Research Paper
Examining the Counseling Needs of COVID-19 Hotline Callers: A Summative Content Analysis

Mahsa Khodayarian[1], Fatemeh Afzali[2], Negar Mazaheri[3], Mohammad Reza Khajehaminian[2*]

1. Social Determinants of Health Research Center, School of Public Health, Shahid Sadoughi University of Medical Sciences, Yazd, Iran.
2. Accident Prevention and Crisis Research Center, Shahid Sadoughi University of Medical Sciences, Yazd, Iran.
3. Department of Health in Disaster and Emergencies, School of Public Health, Shahid Sadoughi University of Medical Sciences, Yazd, Iran.

ABSTRACT

Background: It is important to provide reliable information to people during a pandemic to prevent social fear. In this regard, the present study investigates the counseling needs of people who call the COVID-19 hotline in Yazd Province, Iran.

Materials and Methods: In this qualitative study, the summative content analysis method was used. Due to possible changes in the counseling needs of the callers over time, the researchers first randomly checked 5% of all calls received each day. Data saturation was obtained by examining 5% of calls that were randomly selected. After reading the recorded interviews, the selected words were counted and entered into an Excel file. The keywords were then ranked. All keywords that seemed to have similar content were placed in related groups.

Results: A total of 1023 audio files were analyzed. About 1279 analysis units were extracted and categorized into 17 sub-categories and 4 main categories. Among these, 80% of the obtained analyzed units were assigned to 8 subclasses, namely counseling needs regarding the symptoms of the disease (35.97%), patient care at home (9.38%), ways of disease transmission (7.27%), centers that provide services to patients (5.94%), fear of visiting medical centers (5.79%), reports of non-compliance with health protocols (5.55%), personal protective equipment (5.32%), disinfection of equipment and food (5.08%) were included.

Conclusion: Establishing a hotline during an epidemic is an easy and quick method. One of the missing links in such systems is the existence of a monitoring team and a suitable content production team. It is necessary to hear the calls received simultaneously or daily by a scientific committee and provide feedback to the respondents to identify the counseling needs of the community members.

* Corresponding Author:
Mohammad Reza Khajehaminian, Assistant Professor.
Address: Accident Prevention and Crisis Research Center, Shahid Sadoughi University of Medical Sciences, Yazd, Iran.
E-mail: khajehaminian@gmail.com

Introduction

During the initial months of COVID-19 pandemic, the widespread and rapid spread of the disease made people in the community find a great need to receive proper information about the disease as well as how to manage their disease and also how to care for their patients [1, 2]. Simultaneously, the medical care centers were faced with heavy referrals of patients suffering from moderate to severe forms of CO-VID-19 and also had to provide counseling regarding the management of hospitalized patients at home. On the other hand, due to the nature of the disease and prevention of its transmission, it was necessary to implement necessary measures to control infection in hospitals and impose strict rules to reduce traffic volume in cities [2-6]. Therefore, following the increase in the spread of COVID-19, the demand for an information center to answer people's questions and alleviate their concerns raised as well [2].

In March 2020, the need to access primary care increased since there were a large number of people who had symptoms and questions about COVID-19 and also suffered from exacerbation of their mental and physical discomforts [7-11]. Providing care during a pandemic requires fundamental and sustainable changes [12]. At first, the changes were made in the form of not visiting in person to receive medical services due to critical conditions associated with this pandemic. Then, the need for a plan to provide remote medical care and safe strategies was detected [13]. The least technological facilities are needed to set up telephone lines [14].

Accordingly, through using the available infrastructure, hotline systems were quickly established to provide consulting services regarding the needs of citizens. Considering the nature of the pre-hospital emergency dispatch system, the emergency communication center was considered one of the available capacities to meet the information needs of the community regarding CO-VID-19 disease. In many countries, the emergency communication center, which is accessible to the public by telephone, dispatches emergency units to the scene of the accident. In the emergency communication center, trained dispatchers send the necessary resources to accident scenes after receiving the necessary information from the callers and considering the local protocols. Dispatchers provide necessary guidance to the callers until the dispatched resources arrive at the scene of the accident and when there is no need to dispatch resources [15, 16].

One of the strategies to deal with people's psychological problems during the COVID-19 pandemic in China was to increase emergency response lines. For this purpose, 170 volunteers were recruited in Wuhan Mental Health Center to respond to the mental needs of people. From February 4 to February 24, 2019, a total of 2653 calls were answered. Most of the callers were the residents of Wuhan, China. Among them, 33.5% had symptoms of anxiety, 10% had symptoms of depression, and 5.5% experienced sleep disorders. People in the society tended to reduce their worries about COVID-19 disease by getting enough information. It was important to pay attention to this issue and provide accurate information based on people's concerns and desires in order to reduce social anxiety [14].

The availability and quality of information provided to callers enabled them to protect themselves against COVID-19. In addition, they could take care of patients at home better. The establishment of such services was done to reduce the risk of disease transmission [17]. The National Institute of Health and Nutrition Sciences (Salvador Zubiran) in Mexico also made emergency lines available to meet the needs of the elderly during the COVID-19 pandemic to prevent and reduce the speed of virus transmission. Medical staff answered the questions through telemedicine [18].

The universities of medical sciences in Iran launched a telephone information and consultation center for COVID-19 disease called "4030" as an urgent contact line (hotline) from March 2018 to provide counseling and guidance services to people with symptoms of the disease and those who were suspected of COVID-19. Reducing traffic and the burden of people referrals to hospitals in each province to prevent the spread of CO-VID-19 as much as possible was one of the main goals of setting up this telephone system, which was achieved to a large extent.

Since the beginning of the outbreak of COVID-19, the number of contacts with the pre-hospital emergency medical system (EMS) in Yazd Province increased; accordingly, the EMS decided to set up a special hotline to meet the counseling needs of citizens and also avoid disruption in the daily services of the pre-hospital EMS. This hotline provided counseling medical services to callers for 3 months. In this regard, identifying the counseling needs of those who contacted this hotline can help healthcare systems set up this system again in the event of a pandemic in the future. In addition, by taking into account the frequently asked questions of the callers, the number of calls made to the hotline can be reduced by

producing appropriate educational content and presenting it through various media, including radio, television, and social media. Therefore, the present study investigates the counseling needs of callers living in Yazd Province, Iran.

Materials and Methods

In the current research, summative content analysis, a qualitative approach, was used. This quantification is an attempt not to interpret meanings but to use them in an exploratory manner. In the summative content analysis, qualitative data analysis is more than just counting words. This method is also known as latent content analysis. Through summative content analysis, data analysis is started to search for the occurrence of defined words, and subsequently, the frequency of each word is identified. Meanwhile, the source and respondent of the words are also identified. Counting is used to identify and conceptualize patterns in data. This process leads to the interpretation of texture or context along with the use of words or phrases [18]. The main question in this research was as follows:

What are the reasons for calling emergency centers during the outbreak of COVID-19?

The central questions of this study included the following items:

What are the domains related to the causes of calling the emergency centers?

What is the distribution frequency of these causes concerning identified domains?

Data collection

Considering that all calls made to COVID-19 hotlines along with other calls made to pre-hospital EMS were recorded and due to possible changes in counseling needs of the callers over time, the researchers first randomly checked 5% of all calls received each day (between March 15 and June 15, 2021). It was decided that if data saturation was not achieved after examining this proportion of calls, another 5% of the received calls would be examined randomly. However, data saturation was reached after examining 5% of calls.

Data analysis

This study used the summative content analysis approach. First, the recorded telephone conversations were transcribed, and then the transcriptions were read several times to get a general understanding of their content. Then, analysis units and semantic units were precisely identified by the members of the research team and a conceptual label (code) was assigned to each semantic unit. Subsequently, similar codes were placed in one category and deviant codes or negative codes were managed. Data analysis was initiated by rereading the transcriptions and followed by identifying and counting words or sentences to understand the use of the words in the context. In the next step, each unit of analysis was entered into the Microsoft Excel software, version 2019. In the process of content analysis, the entire text is considered as the unit of analysis, and a set of words or statements that are related to the same central meaning are called a meaning unit. The label that is inferred from the meaning unit based on the researcher's interpretation is mentioned under the title "code." In the third step, the keywords were searched and saturated. Selected keywords or short sentences were also entered into the Microsoft Excel software. The fourth step included sorting of keywords. All keywords that seemed to have similar content were placed into related categories. At this step, the research team discussed with each other to reach an agreement about the categories. Meanwhile, the content of each category was unique and a keyword cannot be assigned to more than one class.

Results

A total of 1023 calls (5% of all 20 460 calls made to the hotline) were analyzed, of which 70 (2.3%) calls were referred to the medical dispatcher for following as routine EMS calls, and 131(10.2%) ones were nuisance or no voice content calls (Table 1). The nuisance calls and those without content were discarded and the content of calls referring to the medical dispatcher was examined separately because of having a different nature from other counseling calls (n=70).

From the total of 822 remaining phone calls, 1279 units of analysis were extracted, which were categorized into 17 subcategories and four main categories (awareness, self-protection, medical services, and care). About 80% of the extracted analysis units were related to 8 important and basic counseling needs related to the COVID-19 disease. The counseling needs included counseling needs regarding disease symptoms (35.97%), caring patients at home (9.38%), modes of disease transmission (7.27%), centers providing services to patients (5.94%), mental health and fear of referring to medical centers (5.79%), reports on non-compliance with health protocols (5.55%), personal protective equipment (5.32%),

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Table 1. Types of calls made to COVID-19 hotline

Variables	No. (%)
Phone calls needing counseling regarding COVID-19 disease	822(80.35)
Phone calls referred to an operator	70(6.3)
Nuisance or content-less phone calls	131(12.8)

and disinfection of equipment and foodstuffs (5.08%). Another one-fifth of the analysis units were also grouped in the subcategories of nutritional counseling, how to perform COVID-19 test, information about disease incidence and mortality rate in the society, duration of quarantine, the risk of infection in patients with underlying diseases and high-risk groups, asking about rumors, cost of medical services provided to the patients, provision of medical services to foreigners, and way of burying deceased victims of COVID-19 (Table 2).

Most of the calls (n=589[71.6%]) made to the COVID-19 hotline involved only one counseling need. Other calls included two (n=172[20.9%]), three (n=44[5.3%]), four (n=12[4.3%]), five (n=3[<1%]), six (n=1[<1%]), and seven (n=1[<1%]) counseling needs. Out of a total of 70 calls referred to the medical dispatcher, 39 calls

Table 2. Main categories and subcategories of counseling needs of COVID-19 hotline callers

	Subcategories	No. (%)
Increasing disease-awareness	Disease incidence and mortality rate in the society	32(2.50)
	Asking about rumors	25(1.95)
	Modes of disease transmission	93(7.27)
Self-protection	Personal protective equipment (i.e. face mask, gloves, etc.)	68(5.32)
	Disinfection of equipment and foodstuffs	65(5.08)
	Duration of quarantine	27(2.11)
	The risk of infection in patients with underlying diseases and high-risk groups	26(2.03)
Medical services	Centers providing medical services to patients	76(5.94)
	Reports on non-compliance with health protocols	71(5.55)
	How to perform COVID-19 test	45(3.52)
	Cost of medical services provided to the patients	14(1.09)
	Provision of medical services to foreigners	17(1.33)
	Ways of burying deceased victims of COVID-19	13(1.02)
Care	Disease symptoms	460(35.97)
	Caring patients at home	120(9.38)
	Mental health and fear of referring to medical centers	74(5.79)
	Nutritional counseling	53(4.14)
	Total	1279(100)

were related to a patient with flu-like symptoms who had an emergency condition. The remaining 31 calls were related to those callers who mistakenly were converted to hotlines when they should be directly connected to medical dispatchers.

Discussion

In the present study, the counseling needs of callers dialed up COVID-19 hotline in Yazd Province, Iran were analyzed. Due to restrictive regulations related to the management of COVID-19 as well as people's fear of referring to medical centers as the formal emergency phone number (phone number=115), turned to one of the common ways to access necessary information about this disease [19].

A total of 50 days after the announcement of the COVID-19 epidemic in China, the World Health Organization (WHO) declared the novel coronavirus (COVID-19) outbreak a global pandemic on February 19, 2020, leading to worries among people [20, 21]. Reports indicated that other countries also established hotlines to meet the counseling needs of people during this pandemic [1-3, 5, 13, 14, 22, 23]. Following the outbreak of the pandemic in China and the increase in the prevalence of stress, anxiety and depression among the general population, free emergency phone numbers were established in early February based on the guidelines of the National Health Commission of the People's Republic of China to provide psychological support [22]. Considering that some people had no access to the Internet and even necessary equipment, including smart mobile phones, online mental health services could not be replaced by specialized hotlines in this field. There were 63 hotlines in China before the outbreak of COVID-19 epidemic. Until March 27, 2020, a total of 625 hotlines were set up in 31 provinces of China responding to over 200000 phone calls [23]. During the COVID-19 pandemic, the Iranian government announced that it has spent 16600 billion rials ($395 million) to provide the capacity to respond and empower the healthcare system. In that pandemic, according to reports published in Iran, a specialized fever clinic called the "corona clinic" was established in the cities to check first-level health referrals (health centers or family doctors) and to identify people who were initially screened by the web system and needed to be referred to the expert [24].

An observational study was conducted in Germany and Austria to investigate the number of calls made to the national hotline system of these two countries during the pandemic. This research revealed that the number of calls during pandemic restrictions in these two countries increased significantly, indicating the social and economic effects of this pandemic, including high rates of unemployment. The interesting point in this research was that the number of calls decreased when these restrictions were reduced. According to the recommendations of researchers in this study, social and economic restrictions must be implemented as long as needed but as short as possible to minimize the psychological effects associated with these restrictions [3].

At the time of epidemics, the workload of health care providers will be extremely high, and they experience high psychological stress [11, 22, 25, 26]. Creating mechanisms to manage treatment staff stress and anxiety is essential. In this regard, "COVID-19 anxiety hotline" was launched by Westchester Medical Center Department of Psychiatry (New York) in April 2020. This hotline provided free and immediate access to psychological support at all hours of the day and night for the medical center staff and other community members. About 15.3% of the callers were medical center staff, revealing that they experienced difficult mental conditions compared to others. The biggest concern of those who contacted this system was the death of their patients and fear of getting COVID-19 infection [27]. In their report on the lessons learned from the COVID-19 pandemic, Emami Razavi et al. pointed out that in the post-COVID-19 era, the possibility of psychological-behavioral disorders and social harms, such as poverty, violence, addiction and suicide is higher. They put special emphasis on mental health management and stated that psycho-social tensions and the atmosphere of hopelessness should be eliminated as much as possible and a social atmosphere with resilience and self-efficacy needed by the society should be created, which is full of hope and vitality, optimism, social participation and public trust [28].

People tend to reduce their worries about the disease by getting adequate information. The type of information people search for varies according to their age, job, level of knowledge and the situation they encounter. It is critical to provide accurate information based on people's concerns and desires to reduce their social anxiety [13]. The hotline operators should be trained to act according to pre-written guidelines and specific references [27]. In the present study, the hotline system consisted of several emergency administrative employees who received special training and passed the related exams.

A large number of mental health staff in China joined the COVID-19 hotline centers voluntarily. However, the emergency hotline was a completely specialized and dif-

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ferent service compared to other conventional telephone lines. Therefore, the mental health staff, who started cooperating with COVID-19 hotline centers voluntarily should acquire responsiveness skills at the time of crisis and obtain sufficient knowledge about the COVID-19 epidemic. It is recommended to provide adequate training to the volunteers before setting up emergency hotlines. Under the supervision of experts, it is also necessary to provide support services to callers who are stressed. Emergency hotlines can provide necessary services to deal with the mental stress of people in the community and be used as a tool for receiving information about the current health status of the community. Even if the aim is addressing psychological needs, emergency hotlines can also help countries obtain information about their approaches following sociocultural conditions [23].

In Santos et al.'s study, a student call center was established in Louisiana, the US, to provide support services to patients, families, and employees during the outbreak of COVID-19. For this purpose, Ochsner Clinical School issued a call to attract interested people and 24 h later, more than 100 interested students volunteered to cooperate. One of the biggest challenges for the students was staying up to date with the protocols, which was overcome by the provision of necessary training. At the end of the first week, four leaders were considered to coordinate the shifts. The most important tasks of these leaders were to train and justify the volunteers, update information, maintain the continuity of shifts, check the challenging calls, examine patients with unusual and new symptoms, and pay attention to calls from less known areas in previous shifts [29]. Considering the urgent need for the presence of informed COVID-19 experts in the hotline center established by the EMS in Yazd Province, Iran, healthcare workers, who could not provide services in the hospital environment due to various reasons, such as underlying diseases, were invited to answer calls made to COVID-19 hotlines. It was necessary to periodically provide new information to the respondents via e-mail as the information about different dimensions of the disease was revealed.

The most common signs and symptoms of people who contacted with COVID-19 anxiety hotline were anxiety and sleep disturbance [27]. Wuhan Mental Health Center reports also indicated that (from February 4 to February 24, 2020) 33.5% of the callers had anxiety symptoms, 10% had depression symptoms, and 5.5% had sleep problems [23]. Contrary to these studies, in the present study, counseling needs related to mental health accounted for only 5% of the total counseling needs of the callers. Accordingly, this difference could be due to dif-

ference in the goal of these two systems, because COVID-19 hotline system in the EMS of Yazd Province, Iran, aimed to address the counseling needs of citizens with a focus on physical issues and COVID-19 anxiety hotline, while Wuhan Mental Health Center in China aimed at provision of counseling regarding mental health. Due to the continuation of the pandemic worldwide, these psychological hotlines can provide quick and timely access to mental health care services and facilitate the referral of caregivers in the current and future pandemics. Moreover, these lines can provide cost-effective and accessible medical services in this global crisis [23].

The emergency hotline at the Brain Hospital, affiliated with Guangzhou University of Medical Sciences, offered medical services as the second hotline in China during the outbreak of the COVID-19 pandemic. For this purpose, a total of 8 805 phone calls were answered from March 23 to March 26, 2020. Among these phone calls, 22.4% were related to the COVID-19 epidemic and 26% were directly related to emotional problems caused by COVID-19, including anxiety, fear, worry, and symptoms of hypochondriasis. Out of 625 emergency hotlines, 420 lines (67.2%) provided 24-h service seven days a week. In a study conducted on Guangzhou public service hotlines, the results showed that most phone calls were made between 7:00 AM and 10:00 PM. In the aforementioned study, the authors suggested other countries set up emergency hotlines providing services 24 h a day, seven days a week [23]. The COVID-19 hotline, launched by the EMS in Yazd Province, Iran, provided round-the-clock consulting services. Regarding the time of phone calls made to the COVID-19 hotline, the results showed that the peak hour traffic was from 10:00 AM to 11:00 PM.

In 2016, following the outbreak of MERS-CoV, the South Korea Disease Control and Prevention Agency (KCDC) set up a temporary nationwide hotline (call number: 1339). After the spread of COVID-19 disease, due to the increase in the volume of calls, it was decided to continue providing medical counseling through the "1339" hotline. In this call center, the operators provided medical counseling 24 h a day, 7 days a week. Most of the calls were about the symptoms of the disease, COVID-19 testing guidance according to the agency's protocols, and referral to the screening centers if needed. With the increase in the volume of calls during the COVID-19 pandemic, the agency's staff was assigned to quickly manage the changes in the number of calls. For this purpose, people from other government organizations, welfare organizations, and health insurance organizations were employed. The KCDC increased the number

of "1339" operators in 3 phases to reach the goal of approximately 300 operators. In total, the agency was able to stand by about 1000 operators. The calls made to the "1339" hotline reflected the current issues and concerns of the people related to COVID-19. For example, at the time of the election, one of the people's questions was about holding elections and voting during COVID-19 quarantine [13].

One of the concerns of the health system managers during the COVID-19 pandemic was the diversity of hotlines in the community. For example, in Yazd Province, Iran, 2 hotlines were established at the beginning of the COVID-19 pandemic ("4030" for the Health Deputy of Shahid Sadoughi University of Medical Sciences and "111" for the provincial government). As explained earlier, EMS in Yazd Province, Iran, also set up a COVID-19 hotline to manage large volumes of calls made to EMS (115). Although the advantages of providing consulting services by these hotlines cannot be ignored, the diversity of these hotlines can confuse the community. On the other hand, the management of multiple hotlines in one community creates many challenges. Considering the high traffic of the hotlines previously existing in a community as well as the low number of contacts received by newly established hotlines, the number of respondents in existing hotline systems seems to be a better solution than establishing new hotlines. Meanwhile, although increasing hotline systems during an epidemic is essential, most people tend to contact the systems that already exist and are more well-known, so perhaps increasing the capacity of previous lines is more helpful than launching new systems [23].

Conclusion

Following the outbreak of infectious diseases, the establishment of a hotline as a way to meet the counseling needs of the community is an easy and fast solution. Other challenges about hotlines are launching new lines or enhancing existing hotline infrastructure. Evidence about launching hotlines in different countries suggested that the reinforcement of existing hotline infrastructure was more rational than setting up a new hotline. Although the executives of pre-hospital emergency organization were able to manage the large volume of calls made to receive information about the disease by upgrading the existing infrastructure, we found that some callers, who needed to receive routine pre-hospital emergency services, were unable to distinguish between COVID-19 hotline and EMS number "115" because of high stress. One of the strategies to overcome this problem is to set up and keep the hotlines responding to the health problems of the

community active in non-epidemic conditions. These lines can be reinforced during the outbreak of infectious diseases or other critical situations where the counseling needs of the community are greatly increased without impairing routine hotlines such as pre-hospital emergency service.

It is necessary to set up hotlines beyond providing a few telephone lines and answering machines. One of the gaps in such systems is the lack of monitoring and content production teams. A scientific committee must listen to phone calls simultaneously or daily and provide feedback to the respondents. If this is the case, the counseling needs of the community can be identified and hence the large volumes of calls can be managed by providing simple and useful answers through virtual networks and prestigious websites, such as the university of medical sciences. In this regard, the use of automatic answering systems and prerecorded messages to reduce the traffic load on operators and increase their response capacity to more calls is suggested for future research.

Study limitations

The limitations of the study include the lack of access to the demographic characteristics of callers and operators, which can affect the quality of counseling.

Ethical Considerations

Compliance with ethical guidelines

The present study has been registered in the Ethics Committee of Shahid Sadoughi University of Medical Sciences (Code: IR.SSU.REC.1399.276). When a person calls the emergency personnel, they intend to receive help and information, and they know that their voice will be recorded and the interviews were already recorded.

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