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Social Network Decline: Health Care Workers' Experiences of Quarantine

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Abstract

Background: Quarantine is one of the ways to control and prevent infectious diseases, such as Coronavirus Disease 2019 (COVID-19). Health care workers, who may have the experience of being quarantined, are among the people at risk for this disease.

Aim: This study aimed to explore the health care workers' perspective of quarantine.

Method: This qualitative study was conducted based on a descriptive design. The data were collected through semi-structured interviews with 18 health care workers infected with COVID-19. The participants were selected through purposive sampling, and the data were analyzed by a contractual qualitative content analysis based on Graneheim and Landman's approach. After an overview of each interview, semantic units, codes, as well as subcategories and categories were extracted through MAXQDA software (version 10) to obtain the themes.

Results: The main theme obtained from this qualitative study was "support network decline" consisted of three categories, namely psychological concerns, job concerns, and self-imposed social isolation, accompanied by six subcategories.

Implications for Practice: The support network can develop lifestyle as a factor for health care workers. Therefore, the promotion of support network will exert positive impact on social life of the health care workers.

Keywords: Health care workers, Quarantine, Qualitative study, Support network

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Introduction

Coronavirus Disease 2019 (COVID-19), an unknown contagious disease caused by a newly discovered coronavirus, was first reported in Wuhan, China, on 30 December 2019. According to the reports provided by the World Health Organization (1), COVID-19 is a rapidly emerging disease classified as a pandemic (2). Based on the latest statistics, the infection and death rates of COVID-19 in Iran have been estimated at 1,582,275 and 59,572 cases, respectively (3). The first case of COVID-19 disease was recorded on February 19, 2020, in Qom, Iran. Due to the prevalence of COVID-19 in Iran on March 25, the National Administration of COVID-19 established severe restrictions. Accordingly, working hours were reduced; moreover, schools and universities were closed until the end of the Nowruz holiday (April 3). Following that, concerns about the spread of COVID-19 increased, more precise precautionary measures were taken, and mandatory quarantine policies began (4). The only way to prevent the development of this disease is to adhere to personal and public health and apply preventive behaviors, such as social and individual quarantine (1, 5, 6). Quarantine is the first response against new infectious diseases (7), which means the restriction of communication to prevent the spread of the virus and avoid people getting infected, especially those at high risk for exposure to the virus (1, 8). In addition, quarantine often leads to unpleasant experiences due to separation from loved ones, uncertainty about health status, boredom, anger, and even suicide (8). Since health care workers are at the forefront of the battle against COVID-19 due to their job nature, and because they have to take care of patients with COVID-19, they are at high risk for developing the disease (9). Therefore, they are exposed to stressors, and they are also under physical and psychological stress. Consequently, necessities arise for providing nurses with psychological care; additionally, their health must be taken into account (10). Home quarantine means people stay at home for a while, which can bring about psychological, social, and economic effects if the quarantine period is prolonged (1).

In a qualitative study conducted by Robertson et al. in 2004, it was found that health care workers experienced a sense of rejection from those around them, a fear of transmitting the disease to others, and a feeling of frustration after they were infected with the severe acute respiratory syndrome (SARS) and quarantined. Moreover, they became socially isolated due to a reduction in social contacts (11). In 2020, a meta-analysis was performed by Brooks et al. entitled "The psychological impact of quarantine and how to reduce it". The results showed that quarantine had negative psychological impacts, including anger, boredom, impatience, fear of infection, confusion, and post-traumatic stress symptoms; moreover, it led to financial and economic losses (8).

Currently, the whole world is grappling with the outbreak of the COVID-19 pandemic. Therefore, it is necessary to break the chains of disease transmission. Quarantine is one of the containment measures and the first step in preventing the progression of infectious diseases. However, there should be awareness of the potentially adverse outcomes of quarantine on health care workers and negative impacts on pandemic control. Quarantine is accompanied by psychological impacts, and knowledge about this phenomenon, as well as awareness about individuals' experiences (e.g., health care workers) in this field, can contribute to finding different physical, psychological, economic, emotional, and social aspects of quarantine. Accordingly, the attention of health system policymakers can be attracted to this phenomenon that will lead them to consider the health of medical staff more than ever before. Increased workload, lack of resources, increased need to update information and knowledge, as well as fatigue due to work stress increase exposure to disease and illness. Due to the prevalence of COVID-19 among health care workers, the need for quarantine is essential despite the lack of staff and personnel pressure. Therefore, this study aimed to explore the health care workers' perspective of quarantine due to COVID-19 in Iran.

Methods

This qualitative study was conducted based on a descriptive design. After obtaining the required permission, the researcher referred to the selected hospitals affiliated with Shahid Beheshti University of Medical Sciences, Tehran, Iran, and extracted the list of infected health care workers. Afterward, verbal informed consent was obtained from the participants before the interviews, and they were provided with the necessary explanations regarding the research objectives and procedures. Subsequently, they were assured that the recorded audio would remain confidential by encrypting the files. Additionally, the participants were informed that they had the right to withdraw from the

research at any time.

This study included 18 participants who were selected using the purposive sampling method from 8 April to 20 June 2020. The data were collected using 18 semi-constructed interviews. The participants were the health care workers at the selected hospitals affiliated with Shahid Beheshti University of Medical Sciences, Tehran, Iran. The inclusion criteria were being infected with COVID-19 and quarantined. The interview commenced in a private area based on the willingness of the participant by phone according to a specific schedule using the following general questions: "What does quarantine mean?", "Describe a day you were in quarantine?", "What problems did you have during the quarantine?", "Please tell us about your experiences in this regard?", and "What are the effects of COVID-19 on your job, explain it?"

For greater clarity and a better understanding of the problem, some exploratory and clarifying questions, such as "Please explain more" and "Please give an example" were used during the interview. The interviews continued until data saturation when no newer information was obtained, and each interview lasted 10-20 min. MAXQDA software (version 10) was used to record, transcribe, and analyze the information. The data were then analyzed by a contractual qualitative content analysis (12) based on Graneheim and Landman's (2004) approach (13). At the end of each interview, the recorded information was carefully listened to as soon as possible and then was typed word-for-word using the Office Word software (version 2016). The texts obtained from the interviews were then controlled by the researcher using the recorded tapes, and after their accuracy was verified, the typed texts were read several times to create a general and new idea through immersion in the data.

Each interview was considered a unit of analysis. Furthermore, the semantic units of each text were identified and then converted to the initial code. Following that, the initial codes with similar meanings were converted to an abstract code. The codes were fallen into subcategories based on common characteristics, and every several subcategories formed main categories or themes based on their commonalities. To strengthen the data, Lincoln and Guba's (2005) criteria were used, including credibility, dependability, conformability, and transferability (14). Additionally, to ensure the credibility of the data, the researcher was engaged in data collection as well as analysis process and immersed in data for three months. The research team continuously reviewed the interviews, transcribed them, reviewed notes in the field, constantly compared the information, and discussed categories, subcategories, and codes extracted. To ensure the dependability of the data, the extracted codes and themes were reviewed and approved by three participants and two professors with a Ph.D. in nursing.

Moreover, three external arbitrators unrelated to this study, but familiar with the qualitative research methods, were requested to examine them. The accuracy and appropriateness of the codes were assessed by the arbitrators, and after they expressed their views in this regard, the required changes were applied. In the present study, to ensure the conformability of the data, all research stages were described in such a way that other people were able to judge them by reading them. Furthermore, participants with maximum diversity (i.e., interviews with different individuals in terms of age, gender, position, degree, level of education, place of employment, and with different work experiences) were used, including male and female nurses with bachelor's and master's degrees, male assistant nurses, female paramedics, male pediatric residents, as well as male and female operating room experts.

In the next stage, the transferability of the data was ensured immediately after conducting interviews and providing an accurate and rich description of the participants' objective statements and experiences as well as the examples and quotes presented by them. In addition, the study method was clearly described in detail so that it could be applicable in the future studies.

Results

The data were collected through interviews with 18 participants, the majority (63%) of whom were male. Moreover, the mean and standard deviation of the participants' age was 35.00±8.20 years. In addition, the majority of the participants had work experience of 10-15 years. Table 1 tabulates other characteristics of the participants.

The final extracted theme was "support network decline" which consisted of three categories of psychological concerns, job concerns, and self-imposed social isolation, as well as six subcategories. Psychological concerns were the first category of the final theme, followed by two sub-categories,

Table 1. Demographic characteristics of participants

Demographic characteristics		Frequency
Gender	Female	2
	Male	16
Job position	Nurse	10
	Operating room nurse	2
	Paramedic	1
	Nurse aid	3
	Pediatric resident	2

including fear of disease transmission, as well as isolation and loneliness (Table 2).

Psychological concerns

Quarantine and the fear of disease transmission cause anxiety, which can affect an individual's behavior. Moreover, changes in behavior may cause disease or worsen the patient's condition. Behavioral changes caused by stressful situations create unhealthy conditions for all family members, including irregularities in meals and sleep time. When an individual experiences anxiety, s/he acts in a way that leads to an increase in the likelihood of disease development or injury.

Fear of disease transmission

The stress caused by the disease is so high that makes people hurt themselves (a behavior that has nothing to do with the COVID-19). Most of the participants reported that the fear of transmitting the disease to others doubled their fear. An experienced nurse in the Nonnative Intensive Care Unit expressed her fear of disease transmission as follows:

"…In addition to physical problems, the disease was accompanied by many psychological effects as well that made the situation more difficult, and specifically, because I was married and living with my husband, I was worried about transmitting the disease to him" [1].

Another nurse shared his experience as follows:

"…I was quarantined at home in my room and had no contact with anyone else, and because I was a COVID-19 carrier, I had the stress of transmitting the disease to my family. In my opinion, quarantine should be implemented, because due to the high prevalence of the disease, being quarantined can prevent the spread of the disease and stop the disease transmission cycle" [9].

Isolation and loneliness

Most of the participants stated that during the quarantine period, they felt lonely because they could not communicate with others for the fear of transmitting the disease. Although loneliness is sometimes good, isolation is always bad. Isolation stems from a painful disease because one does not receive kindness, which breaks the heart and makes it harder to endure the disease. A nurse shared his experience of loneliness during quarantine as follows:

"…During the quarantine period, unfortunately, due to my illness, no one could visit me, and I could not communicate with anyone else and because of this, I felt sad. On the other hand, I was worried about transmitting the virus to my sister because I lived in my sister's house and she took care of me. I also felt depressed that I had to live alone for 15 days and not communicate with anyone else" [3].

Table 2. Main themes, categories, and sub-categories

Main themes	Categories	Sub-categories
Support network decline	Psychological concern	Fear of transmission Isolation and loneliness
	Job concern	Colleagues' sympathy Job stress
	Self-imposed social isolation	Nature of the quarantine for contagious disease Ambiguous symptoms and complications of the disease

Another nurse with 18 years of work experience described isolation and loneliness as follows:
"…During the quarantine period, I sent my child to my mother's house and was quarantined alone in one of the rooms in the house. I was down and felt upset that I couldn't see my child and family. I felt depressed and isolated altogether" [8].

Job concerns
Job concern was the second category with two sub-categories of job stress and colleagues' sympathy. Now that the country is suffering from COVID-19, and the hospitalization rate has become excessive, despite the work pressure and stress of suffering, the health care workers performed their duties compassionately.

Job stress
Most of the participants stated that due to quarantine, inability to help colleagues despite the high workload, short rest time, long working hours, and shift work were annoying during the outbreak of the disease. Moreover, because of the constant workload and lack of sense of control over the situation, they felt upset. A nurse defined job stress as follows:
"…I felt upset because I am a nurse and there are always shortages of manpower in the shifts, and because my colleagues were under pressure at that time. That was really a hard time, there were a lot of patients and limited workforce, and the colleagues were always under pressure" [3].

Colleagues' sympathy
Colleagues' sympathetic attention was considered one of the effective emotional components in dealing with this disease. Accordingly, the provision of psychological support for colleagues is considered a managerial factor. In addition, the moral responsibility of nurses is regarded as an individual incentive factor.
A nurse with six years of work experience shared her experience of colleagues' sympathy as follows:
"…The hospital staff cooperated with me and I didn't have many shifts after returning to work .Also, during my illness, they asked after me; but unfortunately, the complication caused by this disease is that I suffer from physical weakness when I start working and working hard" [4].

Self- imposed social isolation
Self-imposed social isolation was the third category of the final theme that included two subcategories, namely the nature of the disease, as well as the ambiguous symptoms and complications of the disease. Self-imposed social isolation was in response to individual conditions. This response to adaptation to the condition can reduce the likelihood of a person returning to life and social skills. In the COVID-19 pandemic, health care workers think that isolation was a big problem related to disease and complications. One of the forms of the disruption of social relationships is self-imposed social isolation. Accordingly, the social relationships of a patient's family members are affected by the disease so that patients tend to be isolated to escape the feeling of being excluded and minimize their social relationships, which in turn strongly overshadows the quantity and quality of their relationships.

Nature of the quarantine for contagious disease
The nature of quarantine for contagious infectious diseases is as an obligation to separate a person that may be exposed to the virus, which is considered a major challenge for human survival. Quarantine is a core component strategy for controlling disease outbreaks. A nurse described his experience of the nature of the quarantine period as follows:
"…When I was quarantined because of dealing with COVID-19 patients with different symptoms, I felt extremely worried. The nature of the disease is not clear at all. It is also not clear how the disease affects different systems of the body. The nature of the viral disease is that it can mutate and affect different systems as well" [5].

Ambiguous symptoms and complications of the disease
Due to the differences in the disease symptoms based on the severity of the disease from mild to critical, the management of ambiguous symptoms and complications of this disease requires special

attention. The duration lengths to develop dyspnea and acute respiratory failures are 5-8 and 12-8 days, respectively. Based on the severity of the disease, the duration of admission to the intensive care unit (ICU) is 10-12 days with the involvement of different systems of the body. A nurse described his experience of controlling the disease complications as follows:

"…I'd heard that the drugs used can affect the liver and kidneys, so I was frightened and felt anxious. I used sisymbrium on an empty stomach every day during the quarantine. After the quarantine period ended, I had kidney and liver tests ordered by an emergency medicine specialist and it was found that there was no problem" [7].

Another nurse described his experience in the ambiguous symptoms of the disease as follows:

"…Every day I experienced new symptoms, one-day headache, one-day body ache, loss of appetite, loss of sense of smell, it is not clear where this virus affects and what are its complication" [2].

Discussion

This study aimed to explore the health care workers' perspective of quarantine during COVID-19. According to the results of this study, the "support network" plays a key role in health and can increase one's ability to resist infections, which leads to an increase in the activity of Natural Killer cells and a decrease in the concentration of interleukin-4. Another positive effect of the social network is a better adaptation to stressful situations. Portugal et al. conducted a cross-sectional study during 2016, and the results showed that loneliness and isolation were negatively associated with the psychological domain of quality of life (QOL) in patients. However, social support and the environmental domain of OOL were positively associated with interaction (15). In 2018, Lau et al. revealed that dementia in the elderly was negatively associated with the type of local social network. Moreover, those with a family-dependent social network had a negative relationship with dementia, while the cases with a community-focused social network reported no dementia (16).

In the same line, Donev performed a study in 2005 and revealed that social network and support were two determinants of health. Since communication and mutual commitments make people feel cared for, loved, respected, and esteemed, supportive relationships have a strong protective effect on health and may encourage improved behavioral patterns. Social relationships, which can be analyzed at a mainly individual level as social support and a community level as social capital, are specifically considered an important part of a social environment. Social networks cover a set of relationships through which individuals can develop their identities, which in turn motivates them to act according to their feelings and lifestyles; therefore, networks may be used to reinforce positive and negative patterns of health behaviors (17).

Psychological concerns were the first category obtained from the result of the present study. This concept indicated how health care workers during quarantine experienced psychological distress and felt that they had transmitted the disease to family members. It is worth noting that this stress is worse than the disease. On the other hand, they felt frustrated and depressed since they were alone and had no social or work relationship. The worldwide spread of COVID-19 in 2019-21 has brought not only physical concerns but also psychological concerns for all walks of life so that many people at risk, including health care workers, people with chronic diseases, students, and pregnant mothers, experienced psychological injuries, such as excitement, depression, stress, decreased mood swings, irritability, insomnia, and post-traumatic stress disorder.

Robertson et al. carried out a qualitative study in 2004 on the psychological effect of being quarantined because of SARS. Accordingly, three themes were extracted, including loss, duty, and conflict. The participants expressed a wide range of emotions, including fear, uncontrollability, anger, and frustration. Most importantly, they paid special attention to their profession and duties regarding taking care of patients. Due to the prevalence of COVID-19, it is necessary to provide health care workers with practical advice on coping and stress management techniques (11).

Similarly, Molla Esmail Shirazi et al. conducted a qualitative study on women with HIV in 2012. They found that the criminal perspective was a label that society, due to lack of awareness, attaches to women with HIV, which in turn makes them experience deprivation and suffer from social isolation. Moreover, they are attempting to hide it due to personal experience in this sense (18).

According to the health care workers' perspectives, job concern was one of the important categories in this study. Financial worries and lack of a financial support network put health care workers' mental

health at risk. Jenna et al. 2020 showed that job insecurity was a major concern during COVID-19 quarantine, affecting mental health. Moreover, hopelessness was a risk factor for depression due to income changes during quarantine (19).

Another category of the obtained main them was self-imposed social isolation. Due to the unknown nature of the disease, its ambiguous symptoms, and high transmission power, all countries have recently emphasized self-imposed social isolation that provides safety both at home and in the work environment. Debanjan and Mayank in 2020 declared that loneliness caused social changes during the COVID-19 pandemic and was a risk factor for mental disorders, leading to increased isolation. This vicious cycle causes the person to be alone in their compact space resulted in more social isolation (20).

In a similar vein, He et al. addressed discrimination and social isolation in patients with COVID-19 in 2020. Discriminatory practices ranged from verbal abuse to violent attacks. Women, young people, and people with less education were more likely to be discriminated against and even suffered from excessive violence, while people with permanent residency were less likely to report such experiences. Meanwhile, there was also an increase in being socially deprived of areas most affected by the virus within racial and national boundaries. Discrimination and social isolation may exert detrimental impacts on social outcomes, especially in the face of infectious diseases. Furthermore, they can eliminate various factors associated with identifying, isolating, and transmitting the virus. Concerning the existing probabilities of transmission and being contaminated with disinfectants, despite setting certain restrictions on food preparation, patients may have to spend more time searching for essential equipment and potentially have turned to illegal sources, which in turn leads to increased communication with others and makes them unable to self-quarantine automatically. Furthermore, social isolation inhibits disease identification at early stages and, in general, the disease. In severe cases, patients may even try to escape from the hospital, as occurred previously when other infectious diseases, such as SARS, Ebola, and HIV had emerged (21).

Regarding the limitation of the current study, one can refer to the different experiences of each participant regarding the quarantine duration due to the unknown nature of the disease, symptoms, complications, and permanent mutation of the virus. Moreover, the results of this study were obtained from the interviews conducted with health care workers in selected medical-educational hospitals of Shahid Beheshti University of Medical Sciences, Tehran, Iran, and may not be generalizable to health care workers in other hospitals.

Implications for Practice

Given the results obtained from this study and participants' experiences, it seems highly necessary to address the support network in the current situation. The support network covers a set of relationships through which individuals can develop their identity and shape their lifestyles. Therefore, the decline of such a network will exert negative impacts on individual and social life.

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Conflicts of Interest

The authors declare that there is no conflict of interest regarding the publication of the study.

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