Prevalence of Anxiety among Post COVID-19 Survivors

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Abstract

Background: The most frequently described mental disorders following COVID-19 infection are major depressive disorder (MDD), post-traumatic stress disorder (PTSD), anxiety disorders, obsessive-compulsive disorders (OCD) and insomnia

Aim and objectives: Is to assess the frequency of worry among individuals who have recovered from COVID-19 and are receiving care at Al-Hussein University Hospital.

Subjects and methods: This is a cross-sectional descriptive study with an analytical component of patients with COVID-19 who visit the outpatient psychiatry and pulmonology clinic at AL-Hussein University Hospital over the period of one year.

Result: Regarding sociodemographic characteristics of the studied group, the mean age of the participants was 47.01±12.6 years; they consisted of 49(49%) males and 51(51%) females. Of the 100 patients participating in this study, 44% had a family member infected with COVID-19, and 8% had a family member who died due to COVID-19. 70% of the participants were worried about getting infected again with COVID-19, 43% were worried about the stigma of getting infected with COVID-19, 71 % were worried about the possibility of infecting a family member, 16 patients have had minimal anxiety, 37 patients with mild anxiety, 23 patients with moderate anxiety, and 24 patients with severe anxiety.

Conclusion: Anxiety was prevalent among the participants, with varying degrees of severity. There was no significant difference in anxiety levels based on age or residence type. However, females were more likely to experience severe forms of anxiety. Psycho-social factors, such as the loss of relatives to COVID-19, concerns about stigma, and infection of family members, were associated with higher levels of anxiety.

Keywords: Survivors; Anxiety; COVID-19

1. Introduction

According to Murdoch and Howie (2018), lower respiratory infections continue to be the infectious disease with the highest global death rate. A new coronavirus known as the severe acute respiratory syndrome coronavirus-2 (SARS-CoV-2) was identified as the cause of the extremely contagious respiratory illness known as coronavirus disease 2019 (COVID-19), which first surfaced in Wuhan, China, in late December 2019.[1]

COVID-19 was deemed a pandemic by the World Health Organization, or WHO, on March 11, 2020. Two, The basic reproduction rate of SARS-COV-2 may have surpassed that of Middle East respiratory disease (MERS) and severe acute respiratory syndrome (SARS), according to a report on the virus's transmissibility.[2]

Globally, there have been documented cases and deaths totaling over 632 million as of November 2022.[3]

Through angiotensin-converting enzyme two receptors, the virus enters the body and damages endothelial cells, which can result in thrombi, inflammation, and brain damage. Moreover, systemic inflammation raises glutamate and N-methyl-d-aspartate (NMDA) and excitotoxicity by reducing monoamines, trophic factors, and microglia activation.

These assaults cause preexisting neuropsychiatric symptoms to resurface or to start anew.[4]

The COVID-19 virus exhibits a range of clinical features, from a condition of no symptoms to multi-organ failure and acute respiratory distress syndrome. Frequent clinical manifestations comprise fever, cough, sore throat, headache, exhaustion, myalgia, and dyspnea.[5]

Numerous individuals may suffer from bodily issues and psychological discomfort as a result of the rise in the number of infected people and their deaths.[6] According to Duan and Zhu (2020), there can be adverse consequences from a disease epidemic on individuals. They highlighted that psychological distress has been observed during the COVID-19 pandemic and that prompt and effective intervention is necessary to address this issue. Zheng (2020) observed that a significant number of SARS-CoV-2 epidemic survivors had mental health issues, including depression and stress. She also stressed the significance of preventing, screening for, and treating mental health conditions during the COVID-19 pandemic.

According to the World Health Organization, mental health is a "condition of well-being in which every individual fulfills their potential, is able to manage everyday stressors, is able to work effectively and profitably, and is able to contribute to their community.".[7]

Following COVID-19 infection, anxiety disorders, major depressive disorder (MDD), insomnia, obsessive-compulsive disorder (OCD), and post-traumatic stress disorder (PTSD) are the most commonly reported mental problems.[8]

This study aims to determine how common anxiety occurs in post-COVID-19 survivors who visit Al-Hussein University Hospital.

2. Patients and methods

This cross-sectional descriptive study includes an analytical component, and it was carried out on COVID-19 patients who were seen at the outpatient psychiatry and pulmonology clinic at AL-Hussein university hospital over the period one year from June 2023 to June 2024.

Inclusion criteria: Age more than 18 to give legal consent, both Sex, acceptance of participation in the study by written and oral consent, no history of psychiatric disorders before infection of COVID-19, and no neurological disorders such as tumor.

Exclusion criteria: Age less than 18 and more than 60, refusal of the patient, if they have a history of psychiatric disorders before infection of COVID-19, and if they have neurological disorders such as tumor.

Sample size: The minimum sample size is one hundred, and the sampling technique successive sample up until the completion of the sample size

Methods:

Psycho-social aspects of COVID-19 include: Did any members of your family contract the virus? Has COVID-19 claimed the lives of any family members for you? Are you concerned that you might contract COVID-19 again? Are you concerned about the stigma associated with contracting COVID-19? Are you concerned that you might spread COVID-19 to a member of your family? Lastly, a semi-structured clinical interview based on the DSM-V and the 7-item Generalized Anxiety Disorder (GAD-7).

Ethics:

The Helsinki Declaration was followed when conducting this investigation. The medical ethics committee of Al-Azhar University's Faculty of Medicine in Cairo provided the IRB permission. Every patient gave their informed permission.

Statistical analysis:

The statistics program SPSS for Microsoft Windows Version 25.0 was utilized for data analysis (IBM Corp, 2017). Mean±standard deviation was used to convey continuous data, and number and % were used to represent categorical data. Two groups' category data were compared using the Chi-square test. When any cell's predicted count is fewer than five, the Fischer Exact test is employed. With the use of the Epi Info tool, the crude odds ratio (COR) was determined. AORs (adjusted odds ratios) and significant independent predictors were found by entering important factors linked to depression, anxiety, and insomnia by univariate analysis into a forward Wald binary logistical regression analysis. A statistically significant value is defined as $P \leq 0.05$. In light of earlier research, the results were examined once the relevant transactions were completed.

3. Results

Table 1. Demographic data of the studied patients.

VARIABLE		N (%) (N=100)
AGE	19:29 years	29(29%)
	30:39 years	20(20%)
	40:49 years	21(21%)
	≥50	30(30%)
	Mean ± SD	47.01±12.6
SEX	Male	49(49%)
	Female	51(51%)
	Rural	45(45%)
	Urban	55(%)
EDUCATIONAL	Education duration Mean ± SD	13±6.2 YEARS
	Illiterate	13(13%)
	Diploma	35(35%)
	University	52(52%)
	Not work	41(41%)
	Work	59(59%)
	Married	89(89%)
	Single	8(8 %)
	Divorced	1(1%)

	Widow	2(2%)
CHRONIC ILLNESS *	Yes	44(44%)
	No	56(56%)
SMOKING	Yes	39(39%)
	NO	61(61%)

Standard deviation, or SD, was represented by 29 (29%), 20 (20%), 21 (21%) and 30 (30%) years for the class of 19:29 years, 40:49 years, and ≥50 years. *Persistent sickness, such as COPD, bronchial asthma, hypothyroidism, diabetes, hypertension, cancer, HCV, renal disease, and liver disease

The participants' average age was 47.01±12.6 years; they were made up of 51(51%) females and 49(49%) males. Of them, 55(55%) lived in urban regions and 45(45%) in rural ones. Most of the individuals in the study were employed (59%) and had completed their university education (52%). 89 percent of them were married.

Generalized Anxiety Disorder 7-item (GAD-7)

How often have the following issues disturbed you in the past two weeks? Absent altogether = 0, a few days = 1, almost half of the days = 2, Almost every day = 3.
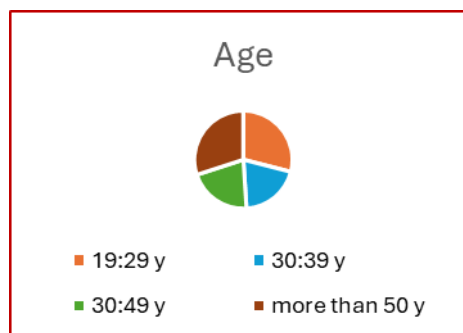

Figure 1. Distribution of patients according to age classification.

Table 2. Showed descriptive analysis of GAD-7.

	MEAN SD	MIN	MAX
Feeling nervous, anxious or on edge	2.1±0.9	0	3
Not being able to stop or control worrying	2.4±0.6	1	3
Worrying too much about different things	2.6±0.4	1	2
Trouble relaxing	2.1±0.9	0	3
Being so restless that it is hard to sit still	1.9±1.1	0	3
Becoming easily annoyed or irritable	1.8±1.1	1	3
Feeling afraid as if something awful might happen	2.1±0.6	1	3

The degree of anxiety severity is correlated with the following cut-offs: Scores of 0–4 indicate minimal anxiety, 5–9 indicate mild anxiety, 10–14 indicate moderate anxiety, and a score of more than 15 indicates severe anxiety.

Table 3. Correlation between demographic data and severity of anxiety.

VARIABLE	TOTAL N (%)	MINIMAL ANXIETY N(%)	MILD ANXIETY N(%)	MOD ANXIETY N(%)	SEVERE ANXIETY N(%)	P VALUE
OVERALL	100(100)	16(16%)	37(37%)	23(23%)	24(24%)	0.348
AGE						
<50	70(70%)	10(62%)	35(94)	10(43%)	15(62.5%)	<0.001**
≥50	30(30%)	6(38%)	2(6)	13(57%)	9(37.5%)	<0.001**
SEX						
MALE	49(49%)	5(31)	20(54)	11(47)	13(54)	0.23
FEMALE	51(51%)	11(69)	17(46)	12(53)	11(46)	0.54
RESIDENCE						
RURAL	45(45%)	8(50%)	19(51%)	10(43%)	13(54%)	0.865
URBAN	55(55%)	8(50%)	18(49%)	13(57%)	11(46%)	0.755
EDUCATIONAL						
ILLITERATE	13(13%)	5(31)	5 (13)	1(4)	2(8%)	0.98
DIPLOMA	35(35%)	7(44)	14(38)	7(31)	7(30)	0.02
UNIVERSITY	52(52%)	4(25)	18(49%)	15(65)	15(62)	0.15
PROFESSION						
NOT WORK	41(41%)	5(31)	10(28)	10(43%)	16(67)	0.23
WORK	59(59%)	11(69)	27(82)	13(57)	8(33%)	0.31
MARITAL STATUS						
MARRIED	89(89%)	10(62%)	35(94)	22(95)	22(91)	<0.001**
NOT MARRIED (SINGLE, DIVORCED OR WIDOW)	11(11%)	6(38%)	2(6)	1(4)	2(8%)	<0.001**
CHRONIC ILLNESS						
YES	44(44%)	4(25)	10(28)	12(53)	18(75%)	<0.001**
NO	56(56%)	12(75)	27 (72)	11(47)	6(25)	<0.001**
SMOKING						
YES	39(39%)	5(31)	10(28)	10(43%)	14(59)	<0.001**
NO	61(61%)	11(69)	27(72)	13(56)	10(41)	<0.001**

**significant P-value,

Patients who were younger than 50 years developed severe forms of anxiety, also married patients developed severe forms of anxiety than who were not married. Anxiety levels were higher in smokers and those with chronic illnesses, P=0.001.
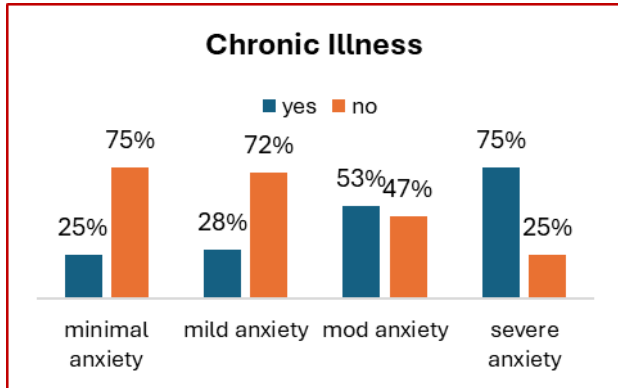
Figure 2. Relation between severity of anxiety and presence of chronic illness
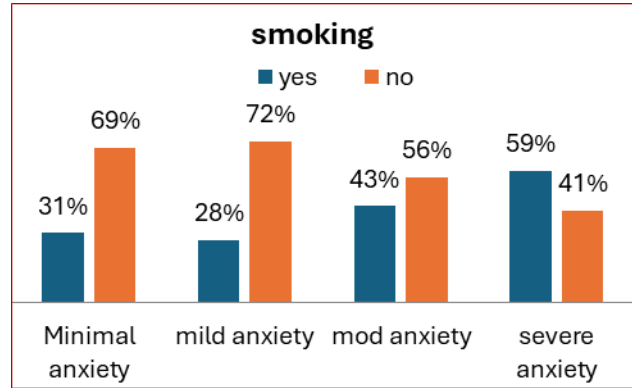

Figure 3. Relation between severity of anxiety and presence of smoking.

Table 4. Relationship between social factors and anxiety in relation to COVID-19.

VARIABLE	TOTAL * N (%)	MINIMAL ANXIETY N (%)	MILD ANXIETY N (%)	MOD ANXIETY N (%)	SEVERE ANXIETY N (%)	P VALUE
OVERALL	100(100)	16(16%)	37(37%)	23(23%)	24(24%)	0.348
A FAMILY MEMBER INFECTED WITH COVID-19						
NO	56(56%)	12(76%)	20(54%)	7(30%)	5 20%)	<0.001**
YES	44(44%)	4(24%)	17(46%)	16(70%)	19(80%)	<0.001**
A FAMILY MEMBER DIED DUE TO COVID-19						
NO	92(92%)	15 (93%)	35(94%)	20(86%)	22(91%)	0.7
YES	8(8%)	1(7%)	2(6%)	3(14%)	2(9%)	0.12
WORRY ABOUT GETTING INFECTED AGAIN						
NO	30(30%)	8(50%)	7(50%)	6(26%)	9(37%)	<0.001**
YES	70(70%)	8(50%)	30(81%)	17(74%)	15(63%)	<0.001**
WORRY ABOUT THE STIGMA OF GETTING INFECTED						
NO	57(57%)	7(43)	23(62)	20(86%)	7(30)	<0.001**
YES	43(43%)	9(57)	14(38)	3 (14%)	17(70)	<0.001**
WORRY ABOUT THE POSSIBILITY OF INFECTING A FAMILY MEMBER						
NO	29 (29%)	8(50%)	12(32)	7(30%)	2(9%)	<0.001**
YES	71(71%)	8(50%)	25(68%)	16(70%)	12(91%)	<0.001**

**significant P-value,

Severe anxiety was associated with those who have had a family member infected with COVID-19. Worriness of getting infected or getting infected again or the fear of possibility for a family member to get infected increase the severity of anxiety P=0.001.

Table 5. Anxiety among the participants under study was predicted independently.

PARAMETER	B	P VALUE	OR (95%CI)
AGE (<50)	0.8	<0.001**	1.9(1.2-5.7)
MARITAL STATUS (MARRIED)	0.9	<0.001**	3.5(2.5-7.6)
SMOKERS	0.9	<0.001**	7.5(8.6-15.3)
CHRONIC ILLNESS	1.1	<0.001**	3.7(3.6-8.6)
WORRY ABOUT GETTING INFECTED AGAIN	1.2	<0.001**	1.1(1.6-5.1)
A FAMILY MEMBER INFECTED WITH COVID-19	0.9	<0.001**	1.6(1.8-2.8)
WORRY ABOUT THE STIGMA OF GETTING INFECTED	1.2	<0.001**	6.8(3.4-7.1)
WORRY ABOUT THE POSSIBILITY OF INFECTING A FAMILY MEMBER	0.9	<0.001**	1.1(12.4-38.4)

**significant P-value, β: regression coefficient, OR: Odds Ratio, CI: Confidence Interval.

Among the patients under study, age under 50, marital status, smoking status, chronic illness status, worry about contracting the virus again, fear of the stigma associated with infection, and concern over potentially infecting a family member were independent predictors of anxiety.

4. Discussion

Recent studies suggest that elevated anxiety levels may be detrimental during the pandemic because coronavirus-related anxiety was significantly connected to functional impairments, alcohol or drug use, negative religious coping, extreme pessimism, and thoughts of passive suicide. It is essential to comprehend the psychological effects of COVID-19 on survivors of the outbreak in order to implement early therapies intended to reduce the probability of future irrational acts and help those populations return to their normal lives.[9]

Few research examined the conditions after COVID-19 patients were discharged, especially the mental health of survivors. While several studies conducted in Asia examined anxiety levels in COVID-19 patients throughout their hospital stays, they reported elevated levels.[10]

In our study, 16(16%) patients have had minimal anxiety, 37(37%) patients with mild anxiety, 23(23%) patients with moderate anxiety and 24(24%) patients with severe anxiety.

No statistically significant variance in anxiety levels was found between the age groups in our study (p=0.348). There was no discernible

difference in the severity of anxiety according to age (p=0.4) among those under 50, who reported 16% having low anxiety, 37% having mild anxiety, 23% having moderate anxiety, and 24% having severe anxiety. Similarly, among participants aged 50 and above, the distribution of anxiety severity was consistent, with 16% reporting minimal anxiety, 38% reporting mild anxiety, 25% reporting moderate anxiety, and 21% reporting severe anxiety, again with no significant difference based on age (p=0.4).

This is in contrast to [11] who reported that the study revealed that age was a significant factor in predicting anxiety among the patients under examination. Patients who were under 50 years old reported an anxiety rate of 46.3% (p=0.02), whereas patients who were over 50 years old reported a lower rate of 27.7%.

Additionally, this contradicts the findings reached by Youssef and Mostafa. Greater anxiety coping methods were observed in older individuals, whereas younger individuals had a greater number of psychological morbidities [12].

A different explanation might be that during the COVID-19 outbreak, people with higher incidences of mental health difficulties, specifically anxiety and depression, were interacting with social media more frequently while they were younger.[13]

This also disagrees with [14], who stated that a statistically significant relationship was observed between age and anxiety. According to their study's findings, elderly persons (50 years of age or older) were more likely than younger adults (ages 18 to 39) to experience anxiety.

In a northern Indian investigation, it was discovered that COVID-19 survivors older than 50 years had noticeably higher anxiety levels than those younger than 30 to 49 years.[15]

A further study conducted in Wuhan, China, showed that individuals with COVID-19 who were older than 50 years of age had a greater frequency of worry.[16]

According to our research, severe anxiety was more common among women.

Significant backgrounds and risk factors of mental health disorders, particularly anxiety, were consistent with the female demographic of our study. This could be a result of these groups having less social capital than their counterparts and, consequently, less coping mechanisms.[16]

This agrees with [17]. He stated that there was a higher likelihood of nervousness in the female sex throughout the psychiatric interview.

The literature supports this heightened sensitivity.[18] In the particular group of individuals who had previously contracted COVID-19, female sex has been found to be a risk factor for the emergence of psychiatric symptoms.[19]

P-values for rural and urban locations in our study were 0.7 and 0.9, respectively, suggesting that there was no statistically significant variation in anxiety levels according to dwelling type. Twenty percent of participants in rural locations expressed moderate anxiety, twenty percent reported severe anxiety, and fifty percent indicated low anxiety. Similarly, in cities, individuals' levels of anxiety were 50% in minimal, 36.0% in mild, 26.0% in moderate, and 22.0% in severe.

This disagrees with Abulsaad et al.; Researchers found that, as another independent factor in their study, participants who lived in urban settings (41.7%) had considerably greater rates of anxiety (pvalue=0.03) than those who lived in rural areas (25.9%).[11]

In our investigation of psycho-social factors, we discovered that patients with a history of family members dying from COVID-19 had among the highest rates of severe anxiety (p=<0.001*). We also discovered that the degree of anxiety rose with concern over the stigma associated with having COVID-19 and the potential to infect a family member (p=<0.001).

This is in agreement with Abulsaad et al.. They stated that individuals with a history of COVID-19 infection showed signs of anxiety associated with their mental health. It was also demonstrated that patients who were concerned about re-infection experienced clinically significant anxiety (p value=0.009). The stigma attached to having COVID-19 worried 62% of patients despite the fact that there was no statistically significant difference. [11]

Anxiety levels were higher in our study among smokers and patients with chronic illnesses (P=0.001).

This agrees with[20] who discovered that moderate to severe anxiety was present in 53.8% of individuals with chronic illnesses.

Additionally, a univariate study showed that the illness was more severe the more anxious one was.[21]

In accordance,[22] revealed that 61.8% of long-term medical patients suffered from anxiety. In the midst of Ethiopia's COVID-19 pandemic, it was discovered that tobacco usage among chronic medical patients significantly correlated with anxiety.

4. Conclusion

Anxiety was prevalent among the participants, with varying degrees of severity. Anxiety levels did not vary much, depending on age or housing type. However, Women were more prone to experiencing severe manifestations of anxiousness. Psycho-social factors, such as the loss of relatives to COVID-19, concerns about stigma and infection of

family members, Correlations were seen between these factors and elevated levels of anxiety. These findings emphasize the necessity of providing comprehensive mental health assistance and therapies for those who have survived COVID-19, particularly targeting high-risk groups and addressing the psycho-social impact of the pandemic.

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