

# Which Information Sources do People Choose during the COVID-19 Pandemic: Mass Media or Social Media? A Survey in Iran

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## ABSTRACT

**Background:** During the COVID-19 pandemic, people have been using information sources, especially social media, in an unprecedented way. Dissemination of information greatly affects people's behavior.

**Aim:** To investigate the options for individuals to obtain news and knowledge about COVID-19 pandemic and the adequacy and trust of sources from their point of view in the center of Iran.

**Methods:** This cross-sectional study was conducted in February 2020 in the city of Yazd (before and after the official report of the first cases). Subjects were entered this research by convenience sampling method. Data gathering tool was a checklist and collected data were entered into SPSS Statistics 18 software and analyzed with descriptive statistics (frequency and percentage) and Chi-square test.

**Results:** This study was performed on 399 general population. The results showed that 188 people (49.3%) used the mass media, 180 people (47.2%) used social networks and the rest used other sources, including print sources, health center training and family or friends to increase their knowledge on COVID-19. Younger age individuals were more likely to choose social media, and middle-aged and older people were more likely to obtain information from the mass media ( $P < 0.001$ ). In the case of social media, Instagram was the most frequently used one to get information without any difference between age groups. 83.5% participants stated that they have high confidence in the information obtained from the above-mentioned news sources.

**Conclusion:** According to the importance of the both mass and social media in amplification of information, health systems and health authorities must pay attention during epidemics to establish a series of accessible information sources as reference specified for subgroups from one side and monitor information derived from other sources from the other side.

**Keywords:** COVID 19, Coronavirus, Media, knowledge

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## INTRODUCTION

In late December in Wuhan (Hubei Province, China), a new disease named Coronavirus disease 2019 (COVID-19) was reported for the first time<sup>1,2</sup>. This disease caused by the severe acute respiratory syndrome coronavirus 2 (SARS-CoV)<sup>2,3,4</sup>. Until May 22, 4 993 470 confirmed COVID-19 cases and 327 738 deaths due to the disease have been reported in 214 countries<sup>5</sup>. So far, various aspects of the disease and its impacts have been studied, including health effects (virology, epidemiology, etc., the effects of the disease on economic<sup>6</sup> and related cultural and social issues<sup>7</sup>. One of the most important aspects is how to publish and receive information about the disease. During the recent pandemic, people have been using information sources, especially social media, in an unprecedented way<sup>8</sup>. Dissemination of information greatly affects people's behavior. This can even affect government's interventions. Social media such as Twitter, Instagram, etc. contain a lot of information that can be both useful (transfer best information) and harmful (reinforce rumors and convey incorrect information)<sup>9</sup>. Today, vast amounts of information are available to the public, including information about their past, present, and future. An important challenge for

researchers is determining how individuals make decision to get information<sup>10</sup>. The next challenge is how to convey information of best practices to the people who need it<sup>11</sup>. To solve these two challenges, it is good idea to find out people's choices to acquire knowledge in epidemics. Due to limited studies on this field, the researchers of this study decided to investigate the options for individuals to obtain news and knowledge about COVID-19 pandemic and the adequacy and reliability of sources from their point of view.

## METHODS & MATERIALS

This study was conducted as a cross-sectional study in February 2020 in Yazd, located in central Iran. Because the study began at a time when there was no reported case of COVID-19 in Iran, and the first official announcement of the disease occurring in Iran during the study, the study period was divided into two periods: before start the epidemic (12-18<sup>th</sup> February) and after start the epidemic (20<sup>th</sup> February). A total of 399 people (219 during before period and 180 during after period) entered the study. These people were selected from five regions in the city, taking into account the different socio-economic conditions, through street-based convenience sampling method. The data collection

tool was a checklist consisting of two sections: 1. Demographic information section including age, gender, and education; 2. five questions on information and resources about COVID-19 including the type of information resources used to get the news (preferred resource); the preferred type of social media (preferred social media); the more appropriate type of news sources to get knowledge (more suitable resource); confidence in information from news sources (confidence in information) and sufficiency and appropriateness of information derived from news sources (adequacy of information). The collected data were entered into IBM SPSS Statistics23 software and analyzed with descriptive statistics (frequency and percentage) and Chi-square test. A significant level of 0.05 was considered for performing the statistical test.

**RESULTS**

This study was performed on 399 general population in Yazd. Of these, 236 (59.1%) were men with an average age of 39.9 years and 163 (40.9%) were women with an average age of 36.5 years. In terms of education, 113 people (28.4%) were under high school diploma, 145 had a high school diploma degree (36.3%) and the rest had a university degree .The results showed that 381 participants (95.5%) were aware of an emerging disease called COVID-19 .at the time of the study. The results showed that 188 people (49.3%) used the mass media, including radio and television, 180 people (47.2%) used social networks and the rest used other sources, including print sources, health center training and family and friends to increase their knowledge on COVID-19. There was no significant difference between men and women in the media of choice (P=0.26). In more details, Instagram was the most widely used media in both sexes. Younger age individuals were more likely to choose social media, and middle-aged and older people were more likely to obtain information from the mass media (P <0.001). In the case of social media,

Instagram was the most frequently used one to get information without any difference between age groups.

There was a significant relationship between using different media and education (P <0.001). People with lower education were more likely to use mass media and people with higher education were more likely to use social media. Instagram had the highest frequency of use among all social media at all levels of education.

More than half of those surveyed (52.5 percent) said that the mass media was the best source for information and knowledge about COVID-19. In this regard, there was no significant difference between men and women (P=0.49). People with lower education as well as people in older age groups considered mass media to be more appropriate, but individuals with higher education as well as individuals in younger age groups preferred social media (P <0.001) (Table 1).

Among the participants, the majority (83.5%) stated that they have high confidence in the information obtained from the above-mentioned news sources. There was no significant difference in subgroups.

In addition, 42.3% of people considered the information obtained from these sources to be largely sufficient. The answer to this question has no relationship with sex and age but in terms of education, people under the high school diploma considered the obtained information to be largely sufficient more than the others (P=0.008) (Table 2).

The response of individuals regarding the questions on selection of information sources and the degree of suitability and confidence in them, had been changed significantly before and after the arrival of coronavirus in the country. In details, after confirming the entrance of the disease, the participants mostly used the mass media to receive information and declared this media more appropriate. Also, the reliability of the sources mentioned in the research was significantly increased, but no significant difference was observed in the adequacy of information sources (Table 3).

Table 1: Type of resource used general population to increase their knowledge on COVID-19

Variable		Preferred resource			P	More suitable resource			P	Preferred social media				P
		Mass media (%)	Social media (%)	Others (%)		Mass media (%)	Social media (%)	Others (%)		What's app (%)	Telegram (%)	Instagram (%)	Twitter (%)	
Sex	Male	119 (52.7)	99 (43.8)	8 (3.5)	0.26	121 (53.5)	88 (38.9)	17 (7.5)	0.49	6 (6.1)	35 (35.4)	43 (43.4)	15 (15.2)	0.97
	Female	69 (44.5)	81 (52.3)	5 (3.2)		79 (51)	68 (43.9)	8 (5.1)		5 (6.2)	26 (32.1)	38 (46.9)	12 (14.8)	
Age group	15-35	46 (25.1)	129 (70.5)	8 (4.4)	<0.001	59 (32.2)	110 (60.1)	14 (7.7)	<0.001	7 (5.4)	40 (31.0)	62 (48.1)	20 (15.5)	0.48
	36-59	109 (67.3)	49 (30.2)	4 (2.5)		113 (69.8)	43 (26.5)	6 (3.7)		4 (7.8)	21 (41.2)	19 (37.3)	7 (13.7)	
	60≤	33 (91.7)	2 (5.6)	1 (2.8)		28 (77.8)	3 (8.3)	5 (13.9)						
Education	Under diploma	62 (64.6)	29 (30.2)	5 (5.2)	<0.001	63 (65.6)	26 (27.1)	7 (7.3)	<0.001	6 (20.7)	6 (20.7)	15 (51.7)	2 (6.9)	.009
	Diploma	75 (52.1)	65 (45.1)	4 (2.8)		84 (58.3)	53 (36.8)	7 (4.9)		2 (3.1)	21 (32.3)	32 (49.2)	10 (15.4)	
	Higher education	51 (36.2)	86 (61.0)	4 (2.8)		53 (37.6)	77 (54.6)	11 (7.8)		3 (3.5)	34 (39.5)	34 (39.5)	15 (17.4)	

Table2: Confidence of the information obtained from news sources

	Confidence in information			P value	High			P value
	High	So so	Low		High	So so	Low	
<b>Gender</b>								
Male	182(80.5%)	24(10.6%)	20 (8.8%)	0.157	87(38.5)	70 (31)	69(30.5)	0.141
Female	136(87.7%)	9(5.8%)	10(6.5%)		74(47.7)	36(23.2)	45(29)	
<b>Age group</b>								
15-35	145(79.2%)	19(10.4%)	19(10.4%)	0.154	68(37.2%)	55(30.1%)	60(32.8%)	0.08
36-59	140(86.4%)	11(6.8%)	11(6.8%)		71(43.8%)	46(28.4%)	45(27.8%)	
60≤	33(91.7%)	3(8.3%)	0		22(61.1%)	5(13.9%)	9(25%)	
<b>Education</b>								
Under diploma	83(86.5%)	5(5.2%)	8(8.3%)	0.095	53(55.2%)	14(14.6%)	29(30.2%)	0.008
Diploma	126(87.5%)	9(6.3%)	9(6.3%)		57(39.6%)	44(30.6%)	43(29.9%)	
Higher education	109(77.3%)	19(13.5%)	13(9.2%)		51(36.2%)	48(34%)	42(29.8%)	

Table 3: Preferred resource (Mass media/ Social media) before and after start COVID-19 epidemic in IR

Variable	Type media	Before	After	P-value
Preferred resource N (%)	Mass media	93 (44.9)	95 (54.6)	0.008
	Social media	102 (49.3)	78 (44.8)	
	Others	12 (5.8)	1 (0.06)	
More suitable resource N (%)	Mass media	99 (47.8)	101 (58)	0.029
	Social media	89 (43)	67 (38.5)	
	Others	19 (9.2)	6 (3.4)	
Confidence in all resources N (%)	High	158 (76.3)	160 (92)	<0.001
	So so	25 (12.1)	8 (4.6)	
	Low	24 (11.6)	6 (3.4)	
Suitability of all resources N (%)	High	86 (41.5)	75 (43.1)	0.484
	So so	54 (26.1)	52 (29.9)	
	Low	67 (32.4)	47 (27.0)	

**DISCUSSION**

In the present study, we investigated the information source for Covid-19 pandemic during 2019 – 2020. To the best of our knowledge, it is the first investigation in Iran during the outbreak of Covid-19. It was seen that both mass media and social media are playing major role for informing individuals about corona virus, while, age and education level are determinants for using each source.

Preferred resource was not statistically different between genders but mass media and social media use were higher in male and female group, respectively. Education showed to be a determinant for preferring a source in which the higher level of education, the greater tendency to social media and lower tendency to mass media. Interestingly, comparing preferred resource with more suitable resource results shows, although, some preferred social media but believed its information is not proper in order to raise knowledge. It shows while some receive information from different social media platforms but they don't trust it or know that as informative. This lower rate for more suitable resource could be due to publishing fake news in social media<sup>12</sup>. Fake news are able to misinform citizens using different paths, based on age, culture and other demographic factors<sup>13</sup>.

Our results suggested that with increasing in age, using social media reduces and mass media such as television use tends to increase. These findings are consistent with an investigation<sup>14</sup> conducted previously in which investigators found higher age groups are more dependent to television and newspapers than younger ones for the daily news. Similar to our research, individuals in 40s, 50s and 60s age groups engaged relatively very

high rate with mass media. Our data shows the source for COVID-19 information shifted from social media to mass media in the age group which included individuals in their 40s and elder. Although, the overall usage of television is decreasing from 2013 to 2017<sup>14</sup>. This trend insist that during outbreaks such as COVID-19 and the susceptibility of the elders who needs more attention<sup>15</sup>, traditional mass media are the best source for informing these groups. Besides, it should not be neglected that national televisions and local newspapers have to widen their work in social media.

Younger individuals tended to use social media as a source of information. It is believed that higher frequency of social media engagement could result to depression and anxiety<sup>16</sup> and searching health information is positively associated with making decision whether to visit a doctor or not<sup>17</sup>. This could be a reason for some harmful effect and rumors in an outbreak like COVID-19.

Among social media, individuals, in all subgroups, prefer to use Instagram which could be due to its feed. Instagram feed is majorly consisting of multimedia as images and short duration videos. Visual resources is known to be inexpensive and informative, consequently, health authorities can consider images as a better way to reach their target population<sup>18</sup>. So, WHO and US Center for Disease Control and Prevention uses this application to post visually-rich public health announcements<sup>19,20</sup>. Although this beneficial aspects of photo sharing of Instagram, its high usage during health crisis could be harmful, as, it was seen that during Ebola, seventy eight percent of images in Instagram related to this disease were seen to be jokes or not related<sup>21</sup>. It is believed that fake news and misinformation amplify faster than fact-based

news<sup>22</sup>. Thus, health authorities must monitor and supervise health related post in social media and it is proposed to health system and governors to widen their activity and conveying information through social media in order to reducing fake news.

While using Instagram is still more prevalent, but among higher educated, Twitter has become more popular and What's app is harder to trust. In a study was done by Oyeyemi et al<sup>23</sup> on Twitter search engine in 2014, it was seen more than half of tweets were misinforming during the Ebola outbreak. Moreover, these misinformed tweets were seen and retweeted more. In addition, in a previous study during the COVID-19 outbreak, Twitter data outbreak was higher than other platforms of social media<sup>24</sup>. So, the activity to informing individuals must be planned and based on the target group.

After identification of COVID-19 in Iran, mass media become the first preferred source, while it was in second place after social media before diagnosis of COVID-19. It can be concluded, before entering COVID-19 in Iran and official report for this disease, it was neglected by mass media of Iran and the results of the question on more suitable resource also confirm this situation.

After official announcement about COVID-19 in Iranian mass media, the pattern of population in trusting the information significantly changed from social media to mass media and official reports. But, the adequacy of information rose in both social and mass media. It could be due to both official reports and interview of specialist in mass media and the posts of the specialist in their social media account.

The present research was done during COVID-19 outbreak in Iran. As it was a street-based study, it faced two limitations. First, investigators were not being able to use random sampling and second, due to including different age and educational groups in both sexes, they decided to ask essential questions in their questionnaires, thus, they were not able to investigate different aspect of the topic.

## CONCLUSION

Eventually, according to the importance of the both mass and social media in amplification of information, health system and health authorities must pay attention during epidemic to first, establish a series of accessible information sources as references, second, monitoring information which are broadcasting by these sources and last but not least, prepare reliable information, precise and understandable for all platforms and target groups during diseases epidemic.

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