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Evaluating the Healthcare System Responsiveness for COVID-19 Care in Southeast Iran

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Abstract

Background: Health system responsiveness is critical in managing infectious disease epidemics.
Objectives: The purpose of this study was to evaluate the responsiveness of the health system during the Coronavirus disease 2019 (COVID-19) pandemic.
Methods: A cross-sectional study was conducted among 350 patients who had been discharged from hospitals after recovering from COVID-19 during 2021 - 2022 in Sistan-Baluchistan province, located in the southeastern region of Iran. Data were collected using the World Health Organization health system responsiveness tool through telephone interviews. Descriptive statistics methods were used to determine the responsiveness score. *T*-tests and one-way analysis of variance were also used to compare the means between groups.
Results: The overall score for health system responsiveness was 110.12 ± 13.12, indicating a moderate level of responsiveness. The communication dimension received the highest mean score (30.12 ± 4.73), while the choice of provider dimension had the lowest mean score (5.65 ± 2.37). Significant relationships were found between health system responsiveness and variables such as place of residence (P = 0.01), city of residence (P = 0.001), and household size (P = 0.05).
Conclusions: The study identified areas for improvement in health system responsiveness within Sistan-Baluchistan's hospitals during the COVID-19 pandemic. To enhance patient care and strengthen the healthcare system's responsiveness, health policymakers should implement measures such as developing responsiveness guidelines, establishing a dedicated responsiveness unit, and providing training programs for healthcare professionals. Regular evaluation of responsiveness in hospitals is also crucial.

Keywords: Delivery of Health Care, Responsiveness, COVID-19, Health Policy, Iran

1. Background

In 2000, the World Health Organization (WHO) identified three main goals for health systems: Improving health levels, ensuring fair financial contribution in health services financing, and enhancing responsiveness in non-clinical services (1). As a result, responsiveness is considered an important tool for measuring performance and guiding policies and plans for health systems (2). Responsiveness refers to the sense of responsibility, obligation, commitment, and the need to justify one's actions toward others or oneself (3). With increasing awareness of healthcare, patients are more inclined to seek active participation in treatment decisions, reflecting a desirable level of non-clinical quality in health services (4, 5). The WHO's 2000 report established a framework for evaluating responsiveness, encompassing eight domains: Dignity, autonomy, confidentiality, communication, prompt attention, quality of basic amenities, access to social support networks, and choice of provider. This framework has been instrumental in evaluating responsiveness globally, with Iran previously ranked 100th (1).

Health system responsiveness is particularly critical in managing infectious disease epidemics, such as the recent Coronavirus disease 2019 (COVID-19) pandemic (6). Originating in Wuhan, China, in December 2019, COVID-19 is an acute respiratory syndrome caused by a

beta-coronavirus. It rapidly spread worldwide, leading to a significant public health crisis (7, 8). The virus's rapid transmission and the lack of specific treatments posed significant challenges to health systems, economies, politics, and societies (9-11).

Given the critical nature of the pandemic, health systems require robust strategies to manage the crisis. Inadequate planning and policies in the healthcare sector result in numerous issues and increased workloads (12). While previous research has explored health system responsiveness in various contexts, few studies have specifically examined its dimensions during a pandemic, particularly in low- and middle-income countries like Iran. Evaluating health system responsiveness during the COVID-19 pandemic, considering the increased demand for healthcare, is essential for identifying system strengths and weaknesses and for effective planning to improve healthcare quality. It is crucial to understand how different dimensions of responsiveness performed during the pandemic and to examine the overall level of health system responsiveness, as well as the influence of sociodemographic factors, to gain comprehensive insights into healthcare delivery during this period.

2. Objectives

Therefore, this study aimed to evaluate health system responsiveness for COVID-19 care in Sistan-Baluchistan province, Iran.

3. Methods

This cross-sectional study was conducted among patients discharged from hospitals after recovering from COVID-19 during 2021 - 2022 in Sistan-Baluchistan province, located in the southeastern region of Iran. With a population of approximately 3 million people, the province is considered the least prosperous in the country (13). The subjects for this study were selected based on their discharge from the hospital within three months after recovering from a confirmed diagnosis of COVID-19. Additionally, participants had to be above 18 years of age, and informed consent was required to participate in the study. Those who did not meet these criteria were excluded from the study.

Based on the provided formula, with α = 0.05 (type-1 error), d = 0.05 [minimal detectable difference), and P = 85% (the percentage of patients with tuberculosis who rated participation in decision-making about receiving health services as 'very good or good' in a similar study in the region (2)], the study required a total of 196 patients.

$$n = \frac{z^2_{1-\alpha/2} p\left(1-p\right)}{d^2} \quad (1)$$

To enhance the precision of the study, a total of 350 patients were included in the research. Data were collected from the three main COVID-19 treatment centers in the province: Bu-Ali Hospital, Khatam Al-Anbia Hospital, and Amir Al-Momenin Hospital, affiliated with Zahedan University of Medical Sciences (ZAUMS), Iranshahr University of Medical Sciences (IRSHUMS), and Zabol University of Medical Sciences (ZBMU), respectively. These hospitals were chosen due to their central role in COVID-19 care within their respective cities (Zahedan, Iranshahr, and Zabol).

Within each hospital, probability proportional to size sampling was employed to select subjects. This means patients were chosen using a simple random sampling approach from a list provided by the hospital, with the selection probability based on the number of COVID-19 patients at the hospital. Therefore, the study enrolled 210, 90, and 50 patients from Zahedan, Iranshahr, and Zabol, respectively. Due to the high contagiousness of the disease and the inaccessibility of some areas in the province, data were collected by the researchers through telephone interviews with the patients or their attendants regarding healthcare system responsiveness for COVID-19 care from December 2021 to May 2022.

Data were collected using the WHO Health System Responsiveness tool, which was translated into Farsi and verified for reliability and validity by Rashidian et al. (14). The questionnaire includes two parts: Demographic information and eight domains of responsiveness, i.e., dignity, prompt attention, autonomy, confidentiality, choice of provider, communication, quality of basic amenities, and access to social support. Participants provided their answers to the questions using a Likert Scale. The domains were rated on a 5-point scale ranging from 1 to 5 (1 = strongly agree, 2 = agree, 3 = moderate, 4 = disagree, 5 = strongly disagree).

Descriptive statistics methods such as mean and standard deviation were used to calculate the responsiveness score of each domain, as well as the total responsiveness score, which was obtained by summing the mean of the domains. A total responsiveness score of less than 79.9 was classified as undesirable, 80 - 119.9 as moderate, and above 120 as desirable (15). Given the normal distribution of data, statistical tests such as *t*-tests and one-way analysis of variance (ANOVA) were used to compare means between groups. The statistical analysis was performed using SPSS version 21.

The Ethics Committee of ZAUMS approved the study protocol (code: IR.ZAUMS.REC.1401.068).

4. Results

A total of 350 patients participated in the study. The participant demographics showed a majority of males (60%), with 40.6% being 65 years of age or older. Over one-third (34%) of the participants had an education level below a high school diploma. In terms of residence, the majority (79.4%) lived in urban areas. Regarding health insurance, 82.9% (290 patients) reported having basic health insurance, while 76.9% (223 patients) did not have supplementary health insurance. Further details regarding the demographic variables of the participants can be found in Table 1.

Table 1. The Demographic Variables of the Recruited Participants During 2021 - 2022

Variables	No. (%)
Gender	
Male	140 (40)
Female	210 (60)
Age	
≤ 35	67 (19.1)
36 - 64	141 (40.3)
≥ 65	142 (60.4)
Marital status	
Single	45 (12.9)
Married	254 (72.5)
Separated	51 (14.6)
Education level	
Under diploma	121 (34.6)
Diploma	103 (29.4)
Associate	74 (21.1)
Bachelor	45 (12.9)
Master or doctorate	7 (2)
Job status	
Unemployed	69 (19.7)
Governmental	61 (17.5)
Non-governmental	109 (31.1)
Student	28 (8)
Housewife	50 (14.3)
Retired	33 (9.4)
Basic health insurance status	
Social Security	68 (19.4)
Iran Health Insurance	160 (45.8)
Armed Forces	62 (17.7)
Uninsured	60 (17.1)
Supplementary health insurance status	
Yes	67 (23.1)
No	223 (76.9)
Place of residence	
Urban	278 (79.4)
Rural	72 (20.6)
City of residence	
Zahedan	210 (60)
Zabol	50 (14.3)
Iranshahr	90 (25.7)
Household size	
≤ 3	133 (38)
4 - 6	196 (56)
≥ 7	21 (6)
Household income (IRR)	
< 70,000,000	228 (65.1)
70,000,000 - 140,000,000	119 (34)
> 140,000,000	3 (0.9)

Abbreviation: IRR, Iranian rial.

Table 2 shows the health system responsiveness scores for COVID-19 care in the participants based on various dimensions. According to the findings, the overall score for health system responsiveness in COVID-19 care was 110.12 ± 13.12. Additionally, the communication dimension received the highest mean score (30.12 ± 4.73), while the lowest mean score was observed in the choice of provider dimension (5.65 ± 2.37).

Table 3 presents the relationship between demographic factors and health system responsiveness for COVID-19 care among the participants. The results revealed statistically significant relationships between the total health system responsiveness score and variables such as place of residence (P = 0.01) and city of residence (P = 0.001). The results also showed statistically significant relationships between the total health system responsiveness score and household size (P = 0.05); as household size increased, patients gave a higher total score to health system responsiveness. There were no statistically significant relationships between the total health system responsiveness score and variables such as age (P = 0.68), gender (P = 0.07), marital status (P = 0.44), education level (P = 0.054), job status (P = 0.82), basic health insurance status (P = 0.51), type of basic health insurance (P = 0.68), supplementary insurance status (P = 0.61), and income level (P = 0.17).

5. Discussion

The study found a moderate level of health system responsiveness for COVID-19 care in Sistan-Baluchistan, Iran. While this aligns with similar findings from other Iranian studies (16-20), it highlights a significant gap between desired and actual performance. This moderate responsiveness has implications for patient care and health outcomes, as patients may experience suboptimal care due to factors such as delayed treatment, lack of information, and disrespectful treatment. Furthermore, a persistently suboptimal level of responsiveness can erode public trust in the healthcare system, especially during crises.

Based on our measurement, the dimensions of communication and dignity received the highest mean scores from the patients' perspective in the selected hospitals. Conversely, the dimension of choice of provider received the lowest mean score. These results are consistent with those of some other studies in Iran (21-23). Evidence suggests that effective communication between healthcare providers and patients, along with customer-oriented behavior, significantly affects patient satisfaction and service quality improvement. However, the lack of skilled healthcare professionals, low salaries, vacation cancellations, psychological impacts of the disease, cultural influences, and other related

Table 2. Health System Responsiveness Score for COVID-19 Care in Participants Based on Dimensions in Southeast Iran During 2021 - 2022

Responsiveness Score	Mean ± SD	Range
Overall	110.12 ± 13.12	32 - 160
Dimension		
Dignity	29.29 ± 5.87	8 - 40
Prompt attention	10.89 ± 1.81	3 - 15
Autonomy	11.57 ± 4.16	4 - 20
Confidentiality	6.58 ± 2.43	2 - 10
Choice of provider	5.65 ± 2.37	2 - 10
Communication	30.12 ± 4.73	8 - 40
Quality of basic amenities	9.68 ± 3.03	3 - 15
Access to social support	6.32 ± 2.10	2 - 10

challenges experienced during the pandemic can directly and indirectly hinder effective communication (16). Additionally, resource constraints and infrastructure limitations in Sistan-Baluchistan province have exacerbated these issues. Therefore, increasing healthcare workforce capacity, improving working conditions, and investing in infrastructure development are essential.

The right to choose a healthcare provider poses challenges within health systems. Findings from a study conducted across eight European countries reveal that in seven of these countries, the majority of participants expressed dissatisfaction with the right to choose a provider, attributing it to a lack of knowledge for making informed decisions (24). Conversely, the Thai health system is recognized for its emphasis on choice and discretion (25). The insufficient knowledge and lack of confidence among patients in selecting the appropriate provider may contribute to this challenge. To address this, implementing patient education programs about provider options and expanding provider networks could empower patients and improve care quality.

The results revealed statistically significant relationships between the total health system responsiveness score and variables such as place of residence and city of residence. Specifically, individuals living in urban areas and in Zahedan, the provincial capital, had higher scores in terms of health system responsiveness. In contrast, a study by Baharvand in western Iran hospitals (22) found that patients living in urban areas gave lower scores for health system responsiveness. This difference in findings may be attributed to the deprivation of resources and inadequate workforce in the rural areas and other cities of Sistan-Baluchistan province. On the other hand, the emergence of COVID-19 and its various mutations may have hindered the health system's ability to effectively deal with the epidemic and improve responsiveness.

The present findings indicated that as household size increased, patients gave a higher total score to health system responsiveness. Similarly, this finding was also demonstrated in the study by Shirazikhah et al. (26). It suggests that individuals from larger households may face more challenges, which may lead them to deprioritize the behavior of the health system in providing services. As a result, people from larger households tend to assess the responsiveness of the health system more favorably compared to those from smaller households.

There are certain limitations to consider regarding our study findings. Firstly, it was conducted in Sistan-Baluchistan province, which may not fully represent healthcare system responsiveness across Iran. Secondly, data collection via telephone interviews due to the disease's contagiousness and geographical challenges may have introduced biases. Thirdly, there is a potential for respondent recall bias, although this was mitigated by selecting participants who had been recently discharged from the hospital. Additional limitations include potential sampling biases, as those who could be reached by telephone may differ systematically from those who could not. Furthermore, cultural factors and regional differences in health system infrastructure and policy responses could also influence our findings.

5.1. Conclusions

This study identified areas for improvement in health system responsiveness within Sistan-Baluchistan's hospitals during the COVID-19 pandemic. The right to choose a healthcare provider received the lowest mean score, highlighting the need to enhance this domain by providing access to provider records and incorporating patients' experiences. Additionally, the lower

Table 3. The Relationship Between Demographic Factors and Health System Responsiveness for COVID-19 Care in the Participants During 2021 - 2022

Variables	Responsiveness Score (Mean ± SD)	P-Value
Gender		0.07
Female	111.65 ± 12.70	
Male	109.10 ± 13.33	
Age		0.68
≤ 35	108.88 ± 13.01	
36 - 65	110.30 ± 13.69	
≥ 65	110.53 ± 12.64	
Marital status		0.44
Single	107.35 ± 13.47	
Married	110.48 ± 13.43	
Widowed	111.30 ± 11.5	
Divorced	103.33 ± 10.67	
Education level		0.54
Under diploma	112.04 ± 12.18	
Diploma	108.16 ± 13.11	
Associate	111.90 ± 13.78	
Bachelor	107.17 ± 12.81	
Master or doctorate	105.85 ± 18.64	
Job status		0.82
Unemployed	109.18 ± 12.66	
Governmental	109.90 ± 14.20	
Non-governmental	109.46 ± 13.93	
Student	109.46 ± 13.93	
Housewife	112.42 ± 13.10	
Retired	110.87 ± 11.89	
Basic health insurance status		0.51
Yes	109.91 ± 13.45	
No	111.13 ± 13.46	
Supplementary health insurance status		0.77
Yes	109.19 ± 10.18	
No	110.13 ± 10.11	
Type of basic health insurance		0.68
Social Security	110.44 ± 12.56	
Iran Health Insurance	110.28 ± 14.01	
Armed Forces	108.38 ± 13.00	
Place of residence		0.01
Urban	110.58 ± 13.74	
Rural	108.33 ± 11.60	
City of residence		0.001
Zahedan	117.72 ± 8.85	
Zabol	90.74 ± 8.67	
Iranshahr	103.15 ± 7.31	
Household size		0.05
≤ 3	108.00 ± 14.13	
4 - 6	111.29 ± 12.44	
≥ 7	112.61 ± 11.39	
Household income (IRR)		0.17
< 70,000,000	110.69 ± 13.38	
70,000,000 - 140,000,000	109.35 ± 12.58	
> 140,000,000	97.66 ± 9.01	

Abbreviation: IRR, Iranian rial.

responsiveness scores observed in the disadvantaged areas of the province emphasize the urgent need for attention and resource allocation to improve the healthcare system in these regions. Neglecting these disparities can lead to worsened health outcomes, increased social inequalities, and erosion of public trust in the healthcare system. Addressing these issues is not only a matter of equity but also an ethical and public health imperative.

To enhance overall responsiveness, a multifaceted approach is necessary. Health policymakers should implement measures to improve the quality of patient care and strengthen the healthcare system's capacity for responsiveness during similar epidemics. To achieve this, it is suggested to develop guidelines and a checklist to ensure optimal responsiveness, establish a dedicated office with a scientific approach to address responsiveness, introduce scientific responsiveness training programs for healthcare professionals, and regularly evaluate the level of responsiveness in hospitals. A comprehensive strategy that integrates these interventions within a broader framework of health system reform is essential for achieving sustainable improvements in healthcare system responsiveness.

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Footnotes

Authors' Contribution: M. K. and E. B. were designed the study and prepared the initial draft; M. K., E. B., and J. J. N. are contributed to data collection and data analysis; M. K. and E. B. have supervised the whole study and finalized the article. All authors have read and approved the manuscript.

Conflict of Interests Statement: The authors declare that they have no competing interests.

Data Availability: The datasets used and/or analyzed during the current study are available from the corresponding author on reasonable request.

Ethical Approval: The Ethics Committees of Zahedan University of Medical Sciences (ZAUMS) approved the study protocol (code: IR.ZAUMS.REC.1401.068), and all methods were performed in accordance with the relevant guidelines and regulations. The subjects were made aware of the confidentiality of their information and had the freedom to decide whether or not to participate in the study.

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Informed Consent: Additionally, participants had to be above 18 years of age, and informed consent was required to participate in the study.

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