

## Article

# The psychological and emotional impact of coronavirus disease on COVID-19 patients in Najran Province, Saudi Arabia: An exploratory study

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## Abstract

**Background:** The COVID-19 pandemic contributed to a significant mental health crisis and caused a widening economic crisis, growing financial loss, and numerous uncertainties. This pandemic brought alarming implications and overall increased risk for psychiatric illness. This study explores the psychological impact experienced by patients who tested positive from coronavirus in the Najran region, Saudi Arabia.

**Design and methods:** This exploratory analysis included 210 COVID-19 positive patients. The study was conducted during a six-month period starting from March to September 2020, in two tertiary government hospitals in Najran, Saudi Arabia. Samples were selected using purposive sampling; survey questionnaire and face-to-face interview to collect the data. Statistical data were calculated using IBM SPSS v. 2.0 to compute the following statistical formulas: percentage distribution, mean, standard deviation, and Chi-square test of independence.

**Results:** The findings of this study revealed that the majority of COVID-19 positive patients were middle-aged adults ( $n=98$  or 46.7%), male ( $n=178$  or 84.8%), and were non-Saudi nationals ( $n=132$  or 62.9%). It was found out that COVID-19 patients experienced bothersome behaviour at a very high level ( $\bar{x}=2.63\pm0.6734$ ). Meanwhile, depression ( $\bar{x}=2.51\pm0.7070$ ), worry ( $\bar{x}=2.23\pm0.8811$ ), and anxiety ( $\bar{x}=2.21\pm0.8719$ ) was only at a high level.

**Conclusions:** The study revealed that the majority of participants had high levels of depression, anxiety and bothersome behaviours. However, demographic characteristics like age, sex, and nationality were not significantly related to coronavirus patients' psychological health problems. Assessments and inter-

ventions for psychosocial concerns, integration of mental health considerations, and treatment for severe psychosocial consequences must be administered in COVID-19 care facilities.

## Introduction

In January 2020, the World Health Organization (WHO) declared the COVID-19 outbreak as a public health emergency of international concern. Coronavirus disease (COVID-19) is a highly infectious and contagious disease caused by a newly discovered coronavirus originated from Wuhan, China.<sup>1</sup> This contagious disease has caused a serious pandemic that made some of the world's leading health systems collapse in a matter of weeks.<sup>2</sup> The COVID-19 pandemic and resulting economic downturn have negatively affected many peoples' mental health. Research shows that more than half of people who lost income and employment over coronavirus have had a negative health impact.<sup>3</sup> This pandemic caused widening economic crisis, growing financial loss, and numerous uncertainties.<sup>4</sup> Unemployment rate continues to rise worldwide in the wake of this pandemic and several countries are nearing recession. As the pandemic continues, it is more likely that mental health burden will increase because of measures to slow down the spread of virus which include business closure, social distancing, social isolation and financial distress.<sup>3</sup> The home confinement directives (social isolation, stay at home orders, quarantine) are new concerns for people.<sup>5</sup> The psychological impact of indefinite home confinement during disease outbreak can lead to negative mental health.<sup>6</sup>

According to the United Nations (2020), COVID-19 contributes to major mental health crisis. Epidemics have been shown

## Significance for public health

The need to offer suggestions for stress management and effective coping by linking patients to different social and mental health services, patient counselling, open discussion with support system, seeking for professional mental health assistance, psychosocial assessment and evaluation, wellness promotion, and psychoeducation. It is imperative that assessment and interventions for psychosocial concerns, integration of mental health considerations, consultation with specialists, and treatment for severe psychosocial consequences should all be administered in COVID-19 care facilities.

to induce general stress across population and associated with mental health problems.<sup>3</sup> COVID-19 pandemic brought alarming implications and widespread increased risk for psychiatric illness.<sup>4</sup> American Psychiatric Association (2013) even cited that psychopathology is most likely to develop from natural causes such as life-threatening viral infection. Furthermore, extensive research in disaster mental health has established that psychological and emotional distress is ever present during the COVID-19 pandemic.<sup>7</sup> Unfortunately, the vast majority of mental health needs still remain unaddressed.<sup>8</sup>

Although lately published data profoundly outlined the physical complaints during the COVID-19 period, a dearth of research targeted psychological well-being.<sup>9</sup> In this context, day-to-day stressful events, extended home confinement, domestic violence, financial concerns, and internet over-usage are reasons that could affect the mental health of people during this critical period.<sup>10</sup> In addition, most activities that usually occupy public lives, such as financial, social, schooling and extracurricular activities, have been disrupted. Putting all together, these will have broad-ranging influences on mental health and psychological well-being, depending on their vulnerability and coping abilities in times of crisis.<sup>11</sup> These interruptions are assumed to worsen or trigger mental disorders, including depression, anxiety, and/or stress-related symptoms.

Our neglect of mental health is becoming obvious nowadays. The crisis response is hampered by our lack of investment in mental health promotion and prevention before the pandemic.<sup>8</sup> According to the WHO, issues of access to mental health services is now a major concern in population already heavily affected by coronavirus. In this regard, the WHO develop a set of materials that will focus on promoting mental health and psychological support for COVID-19 patients.

In Saudi Arabia, the first confirmed case of COVID19 was reported on March 7 2020. After announcing the first case in Saudi Arabia, the government response was quick and decisive. A social media campaign was launched, encouraging people to stay at home and abide by the health ministry's instructions.<sup>12</sup> A lockdown followed this was imposed on Makkah, Madinah, and Riyadh with travel restrictions, and in the next ten days, a 24-hour curfew was imposed.

As of 21 March 2021, Saudi Arabia has reported 385,020 confirmed cases, 374,412 recoveries, and 6,609 deaths.<sup>13</sup> A recent study conducted by Alkhamees *et al.*, in general population in Saudi Arabia, reported that nearly one-fourth of the sampled general population experienced moderate to severe psychological impact.<sup>14</sup> The results revealed that health care workers, females, students and those with poor self-reported health status were associated with higher levels of stress, anxiety, and depression symptoms.

The Saudi healthcare authorities perceived the increase of psychological disorders, which prompted them to distribute several guidelines and health messages to the public. Most notably, the Saudi Center for Disease Prevention and Control (CDC) gave a preventive guide for social and mental health centred on prevention and stress and fear management throughout the COVID-19 pandemic.<sup>15</sup> They educated the general population on how to take care of the elderly and the children and gave tips for healthcare workers and managers of health facilities. The Saudi CDC serves the public by working to monitor, measure, evaluate, control, and prevent any risk factors related to the public health in the Kingdom of Saudi Arabia, including communicable and non-communicable diseases, injuries, and other health challenges. The National Centre for Mental Health Promotion promoted a free call counselling centre with mental health specialists available 24X7 to address the public's concerns.<sup>16</sup> Some hospitals educate the public about men-

tal health, such as King Faisal Specialist Hospital and Research Center had provided social media messages on how to manage stress and anxiety during the pandemic.

There is limited data about psychological impact during the COVID-19 pandemic in Saudi Arabia, especially in the southwestern region of Saudi Arabia. This prompted the researchers to develop this study aimed to explore the psychological impact experienced by patients who tested positive for COVID-19. Assessing the current psychological distress in the population of Najran, Saudi Arabia, will help design rapid protection and intervention programs that improve mental health, particularly amongst the psychologically disturbed people.

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## Design and methods

### Study design

The exploratory research design study was utilized for this study. As exploratory research, it aims to explore and clarify the full nature and dimension of the phenomena. As an application to this study, it attempted to better understand the mental health problems commonly experienced by patients diagnosed with coronavirus. Participants provided their promising and significant insightful information into the given situation. Furthermore, this research summarised the key features of the psychological effect of coronavirus disease to the mental health of COVID-19 patients.

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### Sampling technique and sample

The researchers utilized the purposive sampling technique, purposive sampling means selecting a study participant who is most knowledgeable, most informative, can best contribute, is best representative, and most helpful in giving rightful insight regarding a phenomenon. Inclusion and exclusion criteria were applied in the study. Inclusion criteria that make the respondents eligible to participate in the study include: i) patient must be positive with coronavirus (COVID-19) disease confirmed by the polymerase chain reaction (RT-PCR) test; ii) patient must be from Najran province, Saudi Arabia; iii) patients giving consent to participate in this study. The individuals who did not give consent to participate in this study and did not meet the inclusion criteria were excluded from the study.

This paper utilized GPower analysis version 3.2 in computing the total sample size needed for the study. Using the effect size 0.20, alpha error probability ( $\alpha$  err prob) of 0.05 and power (1- $\beta$  err prob) of 0.8, a total of 210 patients who tested positive for coronavirus disease were computed and required to partake in the research.

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### Research setting

The study was conducted during a six-month period starting from March to September 2020, in two tertiary government hospitals in Najran Province, namely: Najran General Hospital and King Khalid Hospital.

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### Ethical consideration

In this study, the following bioethical principles were also observed including justice, autonomy, fidelity, beneficence, non-maleficence. Furthermore, the patient's name was coded with a

unique identification number to ensure confidentiality of the patients' pertinent personal information. Respondents signed an informed consent and were aware of the risks and benefits of participating from the study. The certificate of ethical research clearance of this research study was obtained from the Technical and Ethical Committee from Najran University with a reference number (IRB: 20-215E). Thus, research ethics was observed and maintained throughout the duration of conducting the study.

## Study tool

The survey tool is a pre-validated questionnaire designed by subject expert and specialists in psychiatric and mental health. Previous surveys on the psychological impacts of SARS and COVID19 outbreaks were reviewed and the study tool was developed by the research team. The reviewed tools were previously used to access the psychological impact of COVID-19 among the general population in China and Saudi Arabia.<sup>14,17,18</sup> We made minor changes and included additional questions related to the COVID-19 outbreak.

The researchers provided a survey questionnaire to the participants of the study. COVID-19 patients were asked to complete the survey tool within 15 to 20 min. The said survey tool is divided into 2 parts: demographic characteristic and common mental health problems.

Instrument validity and reliability: after the development of the instrument, it was tested for face, content, and construct validity by a jury of 5 experts from the fields of psychiatric and mental health. The said tool underwent a pilot study in Najran University Hospital for 20 patients suspected with COVID-19. The tool was tested for reliability and obtained a 0.85 Cronbach alpha reliability score and was considered acceptable and have a good internal consistency.

## Data gathering

The objectives of this study were i) to estimate the prevalence of anxiety-depression and distress following exposure to the COVID-19 outbreak in the general population; and ii) to assess the impact of COVID-19 experience on anxiety, depression, and distress symptoms. The research variables were selected based upon previous studies and included: age group, nationality and gender.

The researchers secured a letter of permission to conduct the study from the hospital administration office of selected hospitals. Data collection was conducted at the time of coronavirus pandemic from March to June 2020. The study included a total of 210 COVID-19 positive patients. Data collection was obtained using survey questionnaire and interview. A survey questionnaire was provided to the respondents of the study which was then followed up by a face-to-face in-depth interview. Wherein, the research asked the respondents an open-ended question related to their answers in the survey questionnaire.

## Statistical analysis

The statistical data were calculated using an IBM Statistical Package for Social Sciences version 2.0 to compute the following statistical formulas: percentage distribution, mean, standard deviation, and Chi-square test of independence.

## Results and Discussion

The demographic characteristics of COVID-19 patients as respondents of the study is depicted in Table 1. Based on the data analysis performed, with a total of 210 COVID-19 patients, it was found out that most of them were middle-aged adults (n=98 or 46.7%), males (n=178 or 84.8%), and were non-Saudi nationals (n=132 or 62.9%). The study finding is supported by study of Li, which states that there was a lower prevalence in the female gender and higher prevalence of COVID-19 among males.<sup>19</sup>

Table 2 discusses the most common mental health and psychological problems experienced by patients diagnosed with coronavirus disease at the time of the pandemic. Accordingly, the findings of this study revealed that COVID-19 patients experienced bothersome issues at very high level ( $\bar{x}=2.63 \pm 0.6734$ ). Meaning, patients with coronavirus disease were always bothered by problems and situations related to their health. The result of the interview reported that most of the COVID-19 patients described such mental health problem as "they are always being bothered by problems brought by loss of job, financial problems, emotional distress, and fear of dying". Table 3 represents the psychological disorders based on the demographic characteristics of the study respondents.

This study revealed that COVID-19 patients experienced a high level of depression ( $\bar{x}=2.51 \pm 0.7070$ ), worry ( $\bar{x}=2.23 \pm$

**Table 1. Demographic characteristics of coronavirus (COVID-19) patients as respondents of the study.**

Demographic characteristics	Frequency (n)	Percentage (%)
<b>Age</b>		
13-20 years old (adolescents)	9	4.2
21-35 years old (young adults)	77	36.7
36-55 years old (middle-aged adults)	98	46.7
56 years old and above (older adults)	26	12.4
<b>Gender</b>		
Male	178	84.8
Female	32	15.2
<b>Nationality</b>		
Saudi	78	37.1
Non-Saudi	132	62.9
Total	n=210	100%

0.8811), and anxiety ( $\bar{x}=2.21 \pm 0.8719$ ). Meaning, patients are often depressed, worried and anxious about the problems and situations brought by the coronavirus pandemic. The participants with a high level of depression, revealed in the interview that they started to feel down, unhappy, depressed and hopeless due to this pandemic. Similarly, high level of worry, revealed that COVID-19 patients were always worried and unable to control and stop their worry about the problems brought by the coronavirus disease. These finding are supported by a recent study conducted in Saudi Arabia, who reported moderate to severe anxiety and depression symptoms in around one fifth of the study population.<sup>17</sup> Coronavirus pandemic causes considerable degree of fear, worry, and concern to the population.<sup>4</sup> Accordingly, it is normal to feel stressed, lonely, and depressed at this type of crisis. Furthermore, research shows that more than half of people who lost income and employment over coronavirus, had a negative health impact like stress and worry.<sup>18,20</sup> Likewise, anxiety at high level revealed that COVID-19 patients started to feel apprehensive, nervous and anxious about news related to coronavirus. During this unprecedented time of fear and uncertainty, it is more likely that mental health issues will exacerbate. In fact, research shows that there is high prevalence and increased level of depression and anxiety.<sup>3,18</sup> Nearly half respondents have reported that the negative mental health effect results from worry related to coronavirus. American Psychiatric Association even cited that psychopathology (like

depression and anxiety disorders) are more likely to develop during epidemic outbreaks due to natural causes such as life-threatening viral infections.<sup>7</sup>

Meanwhile, the results of this study revealed that COVID-19 patients experienced low self-esteem ( $\bar{x}=2.24 \pm 0.97$ ), fatigue ( $\bar{x}=2.24 \pm 0.97$ ), sleeping problems ( $\bar{x}=2.24 \pm 0.97$ ), suicidal ideation ( $\bar{x}=2.24 \pm 0.97$ ), restlessness ( $\bar{x}=2.24 \pm 0.97$ ), feeding problems ( $\bar{x}=2.24 \pm 0.97$ ), and poor concentration ( $\bar{x}=2.24 \pm 0.97$ ) at considerably moderate level. The result of the interview revealed that patients with coronavirus disease are sometimes experiencing poor esteem, feeling tired, sleeping difficulty, suicidal tendency, restless, poor appetite, overeating, and troubled concentration by problems and situations related to their health. These findings were consistent with the finding of other researches, which showed that low self-esteem is increasingly getting common.<sup>3,19</sup> During this unprecedented time of fear and uncertainty, it is more likely that negative mental health effects due to social isolation will exacerbate. In addition, the psychological sequelae of quarantine revealed numerous emotional and psychological negative outcomes after the quarantine was lifted like stress, fear, insomnia, anger, irritability, confusion, frustration, boredom, and stigma.<sup>5</sup>

Table 4 depicts the test of a significant relationship between the demographic characteristics and psychological health problems experienced by patients diagnosed with coronavirus disease

**Table 2. Psychological health problems experienced by COVID-19 patients.**

Mental health problems	Frequency (n)	Percentage (%)	Verbal interpretation
Bothersome	2.63	0.6734	Very high
Depression	2.51	0.7070	High
Worry	2.23	0.8811	High
Anxiety	2.21	0.8719	High
Low self-esteem	2.04	0.9324	Moderate
Fatigue	2.04	0.9245	Moderate
Sleeping problems	2.03	0.9120	Moderate
Suicidal ideation	1.94	0.9337	Moderate
Restless	1.93	0.9410	Moderate
Feeding problems	1.93	0.9461	Moderate
Poor concentration	1.89	0.9293	Moderate

Very low level, 1.00-1.40; low level, 1.41-1.80; moderate level, 1.81-2.20; high level, 2.21-2.60; very high level, 2.61-3.00.

**Table 3. Psychological health problems based on demographic characteristic experienced by COVID-19 patients (n=210).**

Demographic characteristics	Frequency (n)	Percentage (%)	Depression		Anxiety		Low self-esteem		Worrisome behaviour	
Age			n	%	n	%	n	%	n	%
13-20 years old (adolescents)	9	4.2	9	100	8	88.88	7	77.77	8	88.88
21-35 years old (young adults)	77	36.7	68	88.31	38	49.35	44	57.14	43	55.84
36-55 years old (middle-aged adults)	98	46.7	88	89.79	73	74.48	60	61.22	71	72.44
56 years old and above (older adults)	26	12.4	23	88.46	25	96.15	21	80.76	25	96.15
Gender			n	%	n	%	n	%	n	%
Male	178	84.8	159	89.32	122	68.53	105	58.98	127	71.34
Female	32	15.2	29	90.62	29	90.62	22	68.75	26	81.25
Nationality			n	%	n	%	n	%	n	%
Saudi	78	37.1	68	87.17	54	69.23	48	61.53	55	70.51
Non-Saudi	132	62.9	114	86.36	85	64.39	72	54.54	84	63.63



**Table 4. Test of significant relationship between the impact of demographic characteristics in the psychological health problems of patients with coronavirus.**

Variable(x)	Variable(y)	Chi-square value( $r^2$ )	p-value	Interpretation
Age	Psychological Health problems	10.27	0.4142	Not significant*
Sex		5.63	0.3287	Not significant*
Nationality		8.48	0.1972	Not significant*

\*p-value is significant if  $p < 0.05$ .

at the time of pandemic. Chi-square test of independence ( $r^2$ ) revealed no statistically significant relationship on the following variables: age and psychological health problems ( $r^2=10.27$ ,  $p=0.4142$ ), sex and psychological health problems ( $r^2=5.63$ ,  $p=0.3287$ ), and nationality and psychological health problems ( $r^2=8.48$ ,  $p=0.1972$ ). Thus, demographic characteristics are not significantly related to the psychological health problems experienced by coronavirus patients at the time of pandemic. A plausible explanation for this observation could be due to the exceptional core family values practiced in Saudi Arabia. Family is a central pillar of Saudi Arabian society. Family forms the basis of most people's social circles, and also provides financial and emotional support.<sup>21</sup> However, since coronavirus is a new disease, limited studies have linked the association between the two variables.<sup>18,22</sup> Previous study conducted in China revealed demographic characteristics such as female gender and student status, were significantly associated with a greater psychological impact of the outbreak and higher levels of stress, anxiety, and depression.<sup>18</sup> Another recent study conducted in USA showed that COVID-19 patients appeared to be at increased risk of psychiatric sequelae, and a psychiatric diagnosis might be an independent risk factor for COVID-19.<sup>23</sup> Therefore, further studies are warranted to completely assess their relationship. Although the gravity of the pandemic associated psychological illness may diminish over time, as evident from the previous contagious disease outbreaks, a significant consideration is needed from governments and policymakers concerning early detection and treatment of such disorders. These findings could be valuable for educators, counsellors and psychologists in Saudi Arabia and globally as well.

## Conclusions

The present research portrayed the level of anxiety, depression, and distress amongst the general public during the COVID-19 pandemic in Najran, Saudi Arabia. The study findings revealed that majority of participants had high levels of depression, anxiety and bothersome behaviours. However, demographic characteristics like age, sex and nationality were not significantly related to the psychological health problems experienced by coronavirus patients at the time of pandemic.

## Strengths and Limitations

Our study is the first in Najran city, Saudi Arabia, which reported the psychological health of the COVID-19 positive patients and highlights important associated risk factors to provide suggestions for addressing the mental health crisis amid the global pandemic. The study also has some limitations. First, the current study was carried out in a single city, and the sample size selected, cannot represent the whole Saudi population. Second, the study can provide no information about undiagnosed patients with COVID-19. Finally, our results cannot necessarily be generalised to other populations or health-care settings.

## Recommendations

The need to offer suggestions for stress management and effective coping by linking patients to different social and mental health services, patient counselling, open discussion with support system, seeking for professional mental health assistance, psychosocial assessment and evaluation, wellness promotion, and psychoeducation. It is imperative that assessment and interventions for psychosocial concerns, integration of mental health considerations, consultation with specialists, and treatment for severe psychosocial consequences should all be administered in COVID-19 care facilities. Communities must work together with mental health teams to develop evidence-based interventions related to disaster mental health and death bereavement care necessary to address psychosocial concerns. Moreover, preventive efforts such as mental health screening, psychoeducation, and psychosocial support are necessary to prevent adverse psychosocial outcomes. Mental health advised also include staying connected, physically active, sleeping well and staying calm.

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