Health information seeking behaviour among the Kuwaiti population during the COVID-19 pandemic

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ABSTRACT

This study investigates health information seeking behaviour during the COVID-19 pandemic based on a survey of 1,018 residents in Kuwait. An online questionnaire was used to collect the data using convenience sampling method. More than half the respondents reported following news updates on COVID-19 through websites produced by the Kuwaiti Ministry of Health (MOH), local TV channels, and social media networks. They were aware of most of the precautions being prescribed to curb the spread of the virus. Official resources that helped improve the participants' health information seeking behaviour included receiving text messages from government agencies and watching daily press coverage of news conferences held by the MOH. Health information seeking behaviour for COVID-19 varied among the respondents according to socio-demographic characteristics. Male respondents had sought more health-related information than the females. Respondents aged 18 to 29 years and student groups were more likely than others to follow news updates on COVID-19; were more aware of the relevant precautionary practices; and were more likely to improve their health literacy. The findings of this study provide a clear account of public health information-seeking behaviour in Kuwait during the pandemic.

Keywords: Health information; Information seeking behaviour; Health literacy; Information literacy; COVID-19 pandemic.

INTRODUCTION

Medical sciences has made significant progress in recent decades, commensurate with developments in biology, chemistry, information and communication technology and industrial knowledge. Government spending on the health sector has been increasing globally in recent years. However, infectious diseases still threaten societies and economies around the world. When an infection spreads beyond its local endemic range, it represents a pandemic or a large-scale epidemic, such as the novel coronavirus in 2019 and the 1918 Spanish flu (WHO 2018). Epidemics are serious because widespread outbreaks of infectious diseases can cause increased morbidity and mortality over a large geographical area, as well as major economic, social, and political upheaval (WHO 2018).

Information plays an important role in preventing epidemics. Since the World Health Organization (WHO) declared COVID-19 a global pandemic, information on the disease has emerged as one of the most popular search topics worldwide (WHO 2020). This disease has triggered public fears because of concerns about its rapid transmission, the absence of an approved antiviral treatment, and its impacts on people's physical and mental health (Chu et al. 2020; He et al. 2020; Huang et al. 2020). Several cross-sectional studies have found that social media tools attract thousands of users seeking information during an epidemic (Chan et al. 2011; Dion, AbdelMalik, and Mawudeku 2015; Dubey, Amritphale and Sawhney 2014; Ginsberg et al. 2009; Nagpal, Karimianpour and Mukhija 2015; Zhang 2019). It is important to provide the public with updated and relevant information on precautionary practices to help people avoid COVID-19 and combat disinformation about the disease. According to the WHO, misinformation about the novel coronavirus, which results from mixing facts with rumours and fake news, is no less dangerous than the virus itself. The WHO has called this the "information pandemic" (Zarocostas 2020).

This paper explicitly describes the utility of accessing information resources to gain health information about the world throughout the pandemic crisis. It illustrates the health information seeking behaviour of a population group during the COVID-19 pandemic. The paper also analyses whether the information obtained from health information sources helps the public follow COVID-19 precautions to improve their healthcare during the pandemic. A review of the related literature shows that health information seeking behaviour is context oriented (Asibey, Agyemang, and Dankwah 2017; Maitz et al. 2020; Lambert and Loiselle 2007; Lee et al. 2021; Zimmerman and Shaw 2020), and only a few studies focus on health information seeking behaviour during a crisis (Ebrahim et al. 2020; Majid and Rahmat 2013; Odlum and Yoon 2018).

With that goal in mind, this study undertook a survey on this subject matter in Kuwait during the COVID-19 pandemic and may provide guidance and insight for other countries, particularly Arabian Gulf countries that share a similar geographical and historical background. The study explored the types of health information sources sought by Kuwaitis that helped improve the existing health information provision system, and provided further planning and development of information sources and services in Kuwait's healthcare system. This study also investigated the association between socio-demographic characteristics using three scales developed by the authors: the sources of information scale (CSI), the health information source scale (CHIS), and the precautionary practice scale (CPP) for COVID-19. The following questions drive this study:
a) How do Kuwaitis obtain the information they need about COVID-19 from different sources?
b) What are their awareness of the risk factors, symptoms, and precautionary practices for the COVID-19 pandemic?
c) What is the relationship between demographic characteristics (age, gender, occupation, and marital status) and the three health information seeking behaviour scales (CSI, CHIS and CPP)?
d) Is there a statistically significant association among the sources of information considered by Kuwaitis to learn about COVID-19, their awareness of precautionary practices, and their knowledge of the hotline provided by the Kuwaiti Ministry of Health for COVID-19?

LITERATURE REVIEW

Health Information Seeking Behaviour During the Pandemic
The emergence of COVID-19 as a rapidly developing global health crisis has underscored the importance of understanding people's behaviours related to seeking health information to address the differences in information about various aspects of the crisis. Previous studies have shown that during outbreaks of the magnitude of an epidemic or a pandemic, the public needs immediate health information (Feldmann 2014; Odlum and Yoon 2018). For effective public communication during outbreaks of major diseases, such as the Ebola epidemic of 2014–2016, the needs of the population related to health information must be appropriately assessed (Odlum and Yoon 2018). The lack of such information during a pandemic may cause psychological anxiety. Odlum and Yoon (2018) claimed that fear, frustration and efforts to obtain information were notable in communities worldwide during the outbreak of the Ebola virus. A longitudinal analysis of the relevant content revealed that this was because of a continual lack of health information, and social media was sometimes an obstacle, rather than a tool, to the provision of information to the public. Ebrahim et al. (2020) assessed people's information seeking behaviour and symptoms of anxiety among them during COVID-19 in Bahrain, and found that people relied most often on social media as a source of information. The most common obstacles that they faced in obtaining such information were rumours and the massive amount of information available on the disease. People shared false claims and information about COVID-19 because they could not adequately assess the content (Pennycook et al. 2020). People are also rendered anxious by the constant news about the pandemic on social media platforms (Ahmad and Murad 2020). COVID-19 has caused them to browse information of all kinds on social media (Paakari and Okan 2020). Digital literacy is needed to enable people to differentiate between authentic and fake news (Gretter and Yadav 2018). The accuracy and consistency of information is vital for developing health literacy because asymmetry in information reduces its reliability in society (Pennycook and Rand 2019).

Increasing public health literacy on COVID-19 is the most effective tool to confront this crisis. The term "health literacy" generally refers to the ability of an individual, his/her family, and community to access, understand, and benefit from information in ways that promote and maintain good health (Nutbeam 1989). Improving the health literacy of the public enhances its decision-making capacity regarding health (Peyvand, Kargar and Hajizade, 2020). Some studies have shown that public health literacy helps reduce the prevalence of disease and the mortality rate, and motivates people to take preventive measures to control it (Ali and Bhatti 2020; Boberg et al. 2020). Lin, Liu, and Chiu (2020) claimed that population literacy may be reflected in keywords searches by people online. They looked for the terms "wash hands" and "face masks" as keywords in searches on Google by people in 21 countries, and found a correlation between an increase in searches for "wash hands" and a decline in the spread of COVID-19. The limited health literacy among people remains a challenge for policy makers in Europe. The result of a health literacy survey showed that nearly half the respondents in Europe reported having limited health literacy. Financial limitation is the strongest factor influencing low health literacy, followed by social status, education, and age, whereas gender has a minor effect (Sørensen et al. 2020). A cross-sectional study on adults in Germany during COVID-19 found that although the participants had high health literacy, most of them reported having difficulty in dealing with information on the coronavirus. Nearly half of the participants stated that they had struggled to determine whether they could trust information provided by the

media on COVID-19. The results also showed that those with lower health literacy were more confused about information on the coronavirus (Okan et al. 2020).

Health Information Resources Used in the Pandemic

In the context of such crises as COVID-19, access to information channels plays a crucial role in promoting public awareness. Research has revealed the relationship between different sources of information for COVID-19 and the health awareness of the public (Ali and Bhatti 2020; Tumpey, Daigle, and Nowak 2020).

Ali and Bhatti (2020) assessed the use and trust of different information sources for COVID-19, and found that traditional media, such as TV and newspapers, were the most trusted source of information among adults in the US. The most popular mainstream sources of information for COVID-19 were the Cable News Network (CNN), Fox News, and local networks. Their study also indicated a significant association between trust and the use of sources of information for COVID-19, and demographic characteristics. Males aged 40–59 years, the unemployed, and the retired were likely to use fewer sources of information while people with children and those with higher education were likely to use more sources. Similarly, Riiser et al. (2020) found that TV and the family were the most frequently mentioned sources of health information by Norwegian adolescents during the COVID-19 pandemic. Controlling the media in the context of COVID-19 is a major challenge for governments. People must seek to protect themselves from unreliable information and conform to a true "informational diet" (Ashrafi-rizi and Kazempour 2020, p.1).

Ali and Gatiti (2020) revealed the role of librarians and information professionals in the coronavirus pandemic in Pakistan in terms of raising awareness through public health education, providing support to medical personnel and researchers, and providing ongoing traditional services to library users. They concluded that librarians and information professionals should be prepared for such crises. Although social distancing is an effective way to prevent COVID-19 from spreading, librarians and information professionals must also provide access to information on social responsibility.

Technological development has also provided many information channels that can help improve public health awareness regarding COVID-19. A recent study by Ebrahim et al. (2020) assessed the knowledge and perceptions of the public and healthcare professionals in the context of identifying trusted sources of information during the COVID-19 pandemic. They found that most participants were worried about being infected by the virus. The major sources of information on COVID-19 used by healthcare professionals were websites of the World Health Organization (WHO), and Centre for Disease Control and Prevention (CDC). However, the general public relied more on television and social networks. Both groups most trusted the WHO and official government websites. Thus, healthcare professionals can help people access and act on health-related information to promote good health.

In addition, social media platforms, such as Twitter and Facebook, have been important sources of information during COVID-19 and other pandemics (Boberg et al. 2020; Thelwall and Thelwall 2020; Wiederhold 2020). Balami and Meleh (2019) examined the prevalence of misinformation on saltwater among Nigerians, the community's awareness of the use of saltwater to prevent Ebola, and the role that social media played during the 2014 Ebola outbreak. They found that many Nigerians used saltwater because they thought it would not harm them. Saltwater was less likely to be used by those who had received a text

message on social media discouraging its use, as well as by those who had received the contrary information.

Content analysis by Boberg et al. (2020) has shown that Facebook pages have served as alternative news media in the coronavirus crisis. The study indicated that COVID-19 has not only had severe political, economic, and social impacts, but has also affected the media and communication systems in unprecedented ways. Boberg et al.'s (2020) examination of Germany's Facebook data during the coronavirus showed that, while these alternative media on the Internet do not publish clear lies, they often share excessively critical, even anti-government, messages, and oppose the views of the major news media and the political establishment. Therefore, they contribute to a contradictory, threatening, and suspicious worldview. Majid and Rahmat (2013) have noted that access to timely, high-quality healthcare information during outbreaks has been important for controlling the spread of diseases. The results of a survey by these authors showed that most working adults and students in Singapore reported needing information about the H1N1 virus, especially its symptoms, the causes of infection, and preventive measures. Most participants reported using the television, newspapers, and radio to search for the required information. The use of people as sources of information was also frequent, while only a few participants had had access to news and healthcare websites. About three-quarters of the participants confirmed that the information gathered helped them improve their health awareness and take the necessary precautions. Thus, there is a need to strengthen the means of communicating health information through various information channels during future outbreaks.

METHODS

An online survey was used to collect data through the convenience sampling method (non-probabilistic sample) from Kuwaiti participants who were at least 18 years old at the time of the survey. The survey was distributed via WhatsApp because it is among the most popular social media platforms in Kuwait (Al-Kandari 2019). The data collection procedures followed Kuwait University's rules and regulations for research methods. The first section of the online questionnaire stated the following: "If you answer the survey questions, this is considered written consent to participate in the study; participants have the freedom to withdraw from the study at any time without any obligation. The identities of all participants will be protected, and only the authors will have access to the survey data". Moreover, the authors assured the respondents that the survey questions would be used only for research purposes and that they did not include any embarrassing questions.

The online survey included questions on the participants' demographic information, such as their age, gender, marital status, education, occupation, and the governorate in which they reside. It also included the three scales mentioned earlier (CSI, CHIS, CPP), all of which were developed by the researchers of this study. The survey questionnaire was written in Arabic. A five-point scale, from never (1) to always (5), was used for the CSI and CHIS variables, and a five-point scale, from totally disagree (1) to totally agree (5), was used for the CPP variables.

The CSI scale contained 13 items about sources of information sought by the participants to learn about COVID-19. These included the official website of the Kuwaiti MOH, the official website of the WHO, Internet search engines (e.g. Google), traditional media (TV, radio, and newspapers), friends and family, and healthcare professionals.

The CPP scale was used after reviewing information in WHO reports about COVID-19. It contained 21 items about the respondents' awareness of risk factors for the disease, symptoms, and precautionary practices to prevent infection. Questions about the risk factors included the terms "breathing in infectious droplets", "raising pets", "dining outside", and "wearing a non-medical mask". Questions about COVID-19 symptoms included those about "cough", "fever", "shortness of breath", and "difficulty breathing". Questions about precautionary behaviours for COVID-19 included the terms "wearing a face mask while outside", "using cleaning wipes that contain at least 60% alcohol or chloride", "keeping at least a six-foot distance to people", "avoiding crowded public places", and "washing hands with soap for at least 20 seconds".

The CHIS scale contained nine items about sources of health information on COVID-19 that had helped participants improve their health literacy, including text messages from government agencies (the MOH and the Ministry of the Interior), news and TV shows, health centres, press conferences by the MOH, and local and international newsletters.

Five faculty members from the College of Social Sciences at Kuwait University reviewed the scales to ensure their validity. The survey was translated into English, and then back-translated into Arabic to confirm its accuracy and the questions' clarity. The Arabic questionnaire was then pilot tested among 40 individuals to check the content, design, readability, and comprehension. The reliability scores of the three scales were as follows: CSI ($\alpha = 0.76$), CHIS ($\alpha = 0.70$), and CPP ($\alpha = 0.80$). All were considered good (Karros 1997). T-tests and analyses of variance (ANOVA) were used to measure differences and associations between groups.

For the data analysis, marital status was divided into four categories: single, married, divorced, and widowed. Age was divided into four categories: 18–29 years, 30–39 years, 40–49 years, and 50 years and above. Occupational condition was divided into five categories: student, employed, homemaker, retired, and self-employed. Education level was divided into four categories: high school or below, high school diploma, bachelor's degree, and postgraduate degree. The governorates were divided into six categories: Capital, Hawalli, Ahmedi, Farwaniyyah, Jahra, and Mubarak Al-Kabeer. For the question about participants' knowledge of the hotline provided by the Kuwaiti MOH to offer general information on COVID-19, a two-value answer, "yes" (1) or "no" (0), was used. The Statistical Product and Service Solutions (IBM SPSS 25.0) was used to analyse the data. Descriptive analyses were conducted to describe the sample and to calculate the means, standard deviations, and percentages.

RESULTS

The Study Demographics
A total of 1,018 residents from all governorates of Kuwait responded voluntarily to this study. The entire population was represented (males = 288; females = 730). Ages ranged from 18 to 85 years (M = 39.28; SD = 13.39). More than half (56.8%) of the participants had a bachelor's degree, and more than half (57.2%) were employed. A total of 60.1 percent were married, and 28.3 percent of the participants lived in the Capital governorate. More than three-fourths (76.6%) of the participants said that they knew of the COVID-19 hotline provided by the MOH, and 99.6 percent said they had not been infected with COVID-19. Only 7.2 percent of the participants said that they knew someone from among their family

or friends who had been diagnosed with COVID-19, and more than half (64%) said that they always followed news on COVID-19.

Health Information Sources Used to Seek Information about COVID-19

Table 1 presents the sources used by the respondents to obtain information about COVID-19. A total of 42.2 percent reported that they always "viewed the official website of the Ministry of Health", 26.8 percent said that they sometimes "viewed the official website of the World Health Organization", and 29.8 percent said that they sometimes "viewed unofficial websites", while 25.6 percent said they had never viewed any unofficial websites about this information. A total of 26.3 percent of the respondents said that they sometimes "searched the Internet using search engines (e.g. Google)", 40.4 percent said that they always "searched social media platforms", and 41.4 percent said that they always "followed local TV channels". Moreover, 26.5 percent stated that they sometimes "followed global and international TV channels", and 44.9 percent said that they never "listened to the radio" to obtain information related to COVID-19. Of the respondents, 5.6 percent indicated that they sometimes "read flyers and brochures from the authorities", 29.9 percent sometimes "called friends" for information, and 39.1 percent always "called relatives" for information. A total of 24.8 percent had never "consulted a healthcare professional" for information on COVID-19, and 52.5 percent had never "searched newspapers" for such information.

Table 1: Sources Used by the Kuwaiti Population to Obtain Updated Information on COVID-19

	Sources of information	Always		Often		Sometimes		Rarely		Never	
		n	%	n	%	N	%	n	%	n	%
1	MOH Official website	430	42.2	228	22.4	177	17.4	77	7.6	106	10.4
2	WHO Official website	160	15.7	170	16.7	273	26.8	179	17.6	236	23.3
3	Unofficial websites	94	9.2	154	15.1	303	29.8	206	20.2	261	25.6
4	Search engines (Google)	226	22.2	194	19.1	268	26.3	134	13.2	196	19.3
5	Social media platforms	411	40.4	246	24.2	201	19.7	94	9.2	66	6.5
6	Local TV channels	421	41.4	211	20.7	207	20.3	108	10.6	69	6.8
7	Global TV channels	155	15.2	195	19.2	270	26.5	231	22.7	165	16.2
8	Radio	27	2.7	65	6.4	159	15.6	308	30.3	457	44.9
9	Flyers and brochures	134	13.2	170	16.7	261	25.6	211	20.7	240	23.6
10	Friends	220	21.6	265	26.0	304	29.9	152	14.9	75	7.4
11	Relatives	398	39.1	285	28.0	188	18.5	88	8.6	57	5.6
12	Healthcare professional	155	15.2	175	17.2	250	24.6	184	18.1	252	24.8
13	Newspapers	48	4.7	76	7.5	148	14.5	210	20.6	534	52.5

Awareness of Risk Factors, Symptoms, and Precautionary Practices for COVID-19

Regarding the respondents' awareness of the risk factors, symptoms, and precautionary practices for the COVID-19 pandemic, the findings show that 84.4 percent strongly agreed with the statement, "COVID-19 is an infectious disease", and 41 percent agreed that "The most common symptom of COVID-19 is fever". In addition, 60.4 percent of the respondents strongly agreed with the statement, "Dyspnea is a symptom of COVID-19 patients", and 50.7 percent strongly agreed that "COVID-19 can be caused by a person who suffers from a mild cough and does not feel ill". Table 2 details the findings.

Additionally, 50.7 percent of the respondents strongly agreed that "COVID-19 can be caused by a person who suffers from a mild cough and does not feel ill", 45 percent agreed

that "The relevant authorities in China and some other countries have succeeded in slowing the spread of infection from COVID-19", and 56.8 percent strongly agreed with the statement, "It is possible to reduce the possibility of developing COVID-19 or its spread by cleaning my hands well by washing them with soap and water". Regarding the statement, "Cleaning my hands with soap and water can kill viruses that may be on my hands", 61.4 percent of the respondents strongly agreed, and 48.7 percent agreed that "Rubbing my hands with an alcohol disinfectant kills viruses that may be on my hands" (see Table 2).

A total of 69.7 percent of the respondents strongly agreed with the statement, "I should keep at least a 1 m (3 ft) distance between myself and anyone who coughs or sneezes"; 76.2 percents strongly agreed regarding the statement, "I should avoid touching my eyes, nose, and mouth to prevent COVID-19", and 74 percent strongly agreed that "To prevent the spread of the disease, I can cover my mouth and nose with a folded elbow or a tissue when coughing or sneezing and then immediately dispose of the tissue used". Regarding the statement, "I'm supposed to stay home if I feel sick", 76.4 percent of the respondents strongly agreed, compared to 79.4 percent who strongly agreed that, "If you feel symptoms of the disease, seek medical attention and call your doctor before visiting their office" (see Table 2)

Regarding the statement, "I follow the advice provided by my healthcare provider", 80.5 percent of the respondents strongly agreed, compared to 34.1 percent who disagreed that "the risk of infection with COVID-19 remains low in my country"; and 54.1 percent who strongly agreed that "I wear a face mask to protect myself in public places". In contrast, 27.1 percent of the respondents strongly agreed that "The COVID-19 virus is transmitted by breathing". While 34.3 percent were neutral with regard to the statement, "The use of multiple face masks is ineffective against COVID-19", 25.7 percent disagreed; and 31.6 percent were neutral regarding the statement, "the COVID-19 virus is transmitted from pets to humans". Furthermore, 54.4 percent of the respondents strongly disagreed that "Disinfecting surfaces reduces the spread of the COVID-19 virus", and 53.7 percent strongly disagreed that "Refraining from eating ready-made food from restaurants and shopping malls limits the spread of the COVID-19 virus" (see Table 2).

Table 2: Awareness of Risk Factors, Symptoms, and Precautionary Practices for COVID-19

	Statements	Strongly agree		Agree		Neutral		Disagree		Strongly disagree	
		n	%	n	%	N	%	n	%	n	%
1	COVID-19 is an infectious disease.	859	84.4	134	13.2	15	1.5	4	0.4	4	0.4
2	The most common symptom of COVID-19 is fever.	401	39.4	417	41.0	154	15.1	34	3.3	10	1.0
3	Dyspnea is a symptom of COVID-19 patients.	615	60.4	343	33.7	53	5.2	5	0.5	0	0
4	COVID-19 can be caused by a person who suffers from a mild cough and does not feel ill.	516	50.7	354	34.8	113	11.1	26	2.6	7	0.7
5	The relevant authorities in China and some other countries have succeeded in slowing the spread of infection by COVID-19.	318	31.2	458	45.0	169	16.6	41	4.0	30	2.9
6	It is possible to reduce the possibility of developing COVID-	578	56.8	374	36.7	46	4.5	14	1.4	4	0.4

	Statements	Strongly agree		Agree		Neutral		Disagree		Strongly disagree	
	19 or its spread by cleaning my hands well by washing them with soap and water.										
7	Cleaning my hands with soap and water can kill viruses that may be on my hands.	625	61.4	346	34.0	38	3.7	6	0.6	1	0.1
8	Rubbing my hands with an alcohol disinfectant kills viruses that may be on my hands.	382	37.5	496	48.7	115	11.3	20	2.0	3	0.3
9	I should keep at least 1 m (3 ft) between myself and anyone who coughs or sneezes.	710	69.7	250	24.6	33	3.2	19	1.9	4	0.4
10	I should avoid touching my eyes, nose, and mouth to prevent the spread of COVID-19.	776	76.2	219	21.5	15	1.5	3	0.3	3	0.3
11	To prevent the spread of the disease, I can cover my mouth and nose with a bent elbow or a tissue when coughing or sneezing and then immediately dispose of the used tissue.	753	74.0	215	21.1	27	2.7	18	1.8	3	0.3
12	I'm supposed to stay home if I feel sick.	778	76.4	132	13.0	34	3.3	40	3.9	32	3.1
13	If you feel symptoms of the disease, seek medical attention and call your doctor before visiting their office.	808	79.4	175	17.2	25	2.5	6	0.6	2	0.2
14	I follow the advice provided by my healthcare provider.	819	80.5	179	17.6	17	1.7	1	0.1	0	0
15	The risk of infection with COVID-19 remains low in my country.	56	5.5	153	15.0	208	20.4	347	34.1	252	24.8
16	I wear a face mask to protect myself in public places.	551	54.1	251	24.7	150	14.7	46	4.5	18	1.8
17	The COVID-19 virus is transmitted by breathing.	276	27.1	262	25.7	239	23.5	175	17.2	64	6.3
18	The use of multiple face masks is ineffective against COVID-19.	88	8.6	196	19.3	349	34.3	262	25.7	121	11.9
19	The COVID-19 virus is transmitted from pets to humans.	50	4.9	110	10.8	322	31.6	316	31.0	218	21.4
20	Disinfecting surfaces reduces the spread of the COVID-19 virus.	554	54.4	390	38.3	58	5.7	10	1.0	4	0.4
21	Refraining from eating ready-made food from restaurants and shopping malls limits the spread of the COVID-19 virus.	547	53.7	298	29.3	129	12.7	27	2.7	15	1.5

Sources of Health Information for Increasing Awareness About COVID-19

Regarding the sources of health information sought by the respondents to increase their awareness of COVID-19, 73.3 percent strongly agreed that "keeping track of text messages from government agencies, such as the Ministry of Health (MOH) or the Ministry of the Interior, helps improve health awareness about COVID-19". Likewise, 59.6 percent strongly agreed that "keeping up with the news and TV shows has a role in health awareness about COVID-19", compared to 49.9 percent who strongly agreed with the statement, "I follow the instructions from the medical centres in my residential area to increase health awareness to prevent COVID-19". Table 3 presents the findings.

Regarding the statement, "I follow the press conferences of the Ministry of Health of my country to find out the latest developments about COVID-19", 63.5 percent of the respondents strongly agreed, compared to 55.8 percent who strongly agreed with the statement, "I follow the local news broadcasts on TV to know the latest developments about COVID-19 in my country"**.** When asked their opinion of the statement, "I follow the instructions provided on social media about COVID-19", 43.1 percent of the respondents strongly agreed, while 29.8 percent somewhat agreed with the statement, "I follow WhatsApp messages from family and friends about COVID-19". Finally, when asked to agree or disagree with the statement, "I follow websites such as the World Health Organization website to keep up to date on the developments about COVID-19", 37.2 percent somewhat agreed and 24 percent were neutral about it (see Table 3)**.**

Table 3: Sources of Health Information Sought by Kuwaitis for Increasing Awareness About COVID-19

	Statements	Strongly agree		Somewhat agree		Neutral		Somewhat disagree		Strongly disagree	
		n	%	N	%	N	%	n	%	n	%
1	Keeping track of text messages from government agencies such as the Ministry of Health (MOH) or the Ministry of the Interior, among others, helps improve awareness of COVID-19.	746	73.3	215	21.1	42	4.1	8	0.8	5	0.5
2	Keeping up with the news and TV shows has a role in health awareness about COVID-19.	607	59.6	297	29.2	96	9.4	12	1.2	4	0.4
3	I follow the instructions of the medical centres in my residential area to increase health awareness to prevent COVID-19.	508	49.9	316	31.0	139	13.7	35	3.4	18	1.8
4	I follow the press conferences of the Ministry of Health of my country to find out the latest developments about COVID-19.	646	63.5	274	26.9	77	7.6	14	1.4	5	0.5
5	I follow the local news broadcasts on TV to know the latest developments about COVID-19 in my country.	568	55.8	314	30.8	96	9.4	23	2.3	15	1.5
6	I follow international and global newsletters' updates on COVID-19 in other countries and the world.	340	33.4	391	38.4	216	21.2	49	4.8	20	2.0
7	I follow the instructions provided on social media about COVID-19.	439	43.1	331	32.5	168	16.5	55	5.4	23	2.3
8	I follow WhatsApp messages from family and friends about COVID-19.	214	21.0	303	29.8	218	21.4	166	16.3	115	11.3
9	I follow websites such as the World Health Organization website to keep up to date on the developments about COVID-19.	299	29.4	379	37.2	244	24.0	68	6.7	26	2.6

Demographics Differences

a) Gender

A t-test was conducted to find differences among respondents according to their gender on the sources of information (based on CSI - Table 1), precautionary practice (based on CPP - Table 2), and health information sources (based on CHIS - Table 3) scales. The results show a significant difference based on gender on the CHIS ($t = 2.8$, $p = 0.005$), with a mean score of 17.21 for males and 16.22 for females. However, no significant difference was noted on the CPP ($t = 0.94$, $p = 0.34$), with a mean score of 38.83 for males and 38.4 for females, or on the CSI ($t = 0.85$, $p = 0.39$), with a mean score of 38.8 for males and 38.29 for females (see Table 4).

Table 4: Results of t-test Analysis by Gender for the CSI, CPP, and CHIS Scales

Scale	Male		Female		t(1018)	p
	M	SD	M	SD		
CSI	38.80	8.61	38.29	8.31	0.85	.391
CPP	38.83	7.30	38.40	6.16	0.94	.346
CHIS	17.21	5.66	16.22	4.77	2.80	.005

b) Age

A one-way ANOVA was used to test differences between age groups on the CSI, CPP, and CHIS scales. Statistically significant differences were found related to age in the scores for the CSI ($F_{(3,1009)} = 4.58$, $p = 0.003$), CPP ($F_{(3,1009)} = 9.16$, $p = 0.000$), and CHIS scales ($F_{(3,1009)} = 5.08$, $p = 0.002$; see Table 5).

Table 5: One-way ANOVA Between the Respondents' Ages and their
CSI, CPP, and CHIS Scores

Scale	18–29		30–39		40–49		50 and above		
	M	SD	M	SD	M	SD	M	SD	F
CSI	39.8	8.4	38.3	8.4	37.1	8.5	38.2	7.9	4.58**
CPP	39.8	6.4	39.0	7.1	37.7	6.1	37.2	5.8	9.16***
CHIS	17.3	5.3	16.7	5.2	16.0	5.0	15.7	4.2	5.08**

*$p < 0.05$, **$p < 0.01$, ***$p < 0.001$ (two-tailed).

c) Occupational condition

A one-way ANOVA was conducted to test differences among the respondents based on their occupation. Statistically significant differences were obtained among the respondents' occupation groups on the CSI ($F_{(4,1011)} = 3.58$, $p = 0.007$), CPP ($F_{(4,1011)} = 4.56$, $p = 0.001$), and CHIS scales ($F_{(4,1011)} = 3.13$, $p = 0.014$; see Table 6).

Table 6: One-way ANOVA between the Respondents' Occupations and the
CSI, CPP, and CHIS Scores

Scale	Student		Employee		Homemaker		Retiree		Businessperson		
	M	SD	M	SD	M	SD	M	SD	M	SD	F
CSI	40.01	8.44	37.88	8.49	36.91	7.56	39.16	7.98	36.51	7.69	3.58**
CPP	39.99	6.52	38.45	6.54	36.95	5.78	37.42	5.59	37.37	8.22	4.56***
CHIS	17.45	5.02	16.39	5.13	14.91	5.70	15.87	4.26	16.62	5.92	3.13**

*$p < 0.05$, **$p < 0.01$, ***$p < 0.001$ (2-tailed).

d) Marital status

A one-way ANOVA was conducted to test differences between groups in terms of the respondents' marital status on the CSI, CPP, and CHIS scales. Statistically significant differences were found among these groups with respect to the CSI (F(3,1012) = 4.1, p = 0.007), CPP (F(3,1012) = 6.34, p = 0.000), and CHIS scales (F(3,1012) = 4.54, p = 0.004; see Table 7).

Table 7: One-way ANOVA between the Respondents' Marital Status, and the CSI, CPP, and CHIS Scores

Scale	Married		Single		Divorced		Widowed		
	M	SD	M	SD	M	SD	M	SD	F
CSI	37.79	8.33	39.80	8.59	37.98	8.01	38.35	5.54	4.10**
CPP	37.97	6.42	39.76	6.72	38.41	5.95	35.50	3.61	6.34***
CHIS	16.07	4.91	17.30	5.11	16.85	5.79	15.21	3.21	4.54**

*p < 0.05, **p < 0.01, ***p < 0.001 (2-tailed).

Relatives or Friends Infected with COVID-19 as Sources of Information

A t-test was conducted to find differences among participants who knew a relative or friend who had been infected with COVID-19 and those who did not, with respect to the CSI, CPP, and CHIS scales. The results show significant differences between these groups with regard to the CHIS (t = 3.21, p = 0.001), with a mean score of 18.32 for "yes" and a mean score of 16.36 for "no". However, no differences were noted between these groups with regard to the CSI (t = 1.51, p = 0.13), with a mean score of 39.87 for "yes" and 38.32 for "no", or the CPP (t = 0.34, p = 0.73), with a mean score of 38.78 for "yes" and 38.51 for "no" (see Table 8).

Table 8: Results of T-test Analysis of Whether Relatives or Friends had been Infected with COVID-19 on the CSI, CPP, and CHIS Scales

Scale	Yes		No		t(1018)	P
	M	SD	M	SD		
CSI	39.87	8.96	38.32	8.34	1.51	.130
CPP	38.78	5.81	38.51	6.56	0.34	.732
CHIS	18.32	6.04	16.36	4.94	3.212	.0001

Knowledge of the Hotline Provided by the MOH for Information About COVID-19

A t-test was conducted to find differences between respondents who knew about the hotline provided by the MOH about COVID-19 and those who did not, with respect to the CSI, CPP, and CHIS scales. The results show significant differences between participants who did and did not know about the hotline in terms of their scores on the CSI (t = −9.553, p = 0.089), with a mean score of 37.1 for "yes" and 42.8 for "no"; the CPP (t = −4.504, p = 0), with a mean score of 38.02 for "yes" and 40.17 for "no"; and the CHIS (t = −7.16, p = 0.000), with a mean score of 15.89 for "yes" and 18.51 for "no" (see Table 9).

Table 9: Results of t-test Analysis of the Respondents' Knowledge of the MOH Hotline About COVID-19 on the CSI, CPP, and CHIS scales

Scale	Yes		No		t(1018)	P
	M	SD	M	SD		
CSI	37.10	7.89	42.80	8.53	−9.553	.089
CPP	38.02	6.00	40.17	7.73	−4.504	.000
CHIS	15.89	4.58	18.51	5.93	−7.169	.000

DISCUSSION

Findings of this study show that most respondents always followed news and information about COVID-19. This means that the virus has brought about changes in many domains of life. People have been instructed to take great precautions to stay safe from the disease. Every age group is under threat, and the media is playing an important role in disseminating information about its spread, precautionary measures, governmental measures, and institutional decisions in this regard. Spreading information is the key to making people aware of what to do as research on the virus continues.

In general, the public relied on different channels of information to learn about COVID-19, but most people had used the official website of the Kuwaiti Ministry of Health, local TV channels, and social media platforms. Traditional media, such as newspapers and the radio, have been rarely or never used by the public in Kuwait. This might be because many newspapers either have been suspended during the pandemic or replaced by electronic publications. These findings are consistent with those of recent studies (Ebrahim et al. 2020; Parikh et al. 2020). Parikh et al. (2020) that found mass media, such as television, was the most frequent source of information used by the public for COVID-19, while such websites as those of the WHO and CDC were a major source of information for healthcare professionals. Ebrahim et al. (2020) showed that people mostly relied on official social media accounts of health organizations and healthcare professionals for information on COVID-19. However, print newspapers are the sources where the fewest people relied on. Conversely, such sources of traditional media as the TV, radio, and newspapers were found to be the most commonly used sources of information on COVID-19 among US adults (Ali et al. 2020). These findings suggest that governments and healthcare organizations should disseminate accurate and sufficient information in the best way for the public to follow it during the pandemic.

The results of this study reveal that the public were aware of most precautionary practices to avoid COVID-19. Most of them knew that COVID-19 is an infectious disease, and to follow the advice of healthcare providers. Moreover, they knew to avoid touching their eyes, nose, and mouth to prevent infection. These findings are similar to those by Parikh et al. (2020), who found that most participants in their study had been aware of the precautionary practices against COVID-19, including hand washing, wearing a mask, social distancing, and covering the mouth while sneezing. Specifically, the findings show that the respondents learned about the precautionary practices against COVID-19 by seeking information from several sources. The sources most mentioned were text messages from government agencies, local press conferences by the MOH, and the news and other programmes on TV. This runs contrary to the results of Alduraywish et al. (2020), who found that despite people's preference for health professionals for medical information, there was significant interest in following-up on medical information through social media.

Social media can serve as an effective tool in disseminating health information if it is used by official agencies to spread accurate information (Balami and Meleh 2019). Ali and Bhatti (2020) have emphasized the role of sources of information for public health awareness during a pandemic. They have shown that information channels, such as mobile apps, Artificial Intelligence-based chatbots, social media platforms, video-based lectures (e.g. on YouTube), and electronic resources can help counter pandemics. However, such sources may also create panic among the public and help spread fake news (Ali and Bhatti 2020; Boberg et al. 2020).

The results here showed significant differences among the public based on gender on the CHIS scale. Male respondents sought health information to help improve their awareness of COVID-19 more than the females. This is different from results obtained by Ali et al. (2020), who found that the males were less likely to seek information and to trust government websites for COVID-19 information.

Although older adults are at higher risk of severe infection and death due to COVID-19 (Yang, Zheng and Gou. 2020), this study found that the young adults, aged 18–29 years, were most likely to obtain information on COVID-19, and were more aware of precautionary practices. This can be explained by the fact that this age group was more adept at ways to seek health information from different resources, particularly the Internet and social media. This suggests that the government and health organizations should improve the health literacy of older adults through online resources.

The results also show that participants who knew someone who had been diagnosed with COVID-19 were more likely to seek information to improve their awareness of it. This can be explained by the fact that knowing someone who had been infected created fear of the pandemic, which made the relevant people more determined to seek out information to avoid becoming infected. Furthermore, the participants who knew about the hotline provided by the MOH were more likely to seek information about COVID-19, and to be aware of precautionary practices.

CONCLUSIONS

This study examined the behaviour of the Kuwaiti public in terms of seeking health-related information during the COVID-19 pandemic. The findings showed that most Kuwaitis were aware of precautionary practices to protect against COVID-19, and had used many official sources of information, such as text messages from government agencies, daily press coverage by the MOH, and news and TV shows to increase their awareness. This suggests that developing awareness through official sources of information and services plays a vital role in addressing pandemics. Moreover, people's knowledge of COVID-19 and awareness of their own health in this context was significantly determined by socio-demographic characteristics.

Because many people infected by the novel coronavirus are asymptomatic, it is difficult to control the spread of COVID-19. Social distancing and wearing masks appear at present to be the best course of action to limit further outbreaks. Providing people with the correct information from official sources is one of the best ways to combat misinformation and increase people's awareness of their health. This suggests that the decision-makers in the MOH should develop public policies focused on plans to improve consumer health information and public involvement. Some initial steps include developing health

consumer websites supported by the MOH, and improving the health information literacy of the public and their awareness of the availability of information services provided by the MOH. Also, reports by the medical and health sciences libraries in Kuwait could provide the public and healthcare providers with updated health information during the crisis through various electronic current awareness tools that the libraries make available. To ensure the accuracy and creditability of information circulating online during the pandemic, partnerships could be established between communication companies and public health institutions as needed. Furthermore, to instruct society, especially the elderly, about how to find official and credible health-related information sites through social media platforms and the Internet, community health information-seeking workshops and trainings are needed.

One of the limitations of the current study is the use of a non-random convenience sample, which limits its generalizability. The advantages of an online survey are that it saves effort and time, it provides easy access to individuals in different geographic zones, and it requires lower costs. However, due to social distancing requirements, the current study was limited to individuals who use WhatsApp, which led to sampling issues and limited access to individuals who use other social media platforms. Additional studies are needed that apply different data collection techniques. Also, the current study is cross-sectional in that it was conducted at a single point in time during the pandemic, which means it measures only individuals' health information seeking behaviour during that snapshot.

Despite the fact that some of the empirical results were consistent with previous studies on health information seeking behaviour during the COVID-19 pandemic, this study indicated several socio-cultural factors that affected the public's search for information during the crisis. This research suggests that further study is needed to assess the performance of medical librarians and information professionals in meeting the public's information needs during the crisis, particularly in Middle Eastern countries, where there have been few studies that raised the issue in an effective manner. Additional studies are required to investigate individual information seeking behaviour during a public health emergency in order to implement safety measures and procedures when misleading information and rumours circulate. Finally, additional cross-cultural research is encouraged to investigate obstacles and difficulties that people encounter when they attempt to use and retrieve credible and trustworthy sources of health information during an infectious disease pandemic.

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