

On the psychological levels of general population of Saudi Arabia amidst the second wave of COVID 19: a cross sectional study

Sobre los niveles psicológicos de la población general de Arabia Saudí en medio de la segunda ola de COVID 19: un estudio transversal

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Received: 2 - IV - 2022

Accepted: 9 - IV - 2022

doi: 10.3306/AJHS.2022.37.03.147

Abstract

Introduction and aim: The Covid- 2019 pandemic has caused serious threats to the life of people all over the world, including Saudi Arabia, leading to a more alarming concern of public health. This maiden pandemic to most of the century's inhabitants has also raised a wide range of psychological problems, such as distress, panic disorder, anxiety and depression, which could be long lasting and more devastating. The main purpose of the present questionnaire based study was to measure the prevalence and severity of distress in the population of six major regions of Saudi Arabia to have an idea of the impact of the second wave of Covid-19.

Methods: This initial analysis, is an important large-scale study of psychological distress among the Saudi population during the second wave of COVID-19 epidemic, as few reports exist in literature in the area. An online cross sectional study was conducted from 24th March 2021 to 15 April 2021 in important regions of KSA where bilingual questionnaires with both Arabic and English versions were circulated to volunteers. Sample size calculation was based on WHO recommended criteria, minimum sample size being 385 based on 95% confidence interval with 5% significance level.

Results: Among the total participants, 33.5% showed mild level of anxiety, followed by moderate (25.5%) and severe (14.3%) anxiety levels. A total of 230 out of 525 (43.8%) showed depression symptoms and among the total participants, females expressed more depressive symptoms compared to the male participants.

Conclusion: The findings of the study can be used for developing better and improved care and provision for people with psychological burden and mental illness, as it is necessary to offer targeted treatment, such as online psychotherapy in particular for the distressed.

Key words: distress, anxiety, Covid-19 second-wave.

Resumen

Introducción y objetivo: La pandemia de Covid- 2019 ha provocado graves amenazas para la vida de las personas en todo el mundo, incluida Arabia Saudí, lo que ha llevado a una preocupación más alarmante de la salud pública. Esta pandemia inaugural para la mayoría de los habitantes del siglo también ha planteado una amplia gama de problemas psicológicos, como la angustia, el trastorno de pánico, la ansiedad y la depresión, que podrían ser duraderos y más devastadores. El objetivo principal del presente estudio basado en un cuestionario era medir la prevalencia y la gravedad de la angustia en la población de seis grandes regiones de Arabia Saudí para tener una idea del impacto de la segunda oleada de Covid-19.

Metodología: Este análisis inicial, es un importante estudio a gran escala de la angustia psicológica entre la población saudí durante la segunda ola de la epidemia de COVID-19, ya que existen pocos informes en la literatura en el área. Se llevó a cabo un estudio transversal en línea desde el 24 de marzo de 2021 hasta el 15 de abril de 2021 en importantes regiones de KSA donde se distribuyeron cuestionarios bilingües con versiones en árabe e inglés a los voluntarios. El cálculo del tamaño de la muestra se basó en los criterios recomendados por la OMS, siendo el tamaño mínimo de la muestra de 385 basado en un intervalo de confianza del 95% con un nivel de significación del 5%.

Resultados: Del total de participantes, el 33,5% mostraba un nivel de ansiedad leve, seguido de niveles de ansiedad moderados (25,5%) y graves (14,3%). Un total de 230 de 525 (43,8%) mostraron síntomas de depresión y, entre el total de participantes, las mujeres expresaron más síntomas depresivos en comparación con los hombres.

Conclusión: Los resultados del estudio pueden servir para desarrollar una mejor atención y provisión para las personas con carga psicológica y enfermedades mentales, ya que es necesario ofrecer un tratamiento específico, como la psicoterapia en línea, en particular para los angustiados.

Palabras clave: angustia, ansiedad, Covid-19 segunda ola.

Introduction

The COVID-19 epidemic has caused serious threats to the physical health and life of people as a whole including Saudi Arabia. Originating in China, the disease has a rapid progression to other countries. Research suggests remarkable genomic resemblance of 2019-nCoV with Severe Acute Respiratory Syndrome (SARS) which has a history of a pandemic in 2002, resulting in a return of more serious global public health emergency, (WHO 2020, Gralinski and Menachery, 2020).

As the Corona Virus -19 has been reported to spread faster than its two ancestors the SARS-CoV and Middle East respiratory syndrome coronavirus (MERS-CoV), but has lower fatality. Since the WHO, declared the New SARS-CoV-2 in China, in late 2019, a public health emergency of international followed in every continent, with several data based and review articles flooding the scientific literature. The global impact of this new epidemic is yet uncertain, (WHO, 2020, Singhal 2020), though with concentrated international efforts and better preparedness for such pandemics at the global levels, the caused scars on human race will fade and humanity will carry on with each other's healing touches, (Shaima Miraj 2020 and Miraj & Miraj 2021).

This has led to a more alarming concern of public health with war footing attempts to curtail its impact on global health and economy, including human health and wellness of mind and body. This pandemic has also raised a wide range of psychological problems, such as fear, panic disorder, anxiety and depression, which are long lasting and more devastating. Several studies conducted recently after the pandemic and during its onset as well have reported serious psychological distress due to the pandemic in human subjects analyzed in several countries, (Feng et al (2020), Costantini & Mazzotti, (2020), Horesh and Brown 2020, Jahanshahi et al (2020) and Jiménez et al., (2021).

The main purpose of the present questionnaire based study was to measure the prevalence and severity of distress for the population of the important regions of Kingdom of Saudi Arabia to have an idea of the impact of the second wave of CORONA viral disease 2019, consequent to the more serious first wave in the kingdom. The initial analysis, is an important large-scale study of psychological distress among the Saudi population during the second wave of COVID-19 epidemic, as few reports exist in literature in the area. The findings of the study can be used for developing better and improved care and provision for people with psychological burden and mental illness, as it is necessary to offer targeted treatment, such as online psychotherapy in particular for the distressed.

Methodology

An online cross sectional study was conducted in March and April 2021 in six major regions of Saudi Arabia during the 2nd wave of Covid-19 pandemic, where about 1251 daily confirmed cases with 7347 deaths, been reported by May end 2021. The bilingual questionnaires with both Arabic and English versions were circulated to the volunteers with the help of social platforms like emails and WhatsApp to reach all different categories and major regions of general population in KSA. The eligibility criteria was defined as the participants should be residents of KSA, aged 18 years and above to participate in the study by answering the questionnaires. Participation in the study was completely voluntary, and the participants were requested to give their informed consent and endorse their eligibility for participation. Sample size calculation was based on WHO recommendation's criteria. The minimum sample size required for this study is 385 based on 95% confidence interval with 5% significance level. The study was approved by the Institutional Review Board (IRB approval number: SEUREC-CHS21102).

The reliability and validity pretested questionnaire from the pilot study (Cronbach's alpha > 8) was used for the data collection. The study questionnaire composed of four major parts which included socio demographic information, information of health related factors, anxiety measurement scales a (DAD-7, 7 item generalized anxiety severity scale) and depression measurement scales (CESD-10).

The questionnaire was provided to 1105 individuals and out of which 728 (65.8 %) initiated to fill the questionnaire and among those 624 full filled the eligibility criteria. A total 84% (525 out of 624) completed all domains of the questionnaire including the baseline and demographic details, GED-7 and CESD 10 items.

Results and discussion

The results of the present study point out towards increasing levels of distress anxiety and fear among the participants indicating that the second wave of the pandemic is more distressful and is a significant causative factor of sustained stress among all sections of the studied volunteers, both males and females, being higher in females than the males. Recent studies also show that there are increasingly comprehensive data on recognition of the psychological impact of the coronavirus disease 2019 (COVID 19) pandemic on global populations. In most regions of the world, the economic and psychological burden on the general population and persons with mental disorders has risen sharply over the course of the pandemic, (Liu et al 2021).

Table I: Socio demographic information.

Variable	Frequency	%
Age		
< 25 years	148	28.2
25- 34 years	220	41.9
35 - 44 years	140	26.7
45 years and older	17	3.2
Nationality		
Saudi	461	87.8
Non Saudi	64	12.2
Gender		
Female	356	67.8
Male	169	32.2
Marital status		
Single	221	42.1
Married	265	50.5
Divorced/ widowed	39	7.4
Education		
Diploma	64	12.2
High school or less	175	33.3
Post graduate and above	53	10.1
Undergraduate	233	44.4
Occupation		
Student	160	30.5
Government	177	33.7
Private	94	17.9
Self employed	4	0.8
Retired	3	0.6
Not working	87	16.6
Regions		
Central	214	40.8
Eastern	122	23.2
Northern	1	0.2
Southern	53	10.1
Western	110	21.0
Others	25	4.8

The demographic features of the participants studied in the present investigation are summarized in **table I**, showing that majority of participants being female (67.8%) and nearly half of the participants (41.9%) were under 25 -34 years of age group, followed by less than 25 years (28.2%), 35- 44 years (26.7%), 45 years older (3.2%) respectively. About, 87.8% were from Saudi nationalities and half of the participants were married (50.5%). Most of the participants were from central region (40.8%), followed by eastern (23.2%) and western regions (21.0%). Most of the participants had completed undergraduate level of education (44.4 %) and one third of the participants were working in government sector (33.7%).

The anxiety and depression levels of the studied samples are illustrated in **figure 1.1**. Among the total participants, 33.5% showed mild level of anxiety, followed by moderate (25.5%) and severe (14.3%) anxiety levels. A total of 230 out of 525 (43.8%) showed depression symptoms and

Table II: Showing the levels of Anxiety and Depression.

Anxiety	Frequency	%
None /Minimal	140	26.7
Mild	176	33.5
Moderate	134	25.5
Severe	75	14.3
Depression		
Present	230	43.8
Absent	295	56.2

Table III: Association between anxiety and demographic variables.

Variables	Levels of anxiety				P value
	No/ Minimal	Mild	Moderate	Severe	
Gender					
Male	52(30.8%)	81(47.9%)	15(8.9%)	21(12.4%)	0.000*
Female	88(24.7%)	95(26.7%)	119(33.4%)	54(15.2%)	
Age group					
18- 24	30(20.3%)	36(24.3%)	39(26.4%)	43(29.1%)	0.000*
25-34 years	65(29.5%)	56(25.5%)	81(36.8%)	18(8.2%)	
35-44 years	37(26.4%)	77(55.0%)	12(8.6%)	14(10.0%)	
45 years and above	8(47.1%)	7(41.2%)	2(11.8%)	0(0.00)	
Marital status					
Married	60(22.6%)	103(38.9%)	79(29.8%)	23(8.7%)	0.000*
Single	48(21.7%)	71(32.1%)	52(23.5%)	50(22.6%)	
Divorced/ widowed	32(82.0%)	2(5.12%)	3(7.69%)	2(5.12%)	
Education					
High school or less	25(14.3%)	59(33.7%)	74(42.3%)	17(9.7%)	0.000*
Diploma	43(67.2%)	18(28.1%)	1(1.6%)	2(3.1%)	
Undergraduate	54(23.2%)	75(32.2%)	53(22.7%)	51(21.9%)	
Post graduate and above	18(34.0%)	24(45.3%)	6(11.3%)	5(9.4%)	
Occupation					
Government	78(44.1%)	73(41.2%)	13(7.3%)	13(7.3%)	0.000*
Private / self employed	14(14.28%)	56(57.1%)	11(11.2%)	17(17.3%)	
Student	37(23.12%)	39(24.37%)	47(29.37%)	37(23.12%)	
Not working /retired	11(12.2%)	8(8.88%)	63(70%)	8(8.88%)	
Region					
Central	56(26.2%)	85(39.4%)	28(13.1%)	45(21.0%)	0.000*
Eastern	18(14.8%)	55(45.1%)	29(23.8%)	20(16.4%)	
Southern	40(75.5%)	7(13.2%)	4(7.5%)	2(3.8%)	
Western	15(13.6%)	24(21.8%)	66(60.0%)	5(4.5%)	
Northern / Others	11(42.30%)	5(19.2%)	7(26.9%)	3(11.5%)	

*P<0.005, statistically significant at 5% significance level.

Table III: Association between depression and demographic variables.

Variables	Depression		P value
	Yes	No	
Gender			
Male	51(30.2%)	118(69.8%)	0.000*
Female	179(50.2%)	177(49.7%)	
Age group			
18- 24	101(68.2%)	47(31.8%)	0.000*
25-34 years	77(35.0%)	143(65.0%)	
35-44 years	46(32.9%)	94(67.1%)	
45 years and above	6(35.3%)	11(64.7%)	
Marital status			
Married	77(29.1%)	188(70.9%)	0.000*
Single	147(66.5%)	74(33.5%)	
Divorced/ widowed	6(15.38%)	33(84.61%)	
Education			
High school or less	47(26.9%)	128(73.1%)	0.000*
Diploma	18(28.1%)	46(71.9%)	
Undergraduate	137(58.8%)	96(41.2%)	
Post graduate and above	28(52.8%)	25(47.2%)	
Occupation			
Government	70(39.5%)	107(60.5%)	0.000*
Private / self employed	39(39.7%)	59(60.2%)	
Student	106(66.2%)	54(33.8%)	
Not working /retired	15(16.6%)	75(83.33%)	
Region			
Central	119(55.6%)	95(44.4%)	0.000*
Eastern	59(48.4%)	63(51.6%)	
Southern	9(17.0%)	44(83.0%)	
Western	27(24.5%)	83(75.5%)	
Northern / Others	16(61.53%)	10(38.46%)	

*P< 0.05 statistically significant at 5% significance level

among the total participants, female expressed more depressive symptoms compared to male participants.

With reference to the demographic distribution related to age, it was observed that 33.5% of the sample population had mild anxiety as compared to 39.8% of the population which had moderate to severe anxiety. On further gender wise evaluation it was observed that females had more moderate to severe anxiety (44.9%) as compared to males(9.35%), found to be statistically significant (**Table III**). 17% of the sample population had symptoms of mild anxiety between 18-34 years as compared to 16% observed between age group of 35 years and above. However, with respect to moderate to severe anxiety, it was observed that 34.47% of the population in the age group of 18-34 years complained of the symptoms in comparison to 5.3% in the age group of 35 years or above found to be statistically significant ($p=0.00^*$) (**Table III**).

With relation to the effect of marital status to anxiety, it was observed that 38.9% of the married population had mild symptoms in comparison to single (32.1%). Likewise, 19.4% of the married showed moderate to severe symptoms as compared to 20.3% who were single/ widowed (**Table III**). Comparing in terms of education with relation to anxiety levels it was found that 14.6% of the sample having education high school/diploma or less had mild symptoms in comparison to 18.8% who had qualification undergraduate or above. In comparison

17.9% of the married population showed moderate to severe anxiety with respect to 21.9% who were single, found to be statistically significant ($p=0.00^*$) (**Table III**).

Evaluating Occupation status with anxiety levels it was observed that 24.5% of the population showing mild anxiety symptoms were employed either in government, private or self. It is in comparison to 8.9 % of population who were unemployed (either students/ retired professionals). This was in contrast to 10.2% of the employed professionals who showed moderate to severe anxiety in comparison to unemployed population (29.5%), found to be statistically significant ($p=0.008$) (**Table III**).

Evaluating the association between various demographic factors with reference to depression, it was observed that females were depressed more(50.2%) as compared to males, found to be statistically significant ($p=0.00^*$) (**Table IV**). Likewise, 68.2% of the population was found to be depressed between the age group of 18-24 years. Recent studies conducted in Italy and Spain, have also demonstrated that women showed a higher level of distress, as well as in the Spanish sample (Magomed-Eminov et al., 2020; Jiménez et al., 2021), similar to the present investigation. It has been also observed in these previous studies that the survivors of the COVID-19 contraction are characterized by higher indicators of the index of distress than for those who are not ill and have not encountered the disease in their family environment, (Costantini & Mazzotti, 2020).

Univariate analysis showed the association of different demographic factors namely age group, gender, marital status, education level, occupational status with anxiety and depressive symptoms ($p < 0.05$) at 5% significance level. Detailed analysis is depicted in **tables III and IV**. The mean and SD of anxiety score was 8.08 ± 5.62 on GED 7 scale and depression score was 10.41 ± 6.21 on CESD-on a 10 scale. There is significant positive correlation showed ($r = 0.680$, $p = 0.000$) between anxiety and depression score at 5% significance level and p value < 0.05 .

Conclusion

Among the total participants, 33.5% showed mild level of anxiety, followed by moderate (25.5%) and severe (14.3%) anxiety levels. A total of 230 out of 525 (43.8%) showed depression symptoms and among the total participants, females expressed more depressive symptoms compared to the male participants. The findings of the study can be used for developing better and improved care and provision for people with psychological burden and mental illness, especially in a current scenario like present when the world is gearing for a new omicron third wave as it is necessary to offer targeted treatment, such as online psychotherapy in particular for the distressed.

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Data Availability Statement

The datasets generated and/or analysed during the current study are not publicly available due to privacy and confidentiality agreements as well as other restrictions but are available from the corresponding author on reasonable request.

Author Contributions

All authors made substantial contributions to conception, design, acquisition of data, analysis and interpretation of data, drafting the article or revising it critically for intellectual content and reasoning, provided final approval of the version to be published, and agreed to be accountable for all aspects of the work.

Acknowledgements

This project was funded by the Deanship of Scientific Research (DSR) at Saudi Electronic University, Riyadh under grant no. ELI/CHS20115. The authors therefore acknowledge the DSR for technical and financial support for this work.

Conflict of interests

The authors have no conflict of interest.

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