



Research article

Generalized anxiety disorder symptoms during COVID-19 pandemic in Jazan, Saudi Arabia



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ABSTRACT

The aim of this study was to measure anxiety levels and many co-factors that might influence the levels of anxiety during the COVID-19 outbreak in southern Saudi Arabia (KSA). A cross-sectional self-reporting survey was conducted to determine the level of generalized anxiety disorder (GAD) symptoms related to COVID-19 and quarantining. We selected a convenience sample of eligible participants who had been invited online through social media apps. The survey instrument was distributed, and 981 participants responded. Of the total sample, almost 90% were under the age of 40, 75% were women, and 77% had an educational level beyond high school. Just over half were single, with nearly all participants Saudi nationals. The overall prevalence of anxiety related to COVID-19 was 27%. Factors most strongly related to reporting anxiety included having a diagnosis of COVID-19, spending 1- ≥ 3 h focused on COVID-19, having a previous mental illness history, being a current or former smoker, being female, having a previous diagnosis of chronic or respiratory illness, being below age 40, having a limited standard of living, and being a student. Our study reveals how critical it is to emphasize preventive mental health care during pandemics and what factors may make some individuals most vulnerable to anxiety. Further research is recommended to examine GAD levels pre, during and post pandemic. Additional research to explore the long-term impact of the pandemic on mental health is also needed. being a student, and a limited standard of living.

1. Introduction

On March 2, 2020 the first confirmed case of COVID-19 was reported in the Kingdom of Saudi Arabia (KSA) after circulating worldwide starting with the first cases in China in December of 2019 [1,2]. A virus had been identified as SARS CoV-2 on the 7th of January 2020 and the World Health Organization (WHO) declared COVID-19 a pandemic on March 11, 2020 [3,4].

Daily life was radically altered, and household income suffered as a result of mitigation measures, including prohibitions on workplace attendance, public gatherings, closing of businesses, and normal social movement imposed by the government of the KSA in February and March of 2020 intended both to prevent the spread of COVID-19 and alleviate

some of the pressures on the government finances and the economy [5, 6, 7]. Quarantining may have had an impact on anxiety levels of the population of the KSA as it did in previous pandemics such as H1N1, SARS-CoV, and MERS [8, 9, 10].

International studies have shown that mental health disorders including anxiety have been related to COVID-19 [11]. Studies in China revealed that the rapid spread of COVID-19 with increasing mortality rates in early 2020, resulted in higher levels of anxiety in both healthcare workers and the general public [12, 13]. Other Chinese studies showed rates of anxiety among students to be 37.4% while a difference between healthcare workers and non-healthcare workers revealed that healthcare workers had moderate to severe anxiety and non-healthcare workers had low levels [14, 15]. Studies conducted in Jordan and Kuwait focused on

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healthcare workers and university students reported COVID-19 related anxiety levels of 13% and 37% respectively [16, 17]. Multiple studies of COVID-19 related anxiety have been conducted on the population of the KSA using similar online questionnaires as this study, however, they were not segmented by region. Those studies used the GAD-7 to measure general anxiety as it has been found to have a high sensitivity and specificity as a screening tool [18]. The Saudi studies observed moderate to severe anxiety levels of 7–19% with a relationship to age, gender, marital status, previous mental health problems, and other factors [19, 20, 21].

It may be instructive to examine anxiety levels that occurred in previous epidemics and pandemics to determine if the case with COVID-19 is similar. Studies in India of the mental health effects of a Dengue Fever outbreak revealed increased anxiety in patients with severe symptoms, with low platelet counts, and among the elderly [22, 23]. Several studies in the United States (US) conducted during the H1N1 pandemic of 2009 demonstrated high levels of anxiety [24, 25, 26], in contrast one study in Hong Kong found that during the first wave of the disease anxiety levels were low regarding it along with a lack of good hygiene practice [10]. A study conducted in Seoul, Republic of Korea of the psychological effects on inpatients with confirmed acute MERS-Co-V revealed that nearly 71% showed signs of psychiatric symptoms and 41.7% required treatment [27]. A study in the KSA conducted during the MERS-CoV pandemic in 2014 showed that 57.7% reported high anxiety levels [28].

Considering the devastating effects of mental illness on society and finding a lack of studies of mental illness associated with the COVID-19 pandemic, identifying the prevalence of mental disease related to the COVID-19 outbreak will be of great value for planning in advance of any future pandemics. To this end, we investigated the prevalence of anxiety in the population to understand the pandemic effects on mental health among the population of Jazan, Saudi Arabia. Our aim was to measure anxiety levels and many co-factors that might influence the levels of anxiety during the COVID-19 outbreak.

2. Methodology

2.1. Study procedure

Using a cross-sectional design, we conducted a self-reporting survey to determine anxiety levels related to COVID-19 and the quarantine among the population of the Jazan Region of KSA. As in person distribution of surveys was not an option during the pandemic lockdown, we used a survey created using Google Survey (Google LLC, Mountain View, California, USA) which we distributed via the social media applications of WhatsApp and Twitter over a period of four days from May 28–31, 2020. We selected a convenience sample of eligible participants who had been invited through the social media apps, Twitter, and WhatsApp. According to the states and markets report of technology by the World Bank's World Development Indicators platform, 98% of the KSA's citizens use the internet [29]. Mobile internet connections are used by 91% of the population, and just over 79% use social media sites, including social networking and messenger applications (apps) [30]. A recent study of how Saudis seek medical information revealed that over 76% use social media sites for health information and Twitter and WhatsApp were among the top three apps used [31]. Finally, during the COVID-19 pandemic, it has become for scholars around the world to use online surveys to collect data due to the impossibility of conducting surveys in person. The survey, titled Psychological Impact(s) in Southern Saudi Arabia was designed to be shared among group members on the app platforms. Participants accessed the survey through a link to the cover page with the title and purpose of the survey and upon agreeing to participate were shown a series of questions to answer. The survey explained eligibility inclusion criteria to be those who were ≥ 18 years of age, Arabic language speakers, currently living in the Jazan region, and physically and emotionally able to complete the survey. Participants accessed the survey through a link to the cover page with the title,

eligibility, and purpose of the survey and upon agreeing to participate were shown a series of questions to answer. Exclusion criteria were < 18 years of age, not a resident of the Jazan region, non-Arabic speakers, and anyone who was not emotionally or physically able to answer questions.

2.2. Data collection and target population

Data was collected through an online questionnaire designed using Google Survey and was approved by the Institutional Review Board of Jazan University. Participants in our study were sampled from all 13 governorates and municipalities by assigning a data collector in each area to distribute the questionnaire in their region to reduce sampling bias. The survey questionnaires of 981 participants aged above 18 were included in this study during the four-day period of May 28–31, 2020. Strict confidentiality of data was observed throughout, and informed consent was obtained from all participants. Questionnaires included information on demographics, mental health symptoms, and knowledge of COVID-19. The sample size was calculated using Epi InfoTM 7 (Centers for Disease Control and Prevention, Atlanta, Georgia, USA). Although a sample size of 524 was determined to be sufficient to give a 99% confidence interval with a 5% margin of error, based on the 27% prevalence of anxiety found in a recent study in Riyadh City, Saudi Arabia [29], we nearly doubled the sample size of participants in order to increase the statistical power of our study results [30]. We anticipated that doubling the number of participants would avoid sampling bias in our method of using an online questionnaire on social media platforms to obtain data about many characteristics.

2.3. Data & measurements

All variables used in our study were either binary or categorical. Socio-demographic variables included, age, gender, marital status, living arrangements, social status, and nationality; economic variables included occupation grouped as working in healthcare, private industry, government, education, or students, standard of living, and financial responsibility; health status included BMI, comorbidities, previous mental illness, and smoking.

To assess knowledge of COVID-19, The variables for participant knowledge of COVID-19 included two areas, the first area was daily number of hours spent thinking about COVID-19 from less than one hour to more than 3 h and level of knowledge of COVID-19. The second: Measure knowledge related to Covid-19 by answering six parts: Firstly: Knowing the incubation period needed by the virus and knowing if it was more than or less than 14 days. Secondly, whether inhaling droplets emitted from an infected person through coughing or sneezing might cause the infection with Covid-19. Thirdly, touching a part contaminated with the virus may cause transmission of disease and infection. Fourthly: Whether contact with a person who does not show symptoms of Covid 19 may cause infection. Fifthly: Whether the use of folk and herbal medicines may prevent infection with the Covid 19 virus. Finally: whether there are medicines that can treat the disease. One point was awarded for each correct answer, while no point was awarded for an incorrect or uncertain answer. A knowledge of participant classified as poor (did not understand) if score ≤ 3 , good (generally understood) if score = 4, and was excellent (quite understood) if score ≥ 5 [32].

To assess anxiety, participants answered seven questions typically used to assess generalized anxiety disorder (Arabic version of GAD-7) on a 4-point Likert scale of 0–3 measuring the frequency of symptoms ranging from never to daily. The reliability of this model has been established by previous studies on the Saudi population with reliability measured as Cronbach's $\alpha = 0.763$ [18,29]. Increasing scores indicate increasing anxiety levels measured from 0-21 and we used the method by Wang et. al. to define our cut-off point of a total score of ≥ 9 to indicate GAD [21, 33].

2.4. Statistical analysis

We first conducted a descriptive analysis on socio-demographic, economic status, educational level, comorbidities, COVID awareness, and anxiety levels related to COVID-19 in the Jazan region. Second, we used the reported levels of anxiety by socio-demographic, economic status, educational levels, smoking, knowledge of COVID-19, time focused on COVID-19, and comorbidities to use Chi-square testing (χ^2) to compare groups. Third, multivariate logistic regression models were applied to control for other factors that might be related to anxiety levels from which we obtained adjusted Odds ratio (AOR), 95% confidence intervals (CI). The Statistical Package for Stata 2014 version was used to analyze all data and a p-value of ≤ 0.05 was deemed statistically significant.

2.5. Ethical consideration

Authors have no conflict of interests, and the work was not supported or funded by any drug company. The research involved human participants and was ethically approved by the Jazan University Scientific Research Ethics Committee with a reference number (REC41/6/158). All procedures performed in our study involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

3. Results

Table 1 presents a description of the characteristics of the participants and an analysis of the subset of participants diagnosed with anxiety and related characteristics. The majority of the sample were under age 40, female, single, educated beyond high school, and Saudi nationals. As to the knowledge of COVID-19 and time spent focusing on it, those with anxiety accounted for three fourths of the 12% demonstrating a high level of knowledge and 8% spending more than three hours per day focusing on COVID-19. The 27% of participants measured as having anxiety revealed statistically significant differences compared to those without anxiety in the following areas: those under 40 represented double the rate of those over 40, females had one and half times the rate of males, those with chronic disease represented nearly one and a half times the rate of anxiety as those who did not, and those with a previous history of mental illness or COVID-19 infection had almost double the incidence as those without that history. Smoking or history of smoking was reported in 80% of those with anxiety. Regarding standard of living factors, those reporting a limited standard had nearly 40% of the incidence while those with a high living standard accounted for only 22%.

Table 2 presents the multi-logistic regression of factors associated with reported anxiety. Compared to anxiety levels in patients under age 40, patients over age 40 reported approximately one-half as frequently, AOR = 0.47 times (95% CI 0.26–0.84, $p < 0.05$). Females were found to have anxiety twice as frequently as males AOR = 2.01 times (95% CI 1.29–3.12, $p < 0.05$), and students had approximately one third higher rates of anxiety as participants who were employed, AOR = 0.64 times (95% CI 0.43–0.97, $p < 0.05$). Participants having been diagnosed with COVID-19 reported more than five times the rate of anxiety as those who had not, AOR = 5.46 times (95% CI 1.24–24.04, $p < 0.05$) and participants with a history of chronic diseases were slightly more than one and a half times more likely to have anxiety than those without, AOR = 1.60 times (95% CI 1.08–2.37, $p < 0.05$). Participants reporting previous mental illness had more than three times the rate of anxiety AOR = 3.07 times (95% CI 1.38–6.82, $p < 0.05$). Compared to non-smokers, patients who were either smokers or ex-smokers were two and a half times as likely to have anxiety, AOR = 2.58 times (95% CI 1.51–4.39, $p < 0.05$). Compared to patients with a limited standard of living, patients with moderate and high standards of living were significantly less likely to have anxiety, AOR = 0.53 times (95% CI 0.36–0.77, $p < 0.05$) and AOR =

0.46 times (95% CI 0.27–0.76, $p < 0.05$) respectively. Compared to patients with no knowledge of COVID-19, patients with a high level of knowledge were significantly less likely to have anxiety, AOR = 0.54 times (95% CI 0.31–0.94, $p < 0.05$), and compared to patients who spent less than one hour per day focusing on COVID-19, both those who spent 1–2 h and ≥ 3 h were significantly more likely to have anxiety, AOR = 1.62 times (95% CI 1.09–2.39, $p < 0.05$) and 4.32 times (95% CI 2.57–7.25, $p < 0.001$) respectively. These results clarify how other factors are associated with the appearance of mental illness through bivariate (cross-tabulation) confirmed through multi-logistic regression to get accurate associations after controlling for other variables.

4. Discussion

The goal of this study was to determine the prevalence of generalized anxiety disorder (GAD) and related factors in Jazan City, KSA during the COVID-19 outbreak and resultant quarantine in 2020. Since previous studies have revealed increased anxiety levels during recent pandemics such as H1N1, SAR-CoV, and MERS during which 57.7% of respondents in the KSA reported high anxiety levels we expected there would also be an increase during COVID-19 [6, 8, 9, 10]. This study determined that 27% of the participants reported anxiety levels consistent with GAD and that there were several related risk factors. International studies have also revealed increased anxiety levels during the 2020 COVID-19 pandemic and quarantine related to similar risk factors such as among health care workers and students in China [14, 15] and a U.S. study that revealed a 41% rate of anxiety in adults during the period of Jan–June, 2020, a 350-fold increase of the 11% level found during the same time period in 2019, with higher risk among young adults, females, and those with a history of mental illness [34]. Other international studies show a correlation between COVID-related anxiety and the same risk factors that we found [35, 36, 37, 38, 39].

This study observed that the highest risk factor for anxiety was having contracted COVID-19 which undoubtedly induced fear of serious outcomes. The amount of time spent focusing on COVID-19 was a risk factor for increased anxiety which may mean these participants had more exposure to rumors and exaggerated information [20]. The higher reported anxiety among smokers, found in our study along with others, may be attributable to its higher risk of complications from COVID-19 inducing fear in smokers [20]. Consistent with other studies, this study found that being female was a risk factor for anxiety, possibly indicating that females had more tendency to worry about other family members and may be more sensitive to stress [20]. Younger participants had a higher risk of anxiety which we speculate may be accounted for by the stress of lockdown limiting socialization, concerns about job security, or the stress of being forced to attend school online, more exposure to social media with misinformation, as well as having less life experience with adversity than participants over age 40 [20]. Participants with pre-existing chronic diseases and with previously diagnosed mental illness were at higher risk which may be explained by the fact that they were already stressed about their health and were fearful of the results of getting COVID-19 as well as that preventive mental health services as well as elective health services were reduced in the beginning of the pandemic. Additionally, information was changing rapidly so this may have led to a sense of insecurity and vulnerability for those with compromised mental health. There were some factors that we found to be protective against anxiety such as higher standards of living and higher educational levels as well as higher levels of knowledge about COVID-19 and being employed rather than a student which may be interpreted as the more secure economic position that these factors represent. Higher levels of knowledge about COVID-19 was also protective, perhaps because these subjects were in possession of the facts rather than relying on rumor and fear.

The lower overall rates of anxiety in the population of the Jazan region compared to international studies may possibly be due to the 22 early mitigation measures by the Saudi government that began before

Table 1. Characteristics of the study sample & distribution of characteristics by anxiety vs. non-anxiety groups.

Characteristics	Total sample N (%) 981 (100.00)	No Reported Anxiety N (%) 713 (72.68)	Reported Anxiety N (%) 268 (27)	P-value*
Age				
Less than 40	845 (86.17)	597 (70.65)	248 (29.35)	<0.001
More than 40	136 (13.86)	116 (85.29)	20 (14.70)	
Sex				
Male	242 (24.67)	194 (80.17)	48 (19.38)	0.003
Female	739 (75.33)	519 (70.23)	220 (29.77)	
Social status				
Single	535 (54.54)	378 (70.65)	157 (29.35)	0.136
Married	414 (42.20)	314 (75.85)	100 (24.15)	
Divorced or widowed	32 (3.26)	21 (65.63)	11 (34.38)	
Nationality				
Non-Saudi	21 (2.14)	13 (61.90)	8 (38)	0.263
Saudi	960 (97.86)	700 (72.92)	260 (27.81)	
Diagnosed with Covid-19				
No	971 (98.98)	709 (73.02)	262 (26.98)	0.02
Yes	10 (1.02)	4 (40.00)	6 (60.00)	
BMI				
1-Less than 18.5	222 (22.63)	158 (71.17)	64 (28.83)	0.224
2-Between (18.5–24.9)	358 (36.49)	258 (72.07)	100 (27.93)	
3- Between (25–29.9)	259 (26.40)	200 (77.22)	59 (22.78)	
4-30 or above	142 (14.48)	97 (68.31)	45 (31.69)	
Chronic diseases including chest diseases				
No	806 (82.61)	589 (73.90)	208 (26.10)	0.023
Yes	175 (17.84)	115 (65.71)	60 (34.29)	
Previous mental illnesses				
No	950 (96.84)	697 (73.37)	253 (26.63)	0.007
Yes	31 (3.77)	16 (51.61)	15 (48.39)	
Smoking status				
1- Never smoked	882 (89.91)	655 (74.26)	227 (26.63)	0.001
2-Smoke's cigarettes or water pipe	47 (4.79)	31 (65.96)	16 (34.04)	
3-Ex-smoker	52 (5.30)	27 (51.92)	25 (48.08)	
Employment status				
1- Student	412 (42.00)	158 (71.17)	64 (28.83)	0.224
2- Public sector	232 (23.65)	258 (72.07)	100 (27.93)	
Private sector – Free businesses	92 (9.38)	200 (77.22)	59 (22.79)	
3-Retired or Not-working	245 (24.97)	97 (68.31)	45 (31.69)	
Education levels				
Less than bachelor	223 (22.73)	164 (73.54)	59 (26.46)	0.743
more than bachelor	758 (77.27)	549 (72.43)	209 (27.57)	
Standard of Living level				
Limited	189 (19.27)	115 (60.85)	74 (39.15)	<0.001
Moderate	610 (62.18)	456 (74.75)	154 (25.25)	
High	182 (18.55)	142 (78.02)	40 (21.98)	
Working in healthcare field				
No	880 (89.70)	637 (72.39)	243 (27.61)	0.541
Yes	101 (10.30)	76 (75.25)	25 (24.75)	
Financially responsible				
No	713 (72.68)	514 (72.90)	199 (27.91)	0.498
Yes	268 (27.32)	199 (74.25)	69 (25.75)	
Reside				
Alone	22 (2.24)	18 (81.82)	4 (18.18)	0.331
with one or more	959 (97.76)	695 (72.47)	264 (27.53)	
Knowledge of COVID-19				
No knowledge (score ≤3 points)	337 (34.35)	237 (70.33)	100 (29.67)	0.144
General knowledge (score 4 points)	530 (54.03)	385 (72.64)	145 (27.36)	
High knowledge (score ≥5 points)	114 (11.62)	91 (25.35)	268 (74.65)	

(continued on next page)

Table 1 (continued)

Characteristics	Total sample N (%) 981 (100.00)	No Reported Anxiety N (%) 713 (72.68)	Reported Anxiety N (%) 268 (27)	P-value*
Time spent focusing on the COVID-19				
<1 h	734 (74.82)	563 (76.70)	171 (23.30)	<0.001
1–2 h	169 (17.23)	115 (68.05)	54 (31.95)	
≥3 h	78 (7.95)	35 (44.87)	43 (55.13)	

* Chi-square test; p-value based on the one-way ANOVA test.

Table 2. Multi-logistic regression: Multiple logistic regression analysis of factors associated with anxiety among Jazan population during Covid-19 pandemic.

Characteristics	OR	95% CI		P-Value*
		Lower	Upper	
Age group				
More than 40	0.47	0.26	0.84	0.011
Gender				
Female	2.01	1.29	3.12	0.002
Diagnosed with Covid-19	5.46	1.24	24.04	0.025
BMI				
Between (18.5–24.9)	1.13	0.75	1.68	0.549
Between (25–29.9)	0.90	0.56	1.45	0.689
30 or above	1.56	0.93	2.62	0.086
Chronic diseases including chest diseases	1.60	1.08	2.37	0.017
Previous mental illnesses	3.07	1.38	6.82	0.006
Smoking status				
Smokes or X-smoker	2.58	1.51	4.39	0.000
Employment status				
Public sector-Private sector – Free businesses	0.64	0.43	0.97	0.035
Retired or Not-working	0.89	0.60	1.30	0.561
Standard of Living level				
Moderate	0.53	0.36	0.77	0.001
High	0.46	0.27	0.76	0.003
Knowledge of COVID-19				
General understanding (score 4 points)	0.95	0.68	1.32	0.772
High understanding (score ≥5 points)	0.54	0.31	0.94	0.031
Time spent focusing on the COVID-19				
1–2 h	1.62	1.09	2.39	0.015
≥3 h	4.32	2.57	7.25	0.000

the first case occurred in the KSA and were phased in proactively as documented in one study that compared the early measures taken by the KSA compared to the lag in instituting measures by the UK and the quick response in providing healthcare services to treat all citizens and residents for free [40]. The economic support provided by the government for healthcare workers and other workers who were impacted by the economic slowdown may also have led to a lower rate of anxiety.

Moreover, this study found several statistically significant risk factors related to the diagnosis of GAD during the COVID-19 pandemic. Higher risk factors for GAD were: being diagnosed with COVID-19 with 546% greater odds compared to not being diagnosed with COVID-19, spending a relatively large amount of time focusing on COVID-19 with a 432% greater odds of higher risk for GAD compared to little time focusing on COVID-19, previous mental illness history with 307% greater odds compared to no history of previous mental illness, smoking or being an ex-smoker with a 258% greater odds compared to never having smoked, being female with 200% greater odds compared to being male, pre-existing chronic disease with more than 160% greater odds compared to no history of pre-existing chronic disease, being under age 40 with 53% greater odds compared to being over age 40, limited standard of living with 47–54% greater odds compared to a moderate or high standard of living respectively, and being a student rather than employed

with 36% greater odds. Our results are consistent with two studies conducted in the KSA in which gender, age, pre-existing chronic disease, and educational levels were significant factors in anxiety levels [20, 41].

These findings have important policy implications to mitigate the risk of GAD during national medical emergencies. First, protocols should be developed to quickly address mental health from the start of a pandemic. Second, mental health should be addressed thoroughly pre-pandemic. Third, immediate mental health support must be provided at the start of a pandemic along with accurate information and medical care for the disease. Future research should focus on longitudinal studies to measure the change in GAD from pre to post COVID-19 as well as the development of GAD over time during the pandemic. More research is also needed to examine underlying epidemiological causes such as pre-existing conditions or sociological, physical, and mental changes occurring due to COVID-19 infection.

4.1. Limitations

There are several limitations to this study. As a cross-sectional design, this study cannot delineate causal effects. Although, under the circumstances use of an online survey was the best format and furthermore it is a widely used method to gather such data, sampling bias may have occurred due to the exclusion of those without access to the social media apps used or in which only those who are interested in mental health issues as well as the pandemic participated in the survey, and the convenience sampling technique used may also have led to sampling bias. Since the peak of the COVID-19 outbreak varied among the regions, this study may not have included the peak period in Jazan. In addition, responses from a self-reported survey are somewhat subjective and cannot be used for diagnostic purposes. Finally, the study survey instrument could not measure any change in anxiety from the pre-covid period and the speed with which the pandemic spread precluded gathering data regarding pre-covid anxiety. Additionally, this study included data only for residents of the Jazan region and therefore it may not be generalizable to the KSA as a whole.

5. Conclusion

The COVID-19 pandemic triggered an increase in anxiety levels among study participants with certain risk factors consistent with both international and domestic studies. The overall prevalence of anxiety related to COVID-19 among the Jazan population was 27%. Factors most strongly related to reporting anxiety included having a diagnosis of COVID-19, spending 1- ≥ 3 h focused on COVID-19, having a previous mental illness history, being a current or former smoker, being female, having a previous diagnosis of chronic or respiratory illness, being below age 40, having a limited standard of living, and being a student. This study demonstrates the critical necessity to emphasize preventive mental health care during pandemics and what factors may make some individuals most vulnerable to anxiety. Policy makers should prioritize mental health and well-being along with meeting the preventive and treatment demands of a pandemic infectious disease. Finally, as the pandemic has continued for more than a year, a lengthier time period study is required to assess the stability of the prevalence of anxiety present in the Jazan population.

Declarations

Author contribution statement

Abdullah A. Alh; Ahmad Y. Alqassim; Mohammed A. Muaddi; Anwar M. Makeen; Ronnie D. Horner: Conceived and designed the experiments; Performed the experiments; Analyzed and interpreted the data; Contributed reagents, materials, analysis tools or data; Wrote the paper.

Ahmed M. Hagawi; Layla A. Shaabi; Sabreen M. Alhweity; Mohammed A. Alharbi; Maryam A. Sultand; Atheer H. Alshamakhi; Nada S. Aburasain: Performed the experiments; Analyzed and interpreted the data; Wrote the paper.

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Data availability statement

Data will be made available on request.

Declaration of interests statement

The authors declare no conflict of interest.

Additional information

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