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# Health-care workers' experience of stressors and adaptation strategies for COVID-19: A qualitative research

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## Abstract:

**BACKGROUND:** The mental health of health-care workers with their unique role in responding to the COVID-19 pandemic is strictly essential. Hence, to react effectively to the pandemic, it is essential to collect further data on the stressors and adaptation strategies. The aim of this study is to explain the health-care workers' experiences of stressors and adaptation strategies used during the COVID-19 pandemic outbreak.

**MATERIALS AND METHODS:** A qualitative content analysis approach was employed in this study, with semi-structured in-depth interviews. Nineteen health-care workers participated in the study by purposeful sampling method. The study setting included selective educational hospitals that admitting patients infected with COVID-19. The data were analyzed using content analysis method.

**RESULTS:** Stressors were classified under four major categories: idiopathic, i.e., arising from unknown causes, individual and familial, stressful work environment, and socially imposed stressors. The adaptation strategies were classified under inactive and active adaptation strategies.

**CONCLUSIONS:** The stressors include the stresses arising from the unknown nature of the disease, stressful work environment, individual and familial stresses, and the socially imposed stresses. The adaptation strategies include inactive and active adaptation strategies. Identification of these factors can help workers and management to effectively react to the pandemic.

## Keywords:

COVID-19, health personnel, Iran, psychological, qualitative study, stress

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## Introduction

As late as December 2019, the outbreak of a viral disease was reported in Wuhan, China. The cause of the disease was a new virus from the Corona family referred to as SARS-CoV-2, and then as COVID-19.<sup>[1]</sup> Because of its high spread ability, the virus spread rapidly throughout the world and infected all the countries in the world within 4 months.<sup>[2,3]</sup> According to reports, the increasing mortality caused by the virus exceeds 500,000 in the world and 23,000 in Iran.<sup>[4,5]</sup>

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Due to the nature of their work, the workers at health-care centers are directly affected by the COVID-19 pandemic, and as regular specialized centers for providing health-care services, constitute a major component of the pandemic responsible for the protection of the patients' lives and health.<sup>[6]</sup> The role of the workers under these conditions is so significant that one can confidently claim that a most important factor in the success of such centers in coping with the pandemic is to attribute it to their efficiency.<sup>[7]</sup> In response to the COVID-19 pandemic, health-care workers attend work constantly, playing their key roles. Using their skills and speed, they provide the care needed

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for the people infected in order to prevent the problem from exacerbating and developing complications.<sup>[8]</sup> The workers at health-care centers are on the frontline of fighting COVID-19. They need to spend more time with the infected patients and are exposed to the risk of infection. The findings of a study indicate that the proportion of infected health-care workers during the COVID-19 outbreak was 3.8%.<sup>[9]</sup>

In view of the pathogenic nature of the virus, the speed of outbreak and the resulting mortality have jeopardized the mental health of the population at large, health-care workers, in particular.<sup>[10-12]</sup> Based on the previous research conducted during the outbreak of SARS and Ebola, the health-care workers suffered from such harmful psychological disorders as anxiety, fear, and the stress of being stigmatized which could seriously damage their performance and the quality of the service they provided.<sup>[13]</sup> The results of a study indicate that during the outbreak of COVID-19, the workload of the nurses increased and fear of being infected developed. Health-care workers believed that working during the outbreak of COVID-19 was difficult and scary, and that some of their colleagues refused to continue working under clinical conditions.<sup>[14-17]</sup> In a study conducted on the medical doctors and nurses in Wuhan, China, during the outbreak of COVID-19, it was revealed that the health-care workers experienced more symptoms of depression (51.4%), anxiety (44.6%), insomnia (34%), and painfulness (71.5%).<sup>[18]</sup>

Concern for the mental health of health-care workers who play a vital role in controlling the disease during the outbreak of COVID-19, is indispensable.<sup>[19]</sup> If the stressors are not identified, they not only adversely affect the performance of the safety system and increase the probability of infection with the disease, but also adversely affect the quality of the care and safety provided for the patients.<sup>[20]</sup> As we are experiencing a new pandemic, the experiences of the health-care workers of the stressors and the adaptation strategies used during the pandemic in Iran, have not been made sufficiently clear. Hence, this study was conducted with an aim to learn about the experiences of the health-care workers, including the stressors and adaptation strategies used during the outbreak of COVID-19. Understanding such factors provides useful information for the policymakers, planners, and senior managers in order to improve on the mental health of health-care workers.

## Materials and Methods

### Study design and setting

This study was conducted using a descriptive-qualitative method. The research environment was a teaching

hospital affiliated to the University of Medical Sciences admitting patients infected with COVID-19.

### Study participants and sampling

The participants were 12 nurses and 7 medical doctors. The requirements for the participation were that the nurses and medical doctors working at the hospital be interested in participation in the study. The sampling was purposive with the widest variation in terms of the work experience, position, age, gender, and education.

### Data collection tool and technique

The data were collected over a period from April to July 2020, using one-on-one interviews on the research questions along with a briefing of the interview guidelines for the semi-structured questions on the stressors and adaptation strategies. To accredit the content validity, the interview guidelines were reviewed and revised by three Nursing Department Faculty members adept in qualitative studies. Then, the interview guidelines were evaluated on the first two interviews when changes were made to the leading questions. The location and timing of the interview were decided by the participants. Depending on the conditions and the participants' interests, the duration of the interviews varied from 20 to 50 min. The interviews opened with general questions on the personal data of the participants and continued with what stresses they experienced during their care of Corona-infected patients, what factors caused stresses, and what procedures they used to counter the stresses. Further follow-up questions based on the experiences reported by the participants were intended to access detailed information and clarify the concept. All the interviews were recorded. Sampling continued through to repeating the previous data and to saturation.

Data analysis proceeded concurrently with the data collection. Following Graneheim and Lundman's method, in order to achieve an overview, first, the audio data were listened to and read repeatedly prior to coding. Second, they were written word by word and typed using WORD. For coding purposes, software MAXQ-DA was used. Third, the entire text was divided into smaller parts, each referred to as meaning unit. Fourth, the overall meaning of each meaning unit was summarized and plugged in a new column, referred to as compressed meaning unit. Fifth, the meanings of the compressed meaning columns were coded. In this way, the entire text was made accessible as extracted codes. Sixth, the codes were classified according to their similarities and differences. Each group was assigned a name embodying all the codes within the groups. Finally, the groups were, to the extent possible, placed in larger groups (subgroups). The subgroups with further coordination were, too, integrated; hence, the main groups emerged.<sup>[21]</sup>

In this study, the standards for credibility, dependability, transferability, and conformability were used to provide for the accuracy and strength of the data.<sup>[22]</sup> To provide credibility for the findings, sampling was performed with the maximum variation, prolonged attendance of the researcher at the research environment, and the complementary views of the colleagues, particularly those engaged in the environment, were used. To add to the dependability of the findings, the method and framework of coding was clearly defined. Furthermore, the findings were verified by two competent research experts from outside of the research team. To provide for transferability, the experts were selected with the widest variation in expertise, occupation, and position. The conformability of the data was provided for by three participants controlling the data and ensuring that the researchers were committed to averting their individual preoccupations.

### Ethical consideration

This study was approved by the Ethics Committee affiliated to the University Vice-Presidential Department (ID: IR.MUI.RESEARCH.REC.1399.352). All the participants participated in the study by giving their oral and written consents. Furthermore, the oral consents of the participants were obtained for the purpose of recording the interviews and group discussions, and the participants were reassured of the anonymity of the individual information they provided.

## Results

In view of the participants' experiences, the stressors were classified under four major categories: Idiopathic, i.e., arising from unknown causes, individual and familial, stressful work environment, and socially imposed stressors. The adaptation strategies were classified under inactive and active [Table 1].

### Stressors

#### Idiopathic

An important source of stress among the participants are the unknown causes that includes two subcategories: "the unknown nature of the disease" and "doubt as to how to protect ourselves."

A medical doctor said: *"It is not known at all what the disease is like, how it is transmitted, and what the cure is..."*

A participant nurse said: *"When I want to suction, I really get stressed out. I fear getting infected with Corona though I wear a protective shield and mask N95."*

#### Stressful work environment

In this category, the subcategories identified include "increased workload" and "insufficient support from the management."

A nurse participant said: *"We are very short of manpower. All the beds are taken. I work both morning and evening shifts, almost twice my regular working hours. It's all stressful."*

Another participant nurse said: *"I am suffering from immunity deficiency syndrome. I talked to the management but they refused to cooperate, so I had to report to work, terribly stressed out."*

#### Individual and family stress

Most of the participants referred to the stress created by the fear of getting infected themselves or of their families during the disease outbreak. A nurse said: *"Somehow I have obsession with COVID-19. I am always thinking of it such that I run short of breath, have cold sweat and chest pain. I had a test to make sure that I was not infected."* A medical doctor said: *"My spouse and I are both medical doctors. Under these conditions, we are terribly tired and stressed out."*

#### Socially imposed stress

This category comprises such subcategories as "social stigma", "low sensitivity perceived by the society", and "the stress created by the virtual social space."

A nurse said: *"I had my daughter enrolled at a daycare center. When the management of the daycare center learned that I worked for a hospital, they phoned to say they couldn't accept her..."*

A medical doctor said: *"My colleagues and I haven't seen our families for about 3 weeks. Yet many people do not understand, go on trips, and attend shopping centers or to parties without caring for the disease."*

A nurse said: *"Specially at the early outbreak of the disease when we didn't know very much about it, the groups in the virtual space spread lots of rumors, causing anxiety and stress."*

### Adaptation strategies

Adaptation strategies were classified under two major categories: Inactive and Active.

#### Inactive adaptation strategies

This category comprised three subcategories: "Avoidance," "Acceptance and Tolerance," and "Spiritualism."

Avoidance: A participant nurse said: *"We were not sure that the protective equipment we had could protect us from the disease. So specially in the early days, except in emergencies, we would not approach the patients."*

Acceptance and Tolerance: A participant nurse said: *"The issue that has come up has engaged the entire world. All we have to do is tolerate. For the time being, we have to get along with it. There is no other choice."*

**Table 1: Experience of the health-care workers in Iran of stressors and adaptation strategies**

Code	Subcategory	Category		
Treatment of the unknown	Unknown nature of the disease	Stress from the unknown nature of the disease		
Unknown cycle of the disease				
Effective medications to treat the disease				
Unknown means of disease transmission				
Lack of reliability on the effectiveness of the existing protective equipment	Doubt as to how to protect ourselves	Stressful work environment		
Shortage of manpower	Work overload			
Absenteeism of the colleagues at risk, such as pregnant women, people with an immunity deficiency system				
Absenteeism of some colleagues for fear of the disease				
Unfamiliarity of the volunteered manpower with the current department routines				
Concentration is reduced due to wearing heavy suits				
Disruption of normal diets and rest at the department because of the protective suit				
Fail to support and sympathize with the workers	Insufficient support from management			
Fail to evaluate the risk and attend to the vulnerable workers during the pandemic outbreak				
A shortage of individual protective equipment	Individual stress		Individual and familial roles	
Lack of a good protocol to support the infected workers				
Lack of a uniform procedure for the workers to follow				
Doubt as whether to continue or turn over your job				
Obsession with infection				
Discouraging because of the conditions of the patients and their families				
Rumors discourage the workers				
Discouraging due to the mortality rate among the youth as well as unexpected deaths				
Families are socially isolated for fear of infection		Stress in familial relations		
Conflicts arise or are aggravated in family relations				
Families are concerned about the infection of workers				
Friends and relatives keep their distance from us				
Lack of peace at home	Social stigmatization	Stress imposed by the society		
Lose your leisure time with your family				
Workers at other departments refuse to approach nurses at the corona department				
Workers' families refuse to approach their relatives				
Children at day care centers stay away from the children of Corona department health-care workers				
People fail to take the pandemic seriously			Low sensitivity perceived by society	
People disregard warnings				
People fail to comply with the lockdown protocols				
People go on trips			Stress experienced in virtual social spaces	Inactive adaptation
Spread false beliefs by the social media				
Provide conflicting data				
Pretend that the disease is normal	Avoidance			
Refuse to listen to the news				
Underestimate the risk of the disease	Acceptance and tolerance			
Seek to turn over your job				
Refuse to approach the patients except in emergencies				
Refuse to provide invasive care procedures				
Be patient and tolerant				
Think positively				
Keep up your morale				
Submit to the divine providence		Spiritualism		
Believe in the divine trial				
Turn to prayers and supplication				
Search for information	Improved empowerment	Active adaptation		
Search and depend on the support resources accessible				
Comply with the procedures	Self-management			
Take care of yourself				
Adapt to the existing conditions and resources				
Control yourself				

Spiritualism: A participant said: *“Well, you suffer. You are stressed out, so you won’t get infected with Corona and won’t die. Well, after all, God created His serfs to try them. Perhaps God means to try us this way.”*

### Active adaptation strategies

This category comprises two subcategories: Empowerment and self-management.

Empowerment: A nurse said: *“Under these conditions, I try to update my information, read the new protocols, and discuss them with other colleagues and exchange information.”* A nurse participant said: *“My husband is overprotective of me. Under these stressful conditions, he tries to help me...”*

Improvement on Self-Management: As for this, a participant said: *“You need to know how to handle things on short resources and so many patients to take care of. Above all, you shouldn’t get flustered. We need to control ourselves.”*

## Discussion

The aim of this study is to learn about the experiences of health-care workers with stressors and adaptation strategies during the outbreak of COVID-19. The stressors include the stresses arising from “the idiopathic (i.e., unknown) nature of the disease”, “stressful work environment”, “individual and familial stresses,” and “the stress imposed by the society.” The adaptation strategies, too, include “the inactive adaptation strategies” and “active adaptation strategies”.

As for the pandemic COVID-19, the health-care workers have experienced unprecedented mental stresses.<sup>[23,24]</sup> Depending on the conditions, the stresses may arise from different sources. However, the unknown nature of the disease is a stressor shown to be true not only for this study but also for other studies.<sup>[23,25,26]</sup> Medical care protocols for patients have frequently changed, and here in Iran, we have seen them enforced variously in hospitals. Lack of a national guideline for medical care and release of patients has also been substantiated in a study conducted on the patients in New York.<sup>[23]</sup> Conducting further controlled research projects and benefiting from the experiences of the countries throughout the world, as well as from the approach of the inter-professional cooperation of the health-care experts to develop medical care protocols, can deduct from the confusion in managing the disease and relieve the stress on health-care workers.

Another perceived stressor under the Corona pandemic, is the stressful work environment. During the outbreak of Corona in Iran, a directive was issued authorizing the health-care workers at high risk to leave the Corona health-care system. However, it was not fully enforced due to shortage of manpower. Furthermore,

1% turnover in manpower was reported during the Corona pandemic.<sup>[26]</sup> This is not unrelated to the inadequate support of the management during the outbreak of the pandemic COVID-19. Perceived inadequate infrastructural and emotional support from the management under such conditions is the source of stress, while the management’s efforts to improve on the quality of the professional life can increase the satisfaction of the employees and reduce the job turnover.

Apart from the stress at work, the individual and familial stresses were recognized as the most important stressors for workers during the Corona epidemic, a fact supported by other studies and during the flu epidemic.<sup>[23,25,27-29]</sup> In a study by Shechter *et al.* conducted in New York, the source of the highest mental stress (74%) and fear of the viral transmission was attributed to their family members and people of their interest.<sup>[23]</sup> In view of the family role as a major source of the social support for employees, keeping away and distancing from others will double the stress. Under these conditions, providing counselling on the mental health of employees and their families can be a solution to conformability. Unfortunately, providing such services for this priority group has not been envisaged in the organization. Not even a study has been conducted on the families of the health-care workers. Therefore, conducting a study of this nature on this vulnerable group seems indispensable.

Besides family isolation, the participants experienced stress in the form of stigmatization or rejection of themselves or their family members from different social environments, low social sensitivity to COVID-19, and rapid spread of false beliefs in the virtual media and networks. Social stigmatization is a cultural issue that we have seen in the experiences of other epidemics in different countries.<sup>[30]</sup> Fear of stigmatization causes health-care workers and their families to postpone seeking services when they need them.<sup>[30]</sup> Social stigmatization leads to prejudice and restriction for health-care workers to participate in social activities, and occasionally results in violence against individuals and groups. Therefore, acculturation by social education will help reduce stigmatization and the stresses experienced by health-care workers and their families. Furthermore, it is essential that the perceived social sensitivity to infection with the disease be increased. Perceived sensitivity is the way the society members perceive the probability of infection with the disease. Perceived high sensitivity leads to adopting preventive measures against Corona.<sup>[31]</sup> In the opinion of the participants, the sensitivity perceived by the society members to infection with COVID-19, is low. However, sometimes virtual media and networks themselves cause false beliefs to spread and stresses to increase. Therefore, it is necessary that as a leading organization on international health,

the World Health Organization uses its websites and social media to spread proper information throughout the world.

Yet, to reduce and moderate the impact of the stresses experienced during the outbreak of the Corona pandemic, it is necessary to develop adaptation strategies. Some participants used negative inactive adaptation procedures such as underestimating the risk of infection, seeking to turn over their jobs, refusing to approach and take care of the patients, or seeking to receive the patients and boosting their morale, trying to reduce their own stress by turning to prayers and spiritualism. As for the inactive adaptation, when people realize that they feel they are unable to change the stressful situation, they counter the stressors by changing their perception of and attitude towards countering the stressors. Since using avoidance as the adaptation procedure affects the quality of care, lack of the adaptation skill can disrupt the provision of care for the patient.

Yet, the role of spiritualism in controlling the stress has been proved to be true, and that improved spiritual welfare can reduce job burnout, discouragement, and hopelessness in difficult conditions.<sup>[25,32]</sup> Therefore, planning and devoting some time to such spiritual activities as prayers, supplication, and meditation in the organization can help effectively cross the stage of avoidance and acceptance of the pandemic. Moreover, individual empowerment by collecting more information and relying on support and self-managerial resources were the active adaptation procedures referred to by the participants to reduce stress and promote health. Studies have indicated that feeling of lack of control over the conditions during the Corona pandemic, accounted for 60% of the stressors.<sup>[23]</sup> By empowerment is meant the feeling of individual empowerment to control the environmental conditions and decision-making, and by self-management is meant the ability to control the individual emotions in different conditions.<sup>[31]</sup> Increasing knowledge and awareness of the disease is one way to promote the health of the workers and ultimately control the stress arising from the unknown nature of the disease. Apart from the individual efforts, the organization itself needs to empower health-care workers and ultimately effectively reduce their stresses by providing updates, comprehensive health-care protocols, and promoting mental health advice and services. However, self-management is more of an individual skill and a subcategory of emotional intelligence. Apart from the fact that empowerment helps promote self-management, it is mandatory that health-care workers turn to individual self-managerial exercises by setting goals to push away negative thoughts, concentrate on positive thinking, record the

events, and plan for the behavior meant to promote health.

The COVID-19 pandemic is unprecedented and our study identified sources of stress and coping strategies among health-care workers without identifying the sources of stress and coping strategies in this crisis, quality care provision would be difficult. Furthermore, these findings highlight an important need to better understand how health-care workers during crises cope with the situation and to determine whether interventions can enhance more adaptive coping behaviors. Many staff will be negatively psychologically affected. There are, however, opportunities at every level to make a difference to the mental health support of staff, and to identify and encourage opportunities to find growth and meaning in this situation. Our society should now regard these individuals and it is our duty to provide the support they deserve.

### Limitation and recommendation

A limitation of this study is that the progress of the pandemic and its complications for both the public and health-care workers vary from the time this study was conducted onwards. Hence, the results of this study can, to some extent, depend on time, and that the repetition of the study may yield different results under the present conditions.

### Conclusions

The results of this study provide, for the purpose of health-care workers, an approach to stressors and adaptation strategies used during the outbreak of COVID-19 pandemic. The stressors include the stresses arising from the unknown nature of the disease, stressful work environment, individual and familial stresses, and the socially imposed stresses. The adaptation strategies include inactive and active adaptation strategies. Identification of these factors can help workers and management to effectively react to the pandemic.

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### Conflicts of interest

There are no conflicts of interest.

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