Original article

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Pattern of using social networks to obtain information related to COVID-19 in Iranian students

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Abstract

Introduction: We aimed to evaluate use of social media during the coronavirus pandemic as a source of information about COVID-19 by students.
Material and methods: This was a web-based study, in which the frequency and type of virtual social media used by students as a source of information about COVID-19 were evaluated by the available sampling method. The statistical population of the study consisted of 500 students of medical universities in Iran. In the first step, administrators of student groups across the country were identified and contacted and asked to assist the research team by placing a link to complete the questionnaire, after which students voluntarily completed the online questionnaire in a self-reporting manner.
Results: The mean age of participants was 31.29 ±10.8 years. The selection percentages based on the number of selections were: WhatsApp (35.2), Instagram (32.7), Telegram (21.2), Facebook (8.3) and other networks (2.6). Regarding the relationship between the educational level ($p < 0.001$) and the field of study ($p < 0.01$), a statistically significant difference was found for the question of which media information is more acceptable in relation to obtaining information related to COVID-19.
Conclusions: It was found that social media will enable these media to act as a powerful tool to change the behavior of people and promote the well-being of individuals and public health. Social media is very important in combating this contagious disease, not only to obtain information and update on it, but also to understand how it spreads, how people function and how to respond to it.

Key words: social networks, COVID-19, students, Iran.

Introduction

The term 'social network' was first used in 1945 by G.E. Barnes. He used the term to describe the study of rural social ties in Norway (Taghvaei Yazdi i Chitsaz 2016). Social networks can affect people's health in different ways. However, this effect can be an operating paradox, as sometimes obtaining health information from social networks helps in treatment of the disease, and sometimes recommendations without research support for diseases in these networks can be harmful. Many healthcare providers around the world work on social networks such as Skype, WhatsApp, Twitter, Facebook, YouTube and personal blogs (Nikbakht-Nasrabadi *et al*. 2019). Today, there is no doubt that the use of social media in academic communication has improved the level of scientific transparency in universities and accelerates the exchange of information and increases the level of efficiency and trust among professionals (Samiei 2015). Global access to the Internet was well established during the SARS epidemic, but access to potential medical users was largely dependent on contact by email and personal communication. Using free open access medical education, good examples of the effectiveness of open access to information have been provided (Chan *et al*. 2020). With the outbreak of COVID-19, national, state, and government preventive measures affected the daily lives of millions of people. People around the world are largely using "social distancing" to prevent the disease. This has led to social interactions

moving online, and with the continuation of the COVID-19 pandemic, more people seem to be turning to social media (Chen 2020). In the event of a natural disaster, people are more likely to share posts from users who are eyewitnesses to the event and are close to the event. In addition, dependencies and perceptions of people can also affect the information sharing behavior of users (Lifang *et al*. 2020). Virtual social media provide the best tool, space, opportunity and use of all their facilities to increase self-care. Professors of medical sciences also have various socio-cultural responsibilities, and this means that the professor should also be socially responsive to the health needs of the people. Advances in technology have made it easy for faculty members to connect with the community around them (far or near), and the professor can go beyond the classroom or the bed and communicate with people (Mahasti Jouybari 2014). In China, it was important to use social media wisely during widespread community quarantine because social media provides an opportunity to communicate the reasons for quarantine, and also provide reassurance and practical advice to prevent rumors and panic. Digital technologies can overcome remote social barriers during mass quarantine and provide resources for mental health support and solidarity with those in a state of disarray (Depoux *et al.* 2020).

The role of internet monitoring tools in the early forecasting of epidemic diseases, including influenza, H1N1 dengue fever, Zika, measles, MERS and COVID-19 (Zareie *et al*. 2021), has already been reported. The availability of basic information about infectious diseases through Internet search engines and social media will be useful for decisions related to disease control and prevention (Cuilian *et al*. 2020). Officials in Vietnam stated that despite their proximity to China, the proper use of social media, scanning and collecting official media news related to COVID-19 had helped control the disease between early January and April 4th (Viet-Phuong *et al.* 2020). In more than half a percent of cases, those were using social networks to get new information in field of health, and based on the types of applications which has used in social networks, by some terms of access to the most users of health professionals were health care providers or health care recipients, and in addition have educational and research applications and information flow is another application that includes the steps of collection, storage, processing, retrieval, dissemination and application (Hadiseh *et al.* 2016). The results of the study of Fisher and Clayton (2012) indicated increasing acceptance of patients through social media in the health care system. In addition to the many benefits, the media can also have negative effects in some cases. Gao *et al*. (2020) found that the high prevalence of mental health problems was positively associated with the use of virtual social media, often during the outbreak of COVID-19. Dastjerdi *et al*. (2016) detected a significant inverse relationship between use of the Facebook social network and social health of students. The presence of youth, especially students, in social networks in Iran varies among different cities: 52% (Dastani *et al.* 2016), 74.5% (Delshadi *et al.* 2016), 80.2% (Khalilai 2015).

The results of a study showed that 99.4% of students were members of social networks. The median daily use of these networks was 3 hours (Mousavi *et al.* 2019), and the purposes of their use were reported to vary from entertainment to scientific research (Khalilai 2015). The purpose of this study was to evaluate use of social media during the coronavirus pandemic as a source of information about COVID-19 by students.

Material and methods

This was a research and descriptive study and web-based study, in which the frequency and type of virtual social media used by students as a source of information about COVID-19 were examined. The statistical population of the study consisted of 500 students of medical and non-medical universities in Iran that were connected with student virtual networks of universities. The sampling method was available. In the first step, the administrators of student groups across the country were identified and contacted and asked to assist the research team by placing a link to complete the questionnaire, after which students voluntarily completed the online questionnaire in a self-reporting manner.

The research questionnaire was prepared to achieve the objectives of the project in two parts. The first part contained the demographic information of the participants in the research and the second part contained specialized information that during the question of using virtual media, the type of selected media, used hours and specialized use in relation to COVID-19 was obtained. The content validity method was used to determine the validity.

In this way, an information form was prepared and then provided to 11 faculty members of Ahvaz Jundishapur University of Medical Sciences, and using their opinions, the questionnaire

Table 1. Frequency distribution of research demographic variables

Demographic variables	Absolute and relative frequency distribution
Age (years)	31.26 (SD = 10.78)
Sex	
Female	358 (71.6%)
Male	142 (28.4%)
Educational level	
BA	198 (39.6%)
MSc	111 (22.2%)
MD/PhD	191 (38.2%)
Department of Education	
Medical	76 (15.2%)
Paramedical	181 (36.2%)
Technical and Engineering Humanities	116 (23.2%)
Art	105 (21.0%)

was modified and completed. Reliability was determined after completion of the questionnaire by 20 students using Cronbach's α coefficient.

Results

The results of the study on 500 students who completed the information form showed that the mean age of participants was 31.29 ±10.8. The minimum age was 19 and the maximum was 61 years, in the case of a PhD student. The majority of them were women, most of them studied in medicine and paramedical fields (Table 1), and 496 of them (99.2%) used social media. The mean number of hours of internet use was 3.79 ±2.43 per day.

The respondents were asked to select a list of 10 most used social networks. It should be noted that they could choose more than one. Finally, to calculate the most used network, the selection percentage based on the number of selections and not the number of samples, respectively, WhatsApp (35.2), Instagram (32.7), Telegram (21.2), Facebook (8.3) and other networks (2.6) were announced. The use of these networks was mentioned for the participants according to Table 2, from entertainment and communication with friends and family to commercial use and obtaining different scientific and research information.

96.8% (485 people) used social media to obtain information about COVID-19. For 35.8% (179 people) social media were the only source of information about COVID-19. Do they know their sources of information on social networks that receive information related to methods of diagnosis, treatment, prevention, mortality and complications of coronavirus infection? The response of 138 people (27.6%) was negative and they had no knowledge of the sender of the messages. They were asked whether they used the recommendations obtained from these networks, especially in relation to prevention, and 63% answered in the affirmative.

Table 2. Type of use of virtual media by students

Type of use	Absolute and relative frequency of use type
Scientific purposes	30 (6%)
Research purposes	8 (1.6%)
Communicate with family and relatives	42 (8.4%)
Social interactions and exchanges	44 (8.8%)
Fun and entertainment	59 (11.8%)
Use as a profession	8 (1.6%)
A combination of these reasons	309 (61.8%)

Type of use of virtual media by students regarding COVID-19 was another question for which the answers obtained showed that the use of these media from scientific exchanges and obtaining advice, providing consulting services to buying and selling equipment related to coronavirus prevention (mask, gloves and so on) is different (Table 3).

We also questioned the comparison of trust in information obtained from virtual social media with public media, and the findings showed that 35.6% had more trust in public media such as radio and television, and 29.8% had more trust in social media. The rest of the participants considered both types of information acceptable.

The χ^2 test showed a statistically significant relationship between the education level ($p < 0.001$) and the hours of social media use, and the mean use of students studying for a doctoral degree was 4.17 hours per day, but the relationship of this with the field of study is not significant. Also, a statistically significant positive correlation was observed between age and hours of social media use.

According to the chi-square test, the relationship between the field of study and the use of social media to obtain information about COVID-19 was significant ($p < 0.001$) and

Table 3. Type of use of virtual media by students regarding COVID-19

Type of use	Absolute and relative frequency of use type
Receiving the latest scientific information and mortality rates	94 (18.8%)
Receiving or providing consultancy services	52 (10.4%)
Purchase and sale of equipment related to the prevention of coronavirus	7 (1.4%)
Scientific reasons plus consultations and exchange of information	261 (52.2%)
Consulting and information exchange	72 (14.6%)
Not using virtual media in connection with the coronavirus	14 (2.85%)

the Tukey post hoc test showed this rate to be higher among medical students.

Regarding the relationship between the educational level ($p < 0.001$) and the field of study ($p < 0.01$), a statistically significant difference was found for the question of which media information (virtual media or public media such as television) is more acceptable in relation to obtaining information related to COVID-19. At higher levels, information from both media groups was declared acceptable, while at lower levels, information obtained from social media had gained the trust of more participants.

Regarding the impact of social media content on the fear and panic caused by the coronavirus pandemic, 59.6% of students stated that it would increase their fear and panic of the disease, 25% considered that it would reduce their panic and 15.4% considered it ineffective.

The evaluation of the association between gender, level of education, type of department of education and reason for search showed that there was a statistically significant association with gender (0.01), department of education (0.001) and reason for search (Table 4). Also, there was a statistically significant association between level of education, type of department of education and social media (Table 5).

Discussion

This study was designed and performed with the aim of evaluating how students use virtual media in connection with COVID-19. The obtained data showed that nearly 99.2% of students use virtual social media, while previous research revealed that rates had increased from 52% (Dastani *et al.* 2016) in 2016, 74.5% (Das-

Table 4. Association between demographic variables and type of reason of search

Variables	Facebook	Instagram	WhatsApp	Telegram	Twitter	Skip	Multimedia	*p*-value
Gender								
Female	5	40	50	32	26	10	195	< 0.01
Male	0	18	33	15	9	5	62	
Level of education								
BSc	3	25	50	20	16	5	100	< 0.04
MSc	1	11	33	6	7	4	57	
PhD/MD	1	22	29	21	12	6	100	
Department of education								
Medicine	0	8	11	2	5	2	48	< 0.001
Para medicine	1	22	14	14	14	8	108	
Engineer	1	9	29	12	7	4	53	
Humanities	1	18	17	13	5	1	29	
Languages	0	0	5	4	2	0	10	
Art	2	1	7	2	2	0	8	

Table 5. Association between demographic variables and type of social media

Variables	Scientific purposes	Research purposes	Communicate with family and relatives	Social interactions and exchanges	Fun and entertainment	Use as a profession	Combination of these reasons	*p*-value
Gender								
Female	19	6	28	33	42	6	206	0.2
Male	11	2	14	11	17	2	103	
Level of education								
BSc	15	2	15	21	23	5	129	< 0.0001
MSc	8	5	13	5	12	2	67	
PhD/MD	7	1	14	18	24	1	113	
Department of education								
Medicine	1	0	6	4	12	0	56	< 0.0001
Para medicine	10	4	12	16	18	0	129	
Technical and Engineer	9	0	9	15	9	2	70	
Humanities	8	1	7	6	17	5	29	
Languages	1	0	6	2	1	0	11	
Art	1	3	1	1	2	1	14	

tani *et al.* 2016), 80.2% (Khalilai 2015) up to 99.4% in 2019 (Mousavi *et al.* 2019) and 99.2% in this study, which indicates the growing use of virtual networks among students.

The reasons and types of social media used in different studies are mentioned differently. In our study, the reasons for using social media mentioned by students varied from entertainment and communication with friends and family to commercial use and obtaining different scientific and research information. The three most used social media were WhatsApp (35.2), Instagram (32.7) and Telegram (21.2). Aljuboori *et al*. (2020) reported the growth of the use of virtual media among Iraqi students for educational purposes, noting that there is a lot of interest and increasing use of these social media for academic purposes. Many of them did not want to use social media for commercial purposes or to obtain political information, and the students' use of social media in connection with academic studies was very encouraging and suggested that the focus should be on building these resources as a credible educational platform through the advice of stakeholders in the academic field. They considered Facebook to be the most popular medium for social communication, and described the use of YouTube in the academic field as broad (Aljuboori *et al.* 2020).

Meşe and Aydın (2019) also note the growing use of social media by younger generations in recent years because they offer opportunities such as content sharing, entertainment, communication, community building and learning. A survey of 549 students which included participants who had been using social media for a long time found that they were willing to use them to share content. Also, they had more friends on Facebook. 88% of the respondents in the surveyed community mostly used WhatsApp and Instagram (Meşe and Aydın 2019).

In a case study, the use of social media in the academic community was examined and the demographic characteristics of users of academic social networks, the reasons for using this service and their use of other social media were analyzed. The results showed that the users were mainly professors and doctoral students, and they were young and mostly from the social sciences and the arts and humanities. It seems there was no sex difference in the use of social networks. Users mostly used social networks to connect with other academics (Nández and Borrego 2013).

Another important point in this study was the use of social media during the COVID-19 pandemic. The results of the research indicate the important role of these media in obtaining scientific information. In

the present study, the effect of social media content on the fear and panic caused by the coronavirus pandemic, the majority of students said that this issue increased their fear and panic about the disease. Cuilian *et al*. (2020) consider the role of Internet monitoring tools in early prediction of epidemic diseases.

The results of the study of Fisher and Clayton (2012) indicated increasing acceptance of patients through social media in the health care system. Gao *et al*. (2020) found that a high prevalence of mental health problems was positively associated with the use of virtual social media, often during the outbreak of COVID-19. Oberiri and Bahiyah (2021) investigated the publication of fake news about COVID-19 on Nigerian social media and stated that altruism is the most important predictor of fake news among Nigerians. Entertainment was not significantly associated with the sharing of fake news in this study. They suggested that when receiving news (prevention or treatment) one should consider the source of information, read beyond the headlines, review the authors, research an article by examining the dates, review the evidence to confirm sufficient facts and figures, verify fake images, find other sources and ask experts (Oberiri and Bahiyah 2021). Unfortunately, sometimes this fake news can be harmful or cause unreasonable panic. In our study, a large percentage of participants received their news from unreliable sources. The results of a survey of students of medical and medical sciences in Jordan showed that medical students mostly used social media (83.4%) and online search engines (84.8%) as their preferred source of information about COVID-19 and were less trustful of medical search engines (64.1%) (Khasawneh *et al*. 2020). Sahni and Sharma (2020) opined that the wise and prudent use of social media will enable these media to act as a powerful tool to change the behavior of people and promote the well-being of individual and public health. Social media are very important in combating this contagious disease, not only to obtain information and update on it, but also to understand how it spreads, how people function and how to respond to it (Lima *et al.* 2020).

Declaration

Ethics approval and consent to participate

This study was part of a research project with the code of ethics IR.AJUMS.1399.216 (SDH-9909) and was implemented with the support of the Research Deputy of Ahwaz Jundishapur University of Medical Sciences.

Availability of data and materials

The datasets used during the current study are available from the first author on reasonable request.

Disclosure

The authors declare no conflict of interest.

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