Mediterranean Journal of Clinical Psychology

ISSN 2282-1619

MJCP

Volume 9, n 1, 2021

Report

Psychopathology in Patients Diagnosed with Sars Cov 2: a Brief Report

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Abstract

Background: COVID-19 is the newest and one of the most important infectious disease that became a pandemic during last year (2020) and it is caused by SARS-CoV-2 (human coronavirus), which first was diagnosed in Wuhan, China, at the end of 2019 and spreaded globally during 2020 changing our lifestyle worldwide. To evaluate the development risk of psychiatric symptoms in patients who manifested COVID 19 symptoms during the quarantine period acute phase of the disease and the aggravation of some patients` symptoms after this infectious disease.

Methods: We have conducted a study on 28 patients diagnosed with SARS-CoV-2 and who have received psychopathological follow up during the quarantine through telemedicine, patients selected for a period of 3 month.

Results: The average age of the patients was of 46,89 years old, with an associated standard deviation of 18,68 years and with a predominance in female gender (60,7%). 85,4% of the subjects developed psychopathologies, depending on the type of the experienced quarantine (especially home quarantine – sig = 0,042) or on the presence of sensory disorders as symptomatology (sig.=0,046).

Conclusions: Adverse mental health impact has been reported in patients with SARS-CoV-2, that could be related either to the intensity of the COVID 19 symptoms (headache, cough, fever, gastrointestinal disorders, dyspnea, anosmia and ageusia) or to the disruption of personal and social healthcare and lifestyle.

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Keywords:
Clinical Psychology; Covid-19; Psychopathology; Quarantine; Global pandemic.

Received: 11 February 2020
Accepted: 8 April 2021
Published: 29 April 2021

Citation: Moroianu, L.A., Moroianu, M., Toma, A., Barbu, R., Ardeleanu, V., Nitoi, L.C. (2021). Psychopathology in Patients Diagnosed with Sars Cov 2: a Brief Report. *Mediterranean Journal of Clinical Psychology, 9*(1). https://doi.org/10.6092/2282-1619/mjcp-2982

1. Introduction

COVID 19 is known worldwide for its infectious characteristics and it is caused by SARS-CoV-2 (the human coronavirus) which was first diagnosed in Wuhan in December 2019. The virus begun to spread first in China, then worldwide, and changed very fast our lifestyle by centering the entire world in a pandemic (Wang et al., 2020).

Anxiety, insomnia, alimentation disorders and stress are normal response to physical or psychic threats and appear at times when we are faced with uncertainty or the unknown (Asmundson & Taylor, 2020; Brooks et al., 2020; Ceccato et al., 2021a, 2021b; Merlo et al., 2021a; Myles & Merlo, 2021; Settineri & Merlo, 2020a, 2020b; Walsh & Foster, 2020). As it is well-known in previous and current literature, psychological factors strongly influence the onset of physical conditions, so that incoming psychopathology should be considered in order to avoid subsequent dynamics (Conversano & Di Giuseppe, 2021; Di Giuseppe et al., 2020a, 2020b; Lenzo et al., 2021; Martino et al., 2019, 2020; Merlo et al., 2021b; Porcelli & Jones, 2017; Robiner et al., 2020).

Therefore, it is normal and understandable that people are experiencing psychiatric symptoms in the context of the COVID-19 pandemic. SARS-CoV-2 infection has recently been implicated in the onset of psychosis, mood disorders, post-traumatic stress disorders and suicide (Benassi et al., 2020; Di Crosta, 2020; Fiorillo & Gorwood, 2020; Garrafa et al., 2020; Gunnell et al., 2020; Holmes et al., 2020; Kusaga et al., 2011; McIntyre & lee, 2020; Niederkrotenthaler et al., 2020; Pfattheicher et al., 2020; Severance et al., 2009).

It seems to be an increasing percent of suicidal ideation and behavior, during and following the COVID-19 outbreak, amongst the vulnerable patients with psychiatric disorders and it also seems to be 20–30% increase in suicidal rates due to the COVID-19 pandemic (Di Giacomo, 2020; John et al., 2020; Kawhol & Nordt, 2020; Klomek, 2020). Furthermore, there are studies showing that delirium, dementia, amnestic, and other cognitive disorders have an increased appearance risk after the infection with coronavirus (Jingqi et al., 2021).

As the quarantine, due to the COVID pandemic, involves different social, emotional, psychological and physical modifications, each one with the potential to increase distress. Although difficulties and maladjustment occur due to the current condition, some psychological resources serve as consistent protective factors in avoiding the onset of psychopathological conditions (Dymecka et al., 2020; Prout et al., 2020; Stueck. 2021; Super et al., 2020; Urban & Urban, 2020). Quarantine determines social isolation and feeling of loneliness, conditions which have been demonstrated to induce psychiatric and physical alterations in healthy individuals, health professionals included (Leigh-Hunt et al., 2017; Merlo et al., 2020b; Santini et al., 2020).

2. Material and methods

We have conducted a study on 28 patients diagnosed with SARS-Cov-2 for a period of three months.

Inclusion criteria: patients above the age 18 years, diagnosis of SARS-Cov-2 by PCR test in the last 3 months before the consultation, patients who accessed psychiatric consultation by phone.

Exclusion criteria: patients under the age 18 years, no infection of SARS-Cov-2, infection older than 3 months with SARS-Cov-2.

We have analyzed two aspects of this situation. First, some patients with psychiatric disorders that have been infected with COVID-19 and second, patients with COVID-19 infections that may develop a number of psychiatric symptoms, including anxiety, fear, depression, insomnia and cognitive disorders after recovery from COVID 19.

3. Results and discussions

The analyzed group consists of 28 patients, aged between 18 and 86 years, in which the evolution of psychiatric pathologies were analyzed in the context of the new SARS-CoV-2 infection.

The follow-up of these patients was done over a period of 3 months, the present research being a retrospective one. I will start the statistical analysis by presenting the patients` age distribution curve, as it can be seen in Figure 1.

This group is characterized by an average age of 46.89 years old, with a standard deviation of ±18,68 years old. The value of the statistical indices, Skewness and Kurtosis, define a curve with a homogeneous aspect, with a normal gaussian aspect. The maximum incidence peak is detected near the age of 40.

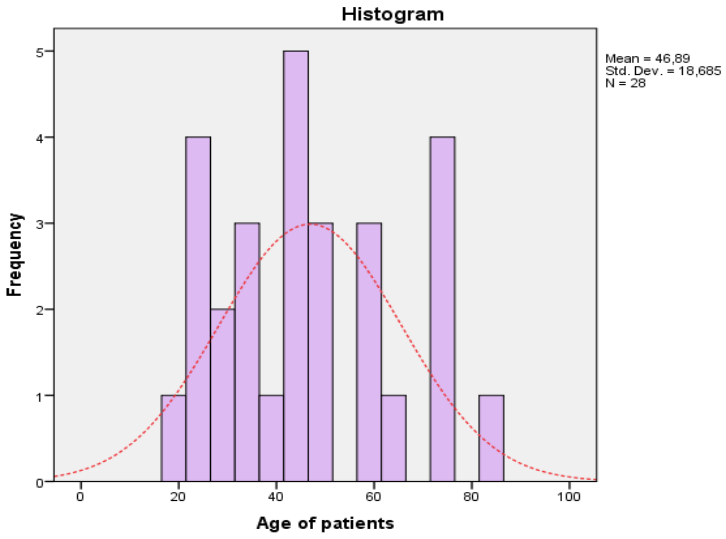

Figure 1. The distribution curve of age

Table 1. Age distribution

Number of patients	28
Mean	46,89
Median	46,00
Std. Deviation	18,685
Variance	349,136
Skewness	0,399
Std. Error of Skewness	0,441
Kurtosis	-0,830
Std. Error of Kurtosis	0,858
Minimum	19
Maximum	86

From the distribution point of view of the main variables that were analyzed, it can be observed that female gender patients have a predominance (with a 60,7%) compared to male gender patients, with an odds ratio of 2/3. Analyzing their habits, through the anamnestic examination, it indicated that 21,4% are smokers (n=6). From the point of view of their psychiatric disorder history, it can be observed that patients without associated pathologies predominate, prior to active SARS-Cov-2 infection (n=22, meaning a 78,6% percent of the group).

All of the 28 patients were needed to be quarantined; only 7 of them, meaning 25% of the group, needed to be quarantined in health units. After the remission of the new SARS-CoV-2 acute symptoms, it can be seen a growth in the incidence of psychiatric disorder, representing a total of 85,7% of the studied group. The start of the descriptive statistical analysis highlights the fact that out of the 24 patients with newly developed psychiatric pathologies, 17 were quarantined at home (70,83%), with a significant percentage difference of 29,16% in comparison to the 7 patients that were quarantined in a hospital. Anamnestic, there have been detected chronic diseases in patients' medical history. The one with the highest incidence was hypertension (10,7%).

Table 2. Data description of the patients included in the study

				Count	Valid	Mean
Gender	**Masculine**			11	39,3%	
	Feminine			17	60,7%	
Age of patients						47
Smoker	**No**			22	78,6%	
	Yes			6	21,4%	
Records of past psychiatric disorders	**No**			22	78,6%	
	Yes			6	21,4%	
Patients stayed in quarantine	**Home**			21	75,0%	
	Hospital			7	25,0%	
Records of psychiatric disorders after SARS-CoV-2 infection	**No**			4	14,3%	
	Yes			24	85,7%	
Patients stayed in quarantined	**Home**	**Records of psychiatric disorders after SARS-CoV-2 infection**	**No**	4	19,0%	
			Yes	17	81,0%	
	Hospital	**Records of psychiatric disorders after SARS-CoV-2 infection**	**No**	0	0,0%	
			Yes	7	100,0%	
Chronic disease	**No**			16	57,1%	
	Yes			12	42.9%	

Rodrigo Fernandez and his associates demonstrated in their study that the quarantine was associated with intense psychological distress. COVID-19-related fear and coping-skills should be given bigger attention, as they act as potential mediators in emotional suffering during quarantine (Fernández et al., 2020; Merlo et al., 2020a, 2021a).

Next, by statistical analysis, more precisely by performing an independent T test, we analyzed the degree of statistical significance between two ordinal variables, namely: the type of quarantine that benefited the patients enrolled in the study, respectively, the incidence of psychiatric pathologies after the RT PCR tests became negative. The sig. index, corresponding

to the Levene test of average equivalence, has a lower value than the reference value (equal to 0,003) for which reason we are allowed to continue the statistical analysis with the T test of average equivalence. And this time, the value of the statistical index sig. is lower than that of the reporting value (sig. = 0,042) in which case we can conclude that there is significant statistical relation between these two variables (Table 3). Thus, the current conclusion strengthens the previous hypothesis, we can admit that at the level of the analyzed group has an increased incidence of psychiatric pathologies in patients with confirmed SARS-CoV-2 infections, who were quarantined at home (Table 4).

Table 3. Independent samples test for psychiatric disorders after infection with SARS-CoV-2

	Levene's Test for Equality of Variances		**t-test for Equality of Means**				
						95% Confidence Interval of the Difference	
	F	**Sig.**	**T**	**Mean Difference**	**Std. Error Difference**	**Lower**	**Upper**
Equal variances assumed	10,462	0,003	-1,237	-0,190	0,154	-0,507	0,126
Equal variances not assumed			-2,169	-0,190	0,088	-0,374	-0,007

Table 4. Statistic elements in relationship with the type of the quarantine

Patients stayed in quarantine	**N**	**Mean**	**Std. Deviation**	**Std. Error Mean**
Home	21	0,81	0,402	0,088
Hospital	7	1,00	0,000	0,000

In the following, we performed a series of square Chi tests to highlight statistically significant differences between subjects who showed an evolution of the novo psychiatric pathologies, through reference to a series of individual characteristics. In the table below, although none of the tests that were performed does not show lower sig. values than reference ones, we can observe the increased incidence of psychiatric disorders that was detected in female, non-smokers patients, without a history of this pathology type, and who, as previously stated, were predominantly isolated at home (Table 5).

Table 5. Incidence of the psychiatric pathologies in patients diagnosed with SARSCov-2

		Records of psychiatric disorders after SARS CoV - 2 infection				Chi square (sig.)
		No		Yes		
		Count	Column Valid N %	Count	Column Valid N %	
Gender	**Masculine**	1	25,0%	10	41,7%	0,527
	Feminine	3	75,0%	14	58,3%	
Smoker	**No**	2	50,0%	20	83,3%	0,133
	Yes	2	50,0%	4	16,7%	
Records of past psychiatric disorders	**No**	4	100,0%	18	75,0%	0,259
	Yes	0	0,0%	6	25,0%	
Patients stayed in quarantine	**Home**	4	100,0%	17	70,8%	0,212
	Hospital	0	0,0%	7	29,2%	

According to the bivariate correlations with Pearson index, as described in the underlying table, we highlighted the existence of a statistically strong correlation (for sig value lower than the reference of 0.05) between the presence of psychiatric disorders after infection with the new COVID 19, respectively the symptomatology of the sensory disorders *anosmia or loss of taste) – sig 0.046 (Table 6).

Table 6. Pearson correlations regarding the SARS-CoV-2 symptoms of the patients included in the study

	N	Pearson Correlation	Sig. (2-tailed)
Records of psychiatric disorders after SARS CoV - 2 infection	28	1	
SARS CoV-2 active infection - clinical manifestations	28	-0,19	0,332
Cough - symptom of acute infection	28	-0,354	0,065
Fever - symptom of acute infection	28	-0,281	0,148
Dispneea - symptom of acute infection	28	0,062	0,752
Digestive manifestation- symptom of acute infection	28	0,021	0,914
Rinoreea - symptom of acute infection	28	-0,122	0,537
Headache - symptom of acute infection	28	0,175	0,372
Sensorial disorders - symptom of acute infection	28	-0,380*	0,046
Cronic disease	28	-0,127	-0,521

*. Correlation is significant at the 0.05 level (2-tailed).

**. Correlation is significant at the 0.01 level (2-tailed).

As a general conclusion, we can admit that it was demonstrated from a statistical point of view, the existence of a correlation between the incidence of psychiatric disorders in patients who had a confirmed infection with the new SARS-CoV-2 and their type of quarantine (home) and also the presence of symptoms governed by sensory disorders. These elements can therefore be considered as alarming factors. At the same time, no increased incidence of psychiatric pathologies was observed, depending on their existence in the past. Thus, out of the total of 6 patients who had a history of characteristic psychiatric pathologies, it is noted the existence of an equal number of patients (quarantined at home or in hospital) who continued to have this type of condition (Table 7).

Table 7. Records of past psychiatric disorders

Records of past psychiatric disorders							
No				**Yes**			
Patients stayed in quarantine				**Patients stayed in quarantine**			
Home		**Hospital**		**Home**		**Hospital**	
No	**Yes**	**No**	**Yes**	**No**	**Yes**	**No**	**Yes**
4	14	0	4	0	3	0	3

Performing the ANOVA test did not demonstrate the existence of a statistically significant correlation between the incidences of psychiatric diseases after COVID infection, respectively the ages of the patients in the analyzed group (Sig = 0.055).

Furthermore, we analyzed the distribution of patients according to two variables: the existence of psychiatric pathologies after acute SARS-CoV-2 infection and the severity of the symptoms. As we can see in the figure and table below (Table 8, Figure 2), there is an increased incidence in psychiatric disorders, especially in sleep disorders and anxiety in subjects who showed respiratory symptoms. At the same time, according to Chi square tests, no statistically significant difference was observed between these groups. In conclusion, we will admit the null hypothesis according to which, although there is no causal relationship between the symptoms associated with COVID infection 19 and psychiatric pathologies, at the level of the analyzed group there is an increased incidence, compared to minor cases as a clinical expression.

Table 8. The incidence of the psychiatric disorders in correlation to the symptoms of SARS-CoV-2

		Records of psychiatric disorders after SARS CoV - 2 infection		Chi square (sig.)
		No	Yes	
Cough - symptom of acute infection	No	0	12	0,061
	Yes	4	12	
Fever - symptom of acute infection	No	0	9	0,137
	Yes	4	15	
Dispneea - symptom of acute infection	No	3	16	0,741
	Yes	1	8	
Digestive manifestation- symptom of acute infection	No	2	19	0,212
	Yes	2	5	
Rinoreea - symptom of acute infection	No	2	16	0,52
	Yes	2	8	
Headache - symptom of acute infection	No	1	12	0,353
	Yes	3	12	
Sensorial disorders - symptom of acute infection	No	0	13	0,044
	Yes	4	11	

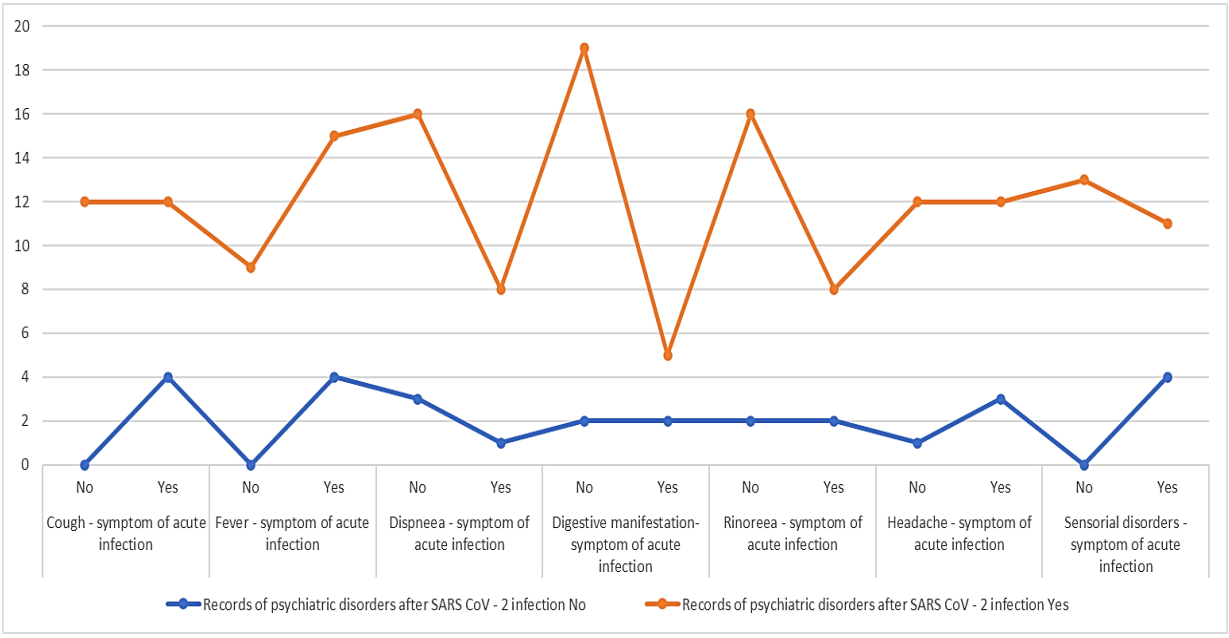

Figure 2. The incidence of the psychiatric disorders in correlation to the symptoms of SARS-CoV-2

However, for the future it is important to analyze in depth the symptoms of anxiety and depression in patients with various chronic diseases and especially with diabetes (Catrinoiu et al., 2020; Stoian et al., 2020, 2021; Zugravuet et al., 2012) associating COVID 19, the diagnosis of diabetes and its complications treatment which as we well know, negatively influences a patient's psyche (Catrinoiu et al., 2020; Moroianu et al., 2020; Stoian et al., 2020, 2021).

A special analysis requires patients who pay close attention to themselves and who may have mild psychiatric manifestations even before being infected with SARS-CoV-2 (Furtunescu et al., 2009). A benchmark for these patients may be excessive use of services of aesthetics or cosmetic surgery, precisely out of the desire to remove any imperfection (Ardeleanu et al., 2015, 2020).

4. Conclusions

The present research confirmed that there were detected risk factors and their presence may influence the incidence of psychiatric diseases in patients known to have SARS-CoV-2 infection. Among them we mention: home quarantine along with the clinical evolution and the presence of sensory disorders. At the same time, although without demonstrated statistical significance, an increased incidence of these pathologies was detected in non-smokers female subjects, without a history of mental pathologies.

4.1 Research limitations and further research perspective

The present study is not without limitations that may affect research and statistical analysis. First of all, it will be mentioned that the follow-up of the group was performed for a period of 3 months, reason for which the issuance of some conclusions is based on hypotheses detected strictly in the case of these patients. For this reason, we can consider as a future research perspective, the continuation of the study over an extended period of time, as well as an increased number of subjects.

Conflict of interest

The authors declare no conflict of interests.

Abbreviations

CI – confidence interval

SPSS – statistical package for social sciences

VM- average value

DS – standard deviation

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DOI: 10.6092/2282-1619/mjcp-2982