instrument is also used by psychologists, psychiatrists, men-

**Table VI.** Participants' status of being vaccinated against COVID-19.

Variable	Vaccinated n = 210 (78%) mean ± SD	Non-vaccinated n = 58 (22%) mean ± SD	p	t
SLC-90-R General	1.30 ± 0.69	1.18 ± 0.58	0.208	1.264
Somatization	1.18 ± 0.94	1.08 ± 0.81	0.163	1.403
Obsessive-Compulsive	1.57 ± 0.87	1.30 ± 0.67	0.470	0.724
Interpersonal Sensitivity	1.27 ± 0.86	1.03 ± 0.79	0.434	0.786
Depression	1.70 ± 0.88	1.50 ± 0.75	<b>0.029</b>	2.193
Anxiety	1.44 ± 0.90	1.42 ± 0.86	<b>0.012</b>	2.544
Anger	1.33 ± 0.96	1.29 ± 0.97	0.058	1.907
Phobic Anxiety	0.78 ± 0.84	0.87 ± 0.90	<b>0.048</b>	1.999
Paranoid Thought	1.23 ± 0.90	1.06 ± 0.75	0.109	1.609
Psychotic	0.89 ± 0.75	0.72 ± 0.60	0.081	1.762
Additional Items	1.41 ± 0.81	1.39 ± 0.77	0.895	0.132

p < 0.05: statistically significant, t: Paired Sample t-test.

tal health, medical, and educational professionals for monitoring the patient's progress or treatment outcome. The SCL-90-R is one of the most comprehensive and widely used scales addressing this purpose internationally. The scale was translated into Turkish language and have been extensively utilized. The Turkish version validity and reliability studies were conducted.

The Symptom Checklist-90 was evolved most directly from the checklist known as Hopkins Symptom Checklist (HSCL). HSCL determines the level of psychological symptoms in individuals and the areas where they spread. The Symptom Checklist-90 (SCL-90) scale was developed by Derogatis et al<sup>10,11</sup> from John Hopkins University Psychometric Research Unit using the HSCL inventory. The Symptom Checklist-90-Revised (SCL-90-R) is the revised version of the SCL-90 questionnaire. The revised version is almost identical; two questions with slightly different wording.

The many versions of the Symptom Checklist are evaluated on several criteria (e.g., factor stability, factor loadings, proportion of variance, etc.). The psychometric properties of the SCL-90-R scales and the scales of its short versions were applied as Brief Symptom Inventory-53 (BSI-53), Symptom Checklist-27 (SCL-27), Brief Symptom Inventory-18 (BSI-18), Symptom Checklist-14 (SCL-14), and Symptom Checklist short version-9 (SCL-K-9) in patients with affective disorders<sup>12</sup>.

Reliability analysis is a concept that reveals the consistency of all questions in a survey and their homogeneity in measuring the formation under consideration. In the reliability analyzes performed, the  $\alpha$  coefficient is expected to be above 0.70. Accordingly, the reliability of the SCL 90-R Psychological Symptom Screening Scale and its sub-dimensions used in the study were generally sufficient<sup>9</sup>.

The COVID-19 pandemic has been a social illness and has resulted in radical changes in the societies. The pandemic dimension of COVID-19 causes psychological, legal and behavioral consequences on the whole population<sup>13,14</sup>. Self-isolation required for reducing or stopping social contacts and activities in order to decrease the chance of being infected. Besides the bearing of social isolation and the prevention behaviors, clinical cases required admission to hospital due to the clinical impact of COVID-19 disease circumstances<sup>15,16</sup>.

The pandemic has been causing great distress in society and increasing rates of depression, anxiety, and other psychiatric disorders<sup>17-19</sup>. The rapid

diffusion of COVID-19 has influenced the direct and indirect impact of the pandemic on the whole population and individuals with mental health conditions<sup>20</sup>. Self-isolation is the only effective control for the eruption of the Coronavirus pandemic and the distress of being self-limited due to isolation is an unprecedented situation<sup>21,22</sup>. It was predicted an upsurge of psychiatric illness linked to the emotional impact of COVID-19 and an increase in the number of persons in need of psychiatric intervention due to COVID-19 pandemic related to anxiety about the ambiguity of the pandemic, facing death in close relatives and friends, reduced financial assets, extreme deviations from routines, isolation and separation<sup>23</sup>.

The process of self-isolation can itself increase the level of anxiety, apprehension and stress<sup>24</sup>. There may be a tendency to start having ruminating obsessional thoughts and hypochondriac or phobic fears<sup>25</sup>. The emotional load linked to severe and lethal illnesses like COVID-19 pandemic can affect the patients beyond their point of resistance, leading to increased stress reactions, depression, even psychosis. Due to the rapid diffusion of the viral infection, there have also been already difficulties on how to deal with the psychiatric aspects of COVID-19 pandemic in persons with an established diagnosis of psychiatric disorders<sup>26,27</sup>. Besides, patients with established enduring mental illnesses might have difficulty to grasp the basic concepts of the disease, the principles of self-preservation and vulnerability to any other conditions<sup>28</sup>. COVID-19 infection can trigger a series of psychopathological reactions, such as panic disorder with anxiety, phobias, obsessive-compulsive disorder, post-traumatic stress disorder, depression even suicide<sup>29-31</sup>. Stressful life events have been known as producing increased relative risk for depression, schizophrenia and suicide.

In Kwong et al<sup>32</sup>, anxiety and depression during the pandemic was greater in younger members, women, those with pre-existing mental/physical health conditions and individuals in socioeconomic adversity. They did not find any clear evidence that depression differed during the COVID-19 pandemic from pre-pandemic assessments. There was strong observational evidence that anxiety was higher, and well-being was lower during the pandemic, compared with pre-pandemic levels. Also, they also emphasized the several sociodemographic, psychological, physical factors were associated with depression and anxiety during the COVID-19 pandemic in consecutive trials<sup>33,34</sup>. The studies reported to

elevation risk of depression and anxiety during the COVID-19 pandemic and noticed that the rising the anxiety in young people. Also, there are published reports<sup>35</sup> stating that COVID-19 affects the central nervous system and the virus has been found in the cerebrospinal fluid about 40% of patients with neurological symptoms.

### Limitations

The study was limited to out-patients and the analysis was limited to the personal information form and SCL 90-R. It was assumed that these participants answered the questions sincerely and accurately. A longer follow-up with repeat testing might be needed to confirm the above-mentioned results.

### Conclusions

The present study suggested that COVID-19 pandemic is already having a significant impact on the mental health. Psychological symptoms general and subscales during the COVID-19 pandemic were similar to pre-pandemic levels according to the SCL-90-R. This is important for planning mental health provisions and for long-term impact of the COVID-19 pandemic.

### Conflict of Interest

The Author declares that he has no conflict of interests.

### Informed Consent

All patients gave written informed consent.

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