Original Article

Healthcare System Responsiveness in Covid-19: An Experience from Capital City of I.R of Iran

Abstract

Background: As a public health emergency, coronavirus disease 2019 (Covid-19) is a threat to our future; therefore, appropriate health system responsiveness (HSR), as an important criterion, is of crucial importance. This study aimed to evaluate the different dimensions of responsiveness of healthcare centers, both public and private, providing COVID-19 services in Tehran. **Methods:** Following a cross-sectional design, this study was conducted in Tehran (the capital city of I.R. Iran) from May to November 2020. Data were collected using the World Health Organization (WHO) questionnaire on responsiveness. Two hundred questionnaires were filled out through face-to-face or phone call interviews in two public and private hospitals (100 in each) providing Covid-19 services. Participants were selected using the convenience sampling technique among all those who received Covid-19 services during the past six months in the city of Tehran. **Results:** The mean age of participants was 45.9 ± 15.9 and 51.5% were female. On an average, 52.6% of the respondents evaluated at least one dimension of responsiveness as appropriate and/or strongly appropriate. Communication obtained the highest score (58.2%), followed by confidentiality (56.5%), dignity (56%), and prompt attention (52%). Meanwhile, autonomy and choice were evaluated as poor (moderate, weak, and strongly weak) by 63.5 and 52.5% of respondents. There was no significant association between the type of healthcare center (i.e., public or private) and responsiveness (p-value = 0.896). However, there was a significant difference between gender (p-value = 0.036) and education level (p-value = 0.014) with responsiveness. According to the respondents, prompt attention and choice were the most and least important dimensions, respectively. **Conclusions:** Evaluation of HSR in the era of COVID-19 not only provides a tool for qualitative assessment of services but also plays an important role in providing feedback to policymakers to adopt effective policies.

Keywords: *Covid-19, healthcare delivery, health system responsiveness, Iran*

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Introduction

Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) coronavirus and the disease it causes "coronavirus disease 2019" (COVID-19) was declared a Public Health Emergency of International Concern on January 31, 2020, and a pandemic on March 11, 2020.[1] As coronavirus began to spread around the world, the importance of the health system's responsiveness as an important criterion for the ability of health systems to control epidemics became more relevant.[2] The World Health Organization (WHO) identifies responsiveness as a key goal of national health systems and one of the key outcomes on which to judge the performance of health systems.[3,4] Responsiveness indicates the ability of a health system to meet the population's legitimate non-medical and non-financial expectations of the care process.[5,6] Health system responsiveness determines what happens during routine as well as unexpected situations such as the COVID-19 pandemic. Poor responsiveness may lead to less access to health services, and low utilization of some of these services in certain groups of the population.[7] Improving responsiveness may improve the utilization of health services and the overall health of individuals.[8] Studies have shown that a responsive health system contributes to improving individual and collective health by providing needed information, engaging more people in seeking medical care, and adhering to medical treatments.[9,10]

During the COVID-19 outbreak, many issues related to responsiveness emerged. There were reports that the availability of quality health services especially inpatient

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services was reduced due to a sudden increase in the number of people in need of hospitalization.[11] In addition to the inadequate number of health personnel, including medical specialists, health specialists, and nurses, the exhaustion of these expert personnel, was another limitation of the health system during this crisis.[11] Patient being treated in poor-quality treatment environments and not having access to social support was also observed.[11] The pressure and load on the health system during the pandemic had apparently intensified what have been the common challenges in health system responsiveness (HSR).[12]

HSR has become a major consideration in the assessment of the quality of any healthcare system during the past two decades. Particularly during the pandemic outbreak, it is important to understand the level of responsiveness in the healthcare system. First, because good responsiveness may encourage people to refer to health services at an earlier stage of infection. Second, it relates to a better understanding of health information and enhanced compliance with health instructions that can improve health outcomes.[4] Furthermore, individuals with a poorer assessment of the health system's responsiveness are more likely to avoid from seeking and receiving adequate healthcare.[7] Measuring HSR can be used as a tool for evaluating the quality of healthcare services provided to the service users and giving feedback to policymakers.[13] In China, HSR for epilepsy management in rural areas was implemented during the period of coronavirus diseases. The result of this study showed that the HSR was fairly good.[14] Despite the importance of research and documentation on the responsiveness of health services, to our knowledge, this is the first study conducted to investigate HSR after the announcement of the Covid epidemic in Iran.

The results of this study may be useful for several groups. First, healthcare providers can identify poor-performing domains of responsiveness. Second, mid-level policymakers can use the findings for further interventions to improve responsiveness in the health system, particularly during the pandemic. Finally, the study findings can help people to have a better understanding of the importance of responsiveness and their relevant rights to health.

Methods

Setting

During the Covid-19 era, the service delivery system contains two national or policymaker and environmental (or providers) levels. The national committee contains two operational and scientific sub-committees. At the environmental level, medical universities are the proxy of the Ministry of Health at the provincial level, which have the authority to control general or specialized hospitals and comprehensive healthcare centers that form the third, second, and first levels of prevention and treatment. There are other providers such as clinics, physicians' offices, and private hospitals. Since the onset of the Covid-19 pandemic, all comprehensive healthcare centers as well as several general and specialized hospitals, either private or public, have provided services to Covid-19 patients.

Study population

This study was performed from May to November 2020. Comprehensive health centers and some general and specialized hospitals (both public and private) provide Covid-19 services in the city of Tehran. The study population comprised all those who were referred to public and private hospitals or health centers to receive Covid-19 services during the past six months in the city of Tehran.

The inclusion criteria were those living in the city of Tehran, history of receiving Covid-19 outpatient services during the past six months, and willingness to participate. The exclusion criteria included having a history of hospitalization due to Covid-19.

The sample size was estimated according to the proportion necessary for descriptive studies, with $P = 0.5$, $q = 0.5$, and $d = 0.2$, which yielded a sample size of 200 for public and private hospitals (100 from each). Participants were selected using the convenience sampling technique. Questionnaires were filled out through face-to-face or phone call interviews. Face-to-face interviews with security protocols were conducted by referring to referral hospitals (public and private), according to the Ministry of Health and Medical Education (MOHME) reports. In the second approach, after a phone call and introducing the plan and how to complete the questionnaire, an online questionnaire was sent based on the porcelain platform, after a comprehensive introduction about how to fill it. In cases where the participant was unable to use a cell phone (e.g., elders, illiterate, etc.), a family member was asked to help to fill out the questionnaire. All interviews were conducted by trained members of the research team. For face-to-face interviews, written informed consent was obtained from all participants before entering the study and after a comprehensive introduction to the study protocol. Then, either the respondent or a family member was asked to fill out the questionnaire. It is worth noting that all public health protocols were followed for these interviews. Concerning phone call interviews, the phone numbers of patients were obtained from the admission department of the hospital after obtaining necessary permissions/approvals, and the link to the questionnaire was sent to them. The interviews lasted from 15 to 20 min, on average. Also, the research purpose and methodology were subjected to scrutiny by the Research Ethics Committee of the University of Social Welfare and Rehabilitation Sciences (code: IR.USWR.REC.1399.060). In addition, the confidentiality of the study participants' information was maintained throughout the study.

Instrument

Data were collected using the WHO questionnaire on responsiveness as well as a checklist on demographic information. The validity and reliability of this questionnaire are evaluated in Iran[14] in several studies conducted on various groups of patients. For outpatients, it contains seven domains of prompt attention (five items), dignity (four items), communication (four items), autonomy (three items), confidentiality (three items), choice of provider (three items), and basic amenities (three items). Each domain contains items explaining the situation and the final evaluation item. The items are scored on a five-point Likert scale, ranging from "strongly weak" to "strongly appropriate." In addition, there is a question about satisfaction from providers' behavior and reasons for dissatisfaction. The demographic checklist contained information on socio-economic status, gender, education level, occupation, and other variables such as age, marital status, etc., Socio-economic status is measured on a Likert scale from zero to 100 and the socio-economic level is calculated based on the scores received. Thus, a score below 50 is considered low, between 50 and 69 is middle, and more than 70 is considered high. Educational level was divided into three categories: Primary (illiterate or primary education), secondary (diploma and undergraduate), and higher (academic education).[15–17]

Statistical analysis

Data were analyzed according to the instruction published by the WHO for the applied questionnaire.[18] Responsiveness was evaluated both overall and for each domain. The answers were categorized as strongly weak (highest number = 5), weak (number 4), moderate (number 3), appropriate (number 2), and strongly appropriate (lowest number = 1). Then, the answers were categorized as either appropriate, which comprised of strongly appropriate and appropriate, and weak, which comprised of moderate, weak, and strongly weak. Data analysis was administered by Chi-square test using IBM SPSS Statistics version 16. Statistical significance was considered when the *P* value was less than 0.05.

Ethical consideration

The study protocol was approved by the Research Ethics Committee of the University of Social Welfare and Rehabilitation Sciences (IR.USWR.REC.1399.060). All the participants signed the consent form. They all fully understood the nature of the study and their role and contribution, and they were ensured about the voluntary nature of their involvement and about their ability to withdraw from the trial at any stage without any repercussions.

Results

A total of 200 questionnaires were filled out (100 in public centers and 100 in private centers) in this study. The mean age of participants was 45.9 ± 15.9, and 51.5% were female. The demographic characteristics of participants, separated by the center, are provided in Table 1. As shown in the table, there was no significant difference between those referring to public and private centers. On average, 52.6% of the respondents evaluated at least one dimension of responsiveness as appropriate and/or strongly appropriate. The overall status of responsiveness, based on the respondents, is provided in Figure 1.

Communication obtained the highest score (58.2%), followed by confidentiality (56.5%), dignity (56%), and prompt attention (52%). Meanwhile, autonomy and choice of provider were evaluated as weak (moderate, weak, and

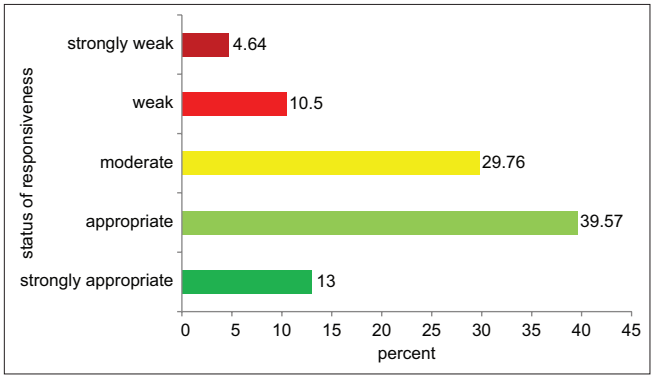

Figure 1: The overall status of responsiveness, based on the respondents

Table 1: Demographic characteristics of participants, separated by the center

Demographic characteristics	Public healthcare center	Private healthcare center	*P*
Age: Mean (SD)	46.2 (15.9)	45.6 (14.7)	0.77
Sex: (%) - Female	49	54	0.48
Male	51	46	
Education level: (%) - Primary	6	6	
Intermediate	51	32	0.92
Higher education	43	62	
Marriage status: (%) - Married	74	73	0.91
Single/Widow	26	27	
Socio-economic score: Mean (SD)	43.9 (17.2)	46.7 (20.05)	0.28
Health Score: Mean (SD)	57.6 (16.7)	62.3 (19.4)	0.07

strongly weak) by 63.5 and 52.5% of respondents. The percentage of participants that evaluated each domain as strongly appropriate, appropriate, moderate, weak, and strongly weak is provided in Figure 2.

The demographic information of those who evaluated the responsiveness of centers providing Covid-19 services as weak (moderate, weak, and strongly weak) are provided in Table 2. There was a significant difference between gender and responsiveness (p-value = 0.036) so females evaluated the responsiveness as significantly weaker than males. Meanwhile, the difference between the type of the center (i.e., public or private) and responsiveness was not significant (p-value = 0.896). There was a significant difference between education level and responsiveness (p-value = 0.01). According to the post hoc test, the highest level of difference was between those with a master's or higher and those with a lower level of education. On the other hand, perceived social class was not statistically associated with responsiveness. The respondents evaluated "prompt attention" as the most important dimension, while "choice" was considered as the dimension with the lowest priority.

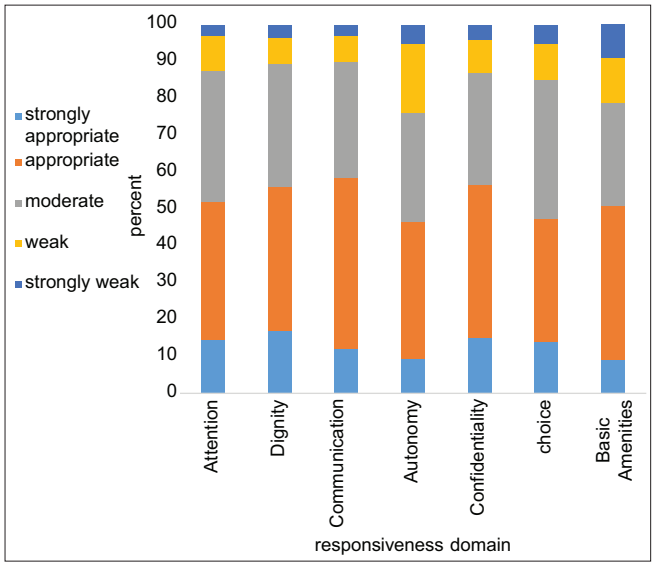

Figure 2: Percentage of participants rating responsiveness domains

Table 2: Percentage of poor responsiveness based on demographic characteristics

	Frequency *n* (%)	Poor Responsiveness	*P*
Gender			
Female	103 (51.5)	77 (74.8)	(0.036)
Male	97 (48.5)	64 (66)	
Healthcare center			(0.89)
Public	100 (50)	69 (69)	
Private	100 (50)	72 (72)	
Education level			(0.01)
Primary	12 (6)	8 (66.7)	
Intermediate	83 (41.5)	54 (65.1)	
Higher	105 (52.5)	79 (75.2)	
Socio-economic status			(0.41)
Low	92 (46)	68 (73.9)	
Middle	76 (38)	54 (71.1)	
High	32 (16)	19 (59.4)	
Working status			(0.74)
Employed	105 (52.5)	75 (71.4)	
Unemployed	95 (47,5)	66 (69.5)	

Behavior of covid-19 service providers

According to the findings, about one-fourth of respondents were not satisfied with the behavior of Covid-19 service providers. The main causes of this issue were therapist fatigue (60%) and unavailability of hospital beds (31%). Other reasons include the insufficient number of providers, the top-down approach of some of them, the high price of medical and care services, etc.

Discussion

According to the findings, in about 53% of cases, the responsiveness of centers providing Covid-19 services is appropriate and strongly appropriate, and in 47% is moderate, weak, and strongly weak. Similar results are reported by Forouzan *et al*. (2012), which performed a study in public centers providing mental health services and reported that in 47% of cases, the responsiveness was weak and moderate. In other words, almost one out of two people did not have a good experience when referring to healthcare centers.[19] In a study conducted in Germany, Bermsfeld *et al*. (2007) reported that 15 and 22.5% of mental health inpatients admitted to university hospitals and outpatients evaluated the responsiveness as poor, respectively.[20] Reviewing valid international databases showed no similar study regarding Covid-19 services. Obviously, the responsiveness of the health system is expected to be different when an epidemic has occurred. It should be noted that studies conducted in Iran indicate the hard work of medical staff in providing Covid-19 services. In this study, choice and autonomy were evaluated as domains with the lowest scores. Autonomy contains a series of rights, including the right to receive health and medical information, informed decisions, and receive medical services.[4] The results of this study indicate that in 63.5% of cases, this performance was poor. However, the outbreak of novel coronavirus probably has reduced patients' participation in making medical decisions, particularly considering uncertainties regarding currently applied treatments. The results of some studies are not in line with those of the present study. For instance, the study by Alavi and Forouzan. Such differences can be attributed to instabilities caused by the Covid-19 pandemic.[21,22] The domain of choice of provider was the second domain with the lowest score. This domain is of particular importance as it affects patients' trust and results in better outcomes. In 60% of cases, access to hospitals and centers

providing Covid-19 services was evaluated as strongly appropriate and appropriate, which is good regarding the consequences of the Covid-19 pandemic. The statistical analysis revealed a significant difference between males and females regarding the mean score; so males evaluated this domain significantly higher than females, which can be attributed to their better access to healthcare centers. According to the findings, domains of communication, confidentiality, and dignity obtained the highest scores. By definition, communication is to accurately listen, provide understandable information, and allow asking questions.[4] It seems that establishing responsive consultation systems can promote this domain effectively. Moreover, there was no significant difference between the type of center and responsiveness. Concerning confidentiality, in 56.5% of cases, respondents gave a strongly appropriate and appropriate answer. Alavi *et al.*, in a study in rehabilitation centers, Sajjadi *et al*. (2014), in a study on diabetic patients, and Peltzer *et al*. (2008), in a study on South African elders, reported similar results.[23-28] However, due to the stigma associated with Covid-19 infection, many patients prefer to hide their disease. Fifty-six percent of respondents evaluated dignity as strongly appropriate and appropriate. The strongest indicator in this area was the therapist's respectful behavior which more than 60% of respondents reported as strongly appropriate and appropriate. There was no significant difference between private and public centers regarding this domain. Regarding that, Covid-19 has sharply increased demand for healthcare services, which has resulted in high rates of fatigue and high mental pressures among healthcare professionals, and high rates of respectful behaviors worth appreciation.

In addition, 52% of respondents evaluated "prompt attention" as strongly appropriate and appropriate. In this area, receiving care as soon as possible was the weakest indicator, which only 38.5% of respondents considered very desirable and desirable. However, 42% of respondents evaluated this indicator as moderate. Regarding the sudden emergence of Covid-19, which was a surprise for the health system, the fact that 50% of respondents evaluated this domain as appropriate and strongly appropriate is acceptable. The important issue is the lack of a significant difference between public and private centers regarding the domain of prompt attention, particularly regarding the conditions caused by the pandemic.

Valentin *et al*. (2003) investigated the responsiveness of 41 health systems and mentioned prompt attention as the most important domain.[29] In a study conducted in China, Kowal *et al*. (2011) investigated the opinions of elders regarding the responsiveness of the health system and mentioned prompt attention as the most important domain.[30] Similar results are reported by Peltzer *et al*. (2008), who performed a study on South African elders.[25]

The most important strength of this study is to evaluate the HSR during the Covid-19 pandemic in both public and private healthcare centers for the first time in Tehran (the capital city of Iran). On the other hand, its most important limitation is the non-generalizability of the results to different waves of the coronavirus pandemic in the country, as the level of demand for services may affect the responsiveness.

It is recommended to conduct similar researches in different ethnicities in other provinces in Iran.

Conclusions

Evaluation of HSR in the era of COVID-19 not only provides a tool for qualitative assessment of services but also plays an important role in providing feedback to policymakers to adopt effective policies.

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Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form, the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Conflicts of interest

There are no conflicts of interest.

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