
Factors Affecting Probable Anxiety and Depression Among COVID-19 Patients Admitted to a Government Quarantine Facility*

Devoc Araujo¹, Reynaldo Romero Jr.¹, Macario Reandelar Jr.,^{1,2,3,4,5} Michael Ian Sta. Maria^{1,6}

ABSTRACT

Background: The major health crisis known as the COVID-19 pandemic has shaken several nations globally, with more than 100 - million confirmed cases worldwide. This global outbreak is associated with various mental health issues, particularly anxiety and depression. This paper is aimed at determining factors affecting probable anxiety and or depression among patients admitted to quarantine facilities for COVID-19.

Methodology: This is a cross-sectional study performed on 121 patients admitted to a government quarantine facility (HOPE). The Hospital Anxiety and Depression Scale-Pilipino (HADS-P) was used to screen for probable anxiety and depression. A score of 8 was used as the cut-off value for probable depression and anxiety. Data were analyzed using univariate (t-test, and chi-square test) and multivariate analysis.

Results: Present findings showed that 35% have probable anxiety and/or depression (PAD) where 21% have probable anxiety, 6% have probable depression and 8% have both probable anxiety and depression. Multivariate analysis showed that educational attainment is significantly associated with PAD, where those who are college level and above were more likely to have PAD (Odds Ratio 6.186 [95% CI: 1.43 - 26.64]).

Conclusion: Among all the socio-demographic and clinical factors considered in the study, educational attainment was found to be associated with PAD where those who finished college were six times more likely to have probable anxiety and/ or depression than those who did not.

Key words: COVID-19, anxiety, depression, quarantine

During the start of 2020, the daily lives of individuals worldwide have been fundamentally altered, and the root of such change was the spread of the novel Coronavirus (SARS-CoV-2), named COVID-19, initially reported in Wuhan, China in December 2019. Since then, the virus was able to spread across the globe and was declared a pandemic by the World Health Organization on March 11, 2020. The result was a sudden change of life in practically all aspects of the individuals, personal and social life. New challenges such as disparities in healthcare, loss

of housing, limited access to food, as well as disrupted life plans^{1,2} needed to be tackled. In addition to these new challenges, the United Nations encouraged governments to address the impact of the pandemic on mental health. A previous epidemiological study involving patients infected with the Severe Acute Respiratory Syndrome (SARS) virus has shown a variety of mental health issues which include anxiety and depression³ among many others. The same findings can be observed in more recent studies about mental health illnesses associated with COVID-19 which highlighted Generalized Anxiety Disorder and Depressive symptoms among the general public⁴ as well as quarantined/isolated individuals.^{5,6,7,8,9,10} According to the Centers for Disease Control and Prevention (CDC), public health actions, such as social distancing, are necessary to reduce the spread of COVID-19, but these interventions may make

*¹Far Eastern University Nicanor Reyes Medical Foundations,

²St. Luke's Medical Center,

³Our Lady of Fatima University,

⁴New Era University, ⁵National Children's Hospital,

⁶The Medical City, Ortigas

individuals feel isolated and lonely and can increase stress, anxiety, and the development and/or worsening of mental health conditions.

Various researches worldwide suggest that the factors associated with anxiety and depression among medically-ill patients appear to be multifactorial, which include gender, social support, specific experiences with COVID-19 infection, length of isolation, and amount of exposure to the media, specific psychiatric illness, those living in urban areas and those with accompanying chronic disease.^{13,14,15} However, a mixed-method study done in Nepal that looked into anxiety and depression among people living in quarantine centers during the COVID-19 pandemic stated that anxiety and depression were independent of socio-demographic characteristics.¹⁶ A study was done in the Philippines exploring the prevalence of anxiety and depression among cervical cancer patients, which revealed certain demographic, socioeconomic, psychosocial, and disease-related characteristics affecting the development of anxiety and depression.¹¹ Another study was also done in the Philippines which looked into the prevalence of anxiety and depression among patients with congenital heart disease revealed that among other clinical factors, the study identified employment status and lower educational achievement as factors in the development of anxiety and depression.¹² While there are many researches on COVID-19 and its impact on mental health abroad, there is still a dearth of literature locally, on studies that investigate COVID-19's impact on mental health, particularly the development of anxiety and depression and its associated factors among quarantined or isolated individuals.

The authors hypothesized that quarantined or isolated individuals for COVID-19 may be affected by mental health issues, particularly anxiety and depression and may be brought about by certain socio-demographic and clinical factors. Thus, this study aimed to determine the factors affecting probable anxiety and/ or depression among patients admitted in quarantine facilities for COVID-19 in terms of socio-demographic and clinical factors (COVID-19 case classification and presence of comorbidities). This study provides an objective account of the burden of disease of depression and anxiety among COVID-19 patients in government quarantine facilities, which in turn may enlighten healthcare workers on the need for screening, early detection, and management of affected patients. Furthermore,

it offers epidemiological data for governments and policy-makers to provide evidence-based strategies to improve clinical and public health interventions and eventually elucidate strategies to effectively manage mental health particularly anxiety and depression amid the COVID-19 pandemic.

MATERIALS AND METHODS

This is an analytic, cross-sectional study that involved adult patients 19 to 59 years-old classified as suspected, probable, or confirmed COVID-19 cases admitted in an urban government community quarantine facility, also known as HOPE, which was established by the local government of Quezon City, Philippines, to complement local government hospitals to cater to mild-moderate COVID-19 cases. Excluded in the study were patients who have a known psychiatric condition. This study followed the National Ethical Guidelines for Health and Health Related Research and was approved by the Research Ethics Committee of Far Eastern University –Nicanor Reyes Medical Foundation (FEU-NRMF).

Total enumeration was done for all 176 patients admitted in the HOPE facilities were recruited to take part in the study via telephone call within the facility from December 5, 2020 to January 15, 2021. Thirty one percent were excluded for not having signed the informed consent together with those who have psychiatric conditions based on their answer in the questionnaire, bringing a total number of 121 patients included in the analysis. Socio-demographic and clinical information (age, sex, civil status, educational attainment, employment status, monthly income, comorbid conditions, and COVID-19 case classification) were collected, and the Hospital Anxiety and Depression Scale – Pilipino (HADS-P) was used to identify probable anxiety and depression. Using HADS-P, participants were categorized as normal, probable anxiety, probable depression, or both probable anxiety and depression. A cut-off score of 8 for each subscale for anxiety and depression was used with a sensitivity and specificity of 91% and 51%, respectively.¹⁷ The outcome was then dichotomized as being with probable anxiety and/or depression (PAD) or without PAD.

The results obtained were endorsed to the attending physician of the facility for evaluation and management if deemed necessary. The results of the HADS-P per patient, were endorsed to the attending

physician, and the Mental Health and Psychosocial Services, as indicated in the informed consent.

The prevalence and the factors affecting probable anxiety and depression among COVID-19 patients in the HOPE facilities were presented to the Quezon City Health Department (QCHD) with the mayor of Quezon City. The identities of the respondents were not revealed in the presentation.

Data were analyzed using descriptive and inferential statistics. Factors affecting PAD were analyzed using univariate (t-test and chi-square test) and multivariate analyses.

RESULTS

A total number of 121 participants were included in the study. The mean age was 33.9 years (± 10.02 SD). The majority of the population were females, about two-thirds were single and close to three-fourths had educational attainment of above college level and the majority were employed. Most have an income of PhP10,500 and above. About three-fourths were classified as confirmed COVID cases and about four-fifths have comorbid conditions (Table 1).

Table 1. Socio-demographic and clinical profile of COVID-19 patients admitted in the HOPE facility from December 05, 2020, to January 15, 2021

Characteristics, N=121	N (%)
Sex	
Male	45 (37.2)
Female	76 (62.8)
Civil Status	
Single	73 (60.3)
Married	45 (37.2)
Separated/ Widowed	3 (2.5)
Educational Attainment	
Below college level	31 (25.6)
Above college level	90 (74.4)
Employment status	
Unemployed	29 (24.0)
Employed	87 (71.9)
Self-employed	5 (4.1)
Monthly Income	
Less than PhP10,500	31 (25.6)
PhP10,500 and above	90 (74.4)
COVID-19 Classification	
Suspect/Probable	45 (37.2)
Confirmed	76 (62.8)
Comorbid Conditions	
Present	24 (19.8)
Absent	97 (80.2)

Of the 121 patients, more than one-fourth of patients have PAD (Table 2). Among the patients with PAD, majority had anxiety alone, followed by those with both anxiety and depression, and finally depression alone (Table 3).

Table 2. Prevalence of probable anxiety and/or depression (PAD) among COVID-19 patients admitted in the HOPE Facility from December 05, 2020, to January 15, 2021

Status, N=121	N (%)
Patient with PAD	
Present	42 (34.7)
Absent	79 (65.3)

Table 3. Distribution of cases with probable anxiety and/or depression (PAD) among COVID-19 patients admitted in the HOPE facility from December 05, 2020, to January 15, 2021

Status, N=42	N (%)
Probable Anxiety	25 (59.5)
Probable Depression	7 (16.7)
Both Probable Anxiety & Probable Depression	10 (23.8)

Univariate and Multivariate Analyses

Both univariate and multivariate analyses showed that only educational attainment was significantly associated with anxiety/depression. Controlling for the effects of the socio-demographic and clinical characteristics, results showed that those who finished college were six times more likely to have anxiety/depression than those who finished only up to high school level, (Tables 4 & 5).

DISCUSSION

The results of the present study revealed that educational attainment was associated with the probable anxiety and/ or depression, where individuals in the college level and above were more than six times more likely to develop anxiety, depression, or both. Other socio-demographic and clinical factors did not show any significant association with anxiety or depression. Present findings differed with local studies on anxiety and depression among the medically-ill were age, marital and employment status and lower educational attainment showed a correlation with the development of anxiety and/ or

Table 4. Univariate analysis of the factors affecting probable anxiety and/or depression (PAD)

Characteristics	Patient w/ Anxiety and/or Depression (PAD)		p-value
	Present N (%)	Absent N (%)	
Age (Mean±SD)	33.5±9.85	34.1±10.17	0.773
Sex			
Male	14 (31.1)	31 (68.9)	0.522
Female	28 (36.8)	48 (63.2)	
Total	42 (34.7)	79 (65.3)	
Civil Status			
Single	27 (37.0)	46 (63.0)	0.808
Married	14 (31.1)	31 (68.9)	
Separated/ Widowed	1 (33.3)	2 (66.7)	
Total	42 (34.7)	79 (65.3)	
Educational Attainment			
Below College Level	5 (16.1)	26 (83.9)	0.012
College Level & above	37 (41.1)	53 (58.9)	
Total	42 (34.7)	79 (65.3)	
Employment Status			
Unemployed	8 (27.6)	21 (72.4)	0.466
Employed	33 (37.9)	54 (62.1)	
Self employed	1 (20.0)	4 (80.0)	
Total	42 (34.7)	79 (65.3)	
Monthly income			
Less than PhP10,500	9 (29.0)	22 (71.0)	0.441
PhP10,500 and above	33 (36.7)	57 (63.3)	
Total	42 (34.7)	79 (65.3)	
COVID-19 Case Classification			
Suspect/Probable	18 (40.0)	27 (60.0)	0.347
Confirmed	24 (31.6)	52 (68.4)	
Total	42 (34.7)	79 (66.3)	
Comorbid conditions			
Present	6 (25.0)	18 (75.0)	0.264
Absent	36 (37.1)	61 (62.9)	
Total	42 (34.7)	79 (65.3)	

depression^{11,12,17}, these researches, however, were conducted in a tertiary medical facility on patients who have chronic debilitating diseases (Cervical Cancer, Congenital Heart Disease) among other general medical or surgical conditions. Present findings also differ from international studies where socio-demographic and clinical factors such as age, sex, comorbidities are associated with the development of anxiety and/or depression^{13,14,15} although the participants of these studies were the general public who were not admitted in a hospital or a quarantine facility. Furthermore, the methods used to assess anxiety and depression were different from the present

study. However, the study done in Nepal, involving patients who were admitted to a quarantine facility for COVID-19 showed no statistically significant correlation with socio-demographic factors.¹⁶ These aforementioned findings however were conducted in different countries with different sets of cultures and values. During the data collection process, one of the HOPE facilities has temporarily been closed due to a COVID-outbreak among the staff members, this prevented the authors from collecting data from that facility, and they eventually collected data in a new facility “We Heal As One” (which housed mainly healthcare workers). It was highlighted in

Table 5. Multivariate analysis of the factors affecting probable anxiety and/ or depression (PAD)			
Characteristics	Adjusted Odds Ratio (OR)	95% Confidence Interval of the OR	p-value
Age	1.012	0.959-1.069	0.657
Sex			
Male: Female	0.913	0.392-2.126	0.832
Civil Status			
Single: Married	0.678	0.224-2.054	0.492
Single: Separated/Widowed	1.028	0.048-21.929	0.986
Educational Attainment			
College Level and above: Below College Level	6.186	1.436-26.648	0.014
Employment Status			
Unemployed: Employed	0.716	0.207-2.480	0.598
Unemployed: Self Employed	0.355	0.028-4.532	0.425
Monthly Income			
Less than 10,500: 10,500 and above	0.623	0.174-2.234	0.467
COVID-19 Case Classification			
Suspect/Probable : Confirmed	0.902	0.380-2.140	0.814
Comorbid Condition			
Present: Absent	0.681	0.226-2.056	0.496

a recent meta-analysis and systematic review on the prevalence of depression and anxiety, among healthcare workers during the COVID-19 pandemic that at least one in five healthcare professionals report symptoms of depression and anxiety.¹⁸

The present study has several limitations. First, the study was limited to Quezon City's HOPE facilities; therefore the results only reflect the scenario in said quarantine facilities. Second, the time frame of the study was limited to December to mid-January, since seasonality is associated with levels of both anxiety and depression.¹⁹ Third, temporal ambiguity is inherent in a cross-sectional study, hence it is difficult to establish the causal relationship of the factors to PAD. Fourth, The HADS-P was the screening tool of choice for this study because it is able to diagnose the 2 most common psychiatric illnesses (Anxiety and Depression), as well as its ease of use being a self administered questionnaire, and its applicability in both community and hospital setting, however HADS-P serves more as a screening tool, further clinical evaluation is warranted for confirmatory diagnosis of anxiety and depression. Finally, during the data collection process, one of the HOPE facilities was temporarily closed due to unforeseen circumstances,

and this prevented the authors from collecting data from that facility, and they eventually collected data from new facility "We Heal As One" (which housed mainly healthcare workers), this created a change in the admission dynamics of the facilities, unfortunately the data collection tool that was used did not qualify who among the participants were healthcare workers (above college level), however the authors believe that the change in the dynamics of admissions have influenced the results of the study. It was highlighted in a recent meta-analysis and systematic review on the prevalence of depression, anxiety, among healthcare workers during the COVID-19 pandemic that at least one in five healthcare professionals report symptoms of depression and anxiety.¹⁸

Since the HADS-P serves more as a screening tool, further clinical evaluation is warranted for confirmatory diagnosis of anxiety and depression. Hence, the authors recommend that future studies would perform screening together with a comprehensive clinical assessment to establish the diagnosis of anxiety and depression. In addition, they recommend that cohort studies should be done to establish the causal relationship of the factors to anxiety and depression among COVID-19 patients in quarantine

facilities. Furthermore, future studies should be done on other quarantine facilities outside Quezon City and during months of the year. In addition, further studies should include other factors such as family or social support. Despite the limitations of this study, the authors believe that their findings are still valuable by providing individual anxiety and depression screening among COVID-19 patients within the HOPE facilities. Furthermore, for the local government, the information can be used as a basis for their mental health initiatives to minimize the mental health impact during the outbreak of COVID-19. By providing an account of the mental health status of admitted patients in these quarantine facilities, the local government may advocate for a more comprehensive mental health screening, diagnosis and management for these individuals, particularly those with a higher educational attainment, which would include healthcare workers.

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