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Research Article

PREVALENCE AND FACTORS ASSOCIATED WITH DEPRESSION AND ANXIETY OF ISOLATED PATIENTS WITH COVID-19

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Abstract:

The novel severe acute respiratory syndrome coronavirus 2 (COVID-19) is a mortal and morbid disease. Literature about its psychiatric manifestations is lacking in Pakistan. This study aimed to assess the rate of depression and anxiety among non-symptomatic adults with COVID-19. This is a cross-sectional study conducted among 280 patients at a COVID-19 isolation Hotel in Islamabad City, Pakistan during the period from May 2020 to November 2020. A structured questionnaire based on sociodemographic data, chronic diseases, smoking status, the patient health questionnaire-9 (PHQ-9), and the seven-component anxiety questionnaire was used to interview the patients. The questionnaires have been previously validated. Verbal consent was taken from all the participants and The Statistical Package for Social Sciences (SPSS) was used for data analysis. Out of 280 patients with Covid-19 (64.6% males), their ages ranged from 18-80 with a mean of 34.62 ± 11.21 years. Depression was reported in 23.1% and anxiety in 21.5%. Depression was associated with education (Wald 5.70, P -value=0.024, and 95% CI=0.07- 0.83), occupation (Wald 9.88, P -value=0.042), and anxiety (Wald 7.05, P -value=0.008, and 95% CI=0.18-0.77). No significant statistical differences were found regarding other parameters. Depression and anxiety among patients with COVID-19 were not different from those observed in the general population in Pakistan and were associated with sex, occupation, and education. Further multi-center studies focusing on psychiatric disorders among different occupations are needed.

KEYWORDS: Anxiety, depression, asymptomatic COVID-19, Saudi Arabia.**Corresponding author:**

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INTRODUCTION:

Since its discovery in December 2019, the novel severe acute respiratory syndrome coronavirus 2 (COVID-19) Was declared by the World Health Organization as an international public health emergency in January 2020 and rapidly evolved to a pandemic in March the same year (Mahase, 2020). Quarantine and isolation as health measure share the same purpose of infectious diseases (Baker et al., 2015), isolation involves the separation of infected people from those who were not harboring the disease, while quarantine, also, restricts the movement of those exposed for monitoring if acquiring the disease or not (Tognotti, 2013). Quarantine posed great pressure on the individual in terms of loss of freedom and separation from the family and the community (Barbisch, Koenig & Shih, 2013), besides, the uncertainty regarding the disease status adds more pressure, and committing suicide has been reported (Miles, 2015). Despite the potential importance, policymakers, health authorities, and the treating doctors might need to overweigh the benefits of mass quarantine against its deleterious consequences in terms of mental health in particular depression and anxiety (Rubin & Wessely, 2020). Mental health evaluation of individuals exposed to natural disasters reveals that survivors typically experience various mental health disorders including depression, generalized anxiety disorder, panic disorder, and substance abuse (Acierno et al., 2004). Previous literature reported a rate of 7.6% anxiety among quarantine patients with the Middle East Respiratory Syndrome (Mason, Andrews & Upton 2010).

A study assessed the mental health status of individuals who were isolated during the Middle East Respiratory Syndrome (MERS) epidemic (Jeong et al., 2016). High depressive symptoms were shown in 9% of participants even after three years after quarantine, a study found. Furthermore, the survey reported that quarantine substantially increased compared to low depression symptoms (Liu et al., 2012). The literature on depression and anxiety among patients with COVID-10 in Saudi Arabia is scarce. A cross sectional study (Alkhamees et al., 2020). Conducted online reported a prevalence of 28.3%, and 22.3% for depression and anxiety respectively. Thus, this survey aimed to estimate the rate of anxiety symptoms and depression in isolated individuals asymptomatic Covid-19 at isolation period.

SUBJECTS AND METHODS:

The study Design and Study population

This is a cross-sectional study conducted among 280 patients at a COVID-19 isolation Hotel in Islamabad

City, Pakistan during the period from May 2020 to November 2020. All non-symptomatic adults' (Males and females, Pakistani or non-pakistani) patients with COVID19 who gave consent were eligible. Children, pregnant women, those on psychiatric medications, and those with chronic diseases that might lead to depression and anxiety were excluded from the study.

Sample Size and Technique

The sample size was calculated using the formula: $n = z^2 p q / e^2 A$. According to the Pakistani Ministry of Health Reports (total number of cases in Islamabad City=832), the estimated sample size was found to be 263 and was increased to 280 patients to minimize the error. We considered 95% CI, 5% margin error. A single one-stage cluster sample was adopted by taking all participants in all isolation areas in Islamabad. There are six isolation hotels. It is assumed that each hotel would see 50 or fewer patients on average who met our inclusion criteria.

Measures

A structured questionnaire based on sociodemographic data, chronic diseases, smoking status, the patient health questionnaire-9 (PHQ-9), and the seven-component validated anxiety questionnaire was used to interview the patients. The researchers interviewed the participants using phones to avoid transmission; also, written informed consent detailing the purpose of the research was mailed to the participants. The patients were informed that participation is voluntary and that their care will not be affected by any means. Also, the patient's identity was not reported and we informed the patients that the data collected are confidential and will be used only for this research. The anxiety scale is asking about nervousness, two worries or being unable to control it, easy irritability of failure to relax, and feeling as if something awful might happen. Anxiety grades were calculated from a maximum score of 21(0-3 for each response with three indicating the most severe). Five, ten, and fifteen indicate mild, moderate, and severe anxiety respectively (Spitzer, Kroenke, Williams & Löwe, 2018). The PHQ-9 is the depression component of DSM-1V criteria and consists of nine criteria. Each criterion with four choices ranging from zero to three (with three indicating the maximum response). The criteria ask about being bothered by little interest or pleasure in doing things, feeling down, depressed, or hopeless, trouble in initiating or maintaining sleep, or sleeping for a longer duration, tiredness or little energy, poor appetite or overeating, if feeling failure or letting family or oneself down. Besides, the questionnaire inquiries about the difficulty in concentration, slow movement, and speech or the

opposite, and if feeling it is better to die or hurt oneself. The PHQ-9 scores minimal depression as 1-4, while 5-9, 10-14, 15-19, and 20-27 stand for mild, moderate, moderately-severe, and severe depression respectively. The questionnaire has been previously validated for the diagnosis of depression; also, it is a reliable tool for depression severity (Kroenke, Spitzer & Williams, 2001). All the participants gave verbal informed consent and the ethical committee of the Ministry of Health approved the research.

Statistical analysis

The Statistical Package for Social Sciences (SPSS, IBM, version 20, New York) was used for data analysis. The data were presented as percentages and mean \pm SD unless otherwise specified. The Binary logistic regression was used to assess the relationship of depression to various variables. A P-value of <0.5 was considered significant.

RESULTS:

Out of 280 patients with Covid-19, male dominance was obvious (64.6%), their ages ranged from 18-80 with a mean of 34.62 ± 11.21 years, more than a half (53.6%) were non-Saudi, 64.6% were either illiterate or received pre-university education, 70.2% were

employee, 19.3% were not employed, 11.8% were students, while 1.8% were retired. Regarding social status, 55.7%, 37.5%, 3.9%, and 2.1% were married, single, divorced, and widowed respectively. In the current survey, 52.1% had children, 23.2% were suffering from chronic diseases, and 26.4% were smokers. Other patient's characters were shown in table 1. In the current study, the total depression score was 2.61 ± 2.77 and the total anxiety score was 2.62 ± 3.42 . Table 2. Table 3. Depicted the depression shades among the participants in which depression was reported in 23.1% (17.9% mild depression, 4.6% moderate depression, 0.4% moderately severe depression, and 0.4% severe depression). Regarding anxiety, 21.5% were anxious (18.6% had mild anxiety, while moderate anxiety was found in 2.9%). It is interesting to note that, depression was associated with education (Wald 5.70, P-value=0.024, and 95% CI=0.07-0.83), occupation (Wald 9.88, P-value=0.042), and anxiety (Wald 7.05, P-value=0.008, and 95% CI=0.18-0.77). No significant statistical differences were found regarding age (Wald 1.10, P-value=0.293, and 95% CI=0.97-1.07), and nationality (Wald 2.66, P Value=0.103, and 95% CI=0.78-4.21). Other relationships between depression and various patients' characters were illustrated in table 5.

Table 1: The basic character of the study group.

Character	No %
Gender	
Males	181 (64.6%)
Females	69 (35.4%)
Age (range, 18-60 years)	
Mean \pm SD	34.62 \pm 11.21
Nationality	
Saudi	13 (4.6%)
Non-Saudi	150 (53.6%)
Level of education	
Illiterate	48 (17.1%)
Pre-university	133 (47.5%)
Bachelor degree	88 (31.4%)
Higher education	11 (3.9%)
Occupation	
Employee/private	115 (44.1%)
Employee/government	73 (26.1%)
Student	33 (11.8%)
Not employed	54 (19.3%)
Retired	5 (1.8%)
Marital status	
Married	156 (55.7%)
Single	105 (37.5%)
Divorced	11 (3.9%)
Widow	06 (2.1%)
Have children	
Yes	146 (52.1%)
No	134 (47.9%)
Duration of stay	
>10 days	12 (4.3%)
6-10 days	62 (22.1%)
5-6 days	70 (25.0%)
3-4days	57 (20.4%)
1-2 days	79 (28.2%)
Chronic diseases	65 (23.2%)
Smoking	74 (26.4%)

Table 2: Depression and Anxiety among patients with Covid-19 in Tabuk City.

Character	Mean \pm
Total depression score	2.61 \pm 2.77
Total anxiety score	2.62 \pm 3.42

Table 3: The different shades of depression among patients with Covid-19 in Tabuk City.

Depression	No %
Mild	50 (17.9%)
Moderate	13 (4.6%)
Moderately severe	1.0 (0.4%)
Severe	1.0 (0.4%)
Total	65 (23.1%)

Table 4: The different shades of anxiety among patients with Covid-19 in Tabuk City.

Anxiety	No %
Mild	52 (18.6%)
Moderate	8 (2.9%)
Total	60 (21.5%)

Table 5: Binary logistic regression analysis of depression with other variables.

Character	Def.	Wald	P-value	95% CI
Age	1	1.104	0.293	0.97-1.07
Sex	1	7.21	0.007	1.27-4.64
Nationality	1	2.666	0.103	0.78-4.21
Education	1	5.70	0.024	0.07-0.83
Occupation	4	9.88	0.042	
Social status	1	0.91	0.340	0.35-19.77
Children	1	0.49	0.481	0.25-1.89
Chronic D	1	2.07	0.150	0.24-1.24
Smoking	1	0.02	0.883	0.43-2.03
Anxiety	1	7.05	0.008	0.18-0.77
Constant	1	.000	0.999	

DISCUSSION:

We found that almost a quarter of patients with stable Covid-19 had depression, the findings were lower than a study conducted in China (Ma et al., 2020) and reported a prevalence of (43.1%, 95%CI: 39.6%-46.6%), our findings were lower than Zhao and colleagues study (Zhao et al., 2020) (49.06%). The current findings were similar to a study conducted in Ecuador (Paz et al., 2020) and reported a prevalence of 22.9% among patients confirmed with Covid-19. Plausible examinations could be the different

assessment methods used by researchers; also, the quality of care and accommodation may affect the results. Transparency and open communication, the regular information promptly by the Pakistani Authorities can significantly lower fear and anxiety. Furthermore, the prevalence of depression varied among patients without Covid-19 by region and the study period. The current results showed no differences regarding the rates of depression and anxiety compared to the general population during the Covid-19 outbreak in Saudi Arabia (Alkhamees et al.,

2020). The rates of depression and anxiety reported in this survey are not different from the prevalence reported in various regions of Saudi Arabia (Al-Qadhi, ur Rahman, Ferwan & Abdulmajeed, 2014). The prevalence of anxiety and depression was found to be 18.6% and 13.4% respectively among patients in China (Dai et al., 2020). and were comparable to the present observation. In the present study, sex was correlated with depression with females more likely to be affected by depression in accordance with previous studies (Hu et al., 2020). In the current study, smoking was not associated with Covid-19 in similarity to Cai et al. study (Cai et al., 2020), age significantly affects the outcome of patients with COVID-19, and however, it must not be taken to decide the type of care allocated to the elderly population (Kang & Jung, 2020). In the current study, no relationship was found between the Covid-19 rate and age. The current data showed that no relationship of education, marital status, and occupation with covid-19 rates in line with a previous study that found no relationship between the background characteristic (age, marital status, parity, economic level, or duration of treatments) and COVID-19 (Ben-Kimhy et al., 2020) In the current study, the level of education and occupation were associated with depression in line with Wang et al. (Wang, Di, Ye & Wei, 2020), who found that those with high education affected by Covid-19 are more prone to depression. The International Society of Hypertension stated that there is no evidence that patients with high blood pressure are overrepresented among those with Covid-19 in accordance with the current findings which found that patient with chronic disease were not more affected by the disease (Cancarevic & Malik, 2020), a meta-analysis stated that, although a high prevalence of diabetes, hypertension, and cardiovascular disease is observed among patients with Covid-19, however, this could be merely a reflection of a high prevalence of these disorders, and causality cannot be inferred (Singh, Gupta, Ghosh, & Misra, 2020), in the present study no relationship was found between chronic diseases and COVID-10. A plausible explanation could be the small sample of our study. The study limitation was the relatively small size of the study sample, the reliance on a self-administered questionnaire that is more prone to subjectivity, and the fact that the study was conducted at a single center. Thus, generalization to the whole Kingdom of Saudi Arabia cannot be ensured.

CONCLUSION:

Nearly a quarter of patients with Covid-19 were suffering from depression and anxiety, which were, relates to the female sex, education, and certain

occupations. NO relationship was found regarding age, marital status, number of children, smoking, and chronic diseases. Further larger multi-center studies assessing the rate of Covid-19 in certain occupations are needed.

Conflicts of interests: None to declare.

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