

Psychological Impact of COVID-19 on Quarantined Patients in a Newly Developing Country: A Cross Sectional Study

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Abstract

Background

The corona virus disease (Covid-19) has plunged countries across the world into crisis. Patients with COVID-19 under quarantine conditions represent a unique stratum of patients who are liable to extreme pressure due to the ramifications of COVID-19 infection in terms of physical, social and psychological wellbeing. The present study aimed to highlight the necessary measures needed to address anxiety, depression and other psychiatric symptoms for COVID-19 patients including coping strategies when placing patients under quarantine conditions.

Methodology

A cross-sectional quantitative study, Socio-demographic data were collected using three validated scales: PHQ-9, anxiety, and stress level. Multiple linear regression and logistic regression were performed to analyse the data.

Results

A total of 102 participant given the answer of the questionnaire. The mean age of study subjects 29.9 ± 10.2 years, the prevalence of depression was 79.4%,

anxiety was 67.7% and the mean of stress level was 25.6 ± 17.9 . Depression was significantly associated with anxiety Coef. 3.14 (95% CI: -0.05,6.32); $p=0.05$ and stress level Coef. 0.16 (95% CI: 0.07,0.26); $p=0.001$ both.

Conclusion:

Covid-19 may reinforce symptom severity and psychosocial stress in individuals with mental disorders. In times of pandemics, special support is needed to assist people with mental disorders and to prevent symptom deterioration.

Keywords: COVID-19; Pandemic; Mental Health; Depression; Anxiety; Stress Level.

What is already Known about the topic?

- Rigorous research examining the stress, anxiety, and depression levels among COVID-19 patients
- Research found that patients during the early stages of the pandemic experienced a higher prevalence of stress, anxiety, and depression.

What this paper adds

- The potential risk factors related to COVID-19 and people suffering from existing MNS disorders
- The participants who are divorced or widowed reported more depression levels as compared to a single or married
- Professional patients were more likely to report depressive symptoms than nonprofessionals and office workers

Implications

The findings of this paper suggest that healthcare planning should incorporate mental health screenings in vulnerable communities, to raise public awareness about psychological instabilities and it should be thought about maintaining social emergencies in the future.

1. Introduction

The world has seen the development and transmission of a novel Covid since December 2019 began from China and quickly turning into a pandemic across the globe with human - to-human transmission, which was named by WHO as Covid Illness 2019 (COVID-19) [1-5]. Significant overall general wellbeing and monetary difficulties

have been seen because of the raising worldwide bleakness and mortality of COVID-19. As of April 20th, 2020, more than 88,000 formally affirmed Coronavirus cases had been accounted in China, whereas more than 2,400,000 have been accounted for all around the world. A few investigations in the past of comparable viral respiratory conditions, like severe acute respiratory syndrome (SARS), have shown obviously that patients infected with viral

respiratory infections display different emotional wellness issues even subsequent to recovering from their ailment, showing that the psychological status of these patients ought to be disregarded. [6-7].

Based on these information different nations including China have created and dispersed a few emotional wellness guidelines for Coronavirus patients just as essential guideline for emergency mental crisis interventions in patients with COVID-19 [8]. According to the best of our knowledge only one small study has examined patients suffering from COVID-19 post-traumatic stress symptoms [9].

Various studies worldwide have highlighted the possibility and occurrence of psychological burden of viral infectious diseases manifested as anxiety [10] depression [11] acute stress-related disorder [12] adjustment disorder [13] and post-traumatic disorder [14]. Studies assessing the psychological impact during the 2002–2004 SARS outbreak in China pointed out the emergence of anxiety and depression immediately post COVID-19[6-15]. Furthermore, following hospital discharge, 25 % of patients suffered from severe depression, and 8.3 % suffered from adjustment disorder or Post traumatic Stress Disorder (PTSD) [6] and even at 30 months post-SARS, PTSD was diagnosed in 25% of cases, while 15.6% had burdensome disorders [7].

Several studies have examined the psychological impact of COVID -19 among hospitalized patients. More number of patients with mild symptoms were isolated from their families in quarantine facilities across the country than those with more severe symptoms. During the study period, the isolation period for the positive patients were two weeks and they must have negative result before discharge from the quarantine facilities.

Past examinations were generally led after the patients were discharged from hospital and not those in isolates subsequently our study is the unique experience of patients suffering from

mental distress while being under quarantine conditions. According to anecdotal evidence many quarantines in Qatar have witnessed the verbalization of the intention to commit suicide by its inhabitants due to overwhelming mental stress during the COVID-19 epidemic. Therefore, this investigation of mental status among inhabitants of quarantines across the state of Qatar will provide stakeholders and decision makers with invaluable information regarding screening for mental burden during epidemics, provision of effective timely preventative and therapeutic measures including crisis intervention during epidemics.

2. Materials and Methods

2.1. Recruitment and Participants

This was a cross sectional study, utilized validated and reliable questionnaires assessing anxiety, depression, and post traumatic disorder. A convenient sample was taken over a three-month period of time. For data collection, paper-based survey was carried out. Inclusion criteria were age of 18 years or more, COVID-19 positive (asymptomatic, mild, and moderate); willingness to participate and those signed an informed consent form.

The sample taken from BU-SIDRA quarantine facility in state of QATAR. Data were collected from October to November 2020 during the lockdown in QATAR, as during that time span, limitations on day to day existence were applied to all residents, for example, travel boycotts, wearing a mask while shopping for food, prohibitions on visiting others, keeping a distance of 2 m from others, stay-at home guidance, cancelation of every significant occasion and shutting, all things considered, shops, wellness studios and public pools).

2.2. Measurements

Socio-demographic and other factors: Socio-demographic factors included age, gender, marital status, education level, educational field, occupation, place of living, housing condition, number of children and housemaid.

Patient Health questionnaire (PHQ9) [16] that evaluates the frequency of depressed mood and anhedonia. The nine items of this questionnaire are scored on a four-point Likert scale where 0: “not at all”; 1: “several days”; 2: “more than half the days”; and 3: “nearly every day”. The sum score ranges from 0 to 27 points.

Generalized Anxiety Disorder-7 (GAD-7) [17] a concise self-report scale to distinguish plausible instances of generalized anxiety disorder and evaluate its severity in both the primary care setting and the general population [18]. The seven items of this questionnaire are scored on a four-point Likert scale where 0: “not at all”; 1: “several days”; 2: “more than half the days”; and 3: “nearly every day”. A total score is gained by the sum of the seven items (range from 0 to 21 points). The cut-off points for classifying the severity of anxiety are: 0–4 = none/normal, 5–9 = mild, 10–14 = moderate and 15–21 = severe.

PCL5: a 20-item self-report measure that assesses the 20 DSM-5 symptoms of PTSD [19]. The PCL-5 has an assortment of purposes, including Observing symptom change during and after treatment. Screening individuals for PTSD. The twenty items of this tool are scored on a five-point Likert scale where 0: “Not at all”; 1: “A little bit”; 2: “Moderately”; 3: “Quite a bit” and 4: “Extremely”. The aggregate score goes from 0 to 80 points.

3. Statistical Analysis

Analysis was performed using STATA 15.1 version statistical software. Categorical variables were described using number and percentages, n (%) or (n; %). Continuous variables were described by mean and standard deviation. For the

continuous variables to check the statistical association between demographic variables and Scores, t test and one-way ANOVA test was used. To check the association of categorical variables chi-squared test was used. For each outcome—depression (PHQ-9), and stress level (PCL5) a separated multiple linear regression and for anxiety (GAD-7) multiple logistic regression was performed. We evaluated the odds ratio of anxiety and coefficients of depression and stress level associated with sociodemographic variables (age, gender, education, occupation, education field and housemaid) using multiple logistic and linear regression that were adjusted with predictors. The results of linear and logistic regressions were presented by the coefficients and odds ratio with confidence interval values and the respective p-value. All statistical test values were two-sided, and a $P < 0.05$ was considered as statistically significant.

4. Ethics

The study was conducted after the Medical Research Center (MRC) review and approval MRC-05-167 and in full conformance with principles of the “Declaration of Helsinki”, Good Clinical Practice (GCP) and within the laws and regulations of Ministry of Public Health (MoPH) in Qatar.

5. Results

A total of 102 participants given the response BU-SIDRA quarantine facility in state of QATAR. All participants fully completed PHQ-9, GAD-7 and PCL5 questionnaire. The sociodemographic characteristics of the subjects participating in the study are presented in (Table 1).

Most of them were male (64; 62.7%). The mean age was 29.9 ± 10.2 years. Regarding marital status, 39 (38.2%) were married; 24 (23.5%) were divorced/ widow. Mostly were intermediate / high school 62 (60.8%) and 32 (31.4%) went to universities/ higher education and 77.5% (n = 78) were from non-medical background.

Variables	N (%)
N	102
Age, mean (SD)	29.9 (10.2)
Gender	
Male	64 (62.7%)
Female	38 (37.3%)
Marital status	
Single	39 (38.2%)
Married	39 (38.2%)
Divorced/widow	24 (23.5%)
Educational level	
up to primary	8 (7.8%)
intermediate/secondary	62 (60.8%)
university/higher	32 (31.4%)
Educational field	
Medical	5 (6.2%)
Non-medical	78 (93.8%)
Occupation	
Business/clerical/Manual	44 (43.1%)
Housewife/not working/retired/student	39 (38.2%)
Professional (Teacher, Lawyer, Doctor)	19 (18.6%)
Place of living	
Urban	68 (66.4%)
Non-Urban	30 (30.6%)
Housing condition	
Council house	28 (27.5%)
Flat	27 (26.5%)
Villa	47 (46.1%)
Do you have house maid	
No	38 (38%)
Yes	62 (62.0%)

Table 1: Participant's characteristics.

Notice that 61.8% of participants were employed, 66.7% participants were from urban area and 60.8% (n = 62) had house maid. Most participants (46; 45.1%) lived in villas, 27 (26.5%) lived in flats and 28 (27.5%) were lived in council house.

A t-test and one –way ANOVA test were performed to examine the relation between the PHQ-9, GAD-7 and PCL5 score and sociodemographic variables.

Gender, educational level, educational field, housing condition, profession and having house maid were found not to be significant factors for depression (PHQ-9 score) in univariate analysis (**Table 2**).

Participants those were divorced/ widow (14.0±7.1) found to be statistical significantly more depressed as compared to single (9.5±6.6) or married (7.7±6.6); p=0.002.

In terms of depression females (8.74± 6.5) have less depression as compared to males (10.56±7.4) which is not statistically significant (p=0.211). Higher levels of education were associated with improved levels of depression scores (10.9±6.5; p = 0.619) but not statistically significant. Those are living in Villa (10.8±7.4) were found more depressed as compare to those are living in flats (7.6±5.9) and council house (10.5±7.5); p=0.142. In terms of profession teachers, doctors and lawyers (12.8±6.4) were more depressed as compared to housewife/not working/retired/student (9.2±7.6) and Business/clerical/Manual (9.2±6.7); p= 0.618.

	Mean (SD)	Normal	Mild	Moderate	Severe
Depression	9.9 (7.1)	20 (19.6%)	34 (33.4%)	20 (19.6%)	28 (27.4%)
Anxiety	7.3 (5.9)	34 (33.3%)	34 (33.3%)	22 (21.6%)	12 (11.8%)
Stress level	25.6 (17.9)				

Table 2: Depression, anxiety, and stress level mean scores and prevalence.

Variables		Depression score (PHQ-9)		Stress level (PCL-5scor)		Anxiety (GAD-7)		
		Mean \pm SD	p value	Mean \pm SD	p value	Normal (without Anxiety) (n %)	Anxiety (n %)	p-value
Gender	Male	10.56 \pm 7.4	0.211	27.4 \pm 18.8	0.196	20/34 (59%)	44/68 (65%)	0.56
	Female	8.74 \pm 6.5		22.6 \pm 16.2		14/34 (41%)	24/68 (35%)	
Educational field	Medical	11 \pm 7.2	0.758	20.6 \pm 19.2	0.442	1/28 (4%)	4/55 (7%)	0.5
	Non-medical	10.02 \pm 6.8		26.9 \pm 17.5		27/28 (96%)	51/55 (93%)	
Place of living	Urban	10.1 \pm 6.7	0.869	26.9 \pm 16.7	0.35	22/32 (69%)	46/66 (70%)	0.92
	Non-Urban	9.8 \pm 8.2		23.2 \pm 19.9		10/32 (31%)	20/66 (30%)	
House maid	No	26.9 \pm 6.7	0.159	22.1 \pm 17.7	0.115	14/34 (41%)	24/66 (36%)	0.64
	Yes	10.6 \pm 7.3		28.0 \pm 18.1		20/34 (59%)	42/66 (64%)	
Marital status	Single	9.5 \pm 6.6	0.0023	27.2 \pm 18.7	0.022	11/34 (32%)	28/68 (41%)	0.43
	Married	7.7 \pm 6.6		19.9 \pm 16.9		16/34 (47%)	23/68 (34%)	
	Divorced/ widow	14.0 \pm 7.1		32.2 \pm 16.0		7/34 (21%)	17/68 (25%)	
Educational level	Up to primary	9.6 \pm 8.4	0.6186	30.4 \pm 17.2	0.292	3/34 (9%)	5/68 (7%)	0.11
	Intermediate/ secondary	9.4 \pm 7.6		23.4 \pm 19.1		25/34 (74%)	37/68 (54%)	
	University/ higher	10.9 \pm 6.5		28.7 \pm 15.2		6/34 (18%)	26/68 (38%)	
Housing condition	Council house	10.5 \pm 7.5	0.142	27.5 \pm 19.2	0.651	11/34 (32%)	17/67 (25%)	0.34
	Flat	7.6 \pm 5.9		23.1 \pm 18.5		11/34 (32%)	16/67 (24%)	
	Villa	10.8 \pm 7.4		26.0 \pm 17.1		12/34 (35%)	34/67 (51%)	
Occupation	Business/ Clerical/ Manual	9.2 \pm 6.7	0.618	24.4 \pm 18.6	0.678	19/34 (56%)	25/68 (37%)	0.16
	Housewife/ not working/ retired/ student	9.2 \pm 7.6		25.4 \pm 18.5		11/34 (32%)	28/68 (41%)	
	Professional (Teacher, Lawyer, Doctor)	12.8 \pm 6.4		28.7 \pm 15.4		4/34 (12%)	15/68 (22%)	

Table 3: Associations of depression, anxiety, and stress with demographics.

 adjusted for depression (PHQ-9) in multiple linear regression (**Table 3**) (**Table 4**).

Anxiety (GAD-7) and stress level (PCL5 score) were

	Depression		Stress Level		Anxiety	
	Coef. (95% CI)	p value	Coef. (95% CI)	p value	OR (95% CI)	p value
Age	0.04 (-0.12,0.19)	0.652	-0.09 (-0.49,0.32)	0.675	0.98 (0.91,1.05)	0.503
Sex						
Male	ref		ref		ref	
Female	0.98 (-1.95,3.92)	0.505	-6.59 (-13.92,0.74)	0.077	0.78 (0.19,3.13)	0.725
Marital Status						
Single	ref		ref		ref	
Married	-0.55 (-4.22,3.12)	0.766	-7.37 (-16.56,1.82)	0.113	1.12 (0.21,6.01)	0.896
Divorced/Widow	4.61 (0.85,8.37)	0.017	-4.85 (-14.94,5.23)	0.339	0.36 (0.06,2.42)	0.296
Education						
Up to Primary	ref		ref		ref	
Intermediate/Secondary	-0.74 (-6.97,5.49)	0.813	4.76 (-11.15,20.68)	0.551	0.71 (0.05,10.62)	0.801
University/Higher	-2.74 (-9.23,3.76)	0.402	3.19 (-13.53,19.91)	0.704	2.95 (0.16,56.09)	0.471
Occupation						
Business/Clerical/Manual	ref		ref		ref	0.486
Housewife/Not Working/Retired/Student	-1.38 (-4.58,1.82)	0.391	-0.12 (-8.36,8.13)	0.977	1.74 (0.37,8.3)	0.284
Professional (Teacher, Lawyer, Doctors)	1.72 (-2.1,5.53)	0.372	2.99 (-6.84,12.81)	0.545	0.37 (0.06,2.26)	
Educational Field						
Medical	ref		ref		ref	
Non-Medical	0.26 (-5.58,6.1)	0.93	5.79 (-9.09,20.67)	0.439	0.84 (0.05,13.89)	0.906
House Maid						
No	ref		ref		ref	
Yes	-0.22 (-3.26,2.81)	0.883	7.43 (-0.07,14.93)	0.052	1.54 (0.38,6.25)	0.546
Anxiety (GAD-7)						
Normal						
Anxiety	3.14 (-0.05,6.32)	0.053	3.18 (-5.23,11.59)	0.451		
Stress Level (PCL-5)	0.16 (0.07,0.26)	0.001			1.02 (0.97,1.07)	0.506
Depression (PHQ-9)			1.08 (0.44,1.72)	0.001	1.16 (1.01,1.33)	0.042

Table 4: Effect of sociodemographic characteristics on indices of mental health.

Participants those working in medical field (11 ± 7.2); $p=0.758$, living in urban area (10.1 ± 6.7); $p=0.869$ those who are not having maid at home (26.9 ± 6.7); $p=0.159$ were more depressed as compare to those are not working in non-medical field, living in non-urban area and those are having maid respectively.

Marital status was found to be significant factors for posttraumatic Stress score (PCL5 score) in univariate analysis (Table2). Those are divorced/widow (32.2 ± 16.0) were significantly associated with higher posttraumatic stress score as compare to single (27.2 ± 18.7) or married (19.9 ± 16.9); $p=0.022$. Age, gender, educational level, educational field, housing condition, profession and having house maid were found not to be significant factors for posttraumatic stress score (PCL-5 score) in univariate analysis (Table2).

Gender, educational level, educational field, marital status, educational field, housing condition, profession and having house maid were found to be not significant with anxiety level (5-21 score) (GAD-7 questionnaire) in univariate analysis (Table2).

Divorced/ widow depression scores were significantly higher by an average of Coef. 4.61: 95% CI (0.85,8.37) in comparison to single ($p=0.017$). Higher levels of stress level (PCL-5 score) were significantly associated with higher increased levels of depression scores Coef.0.16: 95% CI (0.07,0.26), $p=0.001$). Depression scores were higher in those have anxiety Coef. 3.14: 95% CI (-0.05,6.32) in comparison to those not having anxiety ($p=0.053$). No significant association were found in age, gender, education level, occupation, educational field and having house maid.

In terms of stress level, those are having maid having more stress Coef. 7.43: 95% CI (-0.07,14.93); $p=0.052$ and depression (PHQ-9 score) were significantly higher by an average of Coef. 1.08: 95% CI (0.44,1.72); $p=0.001$. Age, gender, education, marital status, occupation, educational field and anxiety level were not found to be significantly associated with stress level(table3).

Depression (PHQ-9 score) OR. 1.16: 95% CI (1.01,1.33); $p=0.042$ were found to be significant factors for anxiety (GAD-7) in multiple logistic regression (Table 3). Anxiety had a significant association with the PHQ-9 scale, in comparison with the group without/with anxiety levels. Those with severe anxiety had a depression level that was normal higher by 1.16 ($p < 0.042$).

6. Discussion

Study shows the prevalence of anxiety was 66.7% and depression was 81.4% respectively and 60.8% of the sample had both depression and anxiety. These are significantly higher rates than the self-reported history of depression and anxiety, which were 3% and 6%, respectively. Moreover, these rates are higher even when compared with the pre-pandemic prevalence rates of depression and anxiety in Qatar, that are 13.8% and 12.1%, respectively [20]. The findings contradicting with the general population in Bahrain during the pandemic, with about a third reporting depressive and stress symptoms, [21] but similar to the study on the general population from Saudi Arabia, both studies utilizing a snowball social media-sampling technique [22].

Evidence of the psychological impact of quarantine for COVID-19 is still emerging, and when contrasted and the couple of different examinations on quarantined populations [14,23-26], the rates and severity of anxiety and depression in this study were concerning the higher side.

An Irish study on home-isolation populations reported anxiety rates of 20% and depression rates of 22.8% also utilizing similar instruments as those in this study [24]. Studies from China looking at depression and anxiety rates among home-isolated populations utilizing self-rating scales have announced anxiety rates going from 6.2% to 12.9% and depression up to 22.4% [23]. Respondents who were divorced/ widow, had more considerably higher scores for both depression and stress level.

Female were associated with more elevated levels of psychological distress in the time of COVID-19 [21, 22, 27-29]. In the present study, females were associated with lower rates of anxiety, depression and stress level. This finding is in opposition to past examinations which have proposed that females are at higher risk of anxiety, stress and depression [30, 31]. This inconsistency might be due to the type of quarantine facility they have provided in which all the family members affected were admitted to independent family apartments. One interesting finding of this study was that during the ongoing COVID-19 pandemic, anxiety, and depressive issues keep on being especially comorbid [32], with more elevated levels of depression being altogether connected with expanding levels of anxiety and vice versa. Earlier studies have noticed that practically 50% of depressive people (45.7%) have had an anxiety disorder during their life [33] and 42% of people with anxiety have like one episode of depression in their life [34]. A ramification of the current study's outcome is the likelihood that people encountering the COVID-19 pandemic are at higher risk of growing more serious indications and poor treatment response for depression/anxiety [35].

Our study shows that living in urban area have higher depression, anxiety and stress level as compared to those are living in non-urban areas. The results are consistent with other studies reporting that the psychological impact is higher in Urban areas [36].

We found depression was more in medical field and higher stress level or anxiety were found in non-medical field [28]. The additional effect of isolate has prompted high occurrence of depression, anxiety, stress.

One of the strengths of this study was the utilization of standard validated instruments to quantify depression, distress, and anxiety level, which externalized result evaluation and permitted reasonable examinations.

Some limitations must be observed as when deciphering the consequences, the results of the present study. One limitation concerns

convenience sampling and, in spite of the fact that it was completed in one quarantine facility, it actually doesn't take into account the speculation of results. The lack of a sample size restricts the capacity to investigate the relationship between demographic characteristics and depression, anxiety, and stress level.

Some risk factors of poor psychological well-being (or its protective factors) were not collected and in this way their part in determining the results of the present study cannot be determined. Further work is expected to assess the social, environmental, and economic determinants of psychological well-being in the COVID-19 pandemic. The role of uncertainty stress on the development of mental ill-health should also be considered.

Another limitation is that no information in regard to the past psychological well-being of the participants were gathered. Thus, it is unimaginable to expect to break down the degree to which the COVID-19 pandemic added to an expected deteriorating of depressive and anxiety symptoms. Future longitudinal studies could add to an enhanced understanding of the late impacts of social isolation on the psychological well-being of grown-ups.

7. Conclusion

The COVID-19 pandemic is having an unprecedented impact on the mental health of common people around the world. The current study was conducted during the first wave of the pandemic in Qatar. A substantial increase in psychological distress among the patients in quarantine facilities was reported in Qatar. The impact of the pandemic on the mental health of patients was similar compared to other studies because the level of resilience in mental health may not be developed during the initial phase. The current study helps to address the impact of compulsory isolation among patients with mild symptoms.

Based on our findings we are recommended various strategies like the development and improvement of psychological well-being and public arrangements should be a fundamental piece of governments' reaction to the COVID-19 pandemic, with an assurance to help and really focus on influenced people. The initial step ought to be to battle to raise public awareness about psychological instabilities so those with issues look for early assistance as well as the individuals who are at increased risk (e.g., males and those in social isolation). Psychological well-being administrations should be extended and broadly funded, as a component of universal health coverage, and health professionals should be ought to be learned with respect to the risk factors and protective factors of mental problems and have the option to give face to face or virtual guiding or treatment. To further develop prosperity during an emergency like the COVID-19 pandemic, there is the need to keep up with social associations, decline confinement and care for the emotional well-being of people by the utilization of, for instance, calls or video visits with companions and friends and family. Governments ought to likewise shield representatives from being terminated for being in isolate or social confinement.

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