

# **Patients Satisfaction with Quality of Care in Public Hospitals in Sulaimani City - Iraq: A Hospital-Based Study**

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## Abstract

**Background:** Patient satisfaction is the emotional response to the perceived performance or outcome of a healthcare service, which can result in a positive or negative evaluation based on expectations. The study aimed to evaluate patient satisfaction with healthcare providers and health services in the public hospital.

## Methods and patients:

A cross-sectional study was conducted from November 2019 to February 2021 to assess the satisfaction of 311 hospitalized patients with healthcare providers and hospital services in Sulaimani City's general hospitals. The study included patients who aged 14 years and older and had been hospitalized for at least two days. Accompanied patients were excluded. Data was collected using a researcher-administered questionnaire through face-to-face interviews, utilizing standardized 4-point Likert scales.

## Results:

Demographic data were analyzed using frequency analysis. The participants' mean age was 37.9 years. The median domain scores for hospital services, nursing care, and doctor care were 80 (IQR 72.5-85), 45 (IQR 45-52.5), and 50 (IQR 42.5-57.5), respectively. A Chi-square test analyzed the relationship between categorical independent variables. 61.1% of participants were extremely satisfied with hospital services, while 38.9% were highly dissatisfied. Nursing care received lower satisfaction (37.7%) compared to doctor care (62.3%). Uneducated participants showed a significant association with satisfaction with doctor care (coefficient=0.88,  $P<0.01$ ), residence, and hospital services (coefficient=0.68,  $P<0.05$ ). Overall, a higher percentage of participants (61.1%) reported satisfaction with hospital and doctor care, while nurse care received only 40.8% satisfaction.

**Conclusion,** the proportion of patients who reported satisfaction with their doctor treatment and care, as well as with hospital services and facilities, was higher than that of patients satisfied with nurse-led healthcare.

**Keywords:** patient, satisfaction, Quality, care, Sulaimani, physician, Iraq, radiology.

## Introduction

Patient satisfaction refers to how patients perceive and respond to the care they receive during their hospital stay, including the medical treatments they undergo [1]. The degree to which a patient is satisfied with their healthcare practitioner is a key determinant of the quality of that service [2]. Since this is an ongoing procedure that involves one's frame of mind, it requires regular assessment. In order to make informed judgements about service

improvements and modifications, it is crucial to measure patient satisfaction with the treatment they have received. Particularly in today's highly competitive healthcare market and consumerist culture, patient satisfaction surveys are used to set reimbursement levels [3,4]. Over time, measuring and improving health care services based on people' opinions became an integral part of quality monitoring and improvement efforts [5]. The satisfaction of patients with the care they receive from nurses is highly significant for healthcare organizations as nurses make up the majority of healthcare providers and are responsible for providing round-the-clock care to patients[6]. Evaluating patient satisfaction with healthcare services is crucial from a clinical perspective since satisfied patients are more likely to adhere to treatment, actively participate in their care, continue using medical services, remain with a healthcare provider (where multiple options are available), and remain loyal to a particular healthcare system [7]. During hospitalisation, patients spend the most time with and depend on nurses. Patients' hospital satisfaction depends on nursing treatment [8]. In addition, it is crucial for doctors to maintain both technical and interpersonal skills to ensure patient satisfaction with their medical care[9]. Furthermore, atients require professionalism and ethics. Physicians' technical expertise includes diagnosing, performing clinical procedures, prescribing drugs, and keeping up with medical advances. Technical processes, therapy, and medication success require patient communication [10,11]. Some medical schools don't emphasise ethics and communication skills like wealthy nations do. Public hospital doctors may see patients with low socioeconomic level, poor cleanliness, and insufficient health awareness. Public outpatient clinic doctors struggle to understand and communicate with their patients [12,13]. Patient satisfaction with their relationship with their doctor is an essential factor in the utilization and effectiveness of healthcare services, and it can vary based on individual patient characteristics. Patients come to doctors with specific expectations, and the extent to which these expectations are met determines their level of satisfaction [14]. The use of patient satisfaction as a tool for improving the quality of healthcare services has been widely studied in previous research. In this way, patient satisfaction plays a crucial role in the ongoing effort to improve healthcare services [15]. The study had two main objectives: Firstly, to evaluate and analyze the level of patient satisfaction with the interaction and relationship between the doctor and the nurse. Secondly, to determine the degree of patient satisfaction with the quality of hospital services provided during their hospitalization in Sulaimani city.

## **Methods**

### **Study design**

Cross-sectional study.

### **Setting**

A questionnaire-based survey was used for data collection. Totally, 311 individuals have been selected in four public hospitals (Shar Hospital, Shaheed Hemin Hospital, Teaching

Hospital, and Maternity Teaching Hospital) during the study period. The four hospitals are in the center of Sulaimani City. through the multi-cluster random sampling method.

### **Period of the study**

November 2019–February 2021 was the study's duration. All patients admitted to four government hospitals—Shar Hospital, Shaheed Hemin Hospital, Teaching Hospital, and Maternity Teaching Hospital—during the study were included. Sulaimani's four hospitals are downtown.

### **Sampling technique and procedures**

Patients volunteered for this study. 311 medically admitted inpatients were surveyed. When the participant fraction is uncertain, a suitable sample size is conservative and sufficient. The study comprised 14-year-olds with at least two hospitalisations. The patient was interviewed when awake and well. The study excluded accompanying patients. After informed consent, patients were told the study's goal and urged to participate.

The researchers also protected participant answers. However, the author interviewed uneducated patients face-to-face and completed all questionnaires. The 16-week data collection involved 20–25-minute interviews.

For clarity, the questionnaire was originally written in Kurdish, the participants' native language. The experts reviewed and corrected the questionnaire, which was pre-tested for this study. Before testing a representative sample, it was piloted. The goal was to determine if the questions were clear, understood, and ordered properly and if the answers were sufficient and detailed. Fill-in time was determined.

### **Data quality control**

The questionnaire consists of two sections, the first section includes Sociodemographic characteristics (age, gender, residence, occupation, marital status, and education levels), and the second section consists of patient satisfaction, which includes 24 items divided into three domains; the first domain includes 11 items on the hospital services and hospital environment, the second domain includes six items on nurse care, and the third domain includes seven items on physician's care.

### **Ethical consideration**

The ethics committee approved the study of the Technical Institute of Sulaimani, and permission was also taken from the Sulaimani Directory of health and all hospitals.

### **Data analysis**

The data gathered for this research was recorded in the Epidata (3.1) software .and analyzed using the statistical package Stata (version 25). Demographic data was analyzed using frequency and percentage, while Cronbach's alpha was used to validate the questionnaire.

To determine the association between categorical independent variables, a person Chi-square test was used. Standardized 4-point Likert scales were utilized, with values ranging from 1 (very satisfied) to 4 (very dissatisfied), and a score of 100 was calculated for all 24 items. The internal consistency was measured using Cronbach's alpha coefficient, with points 3 (satisfied) and 4 (dissatisfied) being combined. The mean total scores for each domain were computed by adding the scores of all the items in the domain and dividing the total by the number of items in that domain. Since the mean total score was not normally distributed, the median score was used in the analysis. Binary logistic regression was conducted to predict the factors that influenced satisfaction levels.

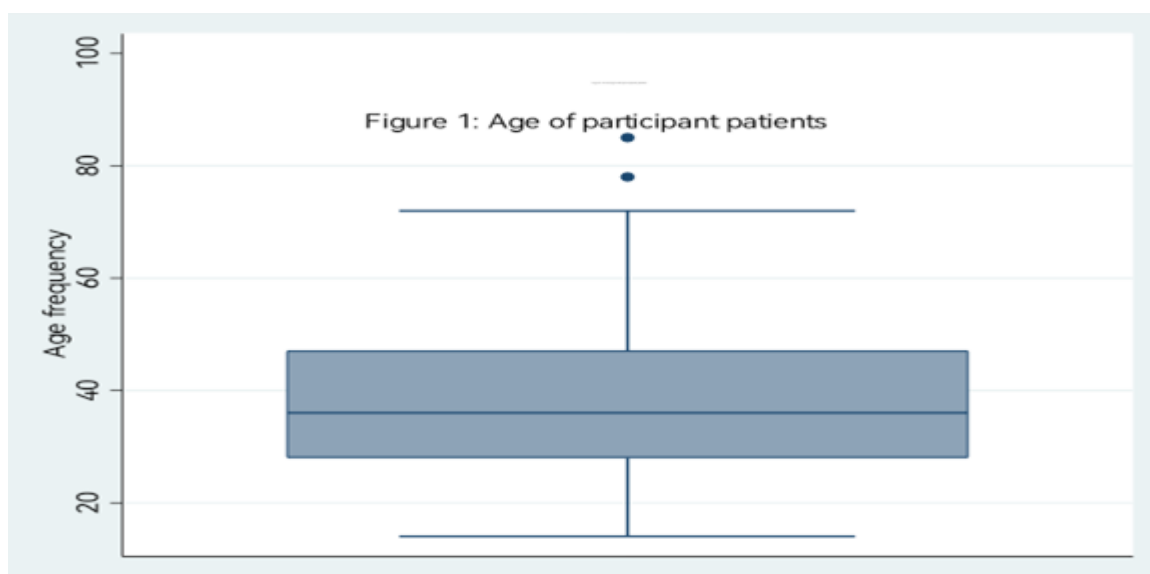
## Results

Sociodemographic data analysis was conducted using frequency analysis and general information about the survey participants, as shown in (Table 1). The analysis included age, gender, education level, residence, marital status, and occupation. The study had 259 participants (83.3%) aged 25 years and older, and 52 participants (16.7%) younger than 25 years. The majority of participants (81.1%) were females, while only 18.9% were males. Similar numbers of residents from within and outside the city (49.8% and 50.1%, respectively) participated in the study. The majority of participants (80.1%) were married, and 19.9% were unmarried. A minority of responders (20.3%) were unemployed, while the majority (60.1%) had received some form of education.

**Table (1): Sociodemographic characteristics of the participants (n=311)**

Characteristics	Frequency	Percentage	Characteristics	Frequency	Percentage
<b>Age</b>			<b>Gender</b>		
>25	52	16.7%	Male	59	18.9%
≥25	259	83.3%	Female	252	81.1%
<b>Residence</b>			<b>Marital state</b>		
Inside Sulaimani	155	49.8%	Married	249	80.1%
Outside Sulaimani	156	50.1%	Unmarried	62	19.9%
<b>Occupation</b>			<b>Education</b>		
Employee	63	20.3%	Educated	187	60.1%
Unemployed	248	79.3%	Uneducated	124	39.9%

**Figure (1):** shows the age distribution of participant patients; the age was not normally distributed and ranged from 14 to 85 years (median 36 IQR 28, 47; mean 37.9. SD ±13.52).



**Figure (1): Age of participant's patients**

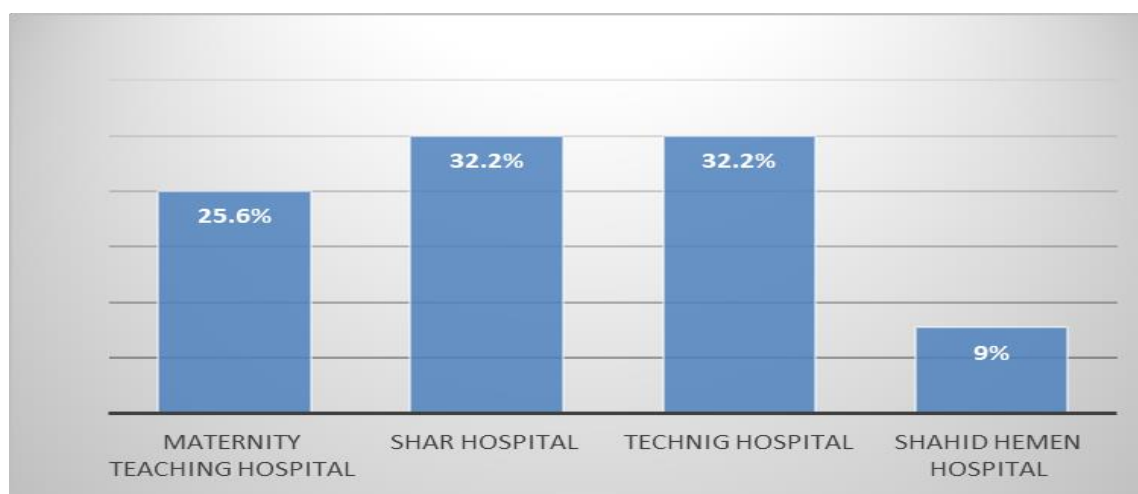
The internal consistency (IC) of the hospital satisfaction questionnaire was evaluated using (Table 2), which presents the  $\alpha$ -C value obtained for each item in relation to the patient participants' group. The instrument demonstrated a strong internal consistency with an estimated  $\alpha$ -C value of 0.89, indicating acceptable scores that range between  $>0.70$  and  $<0.95$  for joint consistency between items and the total.

**Table( 2): Assessment of internal consistency of individual items (satisfaction questionnaire) using Cronbach's alpha coefficient ( $\alpha$ -C) applied to patients**

Satisfaction questionnaire items	$\alpha$ -C of participants patient
1- How satisfied are you with the hospital services?	0.89
2- How satisfied are you with the ward numbers and patient beds?	0.89
3- How satisfied are you with the cleanliness of the patient's ward?	0.89
4- How satisfied are you with the comfort and tranquility of the ward?	0.89
5-How satisfied are you with providing medical requirements by the staff?	0.89
6- How satisfied are you with the laboratory, radiology, and patient examination room ?	0.89
7- How satisfied are you with water facilities and sanitary?	0.89

8- How satisfied are you with patient registration and admission?	0.89
9- How satisfied are you with the availability of medical equipment and medication?	0.89
10- How satisfied are you with the patient's examination time?	0.89
11- How satisfied are you with the laboratory and radiology results?	0.89
12- How satisfied are you with the nurse's behavior and respect?	0.89
13- How satisfied are you with the nurse's response and listening carefully to the patient?	0.88
14- How satisfied do nurses clearly explain medical conditions and treatments?	0.88
15- How satisfied are you with nurses, does implement procedure at a time	0.88
16- How satisfied are you with the nurse's response during the night?	0.88
17- How satisfied are you with nurses, does medically qualified?	0.89
18- How satisfied are you with doctors' behavior and respect	0.88
19- How satisfied are you with the doctor's response and listening to the patient	0.88
20- How satisfied are you with instructions and directives given by a doctor	0.89
21- How satisfied are you with the doctor spending adequate time on a patient exam	0.89
22- How satisfied are you with the Doctors' response at night	0.89
23- How satisfied with drug use and the dose were explained adequately	0.89
24-How satisfied are you with the physician's investigation	0.89
Total alpha Cronbach $\alpha$ -C	0.89

**Figure( 2):** shows the distribution of patients from public hospitals who participated in the study. A comparable proportion (32.2%) of patients from Shar and Teaching Hospitals participated. While (25.6%) of patients attended from Maternity Teaching Hospital, Shaheed Hemen Hospital had fewer participants (9%).



**Figure (2): Distribution of patient's participants in general hospitals**

### **Patient satisfied with hospital services and environment**

(Table 3) presents an analysis of patient satisfaction with hospital facilities and environments. Out of 311 patients, 208 (66.8%) expressed satisfaction with the hospital's services, with 72 (32.2%) reporting very high satisfaction and 31 (10%) reporting dissatisfaction.

Most responders (54.9%) expressed satisfaction with the ward and bedding, while only 19 (6.1%) expressed extreme satisfaction, and 121 (38.9%) expressed dissatisfaction. Patients were generally satisfied with the ward's cleanliness (70.1%), comfort, and calmness (56%), while dissatisfaction was expressed by 38.9%, 9%, and 28.6% of patients, respectively.

A small percentage of participants (14.8%) were unsatisfied with staff's ability to meet patients' medical needs, while the majority (18.3% and 66.9%) were satisfied and very satisfied, respectively. Only 15.4% of patients reported a negative perception of the quality of care provided by hospital departments, while 84.6% reported positive perceptions. More than half of the patients (54%) rated the hospital's water facilities and sanitary conditions well, while only 31.2% had complaints.

A small percentage of patients (10.6%) expressed dissatisfaction with the patient registration system, while the majority (89.4%) expressed satisfaction, with some reporting great satisfaction. The availability of medical necessities was rated unsatisfactory by 24.5% of participants, while 75.5% were satisfied. Regarding doctors' performance in medical treatment, 40.4% of respondents expressed dissatisfaction with the necessary medical treatments, while only 15.8% reported dissatisfaction with laboratory and radiological results, with the majority (84.2%) expressing satisfaction.



**Table (3): Responding to patient satisfaction with hospital services and the environment**

Variables	Very satisfied		Satisfied		Dissatisfied	
	N=311	%	N=311	%	N= 311	%
<b>Q1- Satisfaction with Hospitals services</b>	72	23.2	208	66.8	31	10
<b>Q2- Satisfaction with the number of patient wards and beds</b>	19	6.1	171	54.9	121	38.9
<b>Q3- Satisfaction with the cleanliness of the patient's ward</b>	65	20.9	218	70.1	28	9
<b>Q4- Satisfaction with patient's comfort and tranquility of the ward</b>	48	15.4	174	56.0	89	28.6
<b>Q5- Satisfaction with providing medical requirements by the staff</b>	57	18.3	208	66.9	46	14.8
<b>Q6- Satisfaction with the lab, radiology, and patient examination room</b>	40	12.9	223	71.7	48	15.4
<b>Q7- Satisfaction with water facilities and sanitary</b>	46	14.8	168	54.0	97	31.2
<b>Q8- Satisfaction with the patient's registration system</b>	63	20.3	215	69.1	33	10.6
<b>Q9- Satisfaction with the availability medical requirements</b>	73	23.4	162	52.1	76	24.5
<b>Q10- Satisfaction with the patient's examination time?</b>	26	8.4	159	51.2	126	40.4
<b>Q11- Satisfaction with the laboratory and radiology results?</b>	66	21.2	196	63.0	49	15.8

### Patient satisfaction with nurse care

(Table 4) presents patient satisfaction with nurse care. Out of 311 respondents, only 28.6% reported being very satisfied with the nurses' behavior and respect shown to patients, while 63% reported being satisfied, and 8.4% reported being unsatisfied. A majority of participants (90.7%) reported satisfaction or great satisfaction with the responsibilities of being a nurse, while 9.3% expressed dissatisfaction. In terms of nursing care for explaining medical issues and treatment, 34.1% and 55.6% of participants reported being very satisfied and satisfied, respectively, while 10.3% were unsatisfied. Only a small percentage of participants (10.6%) reported that nurses did not carry out any medical procedures, while the majority (89.4%) reported that nurses had done so satisfactorily. Few respondents (7.7% vs. 8.3%) indicated that nurses did not attend to the patient at night or were not medically qualified.

**Table (4) Response to Patient Satisfaction with nurse care**

Variables	Very satisfied		Satisfied		Dissatisfied	
	N=311	%	N=311	%	N= 311	%
<b>Q1- Satisfaction with nurse's behavior and respect?</b>	89	28.6	196	63	26	8.4
<b>Q2- Satisfaction with the nurse's response and listening carefully to the patient?</b>	112	36	170	54.7	29	9.3
<b>Q3- Satisfaction with nurses clearly explains medical conditions and treatments and is understandable.</b>	106	34.1	173	55.6	32	10.3
<b>Q4-Satisfaction with nurses implementing procedure at a time</b>	107	34.4	171	55.0	33	10.6
<b>Q5-Satisfaction with the nurse's response during the night?</b>	75	24.1	212	68.2	24	7.7
<b>Q6- Satisfaction with nurses being medically qualified?</b>	74	23.8	211	67.9	26	8.3

**Patient satisfaction with physician care**

The study's findings revealed that 10.6% of respondents were extremely satisfied, 76.9% were satisfied, and 12.5% were dissatisfied with the way doctors treated patients during examination. A majority of respondents (90.1%) reported being very satisfied and pleased with doctors paying close attention to their patients, while only 9% did not. Of the 311 participants, 87.8% reported being very satisfied with doctors' explanations of their condition and its treatment. Regarding the doctor spending enough time on the patient exam, 53.7% were delighted, 30.6% were satisfied, and only 15.7% were dissatisfied, with 84.3% of patients being pleased with the examination time. Almost half of the participants (46.3%) were dissatisfied with the doctor's response to patients at night or how they clarified information about drug use and disease. Out of 311 patients, only 67 (21.5%) had negative experiences with the doctor's examination, as presented in (Table 5).

**Table (5): Response to Patient Satisfaction with physician care**

Variables	Very satisfied		Satisfied		Dissatisfied	
	N=311	%	N=311	%	N= 311	%
<b>Q1- Satisfaction with doctors' behavior and respect</b>	33	10.6	239	76.9	39	12.5
<b>Q2-Satisfaction with the doctor's response and listening to the patient</b>	123	39.7	159	51.3	28	9.0
<b>Q3-Satisfaction with instructions and directives given by a doctor</b>	105	33.8	168	54.0	38	12.2
<b>Q4- Satisfaction with the doctor spending adequate time on a patient exam</b>	95	30.6	167	53.7	49	15.7
<b>Q5- Satisfaction with the Doctors' response at night</b>	46	14.8	121	38.9	144	46.3
<b>Q6- Satisfaction with drug use and the dose were explained adequately</b>	45	14.5	120	38.6	146	46.9
<b>Q7- Satisfaction with the physician's investigation</b>	28	9.0	216	69.5	67	21.5

(Table 6) displays the median scores for patient satisfaction items and total domain scores for each domain. The study found that patient satisfaction with hospital facilities and services had higher median domain scores, with a median score of 80 IQR (72.5, 85). Patients who were satisfied with nurse care had a slightly lower median domain score than those satisfied with doctor care, at 45 IQR (45, 52.5). Patients who were satisfied with doctor care had a median domain score of 50 IQR (42.5, 57).

**Table( 6): Mean satisfaction scores of respondents on items satisfaction questionnaire**

Domains	Patient Satisfaction	
	Mean± (SD)	Median (IQR)
<b>1- Hospital services and environmental satisfaction</b>		
<b>Q1- Satisfaction with Hospitals services</b>	77.7 ± 15.8	75 (75,75)
<b>Q2- Satisfaction with the number of patient wards and bed</b>	63.5±19.9	75 (50,75)
<b>Q3- Satisfaction with the cleanliness of the patient's ward</b>	77.9±15.8	75 (75,75)
<b>Q4- Satisfaction with patient's comfort and tranquility of the ward</b>	68.1±21.1	75 (50,75)
<b>Q5- Satisfaction with providing medical requirements by the staff</b>	74.9±16.7	75 (75,75)
<b>Q6- Satisfaction with the lab, radiology, patient</b>	73.4±15.7	75 (75,75)

<b>examination room...etc.</b>		
<b>Q7- Satisfaction with water facilities and sanitary</b>	67.4±22.3	50 (50,75)
<b>Q8- Satisfaction with a patient's registration system</b>	76.4±16.4	75 (75,75)
<b>Q9- Satisfaction with the availability of medical requirements ( drugs, medical items)</b>	72.6±21.4	75 (75,75)
<b>Q10- Satisfaction with the patient's examination time?</b>	64.5±19.6	75 (50,75)
<b>Q11- Satisfaction with the laboratory and radiology results?</b>	75.0±18.3	75 (75,75)
<b>Total domains score</b>	79.1±11.1	80 (72.5,85)
<b>2- Nurse care satisfaction</b>		
<b>Q1- Satisfaction with nurse's behavior and respect?</b>	81.4±16.2	75 (75,100)
<b>Q2- Satisfaction with the nurse's response and listening carefully to the patient?</b>	80.7±16.2	75 (75,100)
<b>Q3- Satisfaction with nurses are clearly explain medical conditions and treatments?</b>	80.5±16.7	75 (75,100)
<b>Q4-Satisfaction with nurses implementing procedure at a time</b>	78.9±14.0	75 (75,100)
<b>Q5-Satisfaction with the nurse's response during the night?</b>	78.7±14.1	75 (75,100)
<b>Q6- Satisfaction with nurses being medically qualified?</b>	74.4±12.3	75 (75,100)
<b>Total domains scores</b>	47.5±7.2	45 (45,52.5)
<b>3- Physician care satisfaction</b>		
<b>Q1- Satisfaction with doctors' behavior and respect</b>	82.0±17.5	75 (75,100)
<b>Q2-Satisfaction with the doctor's response and listening to the patient</b>	79.3±18.8	75 (75,100)
<b>Q3-Satisfaction with instructions and directives given by a doctor</b>	77.0±20.3	75 (75,100)
<b>Q4- Satisfaction with the doctor spending adequate time on a patient exam</b>	58.7±27.3	75 (25,75)
<b>Q5- Satisfaction with the Doctors' response at night</b>	58.1±27.5	75 (25,75)
<b>Q6- Satisfaction with drug use and the dose were explained adequately</b>	67.7±21.2	75 (75,75)
<b>Q7- Satisfaction with the physician's investigation</b>	79.9±14.6	75 (75,100)
<b>Total domains scores</b>	50.2±10.3	50 (42.5,57.5)

(Table 7) presents the patient satisfaction levels for the study subjects, rated on a scale of 0 to 100. The results indicate a high level of satisfaction with hospital services and the

environment, with 190 (61.1%) participants reporting high levels of satisfaction and 121 (38.9%) expressing dissatisfaction. However, there was a variation in patient satisfaction with nurses' and doctors' care, with nurses' care having lower satisfaction levels than doctors' care. Out of 310 participants, 127 (40.8%) were very satisfied with nurse care, while 184 (59.2%) reported dissatisfaction. In contrast, 193 (62.3%) participants reported high satisfaction with doctor care, while only 117 (37.7%) were very dissatisfied.

**Table (7): Level of satisfaction for the respondents with hospital services, healthcare staff**

levels	Hospital services	Nurses care	Doctors care
<b>Very satisfying 60-100</b>	190 (61.1%)	127 (40.8%)	193 (62.3%)
<b>Very dissatisfying &lt;60</b>	121 (38.9%)	184 (59.2%)	117 (37.7%)
<b>Total</b>	311 (100%)	311 (100%)	310 (100%)

(Table 8) presents multiple logistic regression analyses for the relationship between sociodemographic characteristics (residence, age, gender, marital status, occupation, and education) and satisfaction with hospital services and healthcare professionals. The results indicate that residence was significantly associated with hospital services satisfaction (coefficient of 0.68, P=0.05), while educational attainment was significantly associated with satisfaction with doctor care (coefficient of 0.88, P=0.01). No significant associations were observed with other sociodemographic characteristics.

**Table (8): Regression analysis of sociodemographic factors associated with the level of patient satisfaction**

Sociodemographic factors	Hospital services satisfaction			Nurse care satisfaction			Doctor care satisfaction		
	Coefficient	SE	P	Coefficient	SE	P	Coefficient	SE	P
<b>Residence: Inside the city</b>	Reference			Reference			Reference		
<b>Residence: Outside city</b>	0.68	0.35,	0.05	0.39	0.37,	0.3	0.38	0.29,	0.2
<b>Age: &lt;25</b>	Reference			Reference			Reference		

<b>Age: &gt;25</b>	0.23	0.50, 0.6	-0.002	0.52, 0.1	0.20	0.39, 0.6
<b>Gender: Male</b>	<b>Reference</b>		<b>Reference</b>		<b>Reference</b>	
<b>Gender: Female</b>	<b>0.09</b>	0.47, 0.8	<b>0.89</b>	0.57, 0.1	<b>-0.27</b>	0.40, 0.5
<b>Marital: Married</b>	<b>Reference</b>		<b>Reference</b>		<b>Reference</b>	
<b>Marital: Unmarried</b>	<b>-0.63</b>	0.41, 0.1	<b>-0.54</b>	0.44, 0.2	<b>-0.05</b>	0.37, 0.9
<b>Occupation: Employee</b>	<b>Reference</b>		<b>Reference</b>		<b>Reference</b>	
<b>Occupation: Unemployed</b>	<b>0.59</b>	0.46, 0.2	<b>0.61</b>	0.48, 0.2	<b>-0.05</b>	0.39, 0.0
<b>Education: Educated</b>	<b>Reference</b>		<b>Reference</b>		<b>Reference</b>	
<b>Education: Uneducated</b>	<b>-0.50</b>	0.39, 0.2	<b>0.40</b>	0.43, 0.4	<b>0.88</b>	0.34, 0.0

#### 4. Discussion

This study assessed patient satisfaction with Sulaimani's non-private hospitals' physicians and staff. In the general hospital in Sulaimani city, we analyzed 311 patients who were interviewed. We discovered a lower degree of satisfaction with nurse care compared to doctor care. Out of 311 patients, 127 (40.8%) had excellent experiences with the nurse's treatment, while 193 (62.3%) had excellent experiences with the doctor's care. The majority of participants 192 (61.7%) were very satisfied with hospital services. In general, patients reported a high level of satisfaction regarding health care staff and hospital services and the environment. These findings are consistent with previous studies such as the Saudi Experience Study, the Lagos University Teaching Hospital study [16,17] and the Southern Saudi Arabia study, which reported high levels of satisfaction with nurse care [18,19]. While another study showed a low satisfaction rate among population in Saudi Arabia [20]. The study's results showed a lower number of patients expressing dissatisfaction with hospital services and doctor's care. However, a low perception of patient satisfaction with staff care and hospital services can lead to problems in the healthcare system, such as decreased trust, less utilization of services, and delayed health-seeking behavior, resulting in poor health outcomes for the public. The study also found that patients were more satisfied with doctor care than nurse care, which is inconsistent with the study conducted

in the Kingdom of Saudi Arabia[21]. The reason for the difference in patient satisfaction levels between the current study and the study conducted in the Kingdom of Saudi Arabia is not clear and would require further investigation. It is possible that differences in healthcare systems, cultural factors, or patient expectations may have influenced the results. Additionally, differences in the methodology used in the studies, such as the selection of participants, data collection methods, or analysis techniques, could also contribute to the variation in findings. Further research is needed to identify the underlying factors that contribute to patient satisfaction levels and to improve the quality of healthcare services to meet patients' needs and expectations.

The study did not find a significant association between patients' satisfaction levels and age or gender. The results indicate that older respondents did not have higher satisfaction levels than younger participants. This finding contrasts with previous studies that suggest older participants tend to be more satisfied with healthcare providers and hospital services than younger respondents[8,22]. The variation in results could be due to differences in the study population, study design, or methodology. Additionally, cultural differences, healthcare system variations, or changes in healthcare quality and delivery over time may have influenced the results.

Although the study had a higher proportion of female participants (81%), no significant association was found between gender and level of satisfaction. Our results are similar to the study that reported that patient gender did not affect satisfaction values[23] The Ha'il City, Saudi Arabia study also reported no association between gender and patient satisfaction levels [24]. As well as in Kurdistan region- Iraq [25].

The regression analysis showed a significant association between the level of education and patient satisfaction levels, with uneducated participants being more satisfied with doctor care services than those with higher levels of education ( $P=0.01$ ). This finding is consistent with previous studies that have reported a higher level of satisfaction with healthcare services among individuals with lower levels of education [26,27]. While it was contrast with another study [28]. This can happen because people with more education know more about their treatment options and expect better standards of care. This makes them more critical in this way. People with less schooling may also be more positive about healthcare providers and services because they trust them more or are more open to medical interventions. On the other hand, people with more education may have higher expectations of healthcare providers and services, which may make them less pleased and more critical.

The study found a significant association between the place of residence and patient satisfaction levels, with respondents in rural areas being more likely to report satisfaction with hospital services than those in urban areas (coefficient of 0.63,  $p=0.05$ ). The result of this study is in line with the study[29].

This may be because some rural areas don't have big hospitals, and even if they do, the quality of their services may be lower than in cities. Our study is strong in many ways, like



the fact that we used validated measures of patient satisfaction, nurse and doctor care, hospital services, and hospital environment in four big government hospitals. The study also has some flaws. Both the data from health care workers and the data from hospital services are cross-sectional. This makes it hard to draw conclusions about what caused the associations that were found. The open bedside interviews we use to collect data could also affect how people answer, even if the people doing the interviews weren't part of the treatment team. On the other hand, due to the coronavirus pandemic, and the issue of lockdown, the author was unable to collect large data from participants that have a negative impact on the sample size and study results. This is the first quantitative survey to assess patient satisfaction with Sulaimani city doctors, nurses, and hospitals. Rural places tend to have fewer major hospitals and lower-quality services.

Patients in rural areas may also have different expectations or be more forgiving of potential shortcomings in healthcare services due to limited options. However, further research is necessary to understand the underlying reasons for this association.

The study has several strengths, including the use of validated measures for patient satisfaction, nurse's and physician's care, hospital services, and environment across multiple government hospitals. However, there are also limitations to consider. The study's cross-sectional design limits the ability to make causal inferences about the observed associations. The use of open bedside interviews to collect data may also have influenced participants' responses, despite the data collectors not being part of the treating team. Additionally, the sample size was limited due to the COVID-19 pandemic and lockdown measures, potentially affecting the study's generalizability. Nevertheless, this study is the first quantitative analysis of patient satisfaction with healthcare providers and hospital services in Sulaimani city, providing valuable insights for future research and quality improvement initiatives.

## Conclusion

The percentage of patients who were satisfied with the treatment and care provided by their doctor, as well as the services and facilities provided by the hospital, was higher than the percentage of patients who were happy with the care provided by nurses.

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