

The psychological impact of COVID-19 Pandemic on the population of Bahrain

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Summary. Background and Aim: The COVID-19 pandemic is a global crisis that is considered a stressful event directly and indirectly (via prophylactic measures taken) for people in any society. It can have an impact on mental health resulting in a plethora of symptoms. *Method:* This study measures the psychological impact, demonstrated by the symptoms of depression, anxiety, and stress. An online semi-structured questionnaire was used for all participants, and with the measure The Arabic version of The Depression Anxiety and Stress Scale -21 (DASS-21). The study design was cross-sectional and was conducted in April-May 2020. The sample was (n=1115) from Bahrain's population, (1081 Bahraini and 33 non-Bahraini), aged 18 and above, 701 females, most of them were graduates and employed. *Results:* showed 30% were with depressive symptoms, 18.2% have exhibited anxiety symptoms, and 30.8% reported stress symptoms. Females were higher than males in depressive and anxiety symptoms. While no gender differences in stress symptoms. The younger age group showed more distress across the board with symptoms reported decreasing with age. Students were also noticed to be the group reporting the highest symptoms, together with people with the lowest income. *Conclusion:* The study has demonstrated a high psychological impact on the population of Bahrain with around a third of the population demonstrating some level of distress. (www.actabiomedica.it)

Key words: SARS-COV-2, COVID-19, Coronavirus, Pandemic, Bahrain, Depression, Anxiety, Stress, DASS, DASS-21, Psychiatry

Background and aim

In December 2019, the world knew about a pandemic that started in Wuhan, Hube, China, and soon it spread throughout the world, and was denoted to be a pandemic by the WHO on 11th of March 2020. Bahrain was introduced to the disease on 21st of February 2020. The world and Bahrain in particular faced the pandemic with taskforce and several nation-wide measures, including quarantine, opting to virtual schooling and nation-wide closure of unnecessary venues and the mandatory use of face masks. The coronavirus disease 2019 (COVID-19) pandemic is likely to

have an impact beyond the disease itself. The constant fear, worry, and uncertainty are considerable stressors to the community and individuals. The response measures taken, including social distancing, self-isolation, and quarantines, while necessary to combat the pandemic, might augment these stressors further. Concerns of the Mental Health and Psychosocial impact of COVID-19 outbreak have translated to several studies, including a study on the general population in China by Wang et al. finding that 16.5% of the sample had moderate to severe depressive symptoms; 28.8% moderate to severe anxiety symptoms; and 8.1% moderate to severe stress.(1) No such research was performed in

Bahrain, accordingly this study aimed to fill this gap in the literature measuring the psychological impact of the COVID-19 outbreak on the population of Bahrain.

Methods

This was a cross-sectional, observational study carried out in Bahrain using the Arabic version of DASS 21. A Snowball sampling technique was used. An online semi-structured questionnaire was developed using Google forms, with a consent form appended to it. The link of the questionnaire was sent through WhatsApp and spread among several groups who were advised to circulate it in the community. The participants were encouraged to forward the survey to as many people as possible. On receiving and clicking the link, the participants were auto directed to the information about the study and informed consent. After accepting to take the survey, they filled the demographic details, then answered a set of questions.

Data collection was done using an online form, participants aged 18 years and above who were able to give consent, who are in Bahrain, with access to the internet, are literate and know Arabic, could participate in the study. A total of 1125 responses were received, excluding 10 who had not provided consent, hence the final sample size of 1115. The socio-demographic variables included age, gender, nationality, income, education, occupational status, and location.

The Arabic version of The Depression Anxiety Stress Scales (DASS 21) was used as the main measure of the study(4). DASS-21 is a valid and reliable measure that consists of a 21-item self-report tool with subscales to measure the dimensions of depression, anxiety, and stress (2)(3). Each of the three DASS-21 scales contains 7 items, with a 4-point Likert scale, ranging from 0 (did not apply to me at all) to 3 (applied to me very much, or most of the time). Total scores are calculated by summing the items on each subscale then multiplying by 2, giving a score range of 0-42 on each subscale. Scores above 20, 14, and 25 on the depression, anxiety, and stress subscales respectively are indicative of severe levels (4). The DASS shows good

convergent and discriminant validity, and high internal consistency and reliability, with Cronbach's alpha, reported at 0.94 for Depression, 0.87 for Anxiety and 0.91 for Stress (5).

The Data were scored and coded in both Microsoft Excel and Google sheets, then imported into SPSS (trial version), JASP and Jamovi analysis softwares for further variable labeling and analysis, descriptive tests with the median and one sample proportion statistical tests were done.. Associations between the main measurement and other studied variables were tested using the Chi-square statistical test. The finding was that significant associations across all the scales were exhibited in the youngest group, females, students, and people with the lowest income. From the health variables, main information source was the one showing significance.

Results

Our sample was n=1115, included all ages groups above 18 years (Table 1). The education level is centered on the secondary and college. around two thirds of the sample were females, most of the participants were employed. Bahraini and non-Bahraini (Arabic speaking) are similar to the population, and the income categories were homogeneous.

From (Table 2), The COVID-19 status showed 0.2% which is representative of the infected population (0.29%). The information source reflects the trend moving from conventional towards social media.

DASS-21 was chosen to emphasize on symptoms in all groups of the population rather than disorders. From the (Table 3) we can see that all the results are highly significant ($p < 0.001$), people having depressive symptoms were 30%. Anxiety scale showed 18.2%, and people with stress symptoms were 30.8%.

Discussion

The study compared the results with four sets of data; a previous Bahraini local study by AlAnsari et al. in 2010, which found that the prevalence of depression was 5.6% and generalized anxiety was 17.3% (7), the

Table1. Socio-Demographics

Variable	Category	Count	Percentage	p-value
Age				<0.001
	18-29	282	25.3%	
	30-39	450	40.4%	
	40-49	198	17.8%	
	50-59	130	11.7%	
	60-69	52	4.7%	
	>=70	3	0.3%	
Education				<0.001
	Primary	2	0.2%	
	Intermediate	14	1.3%	
	Secondary	217	19.5%	
	College	864	77.5%	
	Others	18	1.6%	
Gender				<0.001
	Male	404	36.6%	
	Female	701	63.4%	
Work Status				<0.001
	Employed	626	56.1%	
	Unemployed	134	12.0%	
	Student	103	9.2%	
	Retired	191	17.1%	
	Others	61	5.5%	
Work type				<0.001
	Healthcare	319	33.1%	
	Security	18	1.9%	
	Aviation/tourism	22	2.3%	
	Business	116	12.0%	
	Others	488	50.7%	
Nationality				<0.001
	Bahraini	1081	97.0%	
	Resident Non-Bahraini	23	2.1%	
	Visitor Non-Bahraini	11	1.0%	
Income				<0.001
	<400 BD	195	20.5%	
	400-800 BD	332	34.9%	
	800-1200 BD	225	23.7%	
	>1200 BD	199	20.9%	

Table 2. Health Variables

Variable	Category	Count	Percentage	p-value
COVID19 status				<0.001
	Not infected	1093	98.0%	
	Recovered	12	1.1%	
	Infected	2	0.2%	
	Others	8	0.7%	
Location				<0.001
	Staying at home	1046	93.8%	
	Quarantined (home)	15	1.3%	
	Quarantined (institution)	2	0.2%	
	Hospital isolation	1	0.1%	
	Others	51	4.6%	
Chronic Illnesses				<0.001
	No illnesses	720	65.9%	
	DM	37	3.4%	
	Hypertension	59	5.4%	
	Heart Disease	8	0.7%	
	Blood Disorders	95	8.7%	
	Respiratory disorders	33	3.0%	
	Mental illness	11	1.0%	
	> 1 illness	87	8.0%	
	Others	43	3.9%	
Information Source				<0.001
	Official	623	55.9%	
	Social media	402	36.1%	
	Conventional media	49	4.4%	
	Direct from people	13	1.2%	
	Other	28	2.5%	
Smoking				<0.001
	smoker	181	16.4%	
	non-smoker	893	80.8%	
	abstained	31	2.8%	

second was the World Health Organization estimates of the region in 2017, which estimated depression and anxiety prevalence to be 4.8% and 4.3% respectively (6), the fourth was the one conducted by Wang et al. on COVID19 in China (1), and the final one was similar pandemic study conducted on nurses during SARS endemic in Taiwan in 2003, with depression

prevalence of SARS vs non-SARS nurses (38.5% vs. 3.1%), and post-traumatic stress symptoms (33% vs. 18.7%)(8).

The results were scored into mild, moderate, severe and extreme symptoms. Severe and extreme may need clinical attention and can be synonymous with the categorical clinical disorders. Depression

Table 3. DASS-21- Depression, Anxiety and Stress

Variable	Symptoms Interpretation	Count	%	P
Depression			30.0%	<0.001
	No depressive	781	70.0%	
	Mild depressive	141	12.6%	
	Moderate depressive	126	11.3%	
	Severe depressive	32	2.9%	
	Extremely severe depressive	35	3.1%	
Anxiety			18.2%	<0.001
	No anxiety	912	81.8%	
	Mild anxiety	48	4.3%	
	Moderate anxiety	94	8.4%	
	Severe anxiety	36	3.2%	
	Extremely severe anxiety	25	2.3%	
Stress			30.8%	<0.001
	No stress	772	69.2%	
	Mild stress	223	20.0%	
	Moderate stress	74	6.6%	
	Severe stress	31	2.8%	
	Extremely severe stress	15	1.3%	

scale showed 30.0%, with severe percentage of 6.0%, both were higher than the projected for Bahrain by WHO (4.8%), and the previous local study (5.6%). Moderate to severe results (17.3%) were higher than those from the Chinese population (16.5%), and the non-SARS nurses (3.1%) from the Taiwanese study, however they were lower than what were observed in SARS nurses (38.5%).

Any anxiety symptoms percentage (18.2%) and the severe (5.5%), are both higher than WHO estimate (4.3%). However, moderate-severe anxiety (13.9%) was lower than the result from the Chinese study (28.8%).

Stress scale result (30.8%), which may reflect stress and generalized anxiety was higher than the previous Bahraini study (17.3%). it was lower than the stress results of SARS nurses (33%), but higher than the non-SARS nurses results (18.7%). Moderate-severe stress result (10.7%) was higher than the one from the Chinese population (8.1%).

The association table (Table 4), revealed highly significant association with age, gender, work status

and income. Significant associations were noticed with education level, chronic illnesses, and source of information. Work type, nationality, Covid-19 status, and smoking, showed no significant association.

Strengths

- The biggest strong point is the large sample size n=1115.
- Our tool was free to participate in a survey that was spread nation-wide via social media. The tool was an online form that is easy to use and can be repeated easily, which is a future consideration of the study team.
- It also allowed us to take consent online, as the first question in the form.
- The study followed professional and ethical protocols. It is self-funded, not sponsored, and none of the investigators or the participants had any conflict of interests with the results of the study.

Table 4. Association between selected demographics with depressive, anxiety and stress symptoms

Variable	% Depression	% Anxiety	% stress
Age	p < 0.001*	p < .001*	P = 0.002*
Gender	p < 0.001*	P = 0.006*	p < .001*
Education	P = 0.033*	P = 0.585	P = 0.163
Work Status	p < 0.001*	p < .001*	P = 0.001*
Work Type	P = 0.776	P = 0.982	P = 0.729
Nationality	P = 0.612	P = 0.733	P = 0.921
Income	p < 0.001*	P = 0.006*	P = 0.009*
Covid-19 status	P = 0.424	P = 0.784	P = 0.238
Location	P = 0.416	P = 0.190	P = 0.520
Chronic Illnesses	P = 0.043*	P = 0.180	P = 0.151
Information source	P = 0.020*	P = 0.015*	P = 0.170
Smoking	P = 0.755	P = 0.217	P = 0.815

*Statistically significant at 0.05 using Chi² test

- The study is an Indicator study in the Bahraini population with the measured factors (depression, anxiety, and stress).
- The main measure tool used (DASS-21) is a reliable tool, that measures the symptoms of depression, anxiety, and stress with a spectrum from mild to extremely severe, it reflects the symptoms in people with or without the disorder. The manual was purchased from the University of New South Wales, Australia.
- The study covered many demographic and health-related variables.

Limitations

- One limitation was that, because the survey needed to be read, illiterates were excluded, however, because of the high literacy level in Bahrain (97.46%) it is negligible.
- The form was only in Arabic, so excluded all non-Arabic speakers.
- The study only accepted the age from 18 and above, and that excluded the children and adolescent population due to the need for online consent.

Conclusions

The pandemic of COVID-19 is a major global crisis that is affecting all aspects of life, and it is directly and indirectly (via the crisis measures) having an impact on the population of Bahrain. Our study exhibited a high psychological impact on the population, causing several psychological symptoms of depression (30%), anxiety (18.2%), and stress (30.8%). The main observed associated high results across all the three dimensions were with young age, females, students, and people with the lowest income.

We recommend implementing measures and educational programs to face the psychological impact and to facilitate the access to get psychological help and support. Furthermore, we recommend rerouting further attention on the higher risk groups identified by the aforementioned associated factors. We also would like to encourage studying the impact on affected patients (infected and recovered) and children and adolescents. And finally, later repetition of the study is essential to compare with the current status which is being considered as further phases of the study.

Conflict of Interest: Each author declares that he or she has no commercial associations (e.g. consultancies, stock ownership, equity interest, patent/licensing

arrangement etc.) that might pose a conflict of interest in connection with the submitted article.

Ethical approval: Ethics committee and COVID-19 committee of Bahrain approvals were obtained

Informed consent: Informed consent was obtained to participate and for publication from all individual participants included in the study.

Code availability: Available upon request.

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