Section:

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Prevalence of Post Covid Psychiatric Symptoms in Sample of Recovered Patients

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Abstract

Background: Coronavirus disease (COVID-19) is a new strain that was never recognized in humans before. It was discovered in 2019 and its common signs include fever, respiratory symptoms; cough and dyspnea.

Aim of the work: To investigate whether there are any psychiatric symptoms in patients who got COVID-19 infection or not.

Subjects and methods: This case control involved 132 subjects divided into a case group of 66 patients who were treated in tertiary care at Al-Hussein and Sayed Galal Hospitals, Al-Azhar University and a control group of another 66 patients who did not get the infection. The Symptom Checklist 90 Revised (SCL-90-R) and clinical interview have been used to evaluate subjects within 6 months of discharge from quarantine sections.

Results: The results of this study showed that subjects of the case group had significant levels of somatization, depression and anxiety based on SCL-90R, while clinical interview showed significant increase of major depressive episodes, persistent depressive disorder, generalized anxiety disorder and insomnia.

Conclusion: A wide spectrum of psychiatric symptoms occurs in COVID-19 patients. Based on SCL-90-R data from COVID-19 survivors, psychiatric symptoms may exist within 6 months following discharge; Somatization, Depression and Anxiety were significantly higher in post-COVID-19 patients. Based on the clinical interview, various disorders occur to COVID-19 survivors including Major depressive episode, Persistent depressive disorder, Generalized anxiety disorder and Insomnia.

Keywords: Anxiety, COVID-19, Depression, Psychiatry, Respiratory distress

1. Introduction

COVID-19 is a highly infectious disease; possibly one person can infect three persons.1 The incubation period is about 3–9 days.2 It is presented by respiratory virus-like manifestation; >80% of patients have a mild to severe self-limiting infection.3 Common symptoms are: fever 81.2%, cough 58.5%, fatigue 38.5%, dyspnea 26.1%, and sputum 25.8%.4 Post-COVID-19 is defined as a condition that occurs three months after infection, with symptoms continue 2 months and cannot be explained by other diagnoses. Common symptoms include dyspnea, fatigue and cognitive dysfunction which may cause functional impairment. Symptoms may fluctuate or flare by time.5 SARS-CoV-2 affects various systems; respiratory, renal, cardiovascular and nervous.6 There are different mechanisms by which CNS is affected by COVID-19 infection: hypoxia, direct infection and immune-mediated cell destruction.7 Increased cases of COVID-19, lead to increase awareness of the mental health consequences.8 It is reported that the acute psychiatric symptoms of COVID-19 are depression, anxiety, and stress.9 Long-term psychiatric symptoms are not known yet, few studies found that symptoms can persist 3 months, 5 months, 6 months, and even up to year.10 The purpose of this research was to see if there are certain psychiatric symptoms or disorders associated with post-COVID-19 within 6 months of hospital discharge.
2. Patients and methods

This study has been conducted in tertiary care units at Al-Hussein and Sayed Galal Hospitals, Al-Azhar University, on a total of 132 patients, divided into 66 patients as a case group and 66 patients as a control group.

2.1. Eligibility criteria

Patients between the age of 18 and 60 of both sexes who accepted of participation in this study by obtaining written consent. Subjects of case group have been diagnosed as COVID-19 infection based on the clinical presentation, laboratory testing, chest imaging and rt-PCR tests within last 6 months. While subjects of the control group did not have history of COVID-19 infection or sever flu-like symptoms that acquired home stay or hospital admission. We excluded patients with history of organic neurological disorders like intracranial hemorrhage (ICH), ischemic infarctions, brain tumors, vascular malformations, brain surgery and infections. We also excluded individuals who had previous history of psychiatric disorders or received antidepressants or antipsychotics.

2.2. Methods and data collection

Participants have been divided into 2 equal groups: one study (case) group and another control group. A case group composed of sixty-six patients (33 males and 33 females, 22 single and 44 married) with a mean age 40.3. There were 43 patients working at areas of high degree of physical contact such as health care facilities, education, childcare, food and necessary goods. 23 subjects of case group lived in urban areas, 12 subjects in rural areas, and 30 subjects in slums. Eight subjects of case group lived in places with crowding index <1/room, 17 subjects lived in places with crowding index 1–1.5/room and 14 subjects lived in places with crowding index >1.5/room.

A control group composed of sixty-six patients (33 males and 33 females, 21 single and 45 married) with mean age 39.8. There were 14 patients working at areas of the high degree of physical contact. 29 subjects of control group lived in urban areas, 30 subjects in rural areas, and 7 subjects in slums. 23 subjects of the control group lived in places with crowding index <1/room, 28 subjects lived in places with crowding index 1–1.5/room and 15 subjects lived in places with crowding index >1.5/room.

2.3. Tools and assessment

All patients were subjected to Symptom Checklist 90 Revised (SCL-90R) questionnaire, SCID-I questionnaire and clinically interviewed including full general psychiatric history taking; personal history: name, age, sex, marital status, educational level, residence, occupation, and particular habits of medical significance; complaint: onset, course, and duration; history of the present illness, past medical and psychiatric history; and family history mental state examinations regarding DSM-V criteria. Full medical history taking and general physical examinations were done.

2.4. Ethical approval

The research was accepted by our faculty’s ethical committee and participants gave written consent.

2.5. Statistical analysis of the data

Data were analyzed using Statistical Program for Social Science (SPSS) version 24. Qualitative data were expressed as frequency and percentage. Quantitative data were expressed as mean ± SD.

Mean (average): the central value of a discrete set of numbers, specifically the sum of values divided by the number of values. Standard deviation (SD): is the measure of dispersion of a set of values. A high SD indicate that the values are spread out over a wider range, while a low SD indicates that the values tend to be close to the mean of the set.

The following tests were done: Chi-square test: was used when comparing between non-parametric data. Mann Whitney U test (MW): when comparing between two means (for abnormally distributed data). Probability (P-value): P value > 0.05 was considered insignificant, P-value <0.05 was considered significant and P value < 0.001 was considered as highly significant.

3. Results

There were 66 (50%) men and 66 (50%) women among the 132 patients studied, with an average age of 40.3 years in the case group and 39.8 years in the control group (Table 1). There was no significant difference between case group and control group as regard age, sex, marital status and educational level (Table 1).

Highly statistically significant difference of residence and crowding index when comparing case group to control group (Table 1).
Highly statistically significant increased percentage of working at areas of high degree of physical contact in case group (43 patients, 65.2%) when compared with control group (10 patients, 15.2%) (Table 1). These areas include healthcare facilities, education, childcare, food and necessary goods.

There was no statistically significant difference between studied groups (case and control) as regard Symptom Check List 90 Revised (SCL-90-R) (interpersonal sensibility, obsessive-compulsive, anger hostility, phobic anxiety, paranoid ideation and psychoticism) (Table 2).

Based on SCL-90-R, there was highly statistically significant increased percentage of somatization in case group (38 patients, 57.6%) when compared with the control group (18 patients, 27.3%), statistically significant increased percentage of depression in case group (38 patients, 57.6%) when compared with control group (22 patients, 33.3%) and highly statistically significant increased percentage of anxiety in case group (47 patients, 71.2%) when compared with control group (16 patients, 24.2%) (Table 2).

As regard clinical interview, there was statistically significant increased percentage of major depressive episode in case group (19 patients, 28.8%) when compared with the control group (5 patients, 7.6%), statistically significant increased percentage of Persistent depressive disorder in case group (10 patients, 15.2%) when compared with the control group (0 patients, 0%) (Table 3).

Also, there was highly statistically significant increased percentage of generalized anxiety disorder in the case group (27 patients, 40.9%) when compared with the control group (5 patients, 7.6%) and highly statistically significant increased percentage of insomnia in case group (11 patients, 16.7%) when compared with the control group (0 patients, 0%) (Table 3).

Table 1. Comparison of demographic data between studied groups shows no statistically significant difference as regard age, sex, marital status and educational level. While highly statistically significant increased percentage of working at areas of high degree of physical contact in case group and highly statistically significant difference of residence and crowding index in case group.

<table>
<thead>
<tr>
<th>Subject (N = 66)</th>
<th>Control (N = 66)</th>
<th>Stat. test</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (years) Mean</td>
<td>40.3</td>
<td>39.8</td>
<td>MW = 120</td>
</tr>
<tr>
<td>±SD</td>
<td>9.1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sex</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>33 (50%)</td>
<td>33 (50%)</td>
<td>X² = 0.0</td>
</tr>
<tr>
<td>Female</td>
<td>33 (50%)</td>
<td>33 (50%)</td>
<td></td>
</tr>
<tr>
<td>Marital status</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Single</td>
<td>22 (33.3%)</td>
<td>21 (31.8%)</td>
<td>X² = 0.03</td>
</tr>
<tr>
<td>Married</td>
<td>44 (66.7%)</td>
<td>45 (68.2%)</td>
<td></td>
</tr>
<tr>
<td>Educational level</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Secondary school</td>
<td>16 (24.2%)</td>
<td>25 (37.9%)</td>
<td>X² = 34.3</td>
</tr>
<tr>
<td>University</td>
<td>50 (75.8%)</td>
<td>41 (62.1%)</td>
<td></td>
</tr>
<tr>
<td>Occupation</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>High degree of physical contact</td>
<td>43 (65.2%)</td>
<td>10 (15.2%)</td>
<td>X² = 22.6</td>
</tr>
<tr>
<td>Residence</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Urban areas</td>
<td>23 (34.8%)</td>
<td>29 (43.9%)</td>
<td></td>
</tr>
<tr>
<td>Rural areas</td>
<td>12 (18.2%)</td>
<td>30 (45.5%)</td>
<td></td>
</tr>
<tr>
<td>Slums</td>
<td>30 (45.5%)</td>
<td>7 (10.6%)</td>
<td></td>
</tr>
<tr>
<td>Crowding index</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt;1/room</td>
<td>8 (12.1%)</td>
<td>23 (34.8%)</td>
<td>X² = 22.01</td>
</tr>
<tr>
<td>1–1.5/room</td>
<td>17 (25.8%)</td>
<td>28 (42.4%)</td>
<td></td>
</tr>
<tr>
<td>&gt;1.5/room</td>
<td>41 (62.1%)</td>
<td>15 (22.7%)</td>
<td></td>
</tr>
</tbody>
</table>

Table 2. Comparison of Symptom Check List 90 Revised (SCL-90-R) between studied groups shows highly statistically significant increased percentage of somatization and anxiety in case group and statistically significant increased percentage of depression in case group.

<table>
<thead>
<tr>
<th></th>
<th>Case (N = 66)</th>
<th>Control (N = 66)</th>
<th>X²</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Somatization</td>
<td>38 (57.6%)</td>
<td>18 (27.3%)</td>
<td>12.4</td>
<td>&lt;0.001 HS</td>
</tr>
<tr>
<td>Obsessive compulsive</td>
<td>30 (45.5%)</td>
<td>22 (33.3%)</td>
<td>2.03</td>
<td>0.154 NS</td>
</tr>
<tr>
<td>Interpersonal sensitivity</td>
<td>10 (15.2%)</td>
<td>18 (27.3%)</td>
<td>2.9</td>
<td>0.088 NS</td>
</tr>
<tr>
<td>Depression</td>
<td>38 (57.6%)</td>
<td>22 (33.3%)</td>
<td>7.8</td>
<td>0.005 S</td>
</tr>
<tr>
<td>Anxiety</td>
<td>47 (71.2%)</td>
<td>16 (24.2%)</td>
<td>29.2</td>
<td>&lt;0.001 HS</td>
</tr>
<tr>
<td>Anger Hostility</td>
<td>9 (13.6%)</td>
<td>12 (18.2%)</td>
<td>0.5</td>
<td>0.475 NS</td>
</tr>
<tr>
<td>Phobic anxiety</td>
<td>26 (39.4%)</td>
<td>16 (24.2%)</td>
<td>3.4</td>
<td>0.061 NS</td>
</tr>
<tr>
<td>Paranoid ideation</td>
<td>15 (22.7%)</td>
<td>12 (18.2%)</td>
<td>0.41</td>
<td>0.517 NS</td>
</tr>
<tr>
<td>Psychoticism</td>
<td>16 (24.2%)</td>
<td>18 (27.3%)</td>
<td>0.15</td>
<td>0.690 NS</td>
</tr>
</tbody>
</table>

Table 3. Comparison of clinical interview between studied groups shows statistically significant increased percentage of major depressive episode and persistent depressive disorder in case group and highly statistically significant increased percentage of generalized anxiety disorder and insomnia.
As regard clinical interview, there was no statistically significant difference between studied groups (case and control) as regard manic or hypomanic episode. Panic disorder, OCD, PTSD and psychosis spectrum (Table 3).

4. Discussion

The age, sex, marital status and educational level in case and control groups did not differ significantly in this study.

In agreement with our study, a systematic review and meta-analysis reported that there were no significant association between neuropsychiatric or psychiatric symptoms in covid-19 with age and sex. Also, Xiong et al., 2021 reported that no significant difference as regard the sex ratio and age between the two groups.

The current study showed highly statistically significant increased percentage of working at areas of the high degree of physical contact. These areas include healthcare facilities, education, childcare, food and necessary goods.

Such results are congruent to American study which revealed that healthcare workers and healthcare support occupations have a greater risk of exposure one per month more than 90%, and more than 75% more than 1/week. Other occupational groups such as transportation security screeners, childcare workers, nannies, firefighters, police officers, and personal care aides have a high risk of exposure (52% once a month). While community and social services occupations are 32.4% exposed more than once a month. Additionally, theses occupations had a high risk of severe COVID-19 infection.

Comparison of Symptom Check List 90 Revised (SCL-90-R) between studied groups, showed that there was highly statistically significant increased percentage of somatization and anxiety and statistically significant increased percentage of depression in the case group. The present study was supported by Mullins et al., 2022 results which reported strong positive correlations between somatization and SARS-Cov-2.

Another study by Ibrahim et al., 2022 used SCL-90-R and reported that COVID-19 can induce various symptoms and levels of psychological distress. Their results showed that 50% of COVID-19 survivors had severe depression and most of them had problematic level of anxiety as 40% had moderate anxiety and 38% had severe anxiety. Regarding other symptoms, moderate somatization symptoms was 50% and moderate obsessive-compulsive symptoms was 50%. While 36% of patients had severe interpersonal sensitivity and 40% of the patients had severe level of hostility.

This result congruent with Xie et al., 2021 who found that all ten SCL-90-R- dimensions were expressed on COVID-19 patients from mild to moderate severity through early recovery and concluded that under the stress of respiratory syndrome, the survivors are easy to get psychological distress.

A recent systemic review and meta-analysis found that 10.5% of COVID-19 survivors suffered from depression, 12.1% had insomnia, while anxiety was 12.3%, memory impairment 18.9%, fatigue was 19.3%, and irritability 12.8% after acute stage. In addition, the risk of depression was more than 3-times higher than healthy control.

Assessment of long-term consequences of COVID-19 found that survivors were mostly bothered by tiredness, depression, sleep troubles and anxiety at 6 months after infection.

Restrictions on personal movement, self-isolating and self-quarantining, school closing, restrictions on public events and public transport, workplace closing, restrictions on international travel social distancing and closing borders are great challenges to public health and economic impact of these strategies was stressful to individual’s income which affect mental health. Additionally, media reports during the COVID-19 outbreak was terrifying, excessive follow-up of infection and death numbers and the spread of fearsome sequelae of infection lead to rumors spread among the population which may contribute to the net result of increased psychological problems.

Furthermore, in the current study comparison of clinical interview between studied groups, showed that there was statistically significant increased percentage of major depressive episode and persistent depressive disorder in case group when compared with control group. Highly statistically significant increased percentage of generalized anxiety disorder and insomnia in case group.

In agreement with our study, the incidence of depression, anxiety, insomnia and dysphoria among COVID-19 survivors was significantly higher in comparison to healthy controls. Additionally, the prevalence of mental disorders including stress-related disorders, mood disorders, anxiety, and affective psychotic disorders were higher in the COVID-19 group than in the control group.

Furthermore, about 33% of studied COVID-19 survivors had psychological problems and the most common psychological problem was depression.

Some other published studies found that at one month after infection, 55.7% of participants had ≥1
psychopathological (anxiety, depression, OCD and PTSD), while after 2 months 36.8% showed ≥1 psychopathological domain, 20.6% in three months, and 10% in fourth month.²²

Attribution to the current result may be related to psychological distress, fears of unknown, and fear for future COVID-19 attack and experience again isolation from family and friends, loss of liberty, uncertainty about the disease's progression, and a sense of powerlessness. Additionally, some psychosocial issues postdischarge, such as stigma associated with COVID-19 and income reduction or unemployment, may raise the likelihood of mental health problems among COVID-19 survivors.

These findings recommend psychological support and intensive mental health service throughout the early stages of COVID-19. Additionally, it is necessary to monitor psychiatric symptoms and provide medication (if needed) for survivors throughout recovery.

5. Conclusion

Based on SCL-90-R, somatization, depression and anxiety were significantly high in control group. Clinical interview revealed that various disorders occur to COVID-19 survivors including Major depressive episode, Persistent depressive disorder, Generalized anxiety disorder and Insomnia. These findings suggest that it is necessary to monitor psychiatric symptoms and help survivors by treatment if needed.

Disclosure

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Authorship

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Conflicts of interest

The authors declared that there were NO conflicts of Interest.

References


