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Introduction and content analysis of "Nurse's voice" WhatsApp group during COVID-19 pandemic: a qualitative study

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Abstract

Background At the beginning of the COVID-19 pandemic in Iran, the School of Nursing and Midwifery of Tehran University of Medical Sciences created several joint virtual groups to connect with people and answer their questions. One of these groups was called "Nurse's Voice," in which nursing professors answered people's questions. The purpose of the current study was to analyze the content of questions in this WhatsApp group during the COVID-19 pandemic.

Method This retrospective media content analysis qualitatively analyzed the text of questions and answers extracted from the above-named WhatsApp group.

Results Out of 629 questions asked, 364 questions (58.0%) were related to COVID-19 and 265 questions (42.0%) were not. Those related to COVID-19 concerned COVID-19 symptoms and diagnosis, prevention and care, fear and worry, and interpretation of laboratory tests. The questions related to prevention and care fell into four subcategories: basic health principles, prevention of COVID-19 infection, care during COVID-19 infection, and care during COVID-19 recovery.

Conclusions Nursing and midwifery schools can take advantage of the scientific capacity of professors and students for virtual communication and social accountability by integrating telehealth into their curricula. Cyberspace provides an opportunity for people to ask questions anonymously. With the results of the current study, the educational needs of the people during possible future epidemics can be predicted and answered faster. Furthermore, the large number of questions unrelated to COVID-19 indicates the need for counseling and training of the general public by nurses in all situations.

Keywords Telehealth, Social media, Social accountability, COVID-19 pandemic

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Background

During the COVID-19 pandemic, social media played an important role in disseminating information on health, dealing with infodemics, and managing the COVID-19 pandemic in society. These platforms also play a role in gathering information related to the health status of populations as well as in the distance education of healthcare workers, students, and even people in society [1, 2]. Training people on how to behave and take care of

themselves during a pandemic is one of the advantages of using social media in the current era. The use of social media platforms such as WhatsApp have also had positive effects in past crises, such as the flood crisis in India in 2015 [3].

At the beginning of the COVID-19 pandemic in Iran, the School of Nursing and Midwifery of Tehran University of Medical Sciences initiated telehealth services to fulfill their social responsibility and the people's need to have their questions and concerns addressed. These services included 4 helplines and 4 WhatsApp groups. With the helplines, known as Nurse-voice, Midwife-voice, Mental health-voice, and Grief-voice, faculty and students cooperated to answer people's questions and concerns. With the collaboration of 20 professors and 16 nursing students of various degrees, the Nurse-voice helpline and WhatsApp group was launched on March 26, 2019 and remained active until March, 2022. This helpline provided 8 h each of telephone and WhatsApp consultation daily. WhatsApp was selected as the platform for providing virtual nursing consultation primarily because it was most accessible to the people during the COVID-19 pandemic in Iran, and secondly because people on telephone consultations asked for text training which they could repeatedly review and implement. The current study aimed to analyze the content of questions in the "Nurse's Voice" WhatsApp group during the COVID-19 pandemic in Iran.

Method

This study is a qualitative content analysis. The Nurse's Voice WhatsApp group was first intended to be complementary and supportive of helplines, but it quickly became an independent space and even more active than the helplines. In the beginning, the WhatsApp group was responsive to people 24 h per day. After three days, the group was scheduled for a 4-h shift in the morning and a 4-h shift at night, each staffed by two students and two professors. To organize the inquiry method, a short form was provided as a WhatsApp post, and people were asked to send their questions in that format. The form instructed the querier to enter their age, gender, history of previous diseases, history of drug use, history of contact with a person infected with COVID-19, history of COVID-19 infection, residence, how one came to know of the Nurse's Voice group, and their question.

To prevent interprofessional interference, it was emphasized that this group was only for self-care and caring for the patient, and all questions related to test interpretation and drug prescription should be asked of one's own physician. Some people remained members of the group throughout its existence, while others left the group after obtaining answers to their questions. Therefore, calculating the total number of people who joined this group was not possible.

After questions were asked in the public group, the group administrator, who was either an undergraduate or graduate nursing student, assigned an ID number to the questioner and forwarded the questioner's inquiry to the faculty group. Faculty members were not members of the people's group for two reasons: First, the WhatsApp group at that time had a capacity of only 257 people, and a large number of people had applied to join the group, and second, as'phone numbers are visible on WhatsApp, it was decided to keep professors' numbers private. Professors of the School of Nursing and Midwifery of Tehran University of Medical Sciences answered the submitted questions using the latest guidelines of the Ministry of Health, the World Health Organization (WHO), most recent scientific articles, and consultation with other experts involved in the treatment of COVID-19.

The Nurse's Voice group answered 1220 people's questions between March 2019 and March 2022, 629 (51.55%) of which were asked in the first 6 months (during the peak of COVID-19 pandemic). This study analyzed questions posed in the first 6 months of the establishment of the group, i.e., from March 27 to September 22, 2019.

This study was given ethical approval from Tehran University of Medical Sciences under code IR.TUMS.MEDICINE.REC.1400.791. Questions and answers were extracted from the WhatsApp group using the Export Chat option, copied and pasted into a MSWord file, and then analyzed. First, information on the questioners' demographics, residence, and how they came to know of the group was collected from completed forms and classified, and then the content of the questions was qualitatively analyzed. Coding and categorization were first done by a PhD student in nursing (the corresponding author of this article) and then rechecked, edited, and approved by two professors (first and second author of this article). Any disagreements or uncertainties were resolved through discussion among all authors and consensus. A total of 629 questions were coded and categorized based on the main complaint and underlying disease. Next, a retrospective media content analysis of the questions was performed.

Retrospective media content analysis analyzes content published on social media platforms, such as posts, messages, comments, images, videos, or news published by users on X (originally Twitter), Facebook, WhatsApp, Weibo, Tik Tok, blogs, or various websites [4–6]. The results of such analyses have been 'used in the field of public health, especially in disasters and crises [7, 8]. Unlike with conventional content analysis, in-depth interviews are not conducted; instead, a large number of brief texts, images, or short videos are collected and

analyzed. Compared to conventional analysis, a greater number of items are examined, but the content volume of each item is less. The number of participants in conventional content analysis is less than 100; in media content analysis, however, it can range from more than 100 to several million [9, 10]. Qualitative analysis may be performed manually, digitally, or with a combination of both methods [11]. Contrary to conventional qualitative analysis, Guba and Lincoln's criteria are not used for trustworthiness, and consensus is reached in disagreements withing the research team through discussion [5, 12]. When large amounts of data are involved, not only qualitative content analysis, but also quantitative analysis and statistical reporting are performed simultaneously [4, 13].

Results

The current study analyzed the content of people's questions posed in the Nurse's Voice WhatsApp group from March 27 to September 22, 2019. Table 1 shows questioners' demographics.

Among the 629 questions asked, 364 (58.0%) were related to COVID-19, and 265 (42.0%) were not (Table 2).

From the 364 questions related to COVID-19, 189 (52.0%) were about COVID-19 symptoms, 124 (34.0%) concerned prevention and care, 30 (8.0%) were about fear and worry, and 21 (6.0%) concerned the interpretation of laboratory tests (Table 2).

As shown in Table 3, questions related to COVID-19were subcategorized as concerning symptoms and diagnoses of COVID-19, which included questions asked about the symptoms of COVID-19, suspicious symptoms seen in others, suspicious symptoms of oneself, when diagnostic testing should be done, when one should visit a medical center, and risk factors.

The questions related to prevention and care fell into the four subcategories of basic health principles, prevention of COVID-19 infection, care during COVID-19 infection, and care during recovery from COVID-19.

In the subcategory of basic health principles, the content of the questions included queries on how to wash hands, use masks and gloves, wash clothes, ventilate the air, disinfect surfaces, and disinfect food as well as the side effects of excessive use of disinfectants at home (Table 3).

In the subcategory of prevention of COVID-19 infection, the content of the questions comprised queries about how to transmit COVID-19, how to observe quarantine, self-care to prevent COVID-19, how to prevent COVID-19 infection of family members, the care and prevention of COVID-19 in children, self-care and prevention of infection in patients with chronic medical conditions, effective diet for preventing COVID-19, and the prevention of COVID-19 infection while visiting the dentist, the doctor's office, or medical centers for reasons other than COVID-19 (Table 3).

In the subcategory of care during COVID-19 infection, the questions concerned how to self-care at home when infected with COVID-19, caring for a person suspected of having COVID-19 at home, caring for a patient with COVID-19 at home, caring for an elderly person with COVID-19 at home, caring for patients with chronic medical conditions affected by COVID-19 at home, preventing the spread of COVID-19 from the sufferer to other family members, how to take medicines, and an effective diet for improving the symptoms of COVID-19 (Table 3).

In the subcategory of COVID-19 recovery care, the questions were related to the duration of recovery from

Table 1 Characteristics of callers to the Nursing Voice WhatsApp Helpline

	629	% of Callers
Gender		
Men	144	23%
Women	317	50.5%
Not declared	168	26.5%
Region		
Tehran	201	32%
The north of Iran	9	1.4%
The west of Iran	21	3.3%
The eastern of Iran	6	1%
The south of Iran	60	9.5%
The center of Iran	25	4%
Not declared	307	49%
How to get acquainted with		
Friends &Relatives	184	29.5%
Faculty Website	14	2.0%
WhatsApp groups	32	5.0%
Not declared	399	63.5%

Table 2 Categorizing the questions of callers

Questions	Number	Percent
Total Questions of callers	629	100%
COVID-19 Questions	364	58.0%
Non COVID_19 Questions	265	42.0%
Questions	Number	Percent
Total COVID-19 Questions	364	100%
COVID-19 symptoms and diagnosis	189	52.0%
Prevention and Care	124	34.0%
Worry and Fear	30	8.0%
Interpretation of diagnostic tests	21	6.0%

Table 3 Qualitative analysis of questions that people asked in Nurse Group voice

Category	Sub category		Code(question content)
COVID questions	Symptoms and diagnosis		Asking about Symptoms of COVID -19 Suspicious symptoms of those around Suspicious symptoms of oneself Time of the diagnostic test Time to visit the medical center Risk factors
	Prevention and care	Basic health principles	How to Wash hands Use masks and gloves Wash clothes Ventilate the air Disinfect surfaces Deal with Side effects of excessive use of disinfectants Exercise in quarantine
		Prevent COVID -19 infection	How to Transmit the virus Comply with quarantine Prevention of COVID-19 In the members of a family Among colleagues In children In patients with underlying problems While visiting the dentist While visiting the medical center for non-coronavirus reasons Effective diet in preventing corona
		Care during COVID-19 infection	Self-care at home Home Care for Suspected person Affected person Elderly person Patient with the chronic medical conditions How to take medicines Effective diet in improving corona
		Care during COVID-19 recovery	Time to Recover from COVID-19 symptoms Recover the smell sense Leave quarantine Return to work COVID-19 transmission How to Be safe after COVID-19 Strengthen the smell sense Having sex Return to the work of the treatment staff Deal with long-term complications after COVID-19
	Fear and worry		Fear of Getting infected with the corona virus Spreading the virus to people around Being quarantined Informing others and being stigmatized Getting infected with the corona virus while visiting the medical centers Worsening of symptoms of Corona Exacerbation of the underlying disease Drug side effect Long-term effects of Corona Getting infected with Corona again
	Interpretation of diagnostic tests		CBC diff, CXR, CT scan, Covid PCR
Non COVID Questions	Care in various diseases		Diseases of Heart, Lung, Kidney,Diabetes, Digestive system Chemotherapy, Rheumatology, Orthopedics, Pediatrics, Geriatrics, Skin and Hair, Wounds, Eyes&Ear& Nose and Throat, Addiction

COVID-19, how to be safe after COVID-19, the time needed to recover the sense of smell, how to strengthen the sense of smell, the duration of COVID-19 transmission, sexual intercourse, when to exit quarantine, when to return to work, how treatment staff should return to work, and dealing with long-term complications after COVID-19 (Table 3).

In the subcategory of fear and worry, the questions asked about contracting the corona virus, obsession with washing, worry about spreading the virus to the people around the sufferer, fear of being quarantined, fear of informing others and being stigmatized, worry about contracting the virus while visiting treatment centers, concern about the worsening of corona symptoms, concern about exacerbation an underlying disease, concern about the side effects of medications, concern about the long-term effects of the corona virus, and fear of getting re-infected with the corona virus.

Qualitative analysis of the 265 questions unrelated to COVID-19revealed the content of the questions was concerning heart, lung, digestion, kidney, diabetes, dialysis, chemotherapy, rheumatology, orthopedics, children, elderly, skin and hair diseases, wounds, eye, ear, nose and throat, nutrition, exercise, and addiction treatment.

Discussion

Social media had an effect on the COVID-19 pandemic [14]. Sometimes false information spread faster than the virus [15]. Dissemination of false and exaggerated information caused fear and stress, depression, and anxiety in the public. Therefore, it is suggested that working groups be formed to deal with myths and false information in social contexts [14]. In this regard, the School of Nursing and Midwifery of Tehran University of Medical Sciences has formed several joint virtual groups with the public in addition to telephone helplines.

Virtual communication with people and answering their questions in this group was a great experience for the professors and students of the Tehran School of Nursing and Midwifery. People showed they had a very strong desire to join a group and obtain health information. To illustrate, because of the limited capacity of the WhatsApp group ($n=257$), members were asked to leave the group after receiving answers to their questions so that new people could enter with new questions; the researchers had to resort to removing some people from the group and faced their protest. People reported learning useful things from reading the answers to other people's questions. They also reported feeling supported, relaxed, and reassured by joining the group. Some people did not want to express their gender or residence, indicating the probable fear of COVID-19 stigma and the desire to remain anonymous. This feeling of stigma was very evident at the beginning of the COVID-19 pandemic; however, the space of the virtual group was managed in such a way that people could ask their questions calmly, even anonymously. One of the merits of the virtual world is that it provides an opportunity for people to ask questions without needing to fully introduce themselves. A significant number of people found this group through friends and relatives, confirming the importance of paying attention to peer groups and taking advantage of the capacity of friends to convey correct information through the "snowball effect." In a similar experience in Indonesia, people used social media, mainly WhatsApp, to gain awareness and receive social support from friends during the COVID-19 pandemic. They sent voice messages, images, and hopeful and prayerful sentences to support their friends on social media. The current study differed from the one in Indonesia in that our virtual group was led by nursing professors and students [16]. In Pakistan, WhatsApp was also used to learn and update nurses' information about COVID-19 [17].

The negative dimensions of social media use during pandemics must also be given attention. Fear can spread faster through social media than the pandemic itself [15]. In a study in Greece, the main complaint of 64% of callers to the helpline of the University of Athens was fear of COVID-19 [18]. Some researchers have pointed out the importance of national helplines in every country to manage the mental health problems of society [19, 20]. The solution of Tehran School of Nursing and Midwifery for dealing with fear and panic was to set up a helpline called the Voice of Mental Health, in which psychiatric nurses gave individual telephone counseling to manage people's worries and fears and answered questions related to fear and anxiety, mainly referred to the helpline and less often in the WhatsApp group. Thus, the number of questions about fear and anxiety is underrepresented in the present study.

Our experiences in the Nurse's Voice WhatsApp group of Tehran School of Nursing and Midwifery showed that not only should the mental health problems of society be considered, but also the other needs of people in society during a crisis should be taken into account. People had many questions and concerns regarding COVID-19 that could not be asked of a doctor; nurses were the best option to answer these questions. Nursing professors, especially in the areas of symptom diagnosis and prevention and care carefully and patiently guided the questioners. Their accurate answers increased people's trust in nurses.

To prevent interprofessional interference, it was emphasized in both the description of the group's profile and many posts that questions related to test interpretation or drug prescription should be asked according to the clinical

symptoms and of the attending physician, and that this group was only for questions related to self-care and caring for a sufferer.

Notably, even though the group was formed during COVID-19 pandemic, more than 40% of the questions were not related to COVID-19. This indicates that people need counseling and training in non-critical situations as well, and nurses can manage this responsibility well.

In other studies, the role of community nurses has been emphasized in the use of technology for family care and society empowerment, and policymakers are asked to take advantage of the potential of nurses for the prevention and control of COVID-19 and other health problems of society [21, 22]. However, it seems that telehealth is here to stay [23]. The Tehran School of Nursing and Midwifery can take advantage of the scientific capacity of professors and students to create a planned presence in the virtual world, communicate with people, and provide general training. Taking such actions, as presented by Jadidi et al. [24], could result in reflecting the true image of the nursing profession to the society. Virtual communication with people can be suggested as part of nursing curricula.

Conclusion

In the current study, questions posed in the Nurse's Vice WhatsApp group were of two categories: related to and unrelated to COVID-19. Those questions related to COVID-19 are likely to be asked for any infectious disease. Therefore, in the event of any similar epidemic, by referring to the questions extracted from this study, the educational needs of the people can be predicted and met more quickly. A significant number of questions unrelated to COVID-19 were also asked, indicating that people need counseling and training even in non-critical situations, and nurses can handle this responsibility well.

The current study revealed that social media can be used for learning and that the capacity of friends can be used to convey correct information through the "snowball effect." Attending such virtual groups, can provide not only training and learning to answer questions and deal with non-scientific rumors, but can also evoke feelings of sympathy, peace, and security, especially if such groups are guided by a group of health professionals. It is suggested that the use of the virtual world and telehealth technologies for educating people and creating social accountability be included in the curricula of nursing and other medical sciences fields.

Limitations

This study was limited by the incapacity of the WhatsApp group to accommodate more than 250 persons at one time; researchers were forced to remove some people against their will after they had received their response.

Application of the study

The Nurse's Voice consulting services was a successful experience of the School of Nursing and Midwifery of Tehran University of Medical Sciences and manifested the social accountability of nursing and the role that nurses can play in other health crises in society.

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Authors' contributions
N.HM. and M.N wrote the main manuscript text and A.N helped in analyzing data. All authors reviewed the manuscript.

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Availability of data and materials
The datasets used and/or analyzed in the current study are available from the corresponding author on reasonable request.

Declarations

Ethics approval and consent to participate
This study and all experimental protocols were approved by the ethics committee of Tehran University of Medical Sciences with the registration code IR.TUMS.MEDICINE.REC.1400.791. All participants were informed of the objective and design of the study and provided informed consent to participate in the study.
The authors confirm that all methods were carried out in accordance with relevant guidelines and regulations.

Consent for publication
Not Applicable.

Competing interests
The authors declare no competing interests.

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