Public sphere attitudes toward rumor sources on COVID-19 epidemics: Evidence from community perceptions in Iran

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Research

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Abstract

Background

Advancements in technology had raised a variety of information circulation methods. In the case of the COVID-19 outbreak, misinformation seems to travel far faster than the outbreak itself. Misleading rumors are double-edged swords arousing fear and panic on the one side and a reduction in commitment to sanitary measures and induction of wrongdoing on the other side, leading to the disruption of the mitigation measures to tackle with the pandemic. This study aimed to evaluate the factors affecting individuals' attitudes toward rumor-producing media in Iran.

Methods

An online survey was conducted in Iran in March 2020 on the source of trusted information and misinformation along with individuals' perception of the cause of misinformation propagation during the COVID-19 pandemic.

Results

The results showed that social media were considered as the primary rumor source from the perspective of a majority of the participants (59.3%). Lack of a reliable and formal news source was also introduced as the most common cause of a rumor formation by the participants (63.6%). To identify which media is the main source of rumors, the male participants who had high levels of education and were employed by the government proposed foreign media ($P < 0.01$); however, the male participants aged 30–50 years with middle income level believed that social media ($P < 0.01$) were producing rumors. In this regard, the high educated participants ($P < 0.001$), government employees, and middle-income individuals ($P < 0.008$) believed that national media produced rumors. In addition, the high-educated individuals ($P = 0.002$) and government employees ($P = 0.009$) mentioned that national media produced rumors.

Conclusion

Although these findings were obtained during the first encounter with the Corona epidemic, the authorities immediately introduced the national media as a source of reliable news, which allowed the media and its journalists to reduce the gap between themselves and public sphere. It is suggested that social networks and foreign media be more accountable in epidemics.

Introduction

The pandemic of COVID-19 has now become one of the major concerns of all nations worldwide as it has affected many aspects of daily life (1, 2). A major part of mitigation strategies in this pandemic rely on community engagement. Solid information and credible social interaction are extremely important in this regard, while confusion, fear, panic, and rumors would have detrimental effects (2, 3). As there is no other choice to battle COVID-19 except for non-pharmaceutical interferences, including social distancing and quarantine, risk communication and information circulation is of utmost importance in the current pandemic management (4). While media could be an important channel to communicate with the community and increase their engagement in the mitigation processes, it could also be a source of interference with public health efforts if misinformation is publicized (5).

A study on the dimensions of SARS related rumoring throughout China during the epidemic 2003 showed a strong correlation between the scale of SARS infections and the level of rumor activities. In this regard, there are four distinct types of rumors including legendary rumors, aetiological narratives, protomemorates, and bogies (6). Another study in China during COVID 19 epidemic revealed that the state media, played an irresponsible role at the time of crisis (7). Cheung in his study in West Africa during the EBOLA outbreak found that rumors are aroused from lack of information and fear (8). Besides, community partnerships can prevent rumors, fear, and distrust, which sometimes result in hiding the ill or dying family members (9).

Swamping the media with trustworthy data and information as well as the purposeful monitoring of the media and prompt response to rumors and misinformation are considered as the most effective strategies during the pandemic to promote community engagement (10). Although the recent advancements in technology have increased consumer's access to data by using diverse resources and networks, misleading information and rumors soon began to spread around the globe, particularly by social media, during the current COVID-19 pandemic due to the novelty of the virus and the avidity of communities for information (6). Accordingly, the concurrence of the new virus and virility of news on this infection was a novel event, resulting in the much faster spread of misinformation and rumors than the outbreak itself (11, 12).

There are several studies examining the production of rumor mathematically (13–15). However, in COVID-19 epidemics, we have faced a new form of misinformation and rumors, which need to be more concerned socially. It is thus recommended to investigated how the community obtains information or misinformation, which has a great impact on risk perception and behavior of the community, during this pandemic. The present

survey aimed to evaluate individuals' perception of rumor on Covid-19 pandemic, detect the resources used by individuals to obtain data, and reveal the association between social factors and individuals' attitudes toward the source of rumor.

Materials And Methods

In this cross-sectional research, a researcher-made questionnaire was used to investigate the sources of information and misleading data and the level of perceived misinformation. The survey was conducted online during 19–25 March, 2020 in Tehran, Fars, Gilan, East Azarbaijan, Sistan and Baluchestan, and Isfahan provinces, Iran. The participants were selected randomly from those who had access to the internet in these provinces. The questionnaire link was sent to the participants, and they decided to participate anonymously. The researchers had no access to the participants' personal information. All the participants were informed that their participation was voluntary, and they were asked to confirm their consent for participation in the study before completing the online questionnaires. As part of the informed consent process, the participants were ensured of the anonymity and confidentially of the research. The participants' demographic information, including age, gender, level of education, marital status, and number of children, employment, socioeconomic status, and the effect of COVID-19 on their income was also collected.

Statistical analysis

The data were analyzed using SPSS (the Statistical Package for the Social Sciences) software version 18 (SPSS Inc., Chicago, IL, USA). Mean, standard deviation, frequency, and percentage were used to describe data, and Chi-square test was also run to compare the sources of information and misinformation about Covid-19 with regards to the participants' age, gender, education, employment, and socioeconomic status. The significance level was set to be $P < 0.05$.

Results

There were about 5000 views; however, 2550 individuals completed the questionnaire. The mean age of the participants was 36.38 ± 10.64. The study population consisted of 1246 males (48.9%) and 1304 females (51.1%). Moreover, 711 persons (27.9%) were < 30 years old, 1532 persons (60.1%) were between 30 to 50 years old, and 307 persons (12%) were > 50 years old.

According to the participants, social media (including WhatsApp, Telegram, Instagram, etc.) and the national broadcasting media (namely TV (Television) and radio) were the primary sources of Covid-19 news. The newspaper was the least reported media (1.3%) to obtain news.

Social media was also considered as the primary source of misleading information for a majority of the participants (59.3%); however, phone calls and text messages were regarded as the least rumor-containing media (4.5%) (Table 1).

Table 1
Number (%) of each media usage with regard to Covid-19 information and misinformation

		National Media	Foreign Media	Social Media	Web	Newspaper	Phone call and text messages
It is your primary source of information regarding Covid-19:	No	1103 (43.4)	2139 (83.9)	1051 (41.2)	1887 (74.0)	2518 (98.7)	2403 (94.2)
	Yes	1447 (56.7)	411 (16.1)	1499 (58.8)	663 (26.0)	32 (1.3)	147 (5.8)
	Total	2550 (100)	2550 (100)	2550 (100)	2550 (100)	2550 (100)	2550 (100)
Most of the misinformation and rumors are related to this media:	No	1632 (64.0)	1496 (58.7)	1037 (40.7)	2167 (85.0)	2427 (95.2)	2435 (95.5)
	Yes	918 (36.0)	1054 (41.3)	1513 (59.3)	383 (15.0)	123 (4.8)	115 (4.5)

The participants' perceptions of the primary cause of rumors are shown in Table 2. According to the findings, the lack of a reliable news source was considered as the most common cause of rumors (63.6%).

Table 2
The participants' perception of the primary cause of rumors (Number(%))

		Lack of social media monitoring	Lack of reliable news source	Inaccuracy in choosing the news source	Uncertainty caused by the novelty of the disease	Other
It is the primary cause of the rumors:	No	1190 (46.7)	929 (36.4)	262 (49.5)	1348 (52.9)	2193 (86.0)
	Yes	1360 (53.3)	1621 (63.6)	1288 (50.5)	1202 (47.1)	357 (14.0)

Regarding the mechanism to encounter rumors, most of the participants (24.1%) mentioned that few measures were adopted to tackle with the rumors in the case of Covid-19. Concerning the misleading information on Covid-19, most of the participants (31.3%) mentioned that they had often been warned about the uncertainty of data on this novel disease. Most of the participants (34.8%) also reported the moderate involvement of active monitoring and accountable organizations in terms of rumors. Furthermore, most of the participants (33.1%) reported that they had often heard news about Covid-19, which were later refuted (Table 3).

Table 3
The participants' perception of the misinformation regarding the Covid-19 news (Number (%))

	Never	Rarely	Sometimes	Often	Always
Are there any mechanisms to take action against rumors?	452 (17.7)	614 (24.1)	902 (3.4)	386 (15.1)	196 (7.7)
Have you been informed of uncertainty of the information about Covid-19?	141 (5.5)	216 (8.5)	799 (31.3)	938 (36.8)	456 (17.9)
Are there any active monitoring and responsive organizations to rumors?	446 (17.5)	584 (22.9)	888 (34.8)	429 (16.8)	203 (8.0)
Have your heard of any news about Covid-19 which have been later refuted?	126 (4.9)	320 (12.5)	639 (25.1)	844 (33.1)	621 (24.4)

The males reported the use of foreign media and websites as their primary news source more significantly than the females ($P < 0.05$). However, the participants aged above 50 years were asserted the use of the national and foreign media more frequently than the other age groups ($P < 0.001$). With regards to the effect of level of education on the source of Covid-19 data, the participants with high levels of education seemed to use foreign media, social media, and web more frequently than the other ones ($P < 0.003$). The application of national media as the primary source of news was significantly more popular among individuals with a bachelor's degree ($P < 0.001$). Type of employment had a significant effect on the primary source of Covid-19 data for the participants. National media was significantly favored among the retired ($P < 0.001$), foreign media was reported by the freelancers ($P < 0.001$), social media were more considered by the government employees ($P < 0.001$), and web was the first common source of news for the unemployed participants ($P = 0.007$) (Table 4).

Table 4
Number (%) of each media used for Covid-19 news based on participants' demographic data

		National Media			Foreign Media			Social Media			Web		
		N	Y	P-value	N	Y	P-value	N	Y	P-value	N	Y	P-value
Sex	M	550 (44.1)	696 (55.9)	.377	1024 (82.8)	222 (17.8)	.023	495 (39.7)	751 (60.3)	.135	860 (69.0)	386 (31.0)	.000
	F	553 (42.4)	751 (57.6)		1115 (85.5)	189 (14.5)		556 (42.6)	748 (57.4)		1027 (78.8)	277 (21.2)	
Age	< 30	348 (48.9)	363 (51.1)	.000	618 (86.9)	93 (13.1)	.000	295 (41.5)	416 (58.8)	.980	517 (72.7)	194 (27.3)	.570
	30–50	653 (42.6)	879 (57.4)		1301 (84.9)	231 (15.1)		629 (41.1)	903 (58.9)		1145 (74.7)	387 (25.3)	
	> 50	102 (33.2)	205 (66.8)		220 (71.7)	87 (28.3)		127 (41.4)	180 (58.6)		225 (73.3)	82 (26.7)	
Education	Under diploma	43 (28.9)	106 (71.1)	.000	133 (89.3)	16 (10.7)	.000	91 (61.1)	58 (38.9)	.000	122 (81.9)	27 (18.1)	.003
	Diploma	121 (38.9)	190 (61.1)		278 (89.4)	33 (10.6)		165 (53.1)	146 (46.9)		236 (75.9)	75 (24.1)	
	Associate's degree	72 (36.9)	123 (63.1)		160 (82.1)	35 (17.9)		88 (45.1)	107 (54.9)		157 (80.5)	38 (19.5)	
	Bachelor's degree	342 (40.2)	508 (59.8)		732 (86.1)	118 (13.9)		351 (41.3)	499 (58.7)		635 (74.7)	215 (25.3)	
	High educated	523 (50.2)	519 (49.8)		834 (80.0)	208 (20.0)		356 (34.2)	686 (65.8)		735 (70.5)	307 (29.5)	
Employment	Governmental employment	310 (40.8)	450 (59.2)	.000	651 (85.7)	109 (14.3)	.000	278 (36.6)	482 (63.4)	.000	571 (75.1)	189 (24.9)	.007
	Non-governmental employment	165 (45.2)	200 (54.8)		291 (79.7)	74 (20.3)		142 (38.9)	223 (61.1)		253 (69.3)	112 (30.7)	
	Freelancer	164 (51.4)	155 (48.6)		247 (77.4)	72 (22.6)		131 (41.1)	188 (58.9)		231 (72.4)	88 (27.6)	
	Student	187 (49.0)	195 (51.0)		339 (88.7)	43 (11.3)		148 (38.7)	234 (61.3)		268 (70.2)	114 (29.8)	
	Housekeeper	104 (33.9)	203 (66.1)		275 (89.6)	32 (10.4)		161 (52.4)	146 (47.6)		252 (82.1)	55 (17.9)	
	Retired	33 (27.5)	87 (72.5)		93 (77.5)	27 (22.5)		60 (50)	60 (50)		92 (76.7)	28 (23.3)	
	Unemployed	90 (51.4)	85 (48.6)		143 (81.7)	32 (18.3)		69 (39.4)	106 (60.6)		132 (75.4)	43 (24.6)	
	Daily-paid	41 (39.8)	62 (60.2)		84 (81.6)	19 (18..4)		53 (51.5)	50 (48.5)		75 (72.8)	28 (27.2)	
Socioeconomic status	High	270 (45.6)	322 (54.4)	.134	492 (83.1)	100 (16.9)	.512	246 (41.6)	346 (58.4)	.257	431 (72.8)	161 (27.2)	.748
	Middle	466 (41.1)	667 (58.9)		944 (83.3)	189 (16.7)		447 (39.5)	686 (60.5)		841 (74.2)	292 (25.8)	
	Low	364 (44.6)	452 (55.4)		694 (85.0)	122 (15.0)		352 (43.1)	464 (56.9)		608 (74.5)	208 (25.5)	

Regarding the type of media being used as the main source of rumors, the males mostly considered foreign media ($P < 0.05$), social media ($P < 0.01$), and web ($P = .062$) as the sources of rumors. Individuals with low levels of education less reported the national media ($P < 0.001$) as a source of rumors, and individuals with elementary education (45%) mostly reported foreign media as a source of rumors. In contrast, individuals with high levels of education less considered this media as a source of rumors. With aging, individuals considered social media ($P < 0.005$) and the web ($P < 0.01$) as the most and least common sources of rumors, respectively. Moreover, the freelancers and the unemployed mostly regarded the national media as a source of rumors, and the housekeepers (27.0) and the retired (25.8) less considered this media as a source of rumors ($P < 0.001$). However, a majority of the retired (50.8) and housekeepers (45.0) introduced foreign media as a source of rumors ($P < 0.01$). Individuals with middle

income assumed the national media as a source of rumors ($P < 0.005$). Generally, the males, high-educated participants, and government employees were skeptical to foreign media ($P < 0.01$); and the males ages 30–50 years with middle income levels believed that social media ($P < 0.01$) were the source of rumors; the high-educated individuals ($P < 0.001$), government employees, and the ones with middle income levels ($P < 0.008$) believed that national media produced rumors (Table 5).

Table 5
Number (%) of each media as source of rumors based on participants' demographic information

		National Media			Foreign Media			Social Media			Web		
		N	Y	P-value	N	Y	P-value	N	Y	P-value	N	Y	P-value
Sex	M	783 (62.8)	463 (37.2)	.233	700 (56.2)	546 (43.8)	.013	474 (38.0)	772 (62.0)	.008	1042 (83.6)	204 (16.4)	.062
	F	849 (65.1)	455 (34.9)		796 (61.0)	508 (39.0)		563 (43.2)	741 (56.8)		1125 (86.3)	179 (13.7)	
Age	< 30	451 (63.4)	260 (36.6)	.554	429 (60.3)	282 (39.7)	.419	328 (46.1)	383 (53.9)	.001	578 (81.3)	133 (18.7)	.005
	30–50	976 (63.7)	556 (36.3)		895 (58.4)	637 (41.6)		601 (39.2)	931 (60.8)		1322 (86.3)	210 (13.7)	
	> 50	205 (66.8)	102 (33.2)		172 (56.0)	135 (44.0)		108 (35.2)	199 (64.8)		267 (87.0)	40 (13.0)	
Education	Under Diploma	124 (83.2)	25 (16.8)	.000	76 (51.0)	73 (49.0)	.002	57 (38.3)	92 (61.7)	.667	119 (79.9)	30 (20.1)	.186
	Diploma	217 (69.8)	94 (30.2)		187 (60.1)	124 (39.9)		126 (40.5)	185 (59.5)		272 (87.5)	39 (12.5)	
	Associate's degree	134 (68.7)	61 (31.3)		106 (54.4)	89 (45.6)		72 (36.9)	123 (63.1)		160 (82.1)	35 (17.9)	
	Bachelor's degree	547 (64.4)	303 (35.6)		470 (55.3)	380 (44.7)		359 (42.2)	491 (57.8)		722 (84.9)	128 (15.1)	
	High educated	610 (58.5)	432 (41.5)		656 (63.0)	386 (37.0)		422 (40.5)	620 (59.5)		892 (85.6)	150 (14.4)	
Employment	Governmental employment	509 (67.0)	251 (33.0)	.000	420 (55.3)	340 (44.7)	.009	289 (38.0)	471 (62.0)	.246	657 (86.4)	103 (13.6)	.040
	Non-governmental employment	211 (57.8)	154 (42.2)		233 (63.8)	132 (36.2)		153 (41.9)	212 (58.1)		309 (84.7)	56 (15.3)	
	Freelancer	170 (53.3)	149 (46.7)		209 (65.5)	110 (34.5)		129 (40.4)	190 (59.6)		280 (87.8)	39 (12.2)	
	Student	249 (65.2)	133 (34.8)		229 (59.9)	153 (40.1)		155 (40.6)	227 (59.4)		301 (78.8)	81 (21.2)	
	Housekeeper	224 (73.0)	83 (27.0)		169 (55.0)	138 (45.0)		128 (41.7)	179 (58.3)		263 (85.7)	44 (14.3)	
	Retired	89 (74.2)	31 (25.8)		59 (49.2)	61 (50.8)		41 (34.2)	79 (65.8)		106 (88.3)	14 (11.7)	
	Unemployed	95 (54.2)	80 (45.7)		103 (58.6)	72 (44.1)		85 (48.5)	90 (51.5)		148 (84.5)	27 (15.4)	
	Daily-paid	71 (68.9)	32 (31.1)		63 (61.2)	40 (38.8)		47 (45.6)	56 (54.4)		87 (84.5)	16 (15.5)	
Socioeconomic status	High	340 (57.4)	252 (42.6)	.001	368 (62.2)	224 (37.8)	.071	252 (42.6)	340 (57.4)	.009	505 (85.3)	87 (14.7)	.729

Middle	757 (66.8)	376 (33.2)	640 (56.5)	493 (43.5)	423 (37.3)	710 (62.7)	968 (85.4)	165 (14.6)
Low	528 (64.7)	288 (35.3)	483 (59.2)	333 (40.8)	357 (43.8)	459 (56.3)	687 (84.2)	129 (15.8)

Discussion

This study aimed to explain the attitudes of Iranian people toward rumors during COVID 19 outbreak. Our findings revealed that social media, including WhatsApp, Telegram, Instagram, etc. as well as the national media such as IRI (Islamic Republic of Iran) TV and radio were the primary sources of the Covid-19 news for the participants. However, in contrast with the findings of other studies, Twitter played no role in this outbreaks in Iran (10).

The participants less commonly used print media (1.3%) to obtain news about the COVID-19. This paradigm shift in consumers' behaviors lays in the innate features of these media platforms. In other words, the acquisition of news via the social media platforms is more time-saving and less-costly, compared to the conventional news media such as newspapers or television. In addition, chatting and sharing the news with others is much easier in social media (16); however, social media were also considered as the primary source of misleading information for most of the participants (59.3%).

In general, the inferential statistics regarding the relationship between social factors and the attitudes toward the source of rumors in the media, the social networks, national media and satellite are accused of forming rumors. To put it in similar words, the trust in news media and social media has dwindled (17). Despite the studies in China during this epidemics of SARS (7), Iran's national media have made efforts to present the clear news responsively. However, community partnerships can prevent rumors, fear, and distrust (9), and this media should be closer to the people and public sphere.

Socio/demographically, men are more likely than women to consider foreign media (P = 01) and social media (P = 00.8) as the sources of rumors. Regarding the rumors on the public health intervention, Kaler (2009) appeared that there's such skepticism regularly takes the shape of rumors around the thought processes or the comes about of the public health intervention. Theoretically, the widespread rumor of sterility is a way of broadly articulating the shared understandings about reproductive bodies, collective survival, and global asymmetries of power (18). This bio-power demonstrates the gender-based perceptions in this recent epidemic. The male participants in this study were doubtful of foreign spaces (foreign media and social media), which produce concepts to dominate social discourse of the epidemic.

Considering the participants' age, those in age range of 30–50 years assumed rumors in social media (P = 0.001) and the web (P = 0.005). It seems that the age group above 50 years is less concerned with social networks and the web. Below thirty years of age, the individuals are not skeptical of cyberspace because of their more existential connections with cyberspace. The individuals in the age group of 30 to 50 years, on the one hand, more frequently use social media and the web, and on the other hand, because they are not the generation of such a space, they hold a skeptical view toward these spaces and consider social media and the web as the rumor sources. The individuals aged below 30 years have a close relationship with these spaces and does not feel alienated in this context; therefore, they hold a positive attitude toward such spaces.

Increasing literacy levels has a significant relationship with attitudes toward rumors in national (P < 0.001) and foreign (P = 0.002) media. Afassinou (2014) showed that improving the level of education among the population catalyzes the rumor spreading termination process. In social networks, when people with a higher degree of education heard a rumor which is in serious conflict with his/her belief, he/she is easier to counterattack the rumor, and even do the best to prevent the rumor propagation (19). Our study showed that education has no effect on the participants' attitude toward the rumors from social networks and the web; however, we also found out that the educated individuals are in a more problematic position than they are. They believe that both media outlets are spreading rumors. Due to the importance of the position of the educated in such epidemics, it is necessary for the government to establish closer contact with such individuals via the national media and spare its efforts for trust building. Regarding the employment, the government employees believed that national media (P < 0.001) and foreign media (P = 0.009) produce rumor in epidemics, similar to the attitude held by the educated. Therefore, the authorities need to interact more with their employees and attract their trust in such situations. Considering the income status, the middle-income group with an income level equal to their expenses believed that national media (P = 0.009) and social media (P = 0.009) produce rumors. It seems that the critical view among middle class is related to this perception. Further studies is recommended.

Rumors is critical in controlling the epidemics (20). Journalists have at times both built and undermined open believe, serving as both a valuable source of logical realities and as a dangerous source of rumor that tends to intensify freeze (21). Nowadays, the modern media are a major source for news and data, with one third of the world population being engaged in social media and two thirds entangled with the Internet (22). All these media such as social media (23), print media (24) Twitter (25) can produce rumors.

On the other hand, social media also consist of ubiquitous health misinformation, which is described as the information not obtained from the greatest accessible evidence by medical experts at the time (10). Social media have become an effective and innovative channel for rumor propagation, and they influence not only people's lifestyles but also their thoughts and values (26). Nevertheless, according to a study by Singh et al. (10), while conversations about health issues, coronavirus, or the origin of the pandemic tend to increase during the Covid-19 crisis, misinformation and myths are also argued at a lower volume. However, misinformation and rumors play a pivotal role in pandemics. The authorities should identify and amplify the help-seeking information, donations, and notifications required for the public and detect and counter the blames or rumors to improve crisis information publishing strategies in the future (27).

This study showed the necessity of making more social trust by authorities in epidemics. It should be noted that, based on the experiences during this epidemic in Iran, serious dilemma was formed between social network-satellite and national media. In the first phase of the Coronavirus epidemic, the foreign satellites were working hard to provide the news and analysis on the origins of the epidemic in Iran. More specifically, this was because of the coincidence of the outbreak and the national celebrations and elections in Iran. The news was soon republished on social media and virtual networks. The main purpose was to accuse the government to a kind of political weakness and incompetence. This created a kind of skepticism in the public sphere and made the public have doubts in the national media. However, the politicians could solve part of this issue with solidarity and a focus on the national media. From the outset, the national media has been referred by the government as a source of news about the spread of COVID 19. A spokesman for the Ministry of Health announced the latest new cases, recovered cases, and deaths from COVID-19 at News 14:00 daily as such the national media gradually became the source of news about Corona's statistics. However, many journalists in this media spared their efforts to verify the rumors of satellite and social media and make the news clear. The study was conducted at the beginning of the outbreak, exactly when a duality was formed between national media on the one hand and satellite and social networks on the other.

Conclusion

Due to the negative effects of rumors on the mental health of citizens as well as the crisis management, news management at the time of the outbreak is one of the most important issues for social policymakers. Failure to tackle with rumors could lead to the failure of epidemic policies. Much of the news management measures have been performed via national media even though there are also powerful competitors such as satellites and social media. Producing the right news for all age and gender groups with different educational backgrounds helps policymakers to overcome rumors. What seems to be of paramount importance is to build trust between the government and the public in the epidemics. This issue is suggested to be examined in future studies. The national media, as the main tools of governance in large-scale epidemics, require more trust and greater closeness to the public and the public sphere.

Abbreviations

IRI: Islamic Republic of Iran; SPSS:the Statistical Package for the Social Sciences; TV:Television.

Declarations

Ethics approval and consent to participate

This study was approved by the ethics committee of Shiraz University of Medical Sciences (cod: IR.SUMS.REC.1399.093)

Consent to publish

Not applicable

Availability of data and materials

The datasets used and/or analyzed during the current study available from the corresponding author on reasonable request.

Competing interests

The authors declare that they have no competing interests

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Authors' contributions

MB, LZ and ST contributed in designed the study, analyzed the data, and interpreted the results, wrote the manuscript drafting. **AKS, SSh** contributed in interpretation the results wrote the manuscript drafting. **KBL** contributed in interpretation the results and designed the study. The final version was confirmed by all authors for submission

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