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# Health protection challenges of slums residents during the COVID-19 pandemic, according to the social determinants of health framework: A case study of Kerman city in Iran

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**Abstract:**

**BACKGROUND:** Coronavirus disease-2019 (COVID-19) pandemic can aggravate the health problems in slum areas. The present study intends to examine the challenges of health protection of slum's residences during the COVID-19 pandemic with the Social Determinants of Health perspective, in Kerman city in Iran.

**MATERIALS AND METHODS:** The present study was a qualitative content analysis. Data were collected by purposeful sampling in-depth and semi-structured interviews with 16 people. The interviews were conducted (from October to December 2020) with the local representatives of the slum's residents, health-care workers, managers of facilitation offices, and welfare social service centers that are located in slum areas (Interview's guide is attached). The textual material from the interviews was entered into the MAXQDA software and directed content analysis was used to analyze the data.

**RESULTS:** Data analysis led to the identification of 4 categories (Sociocultural, Situational, Economical, and Physical environment) and 12 subcategories: Sociocultural: lack of awareness, begging culture, low trust in disease control programs, low bottom-up planning, and increasing violence; Situational: decreasing donors' activities and canceling important meetings; Economical: unemployment, decreasing in income, and increasing limitations of many institutions in providing resources; and Physical environment: inadequate space and inappropriate conditions in some houses and alleys for people protection against Corona viruses.

**CONCLUSIONS:** Slum residents have faced many challenges during the COVID-19 pandemic. These challenges can affect the health of slum and other urban dwellers. Multidisciplinary thinking and actions are needed. Increase awareness and engagement slum residents in control disease programs should be considered.

**Keywords:**

Coronavirus disease, coronavirus disease-19, Iran, Kerman, slum, social determinants of health, suburban

## Introduction

Coronavirus disease (COVID-19) is a global pandemic that has affected millions of people worldwide. According

to recent global statistics (MAY 2021), about 164 million people have been infected, and about three million have died from the disease.<sup>[1]</sup> Inequalities in the world for eradicating this pandemic have led to

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serious challenges. Living in urban slums is one of the biggest challenges.<sup>[2]</sup> Living in slums has a long history of more than 100 years and the number of slums in the world is increasing. About three billion people now live in cities and about one billion in the slums.<sup>[3,4]</sup> Asia and South Africa have the highest rates of marginalization in the world. This rate is increasing. It is estimated that by 2025, more than half of the world's slum population (56.9%) will be in Asia.<sup>[5,6]</sup>

Lack of safe drinking water, lots of garbage in the neighborhood, overcrowding, psychological stress, and other health problems in the slums have made residents susceptible to various diseases.<sup>[7,8]</sup> Iran is no exception to this global problem and suburbanization affects some cities, in particular, the most populous cities.<sup>[9,10]</sup> According to the World Bank, in 2018, about 25.3% of the Iranian population will live in urban slums.<sup>[11]</sup>

Kerman city, which is the capital of Kerman province, in the southeast of the country is also one of the cities influenced by suburbanization. Many residents of these areas live in poverty under poor conditions.<sup>[12,13]</sup>

Poor residents of urban slums have often been more vulnerable to viral infections during epidemics. A report in 2018 from New Delhi shows that suburbanites are 44% more likely to suffer from influenza than people in other urban areas.<sup>[14]</sup> One of the main reasons for this situation has been reported to be unfavorable economic, social, and environmental conditions in these areas, and many diseases and health risks are strongly associated with social determinants of health (SDH).<sup>[15,16]</sup> According to the World Health Organization (WHO), poverty creates morbidity and forces people to live in a place where their health is threatened due to improper shelters with no safe water and adequate sanitation.<sup>[17]</sup>

Due to the (SDH) in relation to all elements, marginalized people are very exposed to inequity in health. Structural determinants of health (such as education, income, employment, gender, race, and social class) are more important in slums and informal settlements. Discriminations create major barriers to health and make marginalized groups more vulnerable.<sup>[18-20]</sup> Given the living conditions and greater vulnerability of these areas to health problems, especially infectious respiratory diseases, such areas need special policy-makers' attention and planning.<sup>[21]</sup>

Many studies were conducted on the COVID-19 outbreak in the slum areas. These studies have acknowledged the greater dangers of this disease in the slums. According to a World Bank report in October 2020, urban slums are at greater risk for COVID than other urban areas.<sup>[22]</sup> A report in India evaluated the ability of slum residents to follow

the recommendations made by the government and scientists, showing that they were less likely to observe strategies such as social distancing, handwashing, and caring for vulnerable groups.<sup>[23]</sup>

Slum's residents often suffer disproportionately from diseases compared to other urban dwellers; this affects health equity.<sup>[24]</sup> As shown in Friesen and Pelz research, one of the most important challenges with COVID-19 is the lack of proper information about the living conditions of the residents of urban slums and their health status.<sup>[25]</sup> Another study has shown that urban slums have the highest incidence of this disease. This study considers the continuous growth of urban slums in Asia and South Africa as important challenges in the future prevalence of respiratory diseases from the perspective of socioeconomic justice and public health.<sup>[26]</sup> As shown in Lustig *et al.* study, slum dwellers have the least ability to cope with the negative effects of epidemics, and would experience longer negative effects.<sup>[27]</sup>

Several studies conducted on the COVID-19 outbreak in the slum areas in such a short time imply the importance of this issue for health. In the suburbs of Kerman city, many valuable actions have been taken to control of the COVID 19 pandemic. However, there are challenges in this regard that can threaten the health of residents. Studying the challenges of these areas and efforts to address them will prevent the spread of as many diseases as possible. Consequently, they will have less economic and social consequences for societies. The present study aimed to investigate the health challenges regarding the prevalence of corona disease in three of the suburban areas in Kerman city. The findings of this study help to better understanding of the specific health challenges of urban slums during the COVID 19 pandemic. It can also help health managers to better planning and policy-making in this area and also for future pandemics.

## Materials and Methods

### Study design and setting

Our research used the qualitative method and a content analysis approach to analysis of health challenges in slums during the COVID-19 spread. This approach can be used with either qualitative or quantitative data.<sup>[28]</sup> Definition of qualitative research is "the study of the nature of phenomena, including their quality, different manifestations, the context in which they appear or the perspectives from which they can be perceived." Since the purpose of this study was to examine health challenges in slums from different perspectives, qualitative method is the most appropriate method.<sup>[29,30]</sup> For this purpose, semi-structured interviews were used, which are most used in health studies.<sup>[31]</sup>

### Study participants and sampling

Since purposeful sampling tries to collect data from the most knowledgeable people, the interviewees in this study were purposefully selected. The study hypothesis was that people who work or live as close as possible to slums have the most information about the situation and challenges of these neighborhoods. Therefore, we selected the sample study as follows: health-care providers working in the health centers of slum areas, local representatives of slum's residents, managers of facilitation (Tasshigari), offices (The actions of these offices are to improve the living conditions of the slum dwellers. Their approach is resident's empowerment.), and the welfare social services centers (The actions of these centers are also to improve the living conditions in the slums) that all of them located in the neighborhoods. Three suburbs of Kerman city (Bani Hashem, Chahardah Masoom, and Sharafabad) were selected for this purpose. Finally, a total of 16 interviews were conducted from different groups over 2 months (From the 20<sup>th</sup> of October to the 20<sup>th</sup> of December) in 2020.

### Data collection tool and technique

The instrument of the study for data collection was a semi-structured interview (Appendix 1). The interview protocol was prepared by the relevant literature, expert opinions, and by the collectively four authors of the article. It was conducted as an iterative process until a consensus was reached in terms of including the desired items in the questions. To ensure the accuracy of the questions, two preinterviews were performed and corrections were made.

All interviews were implemented in Word software. The average duration of the interview sessions was 40 min. Due to the spread of COVID, most of the interviews were conducted by phone using Call Recorder software for recording the dialogues. To obtain the telephone numbers of people, the Social and Cultural Affairs Office of the Provincial Government (Ostandari), Social Welfare Affairs of the province (Behzisti), and the Health Deputy of Kerman University of Medical Sciences were asked to cooperate with the researcher. Interviews were stopped in the 16<sup>th</sup> interview due to the saturation of information in the data collection stage.

### Data analysis

This study used the directed content analysis. All interviews included in the Microsoft Word entered MAXQDA 2018 software and the textual material from the interviews were read and re-read by two authors several times for familiarization. Considering the SDH framework, as the guiding principle of the study, the main concepts for initial coding were identified, meaning units were formed, and then, the codes were classified

into subcategories based on similarities and differences. This process was ongoing and iterative.

For ensuring rigor, the study used Lincoln and Guba's Evaluative Criteria.<sup>[32]</sup> Therefore, four criteria credibility, transferability, dependability, and confirmability criteria were employed. Thus, the technique of peer debriefing and member check was used so that after the initial coding by some authors (S. GH and MH. M), the codes were re-checked by other authors (N. R and V. YF). To increase the accuracy in selecting the extracted themes, a reciprocal check was performed. Furthermore, the details of research questions, data collection, and data analysis were thickly described and sufficient and relevant quotations were provided.

### Ethical consideration

Before starting the interviews, sufficient information about the research was given to the individuals and then their consent to participate in the study was obtained. They were assured about the confidentiality of the information and that they could refrain from answering questions whenever they wished. Interviewers were allowed to record audio. The Ethics Approval Code for this study is IR.KMU.REC.1398.697 that is obtained by the Ethical Committee of Kerman University of Medical Sciences.

## Results

In our study, we interviewed 5 males and 11 females, who were from different backgrounds. Health-care providers, welfare providers, managers and personnel of slum facilitation offices, and local representatives of slum residents were interviewed. Table 1 outlines the baseline characteristics of the participants.

We explored the challenges of health in slum's areas during COVID-19, using qualitative method. Themes and subthemes related to these challenges are mentioned in Table 2. These include 4 main categories and 12 subcategories.

### Categories and subcategories

#### *Sociocultural*

The first main theme identified is sociocultural. Sociocultural factors play an important role in behaviors, learning, and awareness. Furthermore, effective actions in preventing diseases and health promotion should be based on understanding the culture, beliefs, and interactions of individuals and social groups.

According to the interviewees' perspective, the first and most frequent issue in this theme was the lack of awareness, culture, and knowledge of some residents about coronavirus disease. An interviewee said:

**Table 1: Characteristics of the interviewees**

Theme	Category	Subcategory	Description	
Slums Health Challenges in the Pandemic	Sociocultural	Lack of awareness	Lack of awareness, culture, and knowledge of some residents about coronavirus disease	
		Intensifying begging culture	A culture that already existed in some neighborhoods and intensified due to the conditions caused by the spread of the coronavirus.	
		Low trust	Low trust in coronavirus control programs	
		Increasing violence	The increase of domestic violence, violence against women, and violence in neighborhoods	
		Low inattention to bottom-up planning	Low inattention to the engagement of residents in coronavirus control programs in the neighborhood	
		Situational	Decreasing donors' activities	Decreased donors' activities in the neighborhood due to the prevalence of the corona disease
			Canceling some of the important meetings	Canceling many meetings to follow up on people's problems and educational workshops, including life skills and...
			Economic	Unemployment
	Decreasing income			Decreasing income, financial problems, and difficult access to treatment and prevention services (such as masks) and adequate nutrition
	Physical environment	Increasing limitations of many institutions	Increasing limitations of many institutions in providing resources to follow the problems of suburban residents	
			Inadequate space and lack of proper ventilation in some houses	
		Inappropriate conditions some of the houses	Inadequate space and lack of proper ventilation in some houses	
			Inappropriate some alleys	Inappropriate physical conditions and overcrowding in some alleys

**Table 2: Categories and subcategories related to the challenges of health in slum's areas during COVID-19**

Interviewees	n	Gender	Code
Health-care providers located in slum health centers	3	3 Female	1
Managers and personnel of slum facilitation offices	5	4 female 1 male	2
Welfare representatives of social service centers	3	2 female 1 male	3
Local representatives of slum residents	5	2 female 3 male	4
In sum	16	Male: (31%) Female: (69%)	

*"We provided the necessary instructions on COVID-19 with the bakers and gave those masks and disinfectants, especially in the early days of the onset of corona; the bakers said that the people in this region do not accept these conditions. We take the money with pliers; they get upset and throws the money! It is true that this resistance could also be seen in the city center but here it is more common (I<sub>2</sub>)."*

Some people generally deny the presence of the disease. This issue was seen in many parts of the city, but it is more prominent in these neighborhoods:

*"One of the men in the neighborhood had been affected by COVID-19. We strongly followed him and highly recommended him stay at home. He did not accept at all. I saw him today playing volleyball with another person in the alley!" (I<sub>1</sub>).*

Some slum residents also obtain false information from nonspecialists and nonphysicians who fraudulently call

themselves traditional healers. This can intensify the lack of awareness and threaten people's health.<sup>[33]</sup>

Intensification of begging is another issue identified in this study. Begging is one of the most common social phenomena in many cities, which shows some social disorders.<sup>[34]</sup>

Intensification of begging during the corona spread can result from various economic and social causes.

*"We often see that people are arguing with themselves or with us for the packages of goods. Now that Coronavirus disease has resulted in the higher level of unemployment, this is even more common" (I<sub>1</sub>).*

This can also indicate the next code called the increased violence. The increase of domestic violence, violence against women, and violence in neighborhoods during the spread of the disease are the findings of the present study.

*"Violence has been increased, and depression and conflict are more than before of Corona viruses" (I<sub>2</sub>).*

The low trust in disease control programs and low engagement of people in bottom-up planning have been identified as two other subthemes that may be somewhat related to each other, because involving people in disease control programs can lead to more trust and cooperation.<sup>[35]</sup>

*"The amount of social capital in this neighborhood is very low. Social capital also includes cohesion, trust and participation.*

*We need trust if we want to build people's participation. Building this trust is time consuming" (I<sub>2</sub>).*

### **Situational**

Situational factors in this study are factors that are caused by the outbreak of coronavirus. These factors can change the context and create conditions that affect health-related actions.

Decreased activities of donors were mentioned by some of the interviewees. This decrease in activities can be due to the spread of disease, fear of infection, closure of some jobs, economic constraints, and so forth. An interviewee said:

*"Some of the donors or NGOs were already active, the local ladies inside the workshops were sewing; they were earning money, but COVID-19 has resulted in their closure. Also, those who used to visit these workshops and buy something for them, rarely come here now" (I<sub>3</sub>).*

One of the issues noted by several interviewees was the cancellation of some of the important meetings after the spread of COVID and due to the physical (social) distance. Before the COVID-19 spread, many meetings were held by the facilitation offices and welfare centers to address the resident' problems, which have been less due to the COVID-19 spread. Moreover, some workshops, skills-improving classes, health literacy, and many training sessions for pregnant women are not held by health-care providers.

*"Different meetings with stakeholders to provide solutions, should be held now, but this is not possible due to Coronavirus disease" (I<sub>2</sub>).*

Local representatives also noted:

*"Before this disease (Coronavirus), the cultural center (Farhangsara) was very good. People would come and discuss their problems. We would invite the officials and discuss the problems. Now, it won't be held" (I<sub>4</sub>).*

### **Economical**

Economic conditions in the world as a whole have been affected by the corona pandemic. This change of circumstances can mean a threat to the livelihood and health of vulnerable people. Reduction in income and a rise in unemployment have occurred in this pandemic around the world. This can happen more often in slum dwellings than in other urban areas.

*"Unemployment has increased. My friend's husband got infected by COVID-19 and could not go to work for 2 weeks. After this period, his employer did not allow him for working up to a month. They are poor and thus they spent a long time with great numerous difficulties and problems" (I<sub>4</sub>).*

Decreasing income, financial problems and consequently difficult access to the adequate nutrition and treatment and disease prevention services (such as masks and disinfectants), is another subcategory

*"There are so many financial difficulties here and people are in trouble that there is no money to buy masks all the time" (I<sub>4</sub>).*

However, some interviewees stated that masks and disinfectants are sometimes distributed free of charge in these areas.

Limitations of many institutions in providing resources to follow the problems of suburban residents have been increased, which are often caused by some finance problems after the spread of COVID in the country.

*"Our programs are mostly community-oriented, but institutions have very little cooperation. Committees with the institutions have to be held once a month, but they are very late since the COVID-19 spread and they saying we don't have the budget" (I<sub>3</sub>).*

### **Physical environment**

Physical environment is another factor that can affect health outcomes, health behaviors, and health promotion. Some homes in slum areas do not have an inappropriate condition and inadequate space to care for a patient with COVID and consequently the risk of infecting other members of the family increases. A local representative said:

*"Once I went to a house in one of these neighborhoods, I felt very bad; I saw a room with everything, a portable stove for cooking, a place to sleep, no ventilation,..., Well, if someone gets infected by Coronavirus disease, everyone in family gets involved" (I<sub>1</sub>).*

Inappropriate conditions of some alleys in neighborhoods and overcrowding in these places were issues raised by some interviewees as a challenge to control corona disease and protection of resident health.

*"Some alleys are very narrow and some alleys are full of dirt that turns into mud when it rains. On the other hand, the neighborhood is full of garbage. With this condition, it becomes difficult to control the disease" (I<sub>4</sub>).*

## **Discussion**

COVID-19 has a primary impact on health, disease, and death, and it was also having a secondary impact on SDH.<sup>[36]</sup> The present study was conducted in the three slum areas in Kerman city to investigate the health protection challenges of slums during the spread of coronavirus disease.

The first and main health challenges identified in this study were placed in sociocultural theme. From the perspective of most of the people interviewed in this study, most residents have a little knowledge about corona disease. United Nations Human Settlements Program (UN-Habitat) acknowledges that preventive actions of the spread of COVID-19, including handwashing, social distancing, and masking do not effect on places such as informal settlements, which can be due to unfavorable living conditions and lack of awareness.<sup>[37]</sup>

The level of awareness and knowledge of people about health, disease, and disease prevention, especially about infectious diseases, plays an important role in their health protection and promotion.<sup>[38-40]</sup>

In relation to the COVID-19 pandemic, public awareness helps reduce the severity of the spread of the disease and the resulting deaths. Public cooperation in following the guidelines of the (WHO) in the control of COVID 19 is very important. This cooperation is greatly influenced by people's awareness, knowledge, and approach to corona disease.<sup>[41,42]</sup>

The low trust in coronavirus control programs is another identified challenge that can affect the health of slum dwellers. Van Der Weerd *et al.*, in 2011 found in the H1N1 pandemic, public trust led to the increasing likelihood of people cooperation to governmental control disease programs.<sup>[45]</sup>

Saechang *et al.*, in their study, concluded that public trust, as well as trust in health professionals, is positively correlated with people follow of the disease control policies during the COVID 19 pandemic.<sup>[44]</sup> Therefore, it can be said that the public participation to control infectious diseases requires a trust infrastructure. However, in 2020, UN-Habitat revealed that distrust of government institutions in urban slums may be higher than in other urban areas due to feelings of discrimination or the lack of some basic services.<sup>[37]</sup>

Corburn's study on the control of COVID in slums showed people's distrust of the government and health professionals. He emphasizes that this distrust can lead to misinformation and delay of the treatment or further spread of the disease. Moreover, he notes that lessons should be learned from the HIV and Ebola epidemics in African slums, a mere top-down approach should be avoided.<sup>[45]</sup>

Indeed, the low level of participatory and bottom-up programs in controlling coronavirus, which were mentioned by some interviewees as a challenge, can also

be associated with low levels of public trust. Nyadera and Onditi in their study in relation to COVID-19 experience among slum dwellers state that bottom-up programs can help increase local people's trust in government actions.<sup>[46]</sup>

Another important subtheme in sociocultural theme was increase in violence, which is mostly exercised against women. The UNDP report in 2020 indicates that the rate of gender-based violence increased during the COVID-19 pandemic<sup>[47]</sup> that is more likely in the urban slums. The World Bank has suggested community training as one of the solutions to reduce violence in this period or reduce its effects. Therefore, it considers training groups such as neighbors.<sup>[22]</sup> Another study stated that social workers can play an important role in handling violence in the slums during the coronavirus disease pandemic.<sup>[44]</sup> Furthermore, educational programs can be used for raising awareness and public participation to control violence.<sup>[48,49]</sup>

Fewer studies have focused on situational issues, especially on the "declining role of donors during COVID 19 pandemic" in urban slums. Most studies have highly addressed the positive role of NGOs. However, Corburn demonstrated that NGOs sometimes face limitations, and instead, the use of preexisting local organized groups, such as local and community-led committees, can be very effective in controlling coronavirus disease in slums.<sup>[45]</sup>

Furthermore, there are not many studies conducted on the problem of cancellation or reduction of problem-solving meetings during the COVID-19 pandemic. However, some studies have proposed the use of appropriate methods and technologies for telecommunications in these situations.<sup>[45,50,51]</sup>

Economical issue is another identified main issue in this study. Tampe in 2020 found that since most slum residents rely on daily wages to provide food, they have faced more problems for proper nutrition than the before of COVID-19 pandemic, and the risk of malnutrition has increased in this group due to the increased unemployment.<sup>[52]</sup>

In 2020, FAO report showed that rural and urban poor often have difficulty in accessing liquidity, which is exacerbated by the closure of informal markets and loss of job opportunities during the COVID-19 pandemic. Moreover, shocks in declining household incomes lead to more reduction of food intake in the undernourished people. Social supports, as the immediate intervention, and strengthening on-site food distribution systems to create food security and reduce poverty can be helpful.<sup>[53-55]</sup> In addition, decrease in income could affect

access to health services for prevention and treatment of coronavirus disease.<sup>[56]</sup>

The physical space of some homes is not suitable for preventing the spread of infectious diseases to a family. This issue has been identified as one of the main challenges. One of the studies in a slum of Bangladesh showed that about 80% of households live in a single room, and about 83% use shared toilets and water sources. These findings imply the practical limitations of social distancing and the increased risk of COVID in these areas.<sup>[57]</sup> Furthermore, a commentary dealt with the above issue and considered overcrowding and impossible physical distancing as two main challenges in coping with corona in the slums of Bangladesh.<sup>[56-58]</sup> Short-term programs such as creating proper ventilation in homes and long-term programs such as improving access to adequate housing for slum residents can be useful.

### Limitation and recommendation

This study was performed only in Kerman city in Iran, and the results may not be generalizable, because the conditions of the slums are very different from each other. However, the findings were very close to those of other relevant studies in the world and developing countries.

However, this study examines one of the major challenges during the COVID-19 pandemic (marginalization) and it is the first study to be conducted in this regard on the slums of Kerman, Iran. This study also considers a variety of stakeholders for the interview and addresses a variety of challenges.

### Conclusions

Physical, economical, structural, and social challenges and inequalities in urban environments indicate the need for a multidisciplinary approach and innovations in these areas. In the present study, the lack of awareness challenge was much more pronounced. In this regard, it is suggested that appropriate information sources be considered for these people. Most people need information sources that are both accessible and understandable. Economic challenges are also very strong and there is a need to strengthen intersectional collaboration.

Engagement of different stakeholders such as slum residents, local representatives, social centers, NGOs, and generally individuals and groups in the slums who are familiar with challenges, power relations, culture, and social structure should be considered as the essential elements in establishing strong infrastructures for controlling COVID-19 pandemic and health protection of the slum's residents.

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### Conflicts of interest

There are no conflicts of interest.

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## Appendix Legend

### Appendix 1: The outline of the interview questions:

- What actions and interventions have been taken to the COVID-19 control in this neighborhood? Explain the changes in these actions from the beginning until now. What do you think about these actions? What do you think about the most important strengths and weaknesses of these interventions?
- What are the strengths and weaknesses of this neighborhood to control this pandemic? And what do you think about the challenges of controlling this disease in this neighborhood?
- Have there been any changes in the behavior of this neighborhood's residents for self-protection in the outbreak of COVID-19 pandemic? If yes; what changes? Explain please
- Have there been any changes in the living conditions (in all aspects) of the people in this neighborhood after the outbreak of COVID-19 pandemic? If yes; what changes? Explain
- Have there been any changes in the actions of various institutions and organizations to address the problems of the residents of the neighborhood after the outbreak of COVID-19 pandemic? If yes, what changes? Explain please
- What suggestions do you have for improving disease control interventions and living conditions of the inhabitants in this pandemic?