

# Psychological and Mental Health among Isolated Hospitalized Suspected and Confirmed COVID-19 Patients, Qatif Central Hospital, Eastern Province, Saudi Arabia: A Single-Center Descriptive Study

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## Abstract

**Introduction:** During COVID-19 pandemic, isolation and quarantine as preventive measures have been implemented. Isolation is often a bad experience for isolated people and it could affect the psychological and mental health.

**Objectives:** To study the impact of isolation on the psychological and mental health of isolated hospitalized suspected and confirmed COVID-19 patients.

**Material & Methods:** A single-center cohort, descriptive survey involving isolated confirmed and suspected COVID-19 patients in Qatif central hospital, Eastern province, Saudi Arabia. The study was conducted between March 22 and April 18, 2020. Information was collected through an online Arabic-language questionnaire. Our sample included both male and female. Anxiety and depression symptoms during hospitalization were evaluated with the Hospital Anxiety and Depression Scale. **Results:** A total of 52 questionnaires were returned completed. The majority of the respondents were females (65.4%). Most of the participants were less than 60 years of age (90.4%). Three patients were known to have previous mental illness. About two-thirds of the participants were isolated in shared rooms. The duration of isolation was less than 10 days in 72.3% of our sample. Borderline and abnormal scores for depression and anxiety were observed in about 38.4%, and 17.3% of patients, respectively. Three patients had both abnormal depression and anxiety scores. **Conclusion:** Isolation for contagious infections such as COVID-19 could cause

severe psychological health problems, though this was not supported by our study due to the small sample size. Further studies are needed to address this important issue which results from isolation during infectious outbreaks.

## Keywords

COVID-19, Psychological, Isolation, Qatif, Saudi

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## 1. Introduction

The 2019 coronavirus disease (COVID-19) that emerged in Wuhan, China at the end of December 2019, spread quickly across the globe to involve families and communities indicating human to human transmission [1] [2] [3]. The outbreak was declared a public health emergency of international concern on January 30, 2020 by the World Health Organization (WHO) and on March 12, 2020, the WHO officially declared the COVID-19 outbreak as a global pandemic [4]. As of June 19, 2020, 8,457,305 cases of COVID-19 have been reported from the affected countries, including 453,882 related deaths [5].

Since neither therapeutic intervention nor vaccine is available, traditional public health measures were implemented, these including isolation and quarantine to control the spread of the disease. Mass quarantine has been implemented in many cities all over the world during COVID-19 pandemic. On March 2, 2020, the first confirmed case of COVID-19 was reported in Qatif Area, Eastern province, Saudi Arabia. Great public health measures had been taken by the Saudi government, including but not limited to the isolation of all confirmed or suspected cases, regardless of whether they were symptomatic or not, either in home isolation for selected cases, or in dedicated quarantine facilities for other cases. Qatif Area was put under lockdown on March 8, 2020 [6]. This created social anxiety and dramatic fear among people. As of June 19, 2020, 145,991 confirmed COVID-19 cases and 1139 related deaths have been reported in Saudi Arabia [5].

Many studies have reported the psychological and mental effects of isolation and quarantine during Severe acute respiratory syndrome (SARS), Middle East respiratory syndrome coronavirus (MERS-CoV), Ebola virus disease (EVD) epidemics. These studies were conducted among public, health workers, and infected patients. Studies on the immediate psychological impact of SARS patients showed that they were at higher risk for sleep disturbances, night mares, guilt, anxiety, fear of spreading the infection to their family members, depression, post-traumatic stress disorder, and acute psychosis [7] [8] [9] [10]. Loss of freedom, separation from other family members, and fear of the disease can result in uncalculated consequences [11]. There were also reported cases of suicide [12]. Studies also found high level of depression even after few years after the outbreak [13].

The aim of our study was to investigate the psychological and mental health of isolated hospitalized suspected and confirmed COVID-19 patients, Qatif central

hospital (QCH), Eastern province, Saudi Arabia. Furthermore, we aim to determine the different risk factors for anxiety and depression.

## 2. Methods

### 2.1. Study Design and Participants

The study was a single-center cohort, descriptive survey involving isolated confirmed and suspected COVID-19 patients in QCH, Eastern Province region, Saudi Arabia. The study was conducted between March 22 and April 18, 2020.

### 2.2. Data Collection

Information were collected through online Arabic-language questionnaire that was either filled out by the patients or by telephone interviews. The survey consisted from closed ended and multiple-response questions. The questionnaire was divided into four parts: sociodemographic data, COVID-19 related questions, comorbid health problems, and psychological health questions.

Anxiety and depression symptoms during hospitalization were evaluated with the Hospital Anxiety and Depression Scale (HADS) [14]. The Reliability and validity of the Arabic version of HADS has been studied by Al Aseri *et al.* who found that the HADS are acceptable with significant correlation for both the depression and anxiety subscales [15]. The scoring points were ranged from 0 - 21 for anxiety and from 0 - 21 for depression. 0 - 7 for either subscale was regarded as normal. 8 - 10 was regarded as borderline anxiety or depression, and  $\geq 11$  indicated probable anxiety or depression (abnormal cases).

Our inclusion criteria included all suspected and confirmed COVID-19 who were isolated in the medical wards in QCH, both male and female, aged above 14 years, Isolated patients younger than 14 years were excluded from the study.

A confirmed case of COVID-19 defined as a positive result on real-time reverse transcription polymerase chain reaction (RT-PCR) assay of nasal and pharyngeal swab specimens. A suspected case of COVID-19 involved patients with pending RT-PCR assay of nasal and pharyngeal swab specimens which were taken based on clinical scoring system or being a contact of a confirmed case. Suspected symptomatic patients were isolated in the hospital while asymptomatic patients were discharged with home isolation instruction.

### 2.3. Statistical Analysis

Statistical analysis was performed using IBM, SPSS version 26. Standard descriptive and analytics statistics were used to analyze the data. Chi-square test and Fisher's exact test were used to test for significant difference and P-value  $\leq 0.05$  was considered significant. Also, we used One-way Analysis of variance (ANOVA) to compare the mean of anxiety and depression scores.

### 2.4. Ethic Consideration

Informed consents were taken from all participants. In our sample, there was

only one 15 years old female patient who was isolated with her mother. The mother's consent was taken before filling the questionnaire. The study was approved by the institutional research ethic committee of QCH, Saudi Arabia (QCH-SREC0192/2020).

### 3. Results

114 patients were contacted to fill out the survey, a total of 52 questionnaires were returned completed giving a response rate of only 45.6%.

#### 3.1. Sociodemographic Data

Majority of the respondents were females (65.4%), married (71.2%), and had children (83.8%). Most of the participants were less than 60 years of age (90.4%). Around two thirds of the participants were unemployed (**Table 1**).

#### 3.2. Health-Related Conditions

Three patients were known to have previous mental illness. Most of them had no associated chronic illness (59.6%) (**Table 1**).

#### 3.3. COVID-19 Related Data

All of our patients were isolated for confirmed (32 patients) and suspected (20 patients) COVID-19. The presumed source of COVID-19 infection was travel to an endemic area or contact with confirmed cases of COVID-19, with a percentage distribution of 44.2% and 55.8%, respectively. About two thirds of the participants were isolated in shared rooms with other suspected or confirmed cases of COVID-19 (67.3%). The duration of isolation was less than 10 days in 72.3% of our sample (**Table 1**).

#### 3.4. Depression and Anxiety Scale

HADS scores were calculated for all patients. The results were categorized according to the scale into three different categories: normal, borderline, and abnormal scores for depression and anxiety (**Table 2**). There was no statistically significant difference between males and females regarding normal, borderline, and abnormal scores (**Table 2**). The majority of patients had normal depression and anxiety score with a percentage of 61.5% and 82.7%, respectively. Borderline and abnormal score for depression was observed in about 38.4 % of the patients, whereas 17.3% of the patients had borderline and abnormal anxiety score. Three patients had both abnormal depression and anxiety scores (**Table 3**). There was no statistically significant difference between males and females in their scores. Moreover, age, marital status, job, social status, and the duration of isolation showed no statistically significant difference in relation to abnormal depression or anxiety score (**Table 4**). Patients who had either borderline or abnormal depression and/or anxiety scores were further asked to evaluate the reasons for their depression and/or anxiety (**Table 5**). Most patients stated that missing their

**Table 1.** Patients characteristics.

|                                     | Characteristics                        | All patients (n = 52) |
|-------------------------------------|--|-----------------------|
| <b>Demographic data</b>             |  |                       |
| <b>Age</b>                          | 15 - 29—No. (%).                       | 16 (30.8)             |
|                                     | 30 - 44—No. (%).                       | 14 (26.9)             |
|                                     | 45 - 59—No. (%).                       | 17 (32.7)             |
|                                     | ≥60—No. (%).                           | 5 (9.6)               |
| <b>Sex</b>                          | Male—No. (%).                          | 18 (34.6)             |
|                                     | Female—No. (%).                        | 34 (65.4)             |
| <b>Marital Status</b>               | Single—No. (%).                        | 15 (28.8)             |
|                                     | Married—No. (%).                       | 37 (71.2)             |
| <b>Education Level</b>              | No formal education—No. (%).           | 3 (5.8)               |
|                                     | Primary school—No. (%).                | 8 (15.4)              |
|                                     | Intermediate school—No. (%).           | 11 (21.2)             |
|                                     | Secondary school—No. (%).              | 10 (19.2)             |
|                                     | College—No. (%).                       | 15 (28.8)             |
|                                     | Higher education—No. (%).              | 5 (9.6)               |
| <b>Employment Status</b>            | Yes—No. (%).                           | 18 (34.6)             |
|                                     | No—No. (%).                            | 34 (65.4)             |
| <b>Health-related conditions</b>    |  |                       |
| <b>Chronic Medical Illnesses</b>    | Yes—No. (%).                           | 21 (40.4)             |
|                                     | No—No. (%).                            | 31 (59.6)             |
| <b>Mental Illnesses</b>             | Yes—No. (%).                           | 3 (5.8)               |
|                                     | No—No. (%).                            | 49 (94.2)             |
| <b>Smoking Status</b>               | Yes—No. (%).                           | 6 (11.5)              |
|                                     | No—No. (%).                            | 46 (88.5)             |
| <b>Isolation-related conditions</b> |  |                       |
| <b>Reason of Isolation</b>          | Confirmed COVID-19—No. (%).            | 32 (61.5)             |
|                                     | Suspected COVID-19—No. (%).            | 20 (38.5)             |
|                                     | Source of infection in confirmed cases |                       |
| <b>Type of Isolation</b>            | Contact—No. (%).                       | 15 (46.9)             |
|                                     | Travel—No. (%).                        | 17 (53.1)             |
|                                     | Alone—No. (%).                         | 17 (32.7)             |
|                                     | Shared room with others—no. (%).       | 35 (67.3)             |
| <b>Duration of isolation</b>        | <10 days—No. (%).                      | 37 (72.5)             |
|                                     | 10 - 19 days—No. (%).                  | 13 (25.5)             |
|                                     | ≥20 days—No. (%).                      | 1(2.0)                |

**Table 2.** Depression and anxiety scale with gender.

|                          | All Patients<br>(N = 52) | Male<br>(N = 18) | Female<br>(N = 34) | P value |
|--------------------------|--------------------------|------------------|--------------------|---------|
| <b>Depression</b>        |                          |                  |                    |         |
| Normal score—No. (%)     | 32 (61.5)                | 12 (66.7)        | 20 (58.8)          | 0.580   |
| Borderline score—No. (%) | 15 (28.8)                | 5 (27.8)         | 10 (29.4)          | 0.902   |
| Abnormal score—No. (%)   | 5 (9.6)                  | 1 (5.6)          | 4 (11.8)           | 0.648   |
| <b>Anxiety</b>           |                          |                  |                    |         |
| Normal score—No. (%)     | 43 (82.7)                | 15 (83.3)        | 28 (82.4)          | 1.000   |
| Borderline score—No. (%) | 4 (7.7)                  | 1 (5.6)          | 3 (8.8)            | 1.000   |
| Abnormal score—No. (%)   | 5 (9.6)                  | 2 (11.1)         | 3 (8.8)            | 1.000   |

**Table 3.** Abnormal depression and anxiety score.

|                                      |       | Abnormal Anxiety Score |    |    |
|--------------------------------------|-------|------------------------|----|----|
|                                      |       | Yes                    | No |    |
| <b>Abnormal<br/>Depression Score</b> | Yes   | 3                      | 2  | 5  |
|                                      | No    | 2                      | 45 | 47 |
|                                      | Total | 5                      | 47 | 52 |

**Table 4.** Borderline and abnormal depression and anxiety score with different factors.

| Factors                  | Borderline<br>depression<br>(n = 15) | Abnormal<br>depression<br>(n = 5) | P value | Borderline<br>anxiety<br>(n = 4) | Abnormal<br>anxiety<br>(n = 5) | P value |
|--------------------------|--------------------------------------|-----------------------------------|---------|----------------------------------|--------------------------------|---------|
| <b>Gender</b>            |                                      |                                   | 0.58    |                                  |                                | 1.00    |
| Male—No.                 | 5                                    | 1                                 |         | 2                                | 2                              |         |
| Female—No.               | 10                                   | 4                                 |         | 2                                | 3                              |         |
| <b>Age group</b>         |                                      |                                   | 0.43    |                                  |                                | 0.58    |
| 15 - 29 years—No.        | 6                                    | 2                                 |         | 1                                | 2                              |         |
| 30 - 44 years—No.        | 4                                    | 2                                 |         | 0                                | 2                              |         |
| 45 - 59 years—No.        | 3                                    | 1                                 |         | 1                                | 1                              |         |
| ≥60 years—No.            | 2                                    | 0                                 |         | 2                                | 0                              |         |
| <b>Marital status</b>    |                                      |                                   | 0.44    |                                  |                                | 1.00    |
| Single                   | 4                                    | 3                                 |         | 0                                | 2                              |         |
| Married                  | 11                                   | 2                                 |         | 4                                | 3                              |         |
| <b>Presence of kids</b>  |                                      |                                   | 0.26    |                                  |                                | 0.72    |
| Yes                      | 8                                    | 2                                 |         | 3                                | 3                              |         |
| No                       | 7                                    | 3                                 |         | 1                                | 2                              |         |
| <b>Employment status</b> |                                      |                                   | 0.96    |                                  |                                | 1.00    |
| Employed                 | 6                                    | 1                                 |         | 1                                | 2                              |         |

## Continued

|                                |    |   |      |      |
|--------------------------------|----|---|------|------|
| Non-employed                   | 9  | 4 | 3    | 3    |
| <b>Chronic medical illness</b> |    |   | 0.96 | 0.72 |
| Yes                            | 5  | 3 | 2    | 1    |
| No                             | 10 | 2 | 2    | 4    |
| <b>Mental illnesses</b>        |    |   | 0.55 | 0.44 |
| Yes                            | 1  | 1 | 0    | 1    |
| No                             | 14 | 4 | 4    | 4    |
| <b>Reason of isolation</b>     |    |   | 0.26 | 1.00 |
| Confirmed COVID-19             | 12 | 3 | 3    | 3    |
| Suspected COVID-19             | 3  | 2 | 1    | 2    |
| <b>Duration of isolation</b>   |    |   | 0.20 | 0.40 |
| <10 days                       | 12 | 5 | 4    | 4    |
| 10 - 19 days                   | 3  | 0 | 0    | 1    |
| ≥20 days                       | 0  | 0 | 0    | 0    |

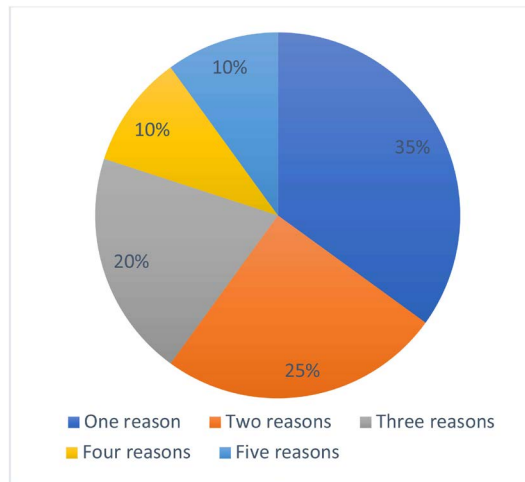
**Table 5.** Reasons of anxiety and depression.

| Reasons                           | Patients with Borderline or Abnormal Anxiety Score (N = 9) |          | Patients with Borderline or Abnormal Depression Score (N = 20) |         |
|-----------------------------------|--|----------|--|---------|
|                                   | Yes  | No       | Yes  | No      |
| Isolation—No. (%).                | 4 (44.4)   | 5 (55.6) | 9 (45)   | 11 (55) |
| Sickness—No. (%).                 | 4 (44.4)   | 5 (55.6) | 8 (40)   | 12 (60) |
| Missing family—No. (%).           | 6 (66.7)   | 3 (33.3) | 14 (70)  | 6 (30)  |
| Boredom—No. (%).                  | 4 (44.4)   | 5 (55.6) | 12 (60)  | 8 (40)  |
| Fear of infecting others—No. (%). | 0 (0)  | 9 (100)  | 4 (20)   | 16 (80) |

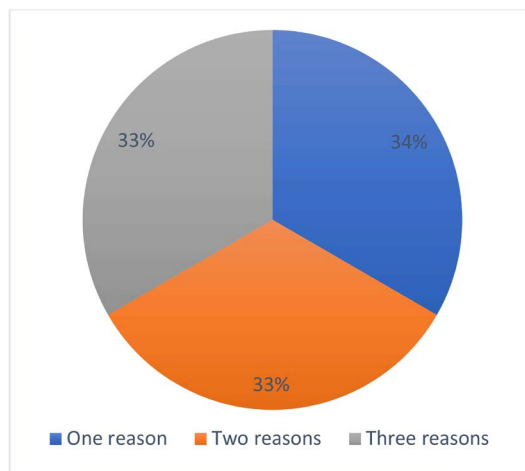
families was the major reason for their depression and/or anxiety (70% and 66.7%, respectively). Fear of infecting other people was the least contributing factor for their depression and/or anxiety. Majority of the patients had at least two reasons for depression (65%) and anxiety (66%) (Figure 1, Figure 2). The most chosen two reasons by our patients were fear of sickness and missing their family. There was no statistically significant difference in HADS scores for both anxiety and depression between suspected and confirmed COVID-19 cases (Table 6).

#### 4. Discussion

Patients with COVID-19 infection may manifest some psychiatric and mental problems during the acute period which may affect their cooperation and medication compliance. This will create a challenge to the treating physicians. Psychological and social support is considered a very important part of the management of



**Figure 1.** Number of reasons chosen in patients with depression.



**Figure 2.** Number of reasons chosen in patients with anxiety.

**Table 6.** HADS score in confirmed vs. suspected COVID-19 cases.

|                    | Depression score | P value     | Anxiety score | P value |
|--------------------|------------------|-------------|---------------|---------|
|                    |                  | <b>0.46</b> |               | 0.72    |
| Confirmed COVID-19 | 6.19             |             | 4.59          |         |
| Suspected COVID-19 | 5.75             |             | 3.70          |         |

these patients [16].

During SARS outbreak in 2002-2004, several studies have been published regarding the mental and psychological health impairment in affected SARS patients during their hospital isolation and after recovery [8] [17] [18].

To our knowledge, till the time of writing this manuscript, there is only one preprint and non-peer reviewed study that addressed the psychological and mental effects of isolation on confirmed COVID-19 patients [19]. The investigators compared the psychological status among three isolated groups (COVID-19 patients, pneumonia patients in regular wards, and healthy volunteers) and the



effect of psychological intervention on the affected patients. They found that COVID-19 patients had higher scores for depression, anxiety, and sleep disturbances than other groups which improved with psychological intervention and support.

Our study is the first study in Saudi Arabia that investigated the psychological status of isolated hospitalized suspected and confirmed COVID-19 patients. The questionnaires were administered online in the majority of the patients to prevent cross-infection from the patients to the investigators. As a result, some patients didn't know how to fill out the survey without the researchers' help. This could explain the low response rate in our survey. Another explanation, some of the patients were uncooperative due to the distress related to the illness and/or isolation.

Our results showed that our patients had low scores for both anxiety and depression. Borderline and abnormal scores for depression and anxiety were observed in only 38.4% and 17.3% of patients, respectively. This could be explained by several factors. First, the majority of our patients had mild symptoms or asymptomatic. Second, routine psychological support was provided to all isolated COVID-19 patients. Third, the patients were not completely lonely because the majority of them were isolated in shared rooms. Fourth, they had access to the external world since almost all of them owned cell phones with internet access to different social networks. Finally, students were able to access their education through online websites.

Our study had several limitations: first, it included small sample size due to low response rate. Second, our study didn't include a control group because of time limitation during COVID-19 pandemic. Third, completion of the online questionnaire without the investigators' supervision, by the majority of our participants, may resulted in misinterpretation of the questions. Lastly, our study lacked generalizability since critically ill COVID-19 patients were not included in our sample.

## 5. Conclusion

Isolation for contagious infections such as COVID-19 could cause severe psychological and mental health problems, though this was not supported by our study due to the small sample size. Psychological support is very essential part of the management of these patients. Further studies are needed to address this important issue that result from isolation and quarantine during infectious outbreaks.

## Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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