

ORIGINAL RESEARCH

The role of social media in participation to control the COVID-19 pandemic

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Abstract

Objective: We aimed to assess the role of virtual media in people's participation in controlling the COVID-19 pandemic.

Materials and Methods: This cross-sectional study was conducted from January to March 2022 using a researcher-made questionnaire via a panel expert. Considering participation of 10 experts, according to Lawshe table, the minimum value of the CVR index of 0.62 and the minimum score of the CVI index of 0.79 were acceptable. The questionnaire included two parts of demographic data and the assessment of the use of social network and its effect on people's participation to manage COVID-19 pandemic. The questionnaire was circulated, and all people were invited for participation.

Results: The response rate was 58% and 468 participants with a mean age of 38.5 ± 11.5 years took part in this study of which 42.3% were male .

The quality of the samples and data were suit for factor analysis, KMO index was more than 0.6 and the p-value (0.05) with Cronbach's alpha (0.88.).

So according to the highest factor loading, 7 factors including the level of knowledge, the role of non-interactive media for providing information regarding COVID19, the level of people's participation regarding compliance with protocols, the role of the media and trust in the media, controlling the psychological burden of the disease, the role of the interactive media, the role of other sources of information.

Conclusion: The confirmatory factor analysis revealed that this tool by 7 factors could assess the role of virtual media in people's participation to control the COVID-19 pandemic.

Keywords: COVID-19; Pandemic; Factor analysis; Virtual media; Interactive media; Non-interactive media

Introduction

The outbreak caused by novel severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) has resulted in millions of mortality and morbidity in 230 countries (1). Coronavirus Disease 19 (COVID-19) pandemic as a global challenge involved people at all levels. Today, the spread of the corona virus has become a major global crisis and has involved many countries, including Iran. One of the consequences of the pandemic is social panic and rapid changes in people's lifestyles.

In response to the pandemic, several attempts and unprecedented investments have been made to control the dissemination of the SARS-CoV-2 infection in order to reduce morbidity and mortality(2–5). So, different strategies have been employed to control disease transmission, however the public are responsible to follow the rules. Hence, the level of participation of people directly impacts on the successful of policymakers attempts. On the other words, implementation of rules is dependent on attitude, concerns and awareness of the stakeholders and audience(6,7).

A proper interaction with media would lead to a successful preventive education as a promising source to provide health information. In particular, the rapid development of information and communication technology in recent years has enabled digital media to influence audience behavior on a large scale. People can receive the facts and information from the latest news and obtain some information related to health management (3). The effects of the crisis on the social system are not clear yet. Almost all social science researchers have discussed this issue with caution and considered their findings to be relative.

A comprehensive analysis of the social impact of the corona crisis is currently not possible and at the moment only studies based on rapid estimation models are feasible. Social media has become very popular among people during this period because of its characteristics like availability, high speed data transfer, high quality in transmission of messages and etc.

Today, we cannot deal with health issues without considering the role of social networks.

Social networks have played an important role in distributing useful health information related to coronavirus. So early in the outbreak, every headline was related to the coronavirus.

Social networks despite all their shortcomings, have created great opportunities in the field of information and news transfer. With proper planning by the governments, people can properly exploit the potential of social networks (8).

These days, many people use social networks because they are easily accessible. This widespread use has its own strengths and weaknesses. By posting photos, news and analysis on social media, people have played an important role in raising awareness and informing society from the first days of the onset of the disease, but in some cases, misinformation in social media has led to widespread public panic.

Gesualdo et al suggested considering the important role that social media played in changing attitudes towards risky driving behaviors, by providing the right information, they can reduce the risk of pandemics and lead to preventive behavior(9).

Studies on whether people seek health information on social media has expanded over the past decade. However, there is still a lack of information in this area.

During this period, people got most of their health information from social networks like Facebook, Instagram, twitter etc. mobile applications like WhatsApp, telegram, WeChat and online news media.

Despite the emergence of digital media channels as sources of health information, relatively few studies have been conducted on their impact on behavioral outcomes.

Scheibe et al. studied preventive behaviors resulting from information on social networks and concluded that social networks play an important role in information sharing(10). Norr, Capron, and Schmidt have demonstrated that people who browsed medical websites and received information about certain disease symptoms reported higher levels of anxiety(11). Therefore, in this study, we examined the role of virtual media in people's participation in controlling the COVID-19 pandemic in order to analyze the factors that influence this effectiveness.

Materials and Methods

Study design and setting

This study was an exploratory cross-sectional study based on questionnaire. Our target population was all the people of Iran who were able to use media in cyber space. The study was conducted from January to March 2022 at Masih Daneshvari Hospital.

Questionnaire and Data Collection

The data were collected using an online survey. A well-structured questionnaire was developed to achieve the study outcomes per the study's objectives. The Questionnaire was prepared using the expert's opinions of 10 medical specialists of COVID19 pandemic. Indeed, this research group established the questionnaire after a wide-ranging review of the current literature. Then, the experts were asked to determine the content validity of the questionnaire, So, the CVR index for each item via one of the three options "useful and necessary", "useful but unnecessary" and "un-useful and unnecessary" was assess. Also, to determine the CVI index, one of the four options i.e., "completely related", "related", "somewhat related" and "unrelated" was chosen.

Considering participation of 10 experts, according to Lawshe table, the minimum value of the CVR index was 0.62 and the minimum score of the CVI index for the questionnaire was 0.79.

Cronbach's alpha was used for the reliability of the questionnaire and construct validity was determined by exploratory factor analysis. Then Confirmatory factor analysis was employed for the conceptual model.

The questionnaire included two parts of demographic data and the assessment of the use of social network and its effect on people's social participation. The media investigated in this study was mass media (virtual social networks). The questionnaire was based on a 5-scale Likert-type response scale ranging from very weak to very strong.

Ethical Consideration

This study was approved by the Ethics Committee of the National Research Institute of Tuberculosis and Lung Diseases. Shahid Beheshti University of Medical Sciences, Tehran, Iran.
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The questionnaire was an anonymous and simple type. All participants were invited to complete the questionnaire with their own willing and the questionnaire was anonymous.

Statistical analysis

To determine CVI and CVR indexes Excel and to perform exploratory factor analysis to determine Construct validity and Cronbach's alpha to determine the reliability of the questionnaire, SPSS version 21 and AMOS 22 was used. The significance level of statistical tests was considered at 0.05.

Qualitative variables were presented as percentages and quantitative variables were presented as mean and standard deviations.

Results

Participants

The questionnaire was circulated for three months. The response rate was 58% and 468 participants with a mean age of 38.5 ± 11.5 years took part in this study of which 42.3% were male .

Regarding the favor source of information for COVID-19, social networks was mentioned by 55.2% of the participants whereas in 32.4% of all participants, their friends were the most important item to get information.

Participants' opinion for the items which need to have more information about, was disinfecting household items (N= , 26/7 %), COVID-19 treatment (46/6%) , hospitalization time (45%) , COVID-19 transmission (40/1%), vaccination (36/9%), COVID-19 symptoms (38/7%), the proper time for performing a CT scan (46/8%) and post-discharge care (49%) that were mentioned by either important or very important.

Concerning the question "Do you know that some information obtained from virtual networks is wrong?" most of the participants (94.6%) were aware that some information on the virtual network is wrong. In this regard, 336 (85.1%) people stated that they had the experience of facing wrong information.

In response to the question "After 5 waves of the disease outbreak, how careful are you in wearing a mask now?" Even though we were in the 5th wave of COVID-19 outbreak, 28.3% of the participants declared the option much or very much.

Regarding the rule of keeping a safe distance, 12.5% of the participants declared the option much or very much. In fact, more than 80% of the participants disagreed with social distancing, while for the importance of hand sanitizers, 36% of the participants agreed to observe the rules.

Regarding the vaccine, it was found that 9.5% of the participants did not agree with the management of the epidemic by vaccination also, 48.7% of the participants, declared that they are worry about getting infected with SARS-COV2.

The opinions of our participants confirmed the item “obtaining information from media causes anxiety” in 36.3% with mentioning Likert scale of 4 or 5.

Regarding the feeling of depression during the COVID-19 period, 45.1% of the participants chose the high or very high agreement.

In response to this statement that “how much do you follow the mortality caused by COVID19 in both Iran and the world, even though we passed 5th wave of Corona, 40.6% of the participants stated the high or very high items.

In response to the question “How much you circle the obtained news?” 23.9% of the participants were not interested in sharing their information gathered from media with others.

Exploratory factor analysis

The result of the Kaiser–Meyer–Olkin (KMO) and Bartlett's test showed that the quality of the samples and data are suit for factor analysis, (The KMO index was more than 0.6 and the p value of Bartlett's test was less than 0.05, Cronbach's alpha was also 0.88.)

So according to the highest factor loading, 7 factors were identified.

In exploratory factor analysis, the principal components method was used to extract the factors, and the varimax rotation method with Keyser normalization was used to rotate the factors. In order to show each question of the questionnaire has taken which factor, the highest factor loading of that question has been determined. The extracted commonality value for all questions was greater than 0.5 and no question of the questionnaire needed to be omitted. The percentage of variance explained by the first, second, third, fourth, fifth, sixth and seventh factor was 17.17%, 9.012%, 8.981%, 8.561, 6.963, 6.787 and 5.016%,

respectively. Totally these factors explained 62.489% of the variance.

Factor	Questions	α Cronbach
F1 <i>The level of knowledge</i>	Do you need more information on disinfecting household items? Do you need more information about COVID19 treatment? Do you need more information about the time of hospitalization for COVID19? Do you need more information on to transfer the patient to medical center? Do you need more information about vaccination? Do you need more information regarding signs and symptoms? Do you need more information regarding respiratory CT scan for COVID19 patients? Do you need more information for tacking care of the patients after patients discharge?	0.945
F2 <i>The role of non-interactive medi for providing information regarding COVID19?</i>	How many health organizations have you welcomed to get information ? How much did you welcome foreign media to get information regarding COVID19? How much has the radio and television played a role in providing proper information? How much domestic media such as radio and television have been welcomed by you to get information? How many activities of celebrities to provide information have been welcomed by you? How much did you circulate the obtained news? How much did you follow the news regarding deaths?	0.779
F3 <i>The level of people's participation regarding compliance with protocols</i>	After 5 waves of disease outbreak, how careful are you in wearing a mask now? How much do you agree with social distance rules in the management of COVID-19? Are you still bound to use hand sanitizer outdoors? How much do you agree with vaccination in managing the COVID-19 epidemic?	0.912
F4	Do you know that some information obtained from people in social media is wrong?	0.912

<i>The role of the media and trust in the media</i>	How much have social media contributed to providing you proper information? How much social media has played a role in providing the proper information about COVID19?	
F5 <i>Controlling the psychological burden of the disease</i>	How worried are you about getting COVID19? How worried are you yet? How much do you feel depreion mood?	0.782
F6 <i>The role of the interactive media?</i>	To what extent was the WhatsApp your priority for obtaining information about COVID-19? To what extent was the Instagram your priority for getting information about COVID? To what extent was the Telegram your priority for getting information about COVID19?	0.741
F7 <i>The role of other sources of information</i>	How much did you welcome political groups to get information about COVID19? How much information have you obtained through your friends?	0.712
<i>The role of virtual media in people's participation to control the COVID-19 pandemic</i>		0.88

Factor	Number	Mean $\pm$ SD
The level of knowledge	432	24.1 $\pm$ 10.1
The role of non-interactive medi for providing information regarding COVID19?	412	17.5 $\pm$ 5.6
The level of people's participation regarding compliance with protocols	456	17.1 $\pm$ 3.8
The role of the media and trust in the media	443	9.8 $\pm$ 3.04
Controlling the psychological burden of the disease	444	9.5 $\pm$ 3.6
The role of the interactive media?	427	8.1 $\pm$ 3.4
The role of other	448	4.8 $\pm$ 2.9

Table1. Average and standard deviation of effective factors in the model

In the fitted model, RMSEA was equal to 0.038 and the values obtained for NFI and CFI were 0.857 and 0.906 respectively, so the fitted model was acceptable.

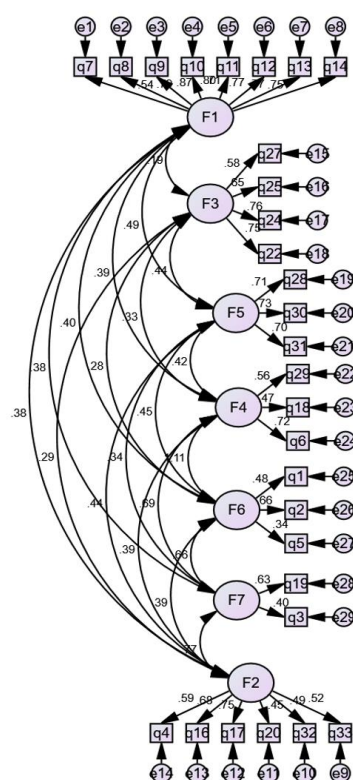


Diagram 1. The presented model of confirmatory factor analysis

Discussion

The COVID-19 pandemic has happened in the era of social media(12). Social media platforms play a fundamental role in how we encounter news and share wellness education in this COVID-19 era(13). They are one of the most popular sources of disseminating information worldwide due to the effortless and economical access to net and abundant registered users in such platforms(14). They serve as a gate for communication between health organizations and people. Amongst the disadvantages, manipulated data, false news and misinformation on social channels can be a threat to universal public health(15).

Our study revealed that 55.2 % and 38.9% of participants preferred social networks particularly interactive media (42.7%) and non-interactive media like TV as a source of information related to COVID-19, respectively. In a study conducted in US, 58% of all participants used Instagram and Facebook as a route to obtain knowledge about Covid-19 (16). Christopher Reuben et al. reported 27.5% of respondents stating TV as their main source of information (17). This confirms our results. While in a study conducted by Akalu et al. a majority of the people obtained their information from TV and/or radio which may be due to the difference in socioeconomic status and educational level(18). We should focus more on social media specially interactive ones in order to share proper information with the public.

Most of our participants (94.6%) were aware that some information on the media is wrong. This supports earlier study, which indicated that the reliability of the internet was relatively low(19). It is essential to build up trust resulted in preventive behavior and can help COVID-19.

Our participants had desire to know more about COVID-19 vaccination, treatment, transmission, symptoms hospitalization time, CT indication, and post discharge care. In this regard, in a previous study, a high prevalence (33.9%) of poor knowledge regarding, vaccination, treatment, social distancing and COVID-19 symptoms was reported among patients with chronic disease(18). These results are important, in order to make policy to overcome this lack of knowledge.

Even though, we were so-called in fifth wave of COVID-19 outbreak, only 28.3% of our participants stated that they wore mask carefully and 80% of them disagree with social distancing. However, this is in contrast to a previous study reported that almost all respondents followed strictly preventive actions including, social distancing and wearing mask(20). As documented earlier 75.7% of respondents reported wearing mask is crucial in order to prevent infecting with COVID-19 and they avoided to going to places which were overcrowded(18).

In this study, it was found that 9.5% of the participants had negative attitude toward the role of vaccination in the management of COVID-19. Considering that more vaccine coverage would result in much COVID-19 prevention and less mortality and morbidity. In line with our study, Eslam et al. showed that 78% of participants had positive outlook towards COVID-19 vaccine. (21). Thus,

preparing some interested media regarding academic papers which documentary support the effective role of vaccination and releasing it in media could improve participants' knowledge.

Regarding media-induced anxiety, it has been reported that media (22) with disseminating lot of exaggerated and false information can cause anxiety. More than one third of our participants stated that obtaining information from media causes anxiety. A recent study documented that media including social media and TV can increase anxiety level.

45.1% of our participants claimed that they felt depression during Covid pandemic. In a study in Hong Kong, 19% of the respondents felt depressed (23). The level of depression was not assessed in our study and only the depressed mood was considered.

Conflict of interest

Author declares no conflict of interest.

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