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Research Article

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Knowledge and Attitudes of Jordanians toward COVID-19 pandemic: A Cross-Sectional Survey

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Abstract

Objectives: *This study aimed to assess the knowledge, perception and attitudes of Jordanians regarding COVID-19 and the implementation of control measures by the government.*

Methods: *An online survey of 25 questions assessing knowledge of COVID-19 prevention methods and attitudes toward government regulations to decrease the spread of the virus skills was conducted through social media networks between March 21 and March 22, 2020, the same day a national curfew was implemented.*

Results*: A total of 3087 participants completed the survey. About 61.9% were females, 78.1% aged 18 to 40 years, and 40.4% were employed. The vast majority (99%) of the population reported to have at least some information about the virus. Almost half (45.2%) reported television as the main source of information about COVID-19. About 92.3% understood the importance of hand washing. About 90.5% considered the governmental measures excellent or very good, 8.7% rated measures good, 0.8% rated measures bad or very bad. Many supported government actions with 97.7% supporting the curfew decision, and 68.1% favoring school and university closure and the use of remote-education until the outbreak is resolved. The majority understood the importance of handwashing (92.3%) with 34.8% reporting washing their hands more than three times daily.*

Conclusions: *Overall, participants demonstrated good knowledge about COVID-19 and had favorable attitudes toward government actions during the first 24 hours of the curfew. This suggests Jordan's efforts towards COVID-19 were well received by the general public.*

Keywords: COVID-19, Public Health, Knowledge, Attitude, Awareness

Introduction

The 2019 novel coronavirus disease (COVID-19) is a viral respiratory infectious disease caused by Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2). The disease emerged in January 2020 in Wuhan, Hubei, China [1, 2]. COVID-19 symptoms range from asymptomatic or mild illness manifested in fever, cough and breathing difficulty to respiratory failure requiring intubation and intensive care admission [3]. The mode of transmission of the disease is believed to be by droplets that spread by sneezing or coughing and droplets depositing on different surfaces [4, 5].

Although the World Health Organization (WHO) did not declare COVID-19 as a pandemic until March 11, 2020, the Jordanian government began monitoring the situation two weeks earlier and began public education by distributing informational brochures and creating television programs about modes of prevention [6]. In February 23, 2020, screening was initiated at the Jordanian border crossings and airports, with mandatory as well as temperature checks. Individuals who tested positive were quarantined for 2 weeks at hotels and not allowed to leave their room [7]. At the same time, travelers from China, South Korea, and Iran were barred from entry [8]. On March 2, 2020, the Prime Minister reported the first case of coronavirus in Jordan, a

Jordanian who had returned from Italy two weeks earlier before quarantine procedures for Jordanians returning from Italy had been initiated [9, 10]. On March 21, 2020, Jordan initiated a complete lockdown across the country by closing all stores and not allowing people their home for any reason [11]. COVID-19 cases numbered 85 in Jordan on March 20, 2020, much less than neighboring countries such as Saudi Arabia with 344 and Lebanon with 300 [12-14].

The aim of the study was to assess the knowledge and attitudes of Jordanians regarding the COVID-19 situation and the public health measures used by the government to prevent the spread of the virus shortly after implementation.

Methods

This cross-sectional study was conducted during 21-22, March 2020 through an online questionnaire disseminated via social media networks. The questionnaire consisted of 25 questions based upon educational materials previously issued by the Jordanian Ministry of Health via brochures, booklets and media messages [15, 16]. The questionnaire included questions on demographic characteristics, knowledge about COVID-19 prevention strategies, and attitudes regarding the government's measures to control COVID-19. All questions were written in a multiple-choice format with only single choice was allowed to be selected, except for the question about methods of protection which asked participants to choose multiple options.

The study was piloted on 30 individuals and adjustments were made. The finalized survey was distributed on social media since a community-based national sampling was made impossible by the national curfew put in place on March 21, 2020 at 7 AM. Social media used included *Facebook*, *WhatsApp*, and *Messenger* on authors' networks. An introduction outlined the content and purpose of the survey and those willing to participate clicked on the study link. Ethical approval was secured from the Hashemite University Institutional Review Board. Data were described using frequencies and percentages using IBM SPSS version 26.0. Percentages were compared using Chi-square test. A p-value of less than 0.05 was considered statistically significant.

Results

A total of 3087 Jordanians completed the survey instrument. The majority aged between 18 and 40 years old (n=2412, 78.1%) and 533 (17.9%) aged between 40 and 65 years old. A smaller number was under 18 years and over 65 years, 105 (3.4%) and 17 (0.6%), respectively. More females (61.9%) than males (39.1%) responded to the questionnaire. The geographic distribution of participants showed representation from all the governorates of Jordan. Most participants were residing in Amman (49.4%), followed by Irbid (16%) and Alzarqa (11.8%). About 40.4% were employed and 29.8% were university students. Almost 9.6% reported a chronic illness such as diabetes or hypertension, with the majority (90.4%) reporting no chronic health problems (Table 1).

Table 1: The sociodemographic characteristics of participants

	Number	percentage
Sex		
Male	1175	38.1
Female	1912	61.9
Age		
<18	105	3.4
18-40	2412	78.1
40-65	553	17.9
>65	17	0.6
Employment		
Employed	1248	40.4
School students	155	5.0
University students	919	29.8
Not employed	765	24.8
Residence		
Amman	1525	49.4
Irbid	495	16
Alzarqa	363	11.8
AlMafraq	173	5.6
Others	356	11.5
Chronic Disease		
No	2792	90.4
Yes	295	9.6

Table 2 shows participants' Knowledge of COVID-19 and perceptions of governmental measures to control and prevent COVID-19. The vast majority (99%) of the population reported to have at least some information about the virus. Almost half (45.2%) reported television as the main source of information about COVID-19, 29% reported social media, 24.5% reported scientific papers, and 1.3% reported obtaining information from public. About half (48.1%) were interested in COVID-19 statistics including number of cases, recovery rates and mortality rates. The "symptoms and diagnosis" was the second most common interest (39%) and 12.9% of participants showed interest to know the most affected group.

Participants reported the most common presenting symptom as fever (58.9%), followed by shortness of breath (27.7%). Three quarters (74.1%) were "worried about COVID-19 pandemic". The main areas of concern were the effect on health (46.7%), getting infected and quarantined (22.1%), other personal concerns (20.4%), and concerns about delays in study (6.2%) or work (4.7%). Nearly two-thirds (64.1%) stated they would do self-isolation and contact officials if they developed symptoms, while 5.6% would self-isolate without contacting the officials if they developed symptoms. A quarter (26.9%) reported they would go to hospitals to perform tests while a small fraction (3.5%) planned to deal with symptoms like any other normal flu if they have them.

The areas of concern that would give symptomatic participants a second thought before testing were related to infecting and

quarantining their parents and beloved ones (45.4%), followed by concerns about the psychological impact if the test came out positive (27.6%), the high cost of the test (14.2%), and the 14-day required quarantine (12.8%). The participants were split on the value of herbal remedies and traditional methods to prevent the virus with 51.9% considering them useless and 48.1% considering them useful. Table 3 shows participants" perception of the usefulness of herbal remedies according to socio-demographic characteristics

Since the COVID-19 outbreak, the majority (92.3%) stated that they know how valuable and important to wash hands frequently, with 61.3% washing their hands whenever needed and 34.8% doing so more than 3 times a day. Table 4 shows the frequency of handwashing among participants according to socio-demographic characteristics. The majority of respondents (94.6%) stated that they plan to continue with the protection and cleaning measures they learned during the current outbreak even after the outbreak ends.

The reported protection measures are displayed in **Figure 1**. Approximately one-third (34.7%) stated that they are using more than three methods of protection and sanitization. Approximately three-quarters (77.5%) used regular hand washing as a method of protection, followed by hand sanitizers (71%), gloves (31.8%), face masks (31.1%) while only 1.6% reported not using any method of protection.

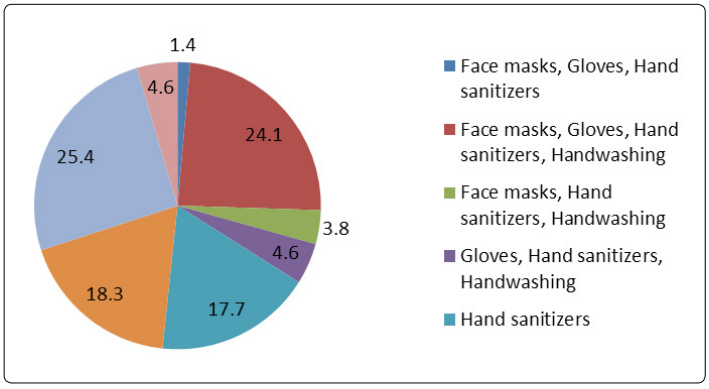

Figure 1: Self-reported protection methods used by participants against COVID-19.

The rating of the governmental actions to manage the outbreak were as follows: 90.5% considered the governmental measures excellent or very good, 8.7% rated measures good, 0.8% rated measures bad or very bad. Many supported government actions with 97.7% supporting the curfew decision, 68.1% favouring school and university closure and the use of remote-education until the outbreak is resolved. Most participants, 96.1% supported shops closure and 87.9% supported the closure of mosques and places of worship. Nevertheless, 80.9% of the community stated they were concerned with the impact of this outbreak on the economy (Table 2).

Table 2: Participants' Knowledge of COVID-19 and perceptions of governmental measures to control and prevent COVID-19

	Frequency	Percent
Knowledge about COVID-19		
Knowledgeable to some extent	1444	46.8
Knowledgeable of all details	1613	52.3
Not Knowledgeable	30	1.0
Source of your knowledge		
From other people	41	1.3
From scientific papers	755	24.5
From social media	895	29.0
From TV news	1396	45.2
Most Important Information interested in		
most affected individuals	399	12.9
Statistics	1484	48.1
Symptoms and diagnosis	1204	39.0
Symptoms of COVID-19		
Dry cough	314	10.2
Fatigue	61	2.0
Fever	1817	58.9
Headache	40	1.3
Shortness of breath	855	27.7
Have worries from COVID-19	2286	74.1
The most effect worried about		
Delay in school or university	191	6.2
Delay in work	144	4.7
Effect on health	1441	46.7
Infection and quarantine	682	22.1
Other	629	20.4
Similar symptoms to COVID19		
Don't give an importance (just another flu)	108	3.5
Go test yourself	829	26.9
Self-isolation and contact officials	1978	64.1
Self-isolation without contacting officials	172	5.6
Herbal remedies		
Useful	1485	48.1
Useless	1602	51.9
Handwashing is important	2850	92.3
Frequency of handwashing		
1-2 times	99	3.2
More than 3 times	1075	34.8
Whenever needed	1892	61.3
Perception of governmental measurements		
Excellent	2265	73.4
Very good	529	17.1
Good	268	8.7
Awareness level of the Jordanian population		
Aware	417	13.5
Some degree of awareness	2035	65.9
Unaware	635	20.6
Opinion about the curfew		
Not supporting	70	2.3
Supporting	3017	97.7
Shutting down places of worship is a proper	2714	87.9
Worried about the economic impact	2496	80.9
Will continue protective measures after the end of outbreak	2920	94.6

Table 3: Participants' perception of the usefulness of herbal remedies according to socio-demographic characteristics

	Perception of the usefulness of herbal remedies				
	Useful		Useless		
	n	%	n	%	p-value
Sex					<0.001
Female	1006	52.6	906	47.4	
Male	479	40.8	696	59.2	
Age (year)					<0.001
<18	54	51.4	51	48.6	
>40	319	56.0	251	44.0	
18-40	1112	46.1	1300	53.9	
Employment					<0.001
Employed	577	46.2	671	53.8	
Not employed	431	56.3	334	43.7	
School student	84	54.2	71	45.8	
University student	393	42.8	526	57.2	
Chronic Diseases					0.322
No	1335	47.8	1457	52.2	
Yes	150	50.8	145	49.2	

Table 4: The frequency of hand washing among participants according to socio-demographic characteristics

	Frequency of hand washing						
	1-2 times		More than 3 times		Whenever needed		p-value
	n	%	n	%	n	%	
Sex							0.108
Female	55	2.9	689	36.0	1168	61.1	
Male	44	3.7	386	32.9	745	63.4	
Age (year)							0.002
<18	3	2.9	40	38.1	62	59.0	
>40	10	1.8	167	29.3	393	68.9	
18-40	86	3.6	868	36.0	1458	60.4	
Employment							<0.001
Employed	25	2.0	402	32.2	821	65.8	
Not employed	29	3.8	245	32.0	491	64.2	
School student	2	1.3	62	40.0	91	58.7	
University student	43	4.7	366	39.8	510	55.5	
Chronic Diseases							0.115
No	92	3.3	986	35.3	1714	61.4	
Yes	7	2.4	89	30.2	199	67.5	

Discussion

This is the first cross-sectional study done on the Jordanian population regarding knowledge and attitudes toward the COVID-19 outbreak and government measures to help control the spread of the virus. It was conducted immediately at the beginning of the curfew, the time when rumors, speculations were emerging, fear and panic increasing, although there were no deaths at that time in Jordan. The high level of education among Jordanians may be the reason for the high knowledge and awareness about COVID-19 virus.

The Jordanian population has a relatively high percentage of comorbidities such as diabetes, hypertension and cardiovascular disease and having these comorbidities is associated with higher mortality rates from COVID-19 [17, 18]. Many participants were reluctant to test themselves mainly due to the possibility of infecting and quarantining the higher age groups who have these comorbidities.

Nevertheless, Jordan is experiencing a serious threat not seen before in other outbreaks such as the Severe Acute Respiratory Syndrome (SARS), Middle East Respiratory Syndrome (MERS), avian flu (H5N1) and Swine flu (H1N1) epidemics. While Jordan had no SARS cases, the MERS outbreak affected 11 cases of which 5 died. The general measures used included seeking medical care when symptomatic, education about hand washing, avoiding close contacts and maintaining social distancing, and covering the mouth and nose while sneezing [19]. There were no avian flu cases in Jordan, and collaborations with Palestine and Israel have prevented the occurrence of additional cases in the region since 2006 [20, 21].

In 2009, the first H1N1 case occurred on the 16th of June and the first death on October 12, but the exact number of cases were not documented for the year [22]. Another outbreak occurred in 2015 with a total of 130 cases and 5 deaths [23]. Jordanian showed a very good knowledge for the most important symptom, and for the most effective prevention methods with more than 90% right answers. At the time about 50% of Jordanians has stressed the importance of herbal remedies, The World Health Organization (WHO) has warned against the use of traditional herbs in the treatment of COVID-19 so this issue need to be emphasized at media and different methods used for raising awareness [24].

Our data suggests that the government responded in a timely manner to the current COVID-19 situation. Participants were knowledgeable and approved of the government's curfew orders. This is particularly important because Jordan has limited resources. Watching how the pandemic has affected other countries such as China, Iran, and Italy, where governments responded in a variety of different ways to limit the spread and exposure of the virus, underlines the importance of Jordan's rapid response.

Conclusion

Overall, participants demonstrated good knowledge about COVID-19 and had favorable attitudes toward government actions during the first 24 hours of the curfew. This suggests Jordan's efforts towards COVID-19 were initially successful and well received by the general public, but need more efforts to raise awareness about all aspects of the outbreak.

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