The Impact of Social Media on Arab Health Risk Perception during COVID-19

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Abstract

During the pandemic, social media became a repository for information obtained through official pages of governments in charge. Official and unofficial news sources occasionally featured false or misleading news. This study focuses on Arab audiences from the MENA region, aiming to investigate their social media usage, reliance, and impact during COVID-19. The study collected data from various Arab countries using a quantitative survey methodology. Six hundred responses were received for the final sample. Covering various aspects, the study was developed on two theories: Media Richness and Media Dependency. This study confirms that during the pandemic, the Arab public has continued to shift toward preferring digital over conventional media. Evidently, there is a significant reliance on social media. However, there is limited awareness of the drawbacks of its use in terms of circulating fake news and rumours in the context of COVID-19.

Introduction

The COVID-19 pandemic turned into a crisis that triggered massive global change and significantly impacted media consumption patterns and audience content preferences. The high volume of information being disseminated and the growing need to find alternative means to interact forced an inevitable shift toward increasing reliance on digital media for acquiring news and venting concerns. Such features fit social media perfectly. With this in mind, it became of interest to study this change and explore the type of content and sources audiences from the Arab region depend on and the impact such exposure would have on their behavior.

Carlos Muñiz's (2020) study concluded that the public's intensity of exposure to social media increased during spread of the pandemic as a result of community members' need for information to overcome anxiety, and desire for health guidance and counseling. Accordingly, audiences tend to revert to more electronic sources of information during health crises to search for the fastest and

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most interactive media which is what social media brings within the context of "Media Richness". In addition, individuals during crises and disasters seek more information, whether official or unofficial, to overcome the state of anxiety and fear that prevails during uncertain times (Xu and Sattar 2020). For instance, a study conducted by Singh, Dixit, and Joshi (2020) found that 87% of the Indian public increased their use of Facebook during the COVID-19 pandemic, and that 75% of the audience spent long periods of time on Facebook.

As more and more people have turned online, acquiring information regarding coronavirus has been no exception. According to Hootsuite's July 2020 report on Global Digital Growth, since the rise of COVID-19 there has been a remarkable 10% increase in digital adoption compared to 12 months earlier. Almost 51% of the global population currently uses social media, with a rate of 1 million new users per day (Kemp 2021). As for the Arab world specifically, the Arab Barometer (2021) report on the digital divide in the region confirmed an increase in internet usage in all countries during the pandemic with a digital divide that is affected by the economic status of the country and education level of its citizens ("The Arab World's Digital Divide – Arab Barometer," 2020). In fact, the study conducted by Ye et al. (2020) confirms that information and news reports about COVID-19 disseminated across social media were found to be more convenient as they reach audiences faster than if distributed via other traditional media channels. Between photos, text, video, and official and unofficial data, as well as sharing the experiences of others, social media is considered one of the richest media.

This noticeable shift of the Arab public from traditional media to new media, particularly social media, to get information during COVID-19 has led Arab governments to reconsider using social media as part of their strategies to provide the public with the correct information and awareness needed to combat the virus. Globally, the World Health Organization (WHO) launched its official pages on WhatsApp and Facebook in seven languages, including Arabic, to reach users. The ministries of health in many Arab countries followed the WHO by launching their official pages on all social media, including WhatsApp, acknowledging the fact that during the pandemic, social media has become a container in which official information and data are gathered through the official pages of government agencies responsible for managing the crisis in addition to official and unofficial news, which sometimes contained rumors about the numbers of patients, the stories of the ill, the means of prevention and nutrition. This led to conflicting information and at times was detrimental to the public. The prevalence and impact of false information has been documented in the literature since the pandemic started, where the effects of media consumption, particularly in clear cases of mis and dis-information, were directly correlated to a rise in a state of panic and fear among the public (Ahmad and Murad 2020; Banerjee and Rao 2020; Pennycook et al. 2020). This study is designed to examine the impacts of the digital

transformation that is the Arab public's dependency on social media during COVID-19.

Theoretical Framework

The study was built on two theories to cover the different angles needed for analysis: Media Richness Theory and Media Dependency Theory. The first is used to study the impact of media on Arab audiences and the means through which they interact with it, while the latter explores the elements preferred in the medium by the public to yield its selection and therefore, generate their dependency on it.

According to Media Dependency Theory, introduced by Sandra Ball-Rokeach and Melvin DeFleur in 1976, individuals' exposure to media increases when there is a need to get information and news during disasters and crises, where the intensity of exposure to the fastest and most accessible media also increases when faced with diverse sources of information. This was the case at the onset of the COVID-19 pandemic, when social media and the internet provided the fastest, most versatile, and easily accessible information.

The audience relies on the media as it allows for interactivity by asking questions, providing immediate responses, and sharing points of views with others to overcome their feelings of anxiety, fear, and terror caused by the pandemic or the crisis at hand (Lee and Choi 2018). Accordingly, media dependency impacts the public in three ways: cognitive effects, where audience attitudes are changed by the content they are exposed to; affective effects, that are translated as feelings of panic or anxiety; and behavioral effects, which are practical actions the audience tends to take towards or against the issue at hand.

With that in mind, the media in question has increased cognitive, emotional and behavioral effects when it performs functions that carry information in an intense and distinctive manner, which might increase in the event of a state of conflict and tension within society (Sundin et. al., 2010). This is what happened during the pandemic, tension and fear increased, and traditional media could not keep up with the speed at which the information was being transmitted, but with social media where there is ease of accessing information, the diversity of content type, and the audience ability to provide instant feedback, which exceeds the richness of traditional media.

This notion is complemented by Media Richness Theory (MRT), where the media that provide rapid feedback through embedded features and options are regarded as richer because they reduce the degree of ambiguity. The density of information and interaction around them reduce vagueness among users and help create an area of common meaning by utilizing a more interactive media format. It is, therefore, expected that social media can overcome the ambiguity, anxiety, and suspicion that many individuals have when exposed to it (Kahai and Cooper 2003).

Accordingly, social media has taken over this role from traditional media because of its ability to offer intensive transmission of information, news, and

events around the clock through multiple methods. In the case of the Arab region, this has included news transmitted from media agencies, ministries of health, awareness videos from doctors, as well as the transmission of patients' experiences through live reports or audio clips, which increased the amount of information and knowledge that the Arab public obtained from social media.

Therefore, this study focuses on Arab audiences from the MENA region (defined here as the Arab public) with the aim to investigate their social media usage, reliance, and its impact on them during COVID-19 through the following research questions:

RQ1: Which social media platform/s did the Arab public depend on to get information during COVID-19 pandemic?

RQ2: Does the Arab public's use of social media platforms vary by gender, age, and/or nationality?

RQ3: What type of pages did the Arab public follow on social media during COVID-19 pandemic?

RQ4: What type of content did the Arab public prefer on social media during COVID-19 pandemic?

RQ5: What are the sources of information that the Arab public trusted on social media during the pandemic?

RQ6: What is the impact of social media on the Arab public's health-risk perception regarding COVID-19?

Methodology

To assess the extent to which Arab audiences depend on digital media to gain health-related information about the pandemic and explore the impact of such adoption, the study used a quantitative survey methodology as the data collection tool. The survey was selected as a tool to reach as many respondents as possible and to serve the aim of collecting data from different Arab countries without distance or time restrictions. It was distributed electronically, using a Google Forms link, during the first COVID-19 peak period over the span of two months: April and May 2020. The sample was intended to fall between 500 to 1000 respondents, where the author aimed to collect at least 50 responses from each country. The final sample yielded a total of 600 responses.

The researcher made use of her personal network to circulate the questionnaire via email, WhatsApp, and Facebook while requesting it be shared to achieve a snowball random sample targeting both female and male respondents 19 years old to and over from 11 different Arab countries: Egypt, the United Arab Emirates (UAE), Iraq, Kuwait, Yemen, Saudi Arabia, Jordan, Sudan, Syria, Bahrain, and Oman.

The social media platforms used for the survey distribution were selected based on the latest report released by FIPP association titled "Social Media in the

Middle East: 2019 in Review" which indicated that Facebook is the most widely used social media platform among the Arab public, followed by Twitter, and then Instagram (Chasen-Buckley 2020). According to Radcliffe and Abuhmaid (2020) who studied the use of social media in the Middle East, seven out of ten Arabs use Facebook as the primary social media platform, followed by WhatsApp. With that in mind and given the fact that each social media platform provides a unique set of features, the author selected Facebook, WhatsApp, and email to increase the visibility of the survey link and encourage its rapid sharing to yield the maximum number of responses within the designated time of the study.

After collecting the survey results, a t-test was used to analyze variance in order to conduct further tests for correlation between social media dependency, age, and nationality, as well as comparing the same variables with the cognitive and emotional impacts of this type of utilization of social media to acquire information on COVID-19.

Survey Design:

The survey was designed to cover three main themes where multiple-choice questions were used to explore the type of media channel/s and social media platform/s most utilized by the Arab public. The questions also evaluated the content types and preferred sources used to acquire information about COVID-19, along with a set of statements respondents were asked to evaluate using a 5-point Likert Scale intended to uncover the impact of the acquired information on Arab audiences.

The survey (see Appendix 1) included 12 questions, starting with a general question to find out the preferred media during times of crises, asking the respondents to select the media they relied on the most (both traditional and digital) to acquire COVID-19 related information. This was followed by a more specific question focusing on the most utilized social media platforms including Facebook, Twitter, Instagram, WhatsApp, and LinkedIn. Those questions were placed to provide insights on Arab audience preferences and confirm or reject their dependency on social media platforms.

Questions 3, 4, 5, and 6 were used to test the audience's inclination towards the type of social media content and the sources they trust to acquire COVID-19 related information. The questions required the respondents to select their choices of the pages they prefer to follow, the type of content they favor, the kinds of information they seek, and the sources they rely on to gain information, respectively. The designed questions were intended to evaluate the Media Dependency and Media Richness theories in terms of the features those social media platforms provide and how the audience choose to depend on them.

To determine the degree of trust or confidence in the sources the audience selected, Question 7 was added to assess, using a three-point Likert Scale, the audience trust level for each of the sources mentioned in Question 6. This was followed by Question 8 that required the audience to evaluate the credibility level

of the information they receive through social media, whether they view it as accurate information, rumors, contradicting, incomplete, important, or aids in raising awareness.

Then to measure the three impacts of Media Dependency Theory, cognitive, affective, and behavioral, Question 9 provided the respondents with 14 statements that they were asked to evaluate. Those statements presented the affective impacts of following up on COVID-19 information such as emotional distress, panic, relief, and fear; the cognitive impacts assessing the attitudes of respondents post exposure to pandemic news; and the practical actions the respondents take including protective measures they follow to ensure their safety and that of those around them.

Results

The surveyed sample had 47.5% male and 52.2% female respondents. The largest proportion (35.5%) belonged to the 19-24 age bracket, followed by almost equal responses (24%) from both the 30-39 and 40-49 age groups. In terms of the locations of responses collected, Egypt ranked first with 44.7%, followed by the UAE at 25.5%, and Iraq at 14.3%. The remaining eight countries were present in the responses, however, not evident, as the percentage of replies did not exceed 5% as shown in Table 1.

Table (1)
The media channels Arab public depend on to obtain information about COVID-19

Factor		n	%
Gender	Male	285	47.5
	Female	315	52.5
Age	From 19 to 29 years old	213	35.5
	From 30 to 39 years old	147	24.5
	From 40 to 49 years old	145	24.2
	From 50 to 59 years old	70	11.7
	60 years and over	25	4.2
Educational level	High qualified	301	50.2
	Higher qualification	245	40.8
	Middle certification	54	9.0
Countries	Egypt	268	44.7
	United Arab Emirates	151	25.2
	Iraq	86	14.3
	Yemen	30	5
	Kuwait	25	4.2
	Saudi	10	1.2
	Syria	9	1.5
	Jordan	7	1.2
	Bahrain	5	0.8
	Oman	5	0.8
	Sudan	4	0.7
Total		600	

Table (2)

Media \ Channels	Yes		No	
	N	%	N	%
Social Media	517	86.2	83	13.8
Electronic Newspapers	273	45.5	327	54.5
International Satellite TV	186	31.0	414	69.0
Arab Satellite Channels	163	27.2	437	72.8
Relatives and Friends	154	25.7	446	74.3
Terrestrial Television	90	15.0	510	85.0
Newspapers	35	5.8	565	94.2
Local Radio	19	3.2	581	96.8

As shown in Table (2), respondents were provided with a list of media channels where they were able to select more than one choice. According to the results, social media came in first place with 86.2%, among the various mediums that the Arab public depended on in obtaining information about the pandemic. This was followed by a marked difference in preference for electronic newspapers at 45.5%. Just 31% relied on satellite channels, while dependency on local television, radio, and newspapers was minimal among the sampled members with 15%, 5.8%, and 3.2% respectively.

The t-test results to compare the two study groups (male - female) show a p-value > 0.05 which indicates no significant statistical difference between males and females in terms of acquiring information about COVID-19 (Table 3).

Table (3)

Phrases	Male		Female		T test	Sig
	Average	Standard deviation	Average	Standard deviation		
The Arab public in terms of using social media in gathering information about the COVID-19 pandemic	2.23	0.670	2.235	0.558	0.081	0.935

The analysis of variance shown in Table 4 indicate that age groups 30-39 and 40-49 show the most interest in retrieving information about the COVID-19 pandemic from social media.

Table (4)

Goal	Age categories	Average	Standard deviation	Value F	Sig.
The Arab public in terms of using social media in gathering information about the COVID-19 pandemic	From 19 to 29 years old	2.120	.624	5.021	0.002*
	From 30 to 39 years old	2.430	.555		
	From 40 to 49 years old	2.180	.609		
	From 50 to 59 years old	2.20	.636		
	60 years and over	2.22	.627		

In terms of analyzing whether nationality affects the Arab public's utilization of social media to gain information about the pandemic, Table 5 illustrates the analysis of variance which indicates a statistical significance strongly correlating nationality and social media dependency, where according to the means, Bahrain came in first place, followed by Sudan, and Kuwait in third place.

Table (5)

Goal	Nationality	Average	Standard deviation	F value	Sig.
The Arab public in terms of using social media in gathering information about the COVID-19 pandemic	Jordan	2.090	0.653	2.599	0.001*
	Bahrain	2.520	0.577		
	Saudi	2.120	0.573		
	Sudan	2.230	0.617		
	Iraq	2.154	0.582		
	Kuwait	2.184	0.635		
	Egypt	2.156	0.623		
	United Arab Emirates	2.023	0.618		
	Oman	2.023	0.687		

Social media used by the Arab public to get information about COVID-19.

As shown in Table 6, 51.2% of the respondents relied on Facebook to obtain information about the pandemic, while WhatsApp came in second place at 46.2%. The third source for information for Arab respondents was Twitter at 18.3%, while LinkedIn came last at 2.8%.

Table (6)

Degree of approval / Social media	Always		Sometimes		Not Following	
	N	%	N	%	N	%
Facebook	307	51.2	194	32.3	99	16.5
WhatsApp	277	46.2	234	39.0	89	14.8
Instagram	126	21.0	229	38.2	245	40.8
Twitter	110	18.3	204	34.0	286	47.7
LinkedIn	17	2.8	132	22.0	451	75.2

Types of social media accounts followed by respondents

From the data presented in Table 7, it is evident that respondents rely on their friends' accounts and their shares on social media for COVID-19

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* indicates the significance of the p-test at 0.05 significance level.

information. But unexpectedly WhatsApp topped all social media platforms at 47.8%, followed by friends' pages on Facebook at 31.5% and Instagram came in third place, LinkedIn once again was the platform least followed by the Arab public.

Moreover, the data showed that the Arab public looked to the content shared by their friends first, then governments' official pages and health ministries' official pages came in second place according to the interest of the sampled members of the Arab public, most of which were Emiratis, followed by Kuwaitis, and then Saudis. The respondents who follow pages of official institutions on Facebook represented 18.8% of the sample, 17.3% were on Twitter, followed by Instagram at 14.8%. On the latter two platforms, the majority were Gulf citizens.

Table (7)

S.	Social media	Friends accounts		Follow groups		Ministry of Health		Pages of governments		Not following	
		N	%	N	%	N	%	N	%	N	%
1	Facebook	189	31.5	76	12.7	123	20.5	113	18.8	99	16.5
2	WhatsApp	287	47.8	172	28.7	23	3.8	29	4.8	89	14.8
3	Instagram	139	23.2	66	11.0	61	10.2	89	14.8	245	40.8
4	Twitter	68	11.3	64	10.7	77	12.8	105	17.3	286	47.7
5	LinkedIn	63	10.5	32	5.3	29	4.8	25	4.2	451	75.2

Social media content followed by the Arab public

Some 31.3% of the Arab public follow the official news disseminated from official sources and shared on friends' pages on Facebook, while 24.8% follow news directly from official pages on Twitter and 21.7% use Instagram. The percentage of follow-up on the videos produced by official institutions or organizations on Instagram is 19.3%. The data shows that the Arab public is mostly interested in following the official videos that are shared by friends on their WhatsApp accounts (21.2%) followed by the videos shared on Facebook at 13% (Table 8).

Table (8)

S.	Social media	Official news		Official videos		Friends comments		Videos shared and copied from friends		Following all of the above		Not following	
		N	%	N	%	N	%	N	%	N	%	N	%
1	Facebook	188	31.3	34	5.7	45	7.5	78	13.0	156	26.0	99	16.5
2	WhatsApp	113	18.8	43	7.2	120	20.0	127	21.2	108	18.0	89	14.8
3	Instagram	130	21.7	60	10.0	56	9.3	39	6.5	70	11.7	245	40.8
4	LinkedIn	76	12.7	17	2.8	18	3.0	24	4.0	14	2.3	451	75.2
5	Twitter	149	24.8	56	9.3	30	5.0	33	5.5	46	7.7	286	47.7

Information that respondents follow about the COVID-19 pandemic on social media.

The statistics about the virus were the greatest point of interest for respondents. Facebook was the top source used to monitor COVID-19 statistics at 43.2%, followed by WhatsApp (25.8%). Of the respondents 22.7% also used WhatsApp to follow the videos on COVID-19 prevention, while 19.3% used Instagram for the same purpose (Table 9).

Table (9)

S.	Social media	Official injury stats		Videos on virus prevention		Information on virus evolution		Information about the injured		Information on quarantine		All of the above		Not following	
		N	%	N	%	N	%	N	%	N	%	N	%	N	%
1	Facebook	259	43.2	85	14.2	95	15.8	35	5.8	14	2.3	13	2.2	99	16.5
2	WhatsApp	155	25.8	136	22.7	99	16.5	53	8.8	32	5.3	36	6.0	89	14.8
3	Instagram	114	19.0	116	19.3	60	10.0	23	3.8	19	3.2	23	3.8	245	40.8
4	LinkedIn	36	6.0	43	7.2	35	5.8	27	4.5	4	.7	4	0.6	451	75.2
5	Twitter	116	19.3	55	9.2	100	16.7	28	4.7	5	.8	10	1.7	286	47.7

Sources of information that respondents trust on social media.

Almost half the sample (49%) have confidence in the data released through official pages of the ministries of health in Arab countries, while the confidence in news published by friends about the pandemic on WhatsApp received 32.7% of the responses (Table 10).

Table (10)

S.	Social media	Ministry of Health websites		Videos of doctors		Media news		Friends' news about the pandemic		Not following	
		N	%	N	%	N	%	N	%	N	%
1	Facebook	295	49.2	84	14.0	71	11.8	51	8.5	99	16.5
2	WhatsApp	148	24.6	96	16.0	71	11.8	196	32.7	89	14.8
3	Instagram	132	22.0	96	16.0	83	13.8	44	7.3	245	40.8
4	Twitter	138	23.0	47	7.8	87	14.5	42	7.0	286	47.7
5	LinkedIn	43	7.1	49	8.2	16	2.7	41	6.8	451	75.2

The level of confidence of the respondents in the information received from various sources on social media

Respondents had the highest level of confidence in doctors' videos published on social media at 60.3%. Friends' posts on social media came second in with 44.2% of the responses, followed by the Ministry of Health news at 44% (Table 11).

Thirty-nine percent of the respondents asserted that the information published on social media is primarily educational information, while 29% saw it as useful information. Of the respondents, 23.8% rejected the statement that information about the pandemic is rumors, and 19.7% of respondents rejected the fact that information about COVID-19 is contradictory, and 25.7% rejected that the information about the COVID-19 pandemic in social media is false and unreal. This reflects the confidence of the respondents in the information they obtain about the pandemic from social media, most of which were from official government pages affiliated with the ministries of health, while the others were information passed on by friends on their pages.

Table (11)

Trust degree / Sources	Always		Sometimes		Never Trust		Weighted value	
	N	%	N	%	N	%	Points	Weight
Videos of doctors	362	60.3	192	32.0	46	7.7	1516	21.99
Friends posts on social media	265	44.2	298	49.7	37	6.2	1428	20.72
Ministry of Health websites	264	44.0	290	48.3	46	7.7	1418	20.57
News media	231	38.5	347	57.8	22	3.7	1409	20.44
World media news	109	18.2	302	50.3	189	31.5	1120	16.25
Total weight							6891	100

The impact of depending on social media to get information during the pandemic.

The **cognitive effects** were evident when 63% of respondents confirmed that they had acquired information on how to prevent infection, while 39.2% accessed a lot of information about COVID-19 symptoms. Some 47.7% of respondents confirmed that they learnt about the different preventative measures to protect themselves and those around them from social media.

When evaluating the **emotional influence** on Arab respondents, it was found that the emotional impacts were mostly positive (26.7%), compared to the negative psychological effects that were evident when 18% of the respondents acknowledged experiencing feelings of panic, fear, and terror as a result of following up on COVID-19 updates, while 14% were hopeless that there will be an end to the pandemic, and 19.5% reported experiencing depression. Some 31.7% of respondents feel completely satisfied with the performance of governments in managing the crisis, and 33.5% of respondents feel confident in the performance of the ministries of health in their countries.

The behavioral effects were evident with 79.5% of respondents confirming that they carefully followed the precautionary health instructions, and 77.7% felt responsible for protecting themselves as well as others. However, the researcher could not further interpret such an impact as the statements administered in the survey were not reflective enough of behavioral effects and thus, the t-test statistical analysis was run only on the cognitive and emotional impacts.

Table (12)

Attitudes of respondents after reading information about COVID-19 on Facebook

Statement	Always		Sometimes		Never		Average	Standard deviation	T value	Indication	Attitude	Rank
	N	%	N	%	N	%						
I get useful information	235	39.2	328	54.7	37	6.2	2.3300	.58737	13.762	*.000	Neutral	5
I feel depressed	117	19.5	302	50.3	181	30.2	1.8933	.69721	3.748	*.000	Neutral	11
I learned prevention techniques	378	63.0	191	31.8	31	5.2	2.5783	.58973	24.022	*.000	Always	3
I feel scared and terrified	108	18.0	244	40.7	248	41.3	1.7667	.73470	7.779	*.000	Neutral	8
I feel a responsibility to protect myself and my surroundings	466	77.7	116	19.3	18	3.0	2.7467	.49957	36.610	*.000	Always	1
I feel like I have symptoms of the disease	53	8.8	202	33.7	345	57.5	1.5133	.65361	18.239	*.000	Neutral	4
Feel the need to follow the instructions carefully	423	70.5	151	25.2	26	4.3	2.6617	.55772	29.060	*.000	Always	2
I feel hopeless about the end of this pandemic	84	14.0	192	32.0	324	54.0	1.6000	.72171	13.576	*.000	Neutral	6
I have more confidence in the Ministry of Health's performance	201	33.5	282	47.0	117	19.5	2.1400	.71502	4.796	*.000	Neutral	10
I do not trust the official data	58	9.7	296	49.3	246	41.0	1.6867	.63966	11.999	*.000	Neutral	7
I fear government decisions	116	19.3	265	44.2	219	36.5	1.8283	.72784	5.777	*.000	Neutral	9
I feel confused about conflicting information	132	22.0	350	58.3	118	19.7	2.0233	.64561	.885	.376	Neutral	13
I feel reassured in general	160	26.7	285	47.5	155	25.8	2.0083	.72513	.282	.778	Neutral	14
I feel completely satisfied with the government's decisions	190	31.7	269	44.8	141	23.5	2.0817	.73886	2.707	*.007	Neutral	12
Attitudes of respondents after reading information about COVID-19 Facebook								.27692	5.423	*.000	Neutral	

According to t-test results, as seen in (Table 13) the p-value is greater than 0.05 which indicates no statistical significance when comparing the cognitive impact of exposure to coronavirus information through social media between the two study groups (male/female). The same is noted for the emotional impacts indicating that both groups experience feelings of panic, fear, or reassurance, depending on the content they consume.

Table (13)

Phrases	Impacts	Male		Female		T test	Sig
		Average	standard deviation	Average	standard deviation		
Social media, cognitive and emotional influences	Cognitive	2.23	0.670	2.235	0.558	0.081	0.935
	Emotional	2.152	0.753	2.106	0.823	0.616	0.538

On the other hand, the analysis of variance shows statistical significance when correlating the impacts with age, where for the cognitive effects, the 50-59 age group were the most affected group, while the 19-29 age group were the least affected. However, when comparing for emotional effects, the 40-49 age group were most affected, while similar to the cognitive effects results, the 19-29 age group were the least affected. (Table 14)

Table (14)

Dimension	Impact	Age categories	Average	Standard deviation	F value	Sig.
Social media, cognitive and emotional influences	Cognitive effects	From 19 to 29 years old	1.710	0.730	8.918	*0.000
		From 30 to 39 years old	2.167	0.749		
		From 40 to 49 years old	2.199	0.770		
		From 50 to 59 years old	2.263	0.753		
		60 years and over	2.22	.627		
	Emotional effects	From 19 to 29 years old	1.845	0.799	4.527	*0.000
		From 30 to 39 years old	2.149	0.751		
		From 40 to 49 years old	2.190	0.701		
		From 50 to 59 years old	2.145	0.809		
		60 years and over	2.313	0.786		

In terms of comparing differences in relation to nationality, (Table 15) indicates significant differences for both cognitive and emotional impacts with a p-value < 0.05. The Syrian nationality is seen as the most cognitively affected, followed by Egyptians, and Emiratis. Yet, in terms of emotional impact, it is noted that Yemenis were most impacted, followed by Emiratis, then Bahrainis.

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* indicates the significance of the p-test at 0.05 significance level.

Table (15)

Dimension	Impacts	Nationality	Average	Standard deviation	F value	Sig.
Social media, cognitive and emotional influences	Cognitive impacts	Jordan	2.261	0.679	3.535	*0.001
		Bahrain	2.280	0.748		
		Saudi	2.232	0.754		
		Sudan	2.281	0.698		
		Iraq	2.230	0.743		
		Kuwait	2.273	0.737		
		Yemen	2.288	0.705		
		Syria	2.545	0.741		
		Egypt	2.321	0.697		
		United Arab Emirates	2.291	0.736		
		Oman	2.270	0.720		
	Emotional impacts	Jordan	2.073	0.733	4.785	**0.001
		Bahrain	2.382	0.719		
		Saudi	2.307	0.708		
		Sudan	2.112	0.654		
		Iraq	2.364	0.712		
		Kuwait	2.023	0.796		
		Yemen	2.684	0.756		
		Syria	2.254	0.736		
		Egypt	2.208	0.775		
		United Arab Emirates	2.451	0.719		
		Oman	2.002	0.682		

Discussion

This study confirms the high reliance of the Arab public on social media in obtaining information about the COVID-19 pandemic, followed by electronic newspapers, thus in terms of the public's dependency when obtaining information during COVID-19, digital media topped all other forms. Possible reasons for the public shift from traditional media to social media is the speed of getting information and conveying the experiences of others and the possibility of communicating directly with official authorities as the study by Cinelli et al. (2020) concluded that during the pandemic the public seeks to obtain answers to their questions through the use of social media more than it seeks to obtain news and information.

The study also confirms that respondents pay attention to information about the development of the virus, infection rates, and quarantine regulations on all social media platforms under investigation. In addition to the fact that social

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* Indicates the significance of the v-test at 0.05 significance level.
** Indicates the significance of the p-test at 0.05 significance level.

media allows more room for expressing concerns, sharing experiences, publication and re-publication of news and information, people have become the source of information and rumors at the same time, this encouraged governments to confront the coronavirus through disseminating official information and statistics to provide the audience with reliable sources that can aid in the rumors and false information being circulated by members of society through their personal social media accounts (Tasnim, Hossain, and Mazumder 2020).

Thus, we note that most Arab ministries of health have launched official electronic platforms via social media to eliminate rumors or false information that is transmitted through traditional or social media.

Moreover, it was found that the respondents show confidence in the pages of the ministries of health on Facebook. This may be due to the fact that such pages included specialized information about coronavirus, including how to prevent and treat, in a highly interactive manner. Among the elements of richness of social media is the speed of obtaining information as well as its ability to allow users to communicate directly with official authorities (Jan, Soomro, and Ahmad 2017).

Furthermore, the results indicated variation between nationalities in the degree of dependence on social media, where Egypt, the UAE, Saudi Arabia, and Jordan topped all other surveyed Arab countries in the level of dependence on social media during COVID-19, however, when comparing social media dependency in age, gender, and education level, the results showed no evident statistical variance.

Facebook topped the list of online platforms in terms of depending on it as a source of information on COVID-19. The statistical results indicated that there were statistically significant differences between Arab nationalities in the use of Facebook that favored Egypt and Saudi Arabia. Facebook's prominence in this study may have been influenced by the fact that most of the study sample is from Egypt, and statistics indicate that Facebook is ranked as the primary social media platform in Egypt, as the number of Facebook users in Egypt has reached 38 million (Kemp 2020). Also, the collected data indicate that LinkedIn is regarded as a social media platform of a professional and selective nature, and this may serve as the reason why this platform did not receive much attention from the general public.

According to the study, the Arab public tends to rely on the personal accounts of friends on Facebook and WhatsApp which have topped the sources of information for the Arab public, then the official pages of the ministries of health in terms of obtaining information about the pandemic. There were no significant differences between nationality, gender, age, or educational level in terms of reliance on sources of information.

The study also shows the reliance of Arab governments and ministries of health on their social media platforms to provide their citizens with health

information and awareness to confront COVID-19, as well as use them to spread government policies designed to face COVID-19 and to identify the public's reactions to various information and news, as well as announcing the latest numbers of injuries and deaths. These numbers reflect that Arab governments and official institutions in Arab countries are aware of the importance of digital transformation to keep up with the international trend of smart governments (Kamolov 2017).

Official news and doctors' videos were among the content that respondents consumed the most, with no statistical indications of difference when considering nationality, gender, age, and education level. As for the type of information the Arab public are interested in, infection statistics, disease prevention videos, and precautionary measures were the most sought after on different social media.

Respondents had the most confidence in, approval of, and exposure to the official pages of Arab ministries of health. This was the case across the study sample regardless of nationality, gender, age, and level of education. It was found that the sources of information that were perceived to have the most credibility on social media were doctors' pages, followed by posts on friends' pages, followed by information on the official ministries of health pages. Nationality and gender did not seem to impact these results, however, older age groups (above 30) tended to elicit more information related to COVID-19 than the younger age group (19-29) .

The results showed that the impact of social media dependence appeared first in the **cognitive effects**. This included information gained about how to prevent infection, how to protect themselves and those around them, information about COVID-19, how it spreads and its impact. There were no differences in terms of cognitive effects with respect to the variables of nationality, age, gender, and level of education. **Emotional effects** emerged as a result of social media dependence, most of which were positive including confidence in government crisis management. Differences were evident at the level of nationality, with Emirati, Saudi, and Tunisian audiences exhibiting more confidence in the performance of their governments in managing the pandemic. In general, the positive emotional effects were most evident at the level of nationality, gender, and education, while variation in the significance of differences was observed according to age; the greater the age, the greater the feeling of anxiety and depression. This result is compatible with various studies, where Liu and Liu (2020), which confirmed that most of the study respondents expressed feelings of deep anxiety due to the intensity of their exposure to digital media. In the same study, it was found that the greater the age, the greater the feeling of anxiety and the more the person became isolated from their family, however, the anxiety level, in general, decreases as the level of exposure to official sources of information such as ministries of health and governments increases.

Following the same line, the study of Chao et al. (2020) also found that those who relied on social media to collect information about COVID-19 in China

a week after the official announcement of the pandemic, had negative psychological symptoms, including fear, anxiety, stress, frustration, and depression. While those who were exposed to expert pages, official pages on social media, or doctors' pages, especially those that contained information about the virus-vulnerable populations and methods of prevention, the positive psychological effects were more than the negative, among them feelings of confidence in and satisfaction with the performance of the government and the feeling of reassurance, which is consistent with the results of the study of Houston et al. (2008) that found the younger the age of those who are exposed to social media in times of crisis, the greater the negative effects resulting from symptoms of anxiety, tension, stress, depression and other negative relative symptoms.

Be**havioral effects** in this study required the use of a Likert scale, through which respondents described the acquisition of skills to apply precautionary measures accurately, rational behavior in social distancing, sterilization methods, self-preservation means throughout their daily interactions.

This study confirms that the Arab public has transformed into a digital audience as 86.2% of the respondents rely on social media to acquire information about COVID-19. Therefore, there is a clear shift in the audience preferences in terms of favoring the consumption of digital media over traditional ones during COVID-19 pandemic, types of content they prefer to consume, and the channels which facilitate their access to it. Accordingly, the Arab public's dependency on social media platforms is evident, however, as the results have shown, they are aware of the drawbacks of social media in terms of spreading rumors and circulating fake news, that is why the highest responses were given to official and professional sources on social media.

Limitations

This study is limited by the relatively small response rates from eight out of 11 countries, which hindered the reliability of the results. More time would have been useful to further distribute the survey throughout the underrepresented countries. Future studies may be better served by employing a different distribution technique to ensure obtaining more representative responses from all surveyed countries.

Moreover, the social media platforms could be more diverse to include, for example, Twitter and Instagram as distribution channels, with the intention of studying audience reliability and confidence in those platforms during the pandemic.

The survey statements used to measure the behavioral impacts resulting from audience exposure to coronavirus-related information are limited to emotional effects and therefore could be modified to present more practical actions the respondents could choose from. The statements may include consulting physicians, quarantining, and following preventative measures.

Finally, it would have served the study to include a content analysis on sampled social media content to compare affective impacts with the type of content Arab audiences are exposed to.

Recommendations

There is a pressing need for Arab governments to reconsider their national strategies to include all media outlets and tools, especially digital media. The study's findings point to the importance of utilizing digital media channels alongside traditional ones to facilitate communication with the public all the time, and specifically during crises and disasters. Accordingly, it is important to introduce media literacy, especially digital media literacy, in school curricula to familiarize youth with the selective and conscious use of social media.

Moreover, it is important for governments and policy-makers to ensure g information is spread in an efficient manner that respects credibility and ensures audience confidence in official sources to counteract fake news and false information. As it is also important to carefully select the content disseminated so as to avoid the negative emotional impacts spreading fear and anxiety instead of promoting awareness and positive behavioral and cognitive impacts.

Finally, the study calls for conducting more regular studies to measure the extent of influence digital media has on shaping Arab public opinion especially in times of crisis.

References

Ahmad, A. R. and H. R. Murad. "The impact of social media on panic during the COVID-19 pandemic in Iraqi Kurdistan: online questionnaire study." *Journal of Medical Internet Research* 22 (2020): e19556.

Banerjee, D and T S. Rao. "Psychology of misinformation and the media: Insights from the COVID-19 pandemic." *Indian Journal of Social Psychiatry* 36 (2020): 131.

Brugnoli, E, A L. Schmidt and A Scala. "The covid-19 social media infodemic." *Scientific Reports.* (2020). https://www.nature.com/articles/s41598-020-73510-5#auth-Carlo_Michele-Valensise (retrieved August 14, 2021).

Brindha Duraisany, Jaya Seelan, Rathina Swamy and Kadesuvran Sengottaiyan. "Social Media Reigned by information on Misinformation about Covid-19: A phenomenological study" *Social Sciences and Humanities Open* (2020). (retrieved October 12, 2020).

Chao, M, D Xue, T Liu, H Yang and B J. Hall. "Media use and acute psychological outcomes during COVID-19 outbreak in China." *Journal of Anxiety Disorders* (2020): 102248.

Chasen-Buckley, J. "How Arabs interact with Social Media in the Middle East." https://www.arabamerica.com/how-arabs-interact-with-social-media-in-the-middle-east/ (retrieved March 18, 2021).

Chao, Miao, Dini Xue, Tour Liu, Haibo Yang, and Brian J. Hall. "Media use and acute psychological outcomes during COVID-19 outbreak in China." *Journal of Anxiety Disorders* 74 (2020): 102248.

Daniella Raz. "The Arab World's Digital Divide – Arab Barometer." (2020).

https://www.arabbarometer.org/2020/09/the-mena-digital-divide. (retrieved on March, 15, 2020).

Digital marketing community "Social Media usage and statistics in the middle east." (2019). https://www.google.com. (retrieved October,15, 2020).

Heena Sahni, Hurry Sharma. "Role of social media during the covid-19 pandemic: Beneficial destructive, or reconstructive?" (2020). http://www.igam-web.org (retrieved October, 15, 2020).

Houston, J B., J Hawthorne, M F. Perreault, E H. Park, M Hode, M R. Halliwell and S A. Griffith. "Social media and disasters: a functional framework for social media use in disaster planning, response, and research." *Disasters* 39 (2015): 1-22.

Houston, J B., B Pfefferbaum and G Reyes. "Experiencing disasters indirectly: How traditional and new media disaster coverage impacts youth." *The Prevention Researcher* 15 (2008): 14-18.

Ikhlaq, A., B.E. Hunniya, I.B. Riaz, and Fliaz. "Awareness and Attitude of Undergraduates Medical Students towards 2019-novel Corona virus." *Pakistan Journal of Medical Sciences*, 36 (2020): S32–S36.

Jan, M, S Soomro and N Ahmad. "Impact of social media on self-esteem." *European Scientific Journal* 13 (2017): 329-341.

Kahai, S S. and R B. Cooper. "Exploring the core concepts of media richness theory: The impact of cue multiplicity and feedback immediacy on decision quality." *Journal of Management Information Systems* 20 (2003): 263-299.

Kamolov, Sergey G. "Digital public governance: trends and risks." *Digital Public Governance: trends and risks* (2017): 185-194.

Kemp, S. "Digital 2020: Egypt. " (2020). https://datareportal.com/reports/digital-2020-egypt (retrieved August 14, 2021).

Kemp, S. "More than half of the people on Earth now use social media." (2020). https://datareportal.com/reports/more-than-half-the-world-now-uses-social-media (retrieved March 20, 2021).

Lee, Jiyoung, and Yunjung Choi. "Informed public against false rumor in the social media era: Focusing on social media dependency." *Telematics and Informatics* 35, no. 5 (2018): 1071-1081.

Liu, Cong, and Yi Liu. "Media exposure and anxiety during COVID-19: The mediation effect of media vicarious traumatization." *International Journal of Environmental Research and Public Health* 17, no. 13 (2020): 4720.

Mateo Cinelli, Walter Quattrococchi, Scala. "Scientific report 10 article No. 16598 (2020)". (2020). Scientific Report Isnn 2045-2322. https://www.nature.com/articles/s41598-020-73510-5. (retrieved on February, 8, 2021).

Muñiz, Carlos. "Media System Dependency and Change in Risk Perception During the COVID-19 Pandemic." Trípodos. Facultat de Comunicació i Relacions Internacionals Blanquerna-UR*L* 1, no. 47 (2020): 11-26.

Muqaddas Jan, Sanolia Soomro and Nawaz Ahmed. "Impact of Social Media on Self Esteem. " *European Scientific Journal.* https://doi.org/10.19044/esj.2017.v13n23p329. (retrieved on October, 18, 2020).

Penney, Joel. "Social Media and Citizen Participation in "Official" and "Unofficial" Electoral Promotion: A Structural Analysis of the 2016 Bernie Sanders Digital Campaign" *Journal of Communication* (2017). http://www.jcom.org. (retrieved on October 7, 2020).

Pennycook, G, J McPhetres, Y Zhang, J G. Lu and D G. Rand. "Fighting COVID-19 misinformation on social media: Experimental evidence for a scalable accuracy-nudge intervention." *Psychological Science* 31 (2020): 770-780.

Radcliffe, Damian, and Hadil Abuhmaid. "Social media in the Middle East: 2019 in review." (2020). https://www.researchgate.net/journal/SSRN-Electronic-Journal-1556-5068. (retrieved on January, 25, 2020).

Singh, Shweta, Ayushi Dixit, and Gunjan Joshi. ""Is compulsive social media use amid COVID-19 pandemic addictive behavior or coping mechanism?" *Asian journal of psychiatry* 54 (2020): 102290. (Retrieved on October,18, 2020).

SS Khai, RB Capa. "Exploring the core concepts of Media richness theory" *Journal of Management Information Systems*. (2003). 20 (1) pp. 263-289

Sundin, Ebba, Nico Carpentier, Ilija Tomanic Trivundza, Pille Pruulman-Vengerfeldt, Tobias Olsson, Richard Kilborn, Hannu Nieminen, and Bart Cammaerts. "Media and Communication Studies Interventions and Intersections: The Intellectual work of the 2010 ECREA European media and communication doctoral summer school." (2010).

Tasnim, S, M M. Hossain and H Mazumder. "Impact of rumors and misinformation on COVID-19 in social media." Journal of preventive medicine and public health 53 (2020): 171-174.

Trifonera, Victoria. "How the outbreak has changed the way we use social media." (2020). https://www.globalwebindex.com . (retrieved on October, 15, 2020).

WHO. "Commission on social determinant of Health, closing the Gap in a Generation: Heath Equity through action on the social determinants of health. (2020) https://www.who.int/social_determinants/final_report/csdh_finalreport_2008.pdf. (retrieved on October, 17, 2020).

Xu, Tao, and Usman Sattar. "Conceptualizing COVID-19 and public panic with the moderating role of media use and uncertainty in China: an empirical framework." In *Healthcare*, vol. 8, no. 3, p. 249. Multidisciplinary Digital Publishing Institute, 2020.

Ye, S and R Hartmann. "Turning Information Dissipation into Dissemination: Instagram as a Communication Enhancing Tool during the COVID-19 Pandemic and Beyond." *Journal of Chemical Education* 97 (2020): 3217-3222.

Appendix 1

1. What methods do you rely on to obtain information regarding COVID-19 pandemic?
 (You can choose more than one answer)
- o   Newspapers
- o   Electronic Newspapers
- o   Terrestrial television Stations
- o   Arab Satellite television channels
- o   International Satellite television channels
- o   Local Radio Stations
- o   Social Media Platforms
- o   Family and Friends
- o   Other (to be mentioned):

2. Which social media platform do you rely on the most to obtain information about COVID-19 pandemic?

	Social Media Platform	Always	Sometimes	Never
1.	Facebook			
2.	Twitter			
3.	Instagram			
4.	LinkedIn			
5.	WhatsApp			
6.	Other (to be mentioned)			

3. Select which of the following you prefer to follow on social media platforms:

	Social Media Platform	Friends Accounts	Groups/Pages	Ministry of Health	Government official Accounts
1.	Facebook				
2.	Twitter				
3.	Instagram				
4.	LinkedIn				
5.	WhatsApp				
6.	Other (to be mentioned)				

4. Select which of the following type of content you prefer to follow on social media platforms

	Social Media Platform	Official News	Official videos	Friends Comments	Videos shared by friends	I follow all aforementioned types of content
1.	Facebook					
2.	Twitter					
3.	Instagram					
4.	LinkedIn					
5.	WhatsApp					
6.	Other (to be mentioned)					

5. What are the most important information about COVID-19 that you prefer to follow on the following social media:

	Social Media Platform	Official Numbers Of Infections	Preventative measures videos	Info on virus evolution	Info about COVID-19 patients	Information about quarantine	Other (to be mentioned)
1.	Facebook						
2.	Twitter						
3.	Instagram						
4.	LinkedIn						
5.	WhatsApp						
6.	Other (to be mentioned)						

6. Which of the following sources you trust the most to obtain information about COVID-19 pandemic?

	Social Media Platform	Ministry of Health	Physicians Videos	News Media	Friends posts about the pandemic
1.	Facebook				
2.	Twitter				
3.	Instagram				
4.	LinkedIn				
5.	WhatsApp				
6.	Other (to be mentioned)				

7. Determine your degree of trust in the information received about COVID-19 pandemic from the following sources:

		Always	Sometimes	Don't trust at all
1.	Ministry of Health official social media accounts			
2.	Physicians Videos			
3.	National Media News			
4.	Global Media News			
5.	Friends posts on social media			
6.	Other (to be mentioned)			

8. How do you evaluate the information provided about COVID-19 on social media platforms:

		Totally Agree	Agree	Totally Disagree
1.	Accurate Information			
2.	Rumors			
3.	Incomplete Information			
4.	Important and Useful information			
5.	False Information			
6.	Awareness-related information			
7.	Contradicting Information			
8.	Other (to be mentioned)			

9. Determine how you feel after reading information about COVID-19 pandemic on social media:

		Always	Sometimes	Never
1.	I got useful information			
2.	I feel depressed			
3.	I learnt about preventative measures			
4.	I feel scared and terrified			
5.	I feel responsible for protecting myself and others			
6.	I feel like I suffer from Corona symptoms			
7.	I feel the need to follow the stated instructions carefully			
8.	I feel hopeless about the end of this pandemic			
9.	I have more confidence in the performance of the Ministry of Health			
10.	I don't trust official numbers			
11.	I fear government decisions			
12.	I feel confused because the information is contradicting			
13.	In general, I feel reassured			
14.	I feel completely satisfied with the government's decisions			

10. Gender
   o Male
   o Female
11. Age
   o 19 -29
   o 30 - 39
   o 40 - 49
   o 50 - 59
   o More than 60

12. Country of Residency:
   o   Egypt
   o   UAE
   o   Iraq
   o   Kuwait
   o   Saudi Arabia
   o   Jordon
   o   Sudan
   o   Sham Countries
   o   Bahrain
   o   Oman
   o   Other (to be mentioned)