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Original Research

Crisis Information Behavior: COVID-19 as a Crisis

Mansoor Koohi Rostami
Associate Prof., Department of Knowledge and Information Science, Shahid Chamran University of Ahvaz, Ahvaz, Iran.
m.rostami@scu.ac.ir
ORCID iD: https://orcid.org/0000-0002-1351-6052

Rouhallah Khademi
Assistant Prof., Department of Knowledge and Information Science, Semnan University, Semnan, Iran.
Corresponding Author: r.khademi@semnan.ac.ir
ORCID iD: https://orcid.org/0000-0002-4415-1068

Mansoureh Serati Shirazi
Assistant Prof., Science and Technology Scientometrics Research Unit, Islamic World Science & Technology Monitoring and Citation Institute (ISC), Shiraz, Iran.
serati@isc.ac
ORCID ID: https://orcid.org/0000-0002-4558-9192

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Abstract

In crises, people usually experience uncertainty and seek information to solve and share that information. One of the recent crises was COVID-19. The present study aimed to study the information behavior (Information-Seeking, Information sharing, Media Credibility) during the COVID-19 crisis. A descriptive quantitative research design was employed. Data for this research was collected through a questionnaire from 1,073 Iranian individuals. Cluster sampling was used, and participants were selected using snowball sampling. The findings showed that the first three media to access information during the COVID-19 crisis were Internet news sites, social networks, and traditional news media (TV, newspapers, etc.). The first three media for sharing information were phone conversations with acquaintances and friends, groups in social networks, and face-to-face information sharing with acquaintances and friends. Also, TV and social networks are the most trusted media for receiving information among participants who prefer to believe the information provided by the mass media when they have a conflict in choosing between the information received between mass media and interpersonal channels. Generally, during the COVID-19 crisis, participants obtained more information from official and government information sources, but they shared information through social networks and phone calls. Also, when there is a conflict to choose between information channels, they tend to use mass media such as TV rather than personal channels. Also, in terms of orientation to information, they did not seek more information, did not avoid the obtained and existing information, and did not show apprehension.

Keywords: Crisis Information-Seeking, COVID-19, Crisis Information sharing, Media Credibility, Crisis Information Behavior.

Introduction

Evidence shows that during infectious disease outbreaks, there is an increased reliance on

public media to obtain needed information, change health beliefs, and persuade people to adopt appropriate hygiene behaviors (Rubin, Amlôt & Wessely, 2009; Yoo, Kwon & Pfeiffer, 2013; Sim, Moey & Tan, 2014; Alsulaiman & Renter, 2018; Arif, Mahmood & Mughal, 2020). Public health crises, such as infectious disease outbreaks, whether persistent (such as HIV/AIDS), recurrent (for example, seasonal influenza), or sporadic (e.g., SARS), can all endanger the health of a large number of individuals and pose a severe threat to society and the economic well-being of the people concerned and their communities (Morens & Fauci, 2013). Coronaviruses, the new millennium virus that has spread to all countries, have similar effects on community health. As public health officials raced to identify and contain the COVID-19 outbreak, information spread rapidly across traditional and social media platforms. The lack of information surrounding this disease has led to the rapid spread of misleading medical information on social media platforms. Internet search data shows that people began actively searching the Internet for COVID-19 symptoms and hand sanitizer when the first case of COVID-19 was publicly announced in one area. (Bento, Nguyen, Wing, Lozano-Rojas, Ahn & Simon, 2020).

Information management is a critical consideration in emergency response efforts; understanding media usage patterns and responses of multiple audiences is essential in providing information concerning precautions, safety, evacuation efforts, and other potentially lifesaving information (Burke, Spence & Lachlan, 2010). Crisis information and the public's communication behavior related to crisis information play a fundamental role in crisis escalation and can impact public understanding and interpretation of the crisis (Schultz & Raupp, 2010). Crisis communication experts have built a theoretical basis to understand the public's enormous and immediate communication needs: searching for information and satisfying information needs; and information sharing, addressing information dissemination needs. (Thelwall & Stuart, 2007). Despite the importance of providing timely and critical information to communities during the crisis response phase, several studies (Wray & Jupka, 2004; Steelman, McCaffrey, Velez & Briefel, 2015) have Investigated information-seeking behavior across all sources and reports provided by everyone. In emerging health crises, information becomes a fundamental resource for public society. It has become an important tool to help guide people in reducing uncertainty and anxiety. Here, the reliability and authenticity of information are essential because false or misleading information can cause fear and chaos among the public (Brown, Yoo & Johnson, 2019). So, Media credibility, information seeking, and sharing information in public health crises are more critical than ever in the history of human life.

After the spread of the coronavirus, Iran was also affected by it. Iran formed The National Taskforce for Combating the Coronavirus (COVID-19), deciding to control this infection using all resources, especially knowledge, equipment, and skilled personnel. The Iranian Ministry of Health and Medical Education (MHME) initiated several actions to combat the disease: to increase awareness and inform people about COVID-19 and to recommend protective measures proposed by the World Health Organization (WHO) through media such as TV, radio, etc. Hence, the present study aimed to study information behavior, including media credibility, information seeking, and information sharing during the COVID-19 outbreak crisis.

Crisis information-seeking

Information seeking is a process whereby an individual's understanding of information needs evolves. The literature focuses on the process of seeking information, including the various stages, actors, strategies, sources, and behaviors of individuals (Wilson, 1999). Heinström (2003) highlighted the creation of models for the Information Search Process (ISP) and its characteristics (Ellis, 1989; Kuhlthau, 1994), as well as the analysis of information-seeking behavior in work settings. Chatman (1987) and Savolainen (1995) described information-seeking behavior as being in work-related and non-work-related categories in everyday life.

While the impact of situational characteristics on information-seeking behavior has yet to be examined extensively, it is a crucial aspect to consider. According to Savolainen (1993), situations refer to the context of time and space in which sense is constructed. This implies that situations are subjective and not objective attributes, as they reflect individuals' interpretations of a given situation. Although some information-seeking behavior models, like Brenda Dervin's sense-making theory, highlight the importance of context and time in shaping information-seeking behavior, few have provided a formal conceptualization of it (Pang, 2014).

A crisis is "a specific, unexpected, and non-routine event or series of events that create high levels of uncertainty and threaten or are perceived to threaten high priority goals including the security of life and property or the general individual or community well-being" (Seeger, Sellnow & Ulmer, 2003). Research about information-seeking behavior during crises is in its infancy (Duggan & Banwell, 2004)**.** When faced with a crisis or uncertain situation, people seek information to reduce stress and anxiety and make informed decisions (Seeger et al., 2003). During times of crisis, like the ongoing COVID-19 outbreak, people crave information that is pertinent, timely, and specific to health and safety risks. How crisis information is communicated and shared among the public can significantly impact their understanding and perception of the situation, escalating the crisis. Therefore, crisis information and the public's communicative behavior regarding it play a vital role in managing and mitigating crises (van der Meer, 2016).

A recent literature review indicates increasing interest in risk information seeking, particularly in the medical domain (Gutteling & De Vries, 2017). According to Clarke et al. (2016), individuals seeking health information tend to consult various sources, including technology-based, print, and human sources such as close social connections and traditional mass media. Amidst the COVID-19 pandemic, people have been found to rely on different information sources such as the internet, traditional media, family members, and peers (Wang et al., 2020). When there is a clash between an individual's current situation and their existing knowledge, their first instinct is to gather more information and determine any potential threats to themselves, their family, or friends. One way to do this is by asking friends or neighbors, but it is also common to use various forms of media for obtaining information. This includes the telephone, radio, TV, and the internet, which offer a multitude of ways to stay informed and connected (Vigsø & Odén, 2016). Research on seeking health information has primarily focused on traditional sources such as mass media, health professionals, and interpersonal communication (Avery, 2010; Wang & Ahern, 2015). However, recent studies have explored social media channels like Twitter, Facebook, blogs, and online videos for health-related information seeking. These studies have investigated the impact of such information on routine

and crises, vaccination during the H1N1 influenza epidemic, and food-related risks (Kuttschreuter, Rutsaert, Hilverda, Regan, Barnett & Verbeke, 2014).

According to Liu, Fraustino, and Jin (2016), people's intended actions during a crisis are influenced by the information sources they rely on. These sources can include TV, local government websites, and federal government websites. Jin, Hou and Zhang. (2016) further divided the information sources into two clusters. The first cluster mainly consists of social media channels such as online videos, Facebook updates, Twitter, blogs, and picture-sharing sites. The second cluster focuses on TV as the primary source of information.

Gunderson, Michel, Reid, and Jordan (2021) surveyed information-seeking and prevention behaviors in Florida. They show that the most frequently reported source of COVID-19 information was the Centers for Disease Control and Prevention's website (40.8%) followed by the Florida Department of Health's website (32.9%). Singh et al. (2020) showed that although people are sharing many URLs (with 40.5% of original tweets including a URL), they are sharing less from very credible health sources like the CDC and WHO than might be expected (only 14,485 original tweets (0.4%) did so). Schäfer et al. (2020) discovered that students' health information seeking occurs primarily online and changed markedly during the COVID-19 crisis.

Obi-Ani, Anikwenze, and Isiani (2020) conducted a qualitative study investigating the social media platforms primarily used to discuss the COVID-19 pandemic. These platforms include Facebook, Twitter, WhatsApp, blogs, online newspapers, and YouTube. Oslon, Vos, and Sutton (2020) suggested that traditional media plays a crucial role in managing the adverse effects of global health crises such as the Zika virus and other contagious diseases. This is due to their ability to communicate with mass audiences authentically. Moreno, Fuentes-Lara, and Navarro (2020) surveyed COVID-19 communication management in Spain, revealing that mainstream news media is the most preferred source of information for three out of four people. Meanwhile, WhatsApp is the second most popular source of information.

According to Soroya, Farooq, Mahmood, Isoaho, and Zara (2021), people tend to rely on traditional sources such as mass media, print media, and official websites, including newspapers and forums, when seeking information. Social media and personal networks are not the preferred sources. Tonmoy and Islam (2023) found that students used social media tools more frequently during the COVID-19 pandemic than before. Additionally, they discovered significant relationships between students' demographic variables and their understanding of selecting COVID-19 information sources.

Crisis information sharing

Researchers have increasingly focused on information-sharing behavior in recent years, which refers to voluntary actions that make information available to others. (Wang, Zhuang & Shao, 2020). Humans have an inherent desire to connect and share information with others. This results in individuals frequently sharing such information with others (Kuntz & Gomes, 2012). Bao and Bouthillier (2007) stated that collaboration, mutual benefits, and supportive relationships characterize information-sharing behavior. To put it simply, information-sharing behavior is an information behavior where two groups of individuals with a particular type of relationship work together to exchange information for their own or common interests. This is a general definition proposed by experts to describe information-sharing behavior.

Researchers have analyzed the impact of social media and traditional media on information dissemination for many years. Mass media has been viewed as a powerful tool for communicating health-related information and promoting behavioral change on a large scale (Wakefield, Loken & Hornik, 2010). Over the years, as technology has evolved, social media has become an increasingly dominant platform for sharing health information. It helps people stay connected with the latest updates related to diseases and provides valuable guidance for maintaining good health (Liu, 2020). Liu et al. (2016) found that individuals were more likely to share disaster information via offline interpersonal channels compared to online organizational and personal channels, regardless of the form and source of the information. Jin et al. (2016) identified two clusters for sharing crisis information: social media and interpersonal channels. Wilford, Osann, and Wenzel (2018) found that Twitter users share and consume news. Specifically, 59% of users believe it is perfect for sharing preventive health information. Lu, Liu, Yuan, Burns, Lu, and Li (2021) suggested that health professionals, academic institutions, and government agencies are trusted sources of information. People share information from these sources because they believe it will increase disease awareness and promote disease prevention.

Media credibility

Some crisis communication scholars have introduced the concept of uncertainty, but it has yet to be thoroughly defined or empirically investigated. According to Ray (1999), the severity of a crisis is positively correlated with the uncertainty surrounding its resolution. Stephen, Malone, and Bailey (2005) proposed that effectively managing uncertainty is crucial when implementing crisis response strategies. Reynolds and Seeger (2005) suggested that timely communication is essential for helping the audience directly affected by a crisis and the general public. Uncertainty is expected during crises and extreme events; therefore, the public seeks information to reduce uncertainty and dissonance (ibid). Due to the discomfort caused by uncertainty, individuals tend to seek information to alleviate it (Roloff & Miller, 1987). When faced with uncertain situations, individuals actively seek out sources of information to fulfill their needs (Case, 2002; Johnson, 1997).

This research explores the credibility of information sources as perceived by the seekers. Researchers have been studying the channels people choose to access information and the perceived credibility of interpersonal channels and the mass media for decades (Lu, 2003). Since the 1950s, research on credibility has focused on identifying dimensions of the source receivers use to assess credibility (Gantz, 1981; Lu, 2003). Hovland and Weiss (1951) identified two dimensions of source credibility: trustworthiness and expertise. This has led scholars to identify underlying dimensions of credibility such as safety, qualification, accuracy, fairness, completeness, and differences between media and people as communication sources through factor analysis (Berlo, Lemert & Mertz, 1969; Lu, 2003).

The COVID-19 pandemic has brought new challenges to public health. It is crucial to study how people perceive the trustworthiness of information sources related to health. When individuals lack prior knowledge or experience with the disease, their perception of source trust can significantly impact how persuasive COVID-19 messages are in shaping their attitudes and behaviors (Lu et al., 2021). Lu et al. (2021) found that health professionals, academic institutions, and government agencies are reliable sources of information. People tend to share

information from these sources to increase their awareness of diseases and promote disease prevention. People may also share COVID-19-related information from news media, social media, and family to cope with feelings of anxiety, anger, and fear.

Health information comes from various sources, but not all sources are trustworthy. Sources perceived as trustworthy are expected to provide accurate information and are less likely to misguide readers (O'Keefe, 2015). Previous research indicates doctors and government agencies are the most trustworthy sources for general health information (Dutta-Bergman, 2003). Lu (2003) discovered that participants considered mass media the primary and most dependable source for receiving information about SARS, compared to interpersonal channels. Physicians were perceived to be the most credible source among interpersonal channels, while TV was rated as the most credible source among mass media. Burger, Gochfeld, Jeitner, Pittsfield, and Donio (2013) found that TV and radio were used more frequently than social media during and after Superstorm Sandy. Pang (2014) determined that crises are covered by mainstream media due to their newsworthiness, which subsequently grants them credibility offline. According to Edelman's (2020) research, during the initial weeks of the COVID-19 outbreak, citizens trusted scientists, health officials, and medical doctors the most for information on the pandemic.

On the other hand, government officials were the least trusted source (48%), followed by journalists (43%). According to Alsulaiman and Rentner (2022), students primarily relied on communication channels provided by public health authorities to access COVID-19-related information. On the other hand, traditional media channels were not as popular. The credibility of sources had a direct influence on the Health Belief Model (HBM) and the perceived threat mean scores. This means that the more credible a source was, the more likely students were to take the threat of COVID-19 seriously. The study's findings can help college administrators communicate essential health information more effectively to students during a health crisis.

Orientation to crisis information

To overcome a "problematic situation" during a crisis, human beings indicate a special information behavior that affects the general understanding and interpretation of the crisis (van der Meer, 2016). In a "problematic situation," when a person in crisis experiences a gap between the status quo and current events, the natural first step is to seek more information about the crisis and to determine whether there is any danger threatening themselves, their family members, and their friends. Therefore, under conditions of uncertainty, it is assumed that people continuously choose sources to meet their information needs (Johnson, 1997). Two distinct factors can be observed in orientation to crisis information: Information Engagement and Information Apprehension. Miller, Brody, and Summerton (1998) identified two dimensions of people's information-seeking behavior during critical events. The first dimension is called "monitoring" or "approach" strategies, which refers to how much a person seeks information to reduce uncertainty during a crisis. The second dimension is "blunting" or "avoidance" strategies, which refers to how much a person avoids information about the crisis. However, it's important to note that information can also increase stress-producing uncertainty or certainty (Brashers, Goldsmith & Hsieh, 2002). DuBenske, Burke Beckjord, Hawkins, and Gustafson (2009) analyzed the confirmatory factor of these two dimensions for cancer patients, which proved to be a high-reliability instrument.

Objectives

The present study focused on media credibility and the crisis information-seeking and sharing (CISS) behavior in response to the COVID-19 pandemic. Regarding these aims, this study seeks to answer the following questions:

RQ1: What are information sources during the COVID-19 pandemic as a crisis?
RQ2: How is crisis information sharing during the COVID-19 pandemic?
RQ3: What are the reliable sources of information to trust during the COVID-19 pandemic?
RQ4: What is the information orientation to the COVID-19 crisis?

Materials and Methods

The present study employed a descriptive quantitative research design. A questionnaire was utilized based on the works of Lee and Jin (2019) and Lu (2002). Koohi Rostami and Jahanifar (2022) validated it for Iranian society, emphasizing public crises. All items' Face Validity Index (FVI) showed acceptable values of over 1.5, and the Content Validity Index (CVI) indicated that the optimal value scale was 0.92. In factor loading, all factors were confirmed with a good explanation in factor analysis and Cronbach's alpha for all factors was acceptable values of 0.7 to 0.9. This scale comprises items regarding four categories: demographics, information-seeking behavior, information-sharing behavior, and credibility of sources and channels. Information-seeking behavior had 11 items, information-sharing behavior included 13 items, and credibility of sources and channels comprised four items.

Cluster sampling was used. The provinces of Iran were considered the clusters, and snowball sampling was employed to select the participants who received invitations explaining the questionnaire objectives with a self-directed link. The questionnaire was distributed among the participants solely based on criteria of interest and motivation to participate in the study, so no incentive was offered to the participants. The data were collected from 1,073 Iranian participants who answered the questionnaire.

Results

52% of the participants were female and 48% were male. Regarding education level, the participants holding an associate diploma (48.1%) and those holding a bachelor's degree (35%) constituted the highest participation rate. Also, 61.3% of the participants were employees. In terms of age, the age group below 25 years of age (56.5%) was the largest group participating in the study. The demographic information of the respondents is shown in Table 1.

Table 1
Demographics of the Sample

Demographics	Frequency (%)	Demographics	Frequency (%)
Employment status		**Gender**	
Employee	658 (3/61)	Female	558(52)
Student	211(19.7)	Male	515(48)
University/college student	102(9.5)	**Education level**	
Teacher/professor	44(4.1)	Under high school diploma	14(1.3)
Housekeeper	33(3.1)	Diploma	98(9.1)
Freelancer	25(2.3)	Associate diploma	516(48.1)
Age		Bachelor's degree	376(35)
Below 25 years	606 (56.5)	Master's degree	57(5.3)
25-35 years	212 (19.8)	PhD	12(1.1)
36-45 years	199 (18.5)		
46-55 years	39 (3.6)		
More than 55 years	17 (1.6)		

As the results are shown in Table 2 regarding the media and information channels among participants, the first three media for participants to access information during the COVID-19 crisis were Internet news sites with a mean score of 3.44, social networks with a mean score of 3.23, and traditional news media (TV, newspapers, etc.) with a mean score of 3.16. Also, e-mail correspondence, Twitter, and SMS are the latest options for participants to access information.

Table 2
Sources of Obtaining Information During the COVID-19 Crisis

Item	Mean score (out of 5)
Internet news sites	3.44
social networks	3.23
Traditional news media (newspapers, TV news, etc.)	3.16
Interpersonal communication	3.14
Weblogs	3.06
Instagram	2.86
Domestic messenger networks (Bale, Soroush, etc.	2.86
YouTube	2.75
E-mail correspondence	2.63
Twitter	2.24
Short text messaging (SMS)	2.05

The media and channels for sharing information about the COVID-19 crisis are listed in Table 3. As the results show, the first three media in sharing information among participants during the COVID-19 crisis are phone conversations with acquaintances and friends, with a mean score of 4.57; groups in social networks, with a mean score of 3.67, and face-to-face

discussions with acquaintances and friends with a mean of 3.32. Also, sharing information through sending emails to acquaintances and friends, uploading pictures on Instagram, and sending SMS are the following information-sharing options for participants.

Table 3
Information Sharing During the COVID-19 Health Crisis

Information sharing media	Mean score (out of 5)
Phone conversations with acquaintances and friends	4.57
Groups in social networks	3.67
Face-to-face communication with acquaintances and friends	3.32
Groups in domestic messenger networks	3.20
Posting on a Facebook page	3.07
Commenting on other people's blog posts	3.07
Personal blogs	3.04
Commenting on friends' profiles and Facebook groups	2.98
Commenting on Facebook pages	2.95
Tweeting and re-tweeting	2.95
Emailing acquaintances and friends	2.94
Uploading pictures related to the COVID-19 crisis on Instagram	2.93
Sending SMS to acquaintances and friends	2.78

Table 4 shows the amount of trust in different information tools during the COVID-19 crisis. The respondents could choose more than one option. The results showed that TV, with a mean score of 61.4%, social networks, with a mean score of 32.1%, and Internet news sites, with a mean score of 28.3%, are the most credible and trusted means of receiving information among participants. Radio, medical staff, and magazines are the least likely to receive information about the COVID-19 crisis.

Table 4
Media Credibility During the COVID-19 Crisis

Media	I agree	
	F	%
TV	659	61.4
Social network	344	32.1
Internet news sites	304	28.3
acquaintances and friends	126	11.7
Newspapers	86	8
Radio	83	7.7
Medical staff	55	5.1
Magazines	54	5

Table 5 shows the orientation to believe information when there is a conflict between interpersonal channels and mass media. The study found that participants tend to believe information from mass media over interpersonal channels in conflict.

Table 5

Orientation to the Media During a Conflict to Choose Among them

Interpersonal channels and mass media	I agree	
	F	%
Mass media	860	80.1
Interpersonal channels	213	19.9

Table 6 shows the participants' orientation to believe information when there is a conflict to choose from among interpersonal channels. The results show that when participants have a conflict to choose between the information received through interpersonal channels, they prefer to believe the information provided by local officials, national officials, and medical staff while having less trust in the information provided by family members, acquaintances, and friends.

Table 6

Orientation to Media During a Conflict to Choose Between Interpersonal Channels

Descriptive indicators Interpersonal channels	F	%
Local officials	634	59.1
National officials	199	18.5
Medical staff	140	13
Family members	54	5
Acquaintances and friends	46	3.4

Table 7 shows the participants' orientation to believe information during a conflict when choosing among mass media. The results showed that when participants have a conflict to choose between the pieces of information received in the mass media, they prefer the information provided by TV (52.1%), news sites (18.5%), and newspapers (14.4%). They needed more trust in the information provided by social networks, magazines, and radio.

Table 7

Orientation to Media During a Conflict to Choose Among Mass Media

Descriptive indicators Mass media	F	%
TV	559	52.1
News sites	198	18.5
Newspapers	155	14.4
Social network	111	10.3
Magazines	35	3.3
Radio	15	1.4
Total	**1073**	**100**

A one-sample t-test was employed to investigate the participants' orientation to information about the COVID-19 crisis in two information engagement and information apprehension

factors. Table 8 illustrates the participants' information engagement with the COVID-19 crisis.

Table 8
Participants Information Engagement with the COVID-19 Crisis

Theoretical mean=3								
Variable	**No.**	**Mean**	**Mean difference**	**t-statistic**	**df**	**Sig. (p-value)**	**95% confidence interval**	
							Max.	**Min.**
Information engagement with the COVID-19 crisis	1073	2.810	-0.189	-7.306	1072	p<0.0001	-0.138	-0.240

Table 8 shows that based on the comparison of the theoretical mean (μ=3) and the observed mean (X=2.810), and the t-statistic of -7.306 with the DF of 1072, there is a significant difference of -0.189 between the theoretical and observed means. The results show that the participants' information engagement with the COVID-19 crisis is lower (between “I disagree” and “No Idea” options) than the theoretical mean. Table 9 shows the information apprehension of the COVID-19 crisis.

Table 9
Information Apprehension of the COVID-19 Crisis

Theoretical mean=3								
Variable	**No.**	**Mean**	**Mean difference**	**t-statistic**	**df**	**Sig. (p-value)**	**95% confidence interval**	
							Max.	Max.
Information apprehension	1073	2.818	-0.181	-5.475	1072	p<0.0001	-0.116	-0.246

Table 9 illustrates that based on the comparison of the theoretical mean (μ=3) and the observed mean (X=2.818), and the t-statistic of -5.475 with the DF of 1072, there is a significant difference of -0.181 between the theoretical and observed means. The results show that participants' information apprehension of the COVID-19 crisis is lower (between “I disagree” and “No Idea” options) than the theoretical mean.

The correlated (paired) t-test was employed to compare the means of two information engagement and information apprehension factors. Table 10 shows the results of the correlated t-test.

Table 10
Comparing the Means of Two Information Engagement and Information Apprehension Factors

Variable	No.	Mean	Mean difference	t-statistic	df	Sig. (p-value)
Information engagement	2.810	-0.008	1.48	-0.180	1072	0.857
Information apprehension	2.818					

Comparing the means of the two factors during the COVID-19 crisis shows no significant difference at a confidence level of 95%. This shows that participants are indifferent to the COVID-19 crisis information.

Discussion

As the main subject of information behavior, information contributes to overcoming crises. In crises, people usually experience uncertainty and seek information to solve it. The flow and sharing of information among people can be investigated and its results can be used in the design of information systems in future crises. One of the recent crises that involved the whole world was the COVID-19 outbreak. Iran, like many other countries, was involved in this phenomenon, and to clarify the information-seeking behavior in this crisis, this research was conducted.

The research results showed that the participants were almost equal in gender (52% of female participants and 48% of male participants). Most of the participants hold an associate diploma and bachelor's degree. Also, almost half of them were employees. In terms of age, the participants were mainly in the range below 25 years and between 25 and 35 years of age. In terms of the media and information channels employed, Internet news sites, social networks, and traditional news media (mass media including TV and newspapers) were the most employed media. However, media such as YouTube, e-mail correspondence, Twitter, and SMS were ranked last. The reason for not paying attention to media such as YouTube and Twitter can be the filtering of these social networks in Iran and the majority of people's lack of familiarity with such media. However, the results of studies in other regions show more usage of these resources.

Moreover, with the spread of the Internet and smartphones, most people have easy access to news websites, and this kind of information source has been more recent. The Literature (Lu et al., 2016; Gunderson, Mitchell, Reid & Jordan, 2021) also showed that websites, mainly official and government websites, are the primary sources for obtaining information during a crisis or outbreak of a disease. This issue draws the attention of officials and statesmen to the enrichment of this kind of information source. Along with these websites, according to the official and educational announcements that the government provides through mass media such as TV, these traditional media have also been of great interest to people as a source of information. The reliability and officiality of that information were the reason for paying attention to this source and channel. Liu et al. (2016), Olson et al. (2020).); and Wang et al. (2020) confirmed these results.

In addition to the mentioned channels, which sometimes have official status, people in the

community also tend to share their acquired information with others due to the spirit of social life. Examining this issue in the population showed that participants mostly share information about the COVID-19 outbreak through phone calls with acquaintances, social network groups, and face-to-face conversations, and employ e-mails and shared images on Instagram and SMS. This can originate from the fact that in Iranian society, phone calls and social networks are more popular than text messages and e-mails. Furthermore, Instagram is usually used for other purposes other than medical information about the COVID-19 pandemic. Jin, Fraustino and Liu (2016) also showed the sharing of information in crises through social media and personal channels, confirming the results of the present study. Nevertheless, Wilford et al. (2018) found Twitter to be a widely used tool for sharing information, which, as mentioned, may have been of little interest to users for sharing information about the COVID-19 pandemic due to the filtering of this application in Iran.

Regarding the media's credibility as a source of information during the COVID-19 crisis, participants gave the highest score to TV (61%). The fact that the government runs Iranian official TV and provides official information has made it the most trusted media. The interesting point is the lack of trust in doctors; only 5% of the respondents trusted this group. Also, the results showed that when participants had a conflict about choosing between mass media and personal channels for obtaining information, they preferred mass media. This shows more trust in the accuracy and quality of the information received through these media. Among both of these media, when there is a conflict between the personal channels, the orientation to choose the channels of local and national officials was more than the friends and family channels. Also, among social media, TV, news sites, and newspapers were preferred over radio and magazines.

Two information engagement and information apprehension were investigated to investigate information orientation during the COVID-19 crisis. The results showed that the participants' orientation to obtain information was smaller than the theoretical mean in both factors. According to Johnson (1997) and Miller, Brody, and Summerton (1998) and the results obtained for the present study, it can be said that participants did not seek more information during the COVID-19 crisis. Also, they have kept the information available and provided.

Limitations of the Study

The study's results cannot be generalized due to differences in culture, literacy level, and information-seeking behavior across Iran's different geographic regions.

Conclusion

Generally, during the COVID-19 crisis, participants obtained more information from official and government information sources, but they shared information through social networks and phone calls. Also, when there is a conflict to choose between information channels, they tend to use mass media such as TV rather than personal channels. Also, in terms of orientation to information, they did not seek more information, did not avoid the obtained and existing information, and did not show apprehension. The results of this research can help design health information systems and provide health information services to policymakers and statesmen. Examining the COVID-19 crisis from other aspects of health information behavior is suggested.

Conflict of interest

The authors declare no conflict of interest.

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