

# Assessment of patients' satisfaction in Ain Shams University Hospitals

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**Background** There is increasing international interest in using subjective evaluations of health states by individuals. The main method using which user views of healthcare performance have traditionally been elicited is through the measurement of patients' satisfaction, which is a valuable and widely used indicator of the quality of care and predictor of treatment compliance. The aim of this study was to assess the level of patients' satisfaction as regards the provided healthcare services in Ain Shams University Hospitals based on the patients' point of view.

**Patients and methods** In this cross-sectional study, 321 inpatients and 353 outpatients participated in the assessment of patients' satisfaction for the provided healthcare services at Al Demerdash University Hospital (DUH) and Ain Shams University Specialized Hospital (ASUH).

**Results** In DUH, it was found that inpatients' satisfaction for physicians' care of patients, nursing care, administrative facilities and physical environment was 61, 42, 52 and 46%, respectively, and outpatients' satisfaction for the same domains was 70, 63, 38 and 38%, respectively. In ASUH, it

was found that, inpatients' satisfaction for the same domains was 81, 74, 71 and 72%, respectively, and outpatients' satisfaction for the same domains was 71, 67, 60 and 38%, respectively.

**Conclusion** The inpatients' and outpatients' questionnaires in both DUH and ASUH are simple, short and realistic and can be applied globally in governmental and private hospitals as a predictor for healthcare services. *Egypt J Broncho* 2015 9:211–220

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**Keywords:** Ain Shams University Specialized Hospital (ASUH), Al Demerdash University Hospital (DUH), inpatients satisfaction, outpatient satisfaction

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## Introduction

Traditionally, both direct and indirect outcome measures have been developed to assess the results of healthcare from the viewpoint of healthcare professionals. However, more recent studies have emphasized the need for assessment techniques to measure patients' perceptions of healthcare quality, given that their perceptions can differ from those of professionals. Thus, patients' perceptions have become a major indicator in the evaluation and improvement of quality in healthcare [1].

Patients' perceptions are important in bridging the gap between the actual care given and the care that should have been given [2]. Therefore, it is imperative that we analyse the patients' perceptions of satisfaction with care. Patients' satisfaction is determined by both their expectations regarding the healthcare they are about to receive and their perceptions of past healthcare [3]. Hence, assessment of patients' satisfaction level is now one of the five WHO indicators to improve the quality of healthcare services [4].

Patients' satisfaction is one of the most commonly used outcome measures, as indicated in the increased number of tools created to assess satisfaction in recent years. Some authors go so far as to consider patients' satisfaction as one of the primary outcomes of

healthcare [5]. Several approaches have been developed to survey patients' perceptions of healthcare, such as suggestion boxes, formal complaints, qualitative methods or audits. However, satisfaction questionnaires are undoubtedly the most commonly used method [6].

In theory, a patients' satisfaction rating is a personal evaluation of healthcare services and providers. Thus, all information derived from patient surveys cannot be equated with satisfaction. Satisfaction ratings are subjective; they attempt to capture a personal evaluation of care that cannot be determined by observing care directly. Satisfaction ratings are sometimes criticized because they do not correspond perfectly with objective reality or with the perceptions of providers or administrators of care. It is believed that differences in satisfaction mirror the realities of care to a substantial extent; these differences also reflect personal preferences as well as expectations [7].

The dimensions of patients' satisfaction include art of care, technical quality of care, accessibility and convenience, finances, physical environment, availability, continuity of care, efficacy and outcome of care. However, a working definition is the degree to which the patients' desired expectations, goals and/or preferences are met by the healthcare provider and/or service [8]. Nevertheless, patients' satisfaction is

multidimensional in context. According to Cheung and colleagues, patients' satisfaction is an interplay of expectation and experience. The better a patient's experiences than that expected the higher will be the level of satisfaction. However, it is important to emphasize that expectations depend on various factors, including cultural values, beliefs/thoughts about hospital stay and personal needs [9].

Data on patients' satisfaction may also be utilized to identify the institutes' high performance or working processes that need to be improved [10]. Indeed, being dissatisfied and not taking their opinions into account will damage patients' recovery as well as their desirable treatment outcomes [11].

Numerous studies have shown that a greater satisfaction level of patients with physicians' behaviour and their consultations during the treatment period encourage them to follow physicians' recommendations and orders better [12].

It has been shown that patients' satisfaction with hospital health services is affected by various factors such as physician, nurses and assisting personnel and the physical environment of the hospital [13]. It can also predict future behaviours of patients during the treatment course and after discharge. In contrast, clinics are always considered as the first contact place between patients and healthcare system [14]. As a great deal of diagnostic procedures, treatment approaches and follow-up of chronic diseases are delivered in the clinics, many patients tend to attend to this part of health system. Therefore, the assessment of satisfaction level of these patients would provide a chance to evaluate the invisible aspects of services, such as waiting time, in order to prevent wastage of resources and finally to reduce the costs of healthcare services [15].

## Patients and methods

This cross-sectional study was carried out during the period from April 2014 to December 2014 at the chest departments and chest clinics of two hospitals: Al Demerdash University Hospital (DUH) and Ain Shams University Specialized Hospital (ASUH).

### Al Demerdash University Hospital (DUH)

The study included 176 inpatients admitted to the general wards of the chest department for at least 3 days. After being informed about the objectives of the study, they consented to fulfil a special self-administered questionnaire for the assessment of satisfaction level for the provided healthcare services

in the chest department before discharge. This questionnaire consisted of 24 items [three items for demographic data (age, sex and education level), one item for any previous hospital admission, four items for physicians' care of patients, seven items for nursing care and performance, five items for the administrative facilities, three items for physical environment of the hospital (cleanliness, quietness and quality of food), and one item for general patients' assessment for the provided healthcare services in the chest department]. All items were detailed in Table 1.

The study also included 215 outpatients who visited the chest clinic. After being informed about the objectives of the study, they consented to fulfil a special self-administered questionnaire for the assessment of satisfaction level for the provided healthcare services in the chest clinic after completion of the clinic visit. This questionnaire consisted of 22 items [three items for demographic data (age, sex and education level), one item for any previous visit to the chest clinic, six items for physicians' care of patients, three items for nursing care and performance, six items for the administrative facilities, two items for physical environment of the hospital (cleanliness and quietness), and one item for the general patients' assessment of the provided healthcare services in the chest clinic]. All items were detailed in Table 2.

### Ain Shams University Specialized Hospital (ASUH)

This study included 145 inpatients admitted to the general wards of the chest department for at least 3 days. After being informed about the objectives of the study, they consented to fulfil a special self-administered questionnaire for the assessment of satisfaction level for the provided healthcare services in the chest department before discharge. This questionnaire consisted of 25 items [three items for demographic data (age, sex and education level), one item for any previous hospital admission, four items for physicians' care of patients, seven items for nursing care and performance, six items for the administrative facilities, three items for physical environment of the hospital (cleanliness, quietness and quality of food), one item for the general patients' assessment of the provided healthcare services in the chest department]. All items were detailed in Table 1.

This study also included 138 outpatients who visited the chest clinic. After being informed about the objectives of the study, they consented to fulfil a special self-administered questionnaire for the assessment of satisfaction level for the provided healthcare services in the chest clinic after completion of the clinic visit. This questionnaire consisted of 20 items [three items for demographic data (age, sex and education level), one

**Table 1 Description of the inpatients' satisfaction questionnaire items with presentation of the answers of the inpatients in the chest departments in both DUH and ASUH**

Inpatients' questionnaire items	DUH inpatients		ASUH inpatients	
	Satisfied patients	Dissatisfied patients	Satisfied patients	Dissatisfied patients
<b>Physicians</b>				
Clear explanation of the disease and its possible complications	127	49	120	25
Clear explanation of the treatment plan, duration of hospital stay and methods of follow-up after discharge	107	69	117	28
Regular follow-up during hospital stay	133	43	123	22
Appropriate response in case of emergency	115	61	125	20
<b>Nurses</b>				
General appearance of nurses and assisting personnel	79	97	140	5
Enough number of nurses for patient care throughout the day	74	102	126	19
Medical care of patients	79	97	113	32
Clear and satisfied answers for patients' questions	81	95	128	17
Attending in suitable time on calling	75	101	124	21
Professional performance from the first time	84	92	107	38
Patients received medications in the predetermined times	77	99	133	12
<b>Administrative facilities</b>				
Explanation of hospital admission procedures by admission office employers	92	84	113	32
Assessment of hospital admission procedures	95	81	122	23
Waiting time for investigations	93	83	103	42
Enough predefined hours for visitors	107	69	118	27
Discharge procedures performed in a suitable time	96	80	114	31
Clear and accurate receipts on discharge	–	–	110	35
<b>Physical environment</b>				
Room cleanliness	86	90	121	24
Quietness during hospital stay	80	96	130	15
Food quality during hospital stay	85	91	105	40
General inpatients' satisfaction for the provided healthcare services during hospital stay [n (%)]	119 (68)	57 (32)	131 (90)	14 (10)

ASUH, Ain Shams University Specialized Hospital; DUH, Al Demerdash University Hospital.

item for any previous visit to the chest clinic, five items for physicians' care of patients, three items for nursing care and performance, five items for the administrative facilities, two items for physical environment of the hospital (cleanliness and quietness), and one item for the general patients' assessment of the provided healthcare services in the chest clinic]. All items were detailed in Table 2.

All patients were 18 years or older and physically and mentally fit and gave consent to participate in the study; their data remained confidential. The study excluded patients adhere to ethical issues and lack of comfort away. The questionnaires were explained to the patients, and the patients were informed about the objectives of the study and were encouraged to participate in the study. The study used a patients' satisfaction questionnaires developed by the author, as there was no other available local validated questionnaire suitable for all investigated conditions. The questions chosen for the questionnaire were carefully selected so as to not produce positively skewed (that is, satisfied) responses and to minimize any tendency to positive bias, focussing on areas used in other studies. Moreover, those patients' satisfaction

questionnaires were worded in simple terms in order to make the questionnaire friendly to patients and to be representative of patients' views as much as possible. For illiterate patients, questionnaires were filled by patients' relatives according to patients' answers.

All questionnaires included four main domains (in addition to demographic data and inquiry about previous hospital admission or clinic visit): physicians' care of patients, nursing care and performance, administrative facilities and physical environment. Each domain composed of variable items which had three choice scale (dissatisfied, not satisfied nor dissatisfied, satisfied) with a 1 to 3 point for each option, respectively. A score of 2 or less was considered as dissatisfaction and a score higher than 2 was considered as satisfaction. The answers for each domain were summarized for each patient into only one answer (either satisfied or dissatisfied) with the concept of to achieve satisfaction for one domain; all answers of the items within that domain should be "satisfied", other than it was considered as dissatisfied for that domain.

The study was approved by the Research and Ethics Committee of the Chest Department, Faculty of

**Table 2 Description of the outpatients' satisfaction questionnaires items with presentation of the answers of the outpatients in the chest clinics in both DUH and ASUH**

Outpatients' questionnaire items	DUH outpatients		ASUH outpatients	
	Satisfied patients	Dissatisfied patients	Satisfied patients	Dissatisfied patients
<b>Physicians</b>				
Spending enough time with the physician to explain the complaints and to inquire about the method of treatment	180	35	113	25
Listening to the medical problem in a satisfied way	156	59	123	15
Careful examination by the physician	171	44	108	30
Explaining of the nature of the disease and methods of the treatment in a clear way	173	42	105	33
Satisfaction about the scientific degree of the attending physician in the chest clinic	164	51	–	–
Explaining the common adverse effects of the taken medications	151	64	98	40
<b>Nurses</b>				
General appearance of nurses and clinic staff	172	43	128	10
Enough number of nurses and clinic staff for helping patients	151	64	98	40
Satisfaction about the method of dealing by nurses and clinic staff	135	80	93	45
<b>Administrative facilities</b>				
Assessment of method of reservation in the chest clinic	98	117	101	37
Assessment of the available dates for reservation in the chest clinic	92	123	108	30
Assessment of the examination cost in the chest clinic	110	105	108	30
Easy and clear indicatives plates for reaching the chest clinic	81	134	83	55
Suitable waiting time in the chest clinic	103	112	89	49
Assessment of the available medications in the outpatients pharmacy	83	132	–	–
<b>Physical environment</b>				
Satisfaction about waiting area cleanliness	96	119	87	51
Satisfaction about waiting area quietness	81	134	53	85
General outpatients satisfaction for the provided healthcare services after clinic visit [n (%)]	175 (81)	40 (19)	118 (86)	20 (14)

ASUH, Ain Shams University Specialized Hospital; DUH, Al Demerdash University Hospital.

Medicine, Ain Shams University, during April 2014. All data were collected and statistically analysed.

### Statistical analysis

The chi square test and Fisher's exact test were used for comparison among various qualitative variables. A significance level of *P* value less than 0.05 and a highly significant level of *P* value less than 0.01 were used in all tests. All statistical procedures were carried out using SPSS version 20 for Windows (SPSS Inc., Chicago, Illinois, USA).

### Results

The study included 674 patients from both hospitals: DUH and ASUH. In DUH, the proportion of male inpatients and outpatients was 63 and 52%, respectively. In ASUH, the proportion of male inpatients and outpatients was 81 and 58%, respectively. The percentage of illiterate patients in DUH inpatients and outpatients was 55 and 68%, respectively, and that in ASUH inpatients and outpatients was 16 and 15%, respectively (Table 3).

#### Chest department of DUH

Inpatients' satisfaction for physicians' care of patients, nursing care, administrative facilities and physical environment in the chest department of DUH was 61, 42, 52 and 46%, respectively, with the general inpatients'

satisfaction for the provided healthcare services being 68% (Table 4).

In chest department of DUH there was highly significant statistical relation between inpatients' satisfaction for physicians' care of patients and the general inpatients' satisfaction, whereas there was highly significant statistical relation between inpatients' dissatisfaction for nursing care and the general inpatients' satisfaction (*P* = 0.003) (Table 4).

There was significant statistical relation between inpatients' satisfaction for administrative facilities and the general inpatients' satisfaction, whereas there was significant statistical relation between inpatients' dissatisfaction for physical environment and the general inpatients' satisfaction (*P* = 0.040) (Table 4).

There was highly significant statistical relation between age and the general inpatients' satisfaction (*P* = 0.002) in the chest department of DUH, as patients between 46 and 60 years of age were more likely to be satisfied with the provided healthcare services, with the general inpatients' satisfaction being 82% within this studied age category. Furthermore, inpatients between 18 and 30 years of age had the lowest general inpatients' satisfaction of 50% within this studied age category.

**Table 3 Descriptive distribution and frequency of the study population**

Items	DUH inpatients	DUH inpatients	ASUH inpatients	ASUH inpatients
Number of patients	176	215	145	138
Age (years) [ <i>n</i> (%)]				
18–30	32 (18)	73 (34)	8 (6)	21 (15)
31–45	35 (20)	90 (42)	24 (16)	16 (12)
46–60	78 (44)	40 (19)	61 (42)	76 (55)
>60	31 (18)	12 (5)	52 (36)	25 (18)
Sex [ <i>n</i> (%)]				
Male	110 (63)	111 (52)	117 (81)	81 (59)
Female	66 (37)	104 (48)	28 (19)	57 (41)
Education level [ <i>n</i> (%)]				
Illiterate	96 (55)	147 (68)	24 (16)	20 (15)
High school	76 (43)	48 (23)	46 (32)	46 (33)
University graduate or high	4 (2)	20 (19)	75 (52)	72 (52)
First admission to hospital or clinic visit	92/176 (52)	80/215 (37)	52/145 (36)	71/138 (51)

ASUH, Ain Shams University Specialized Hospital; DUH, Al Demerdash University Hospital.

**Table 4 Description of different domains of inpatients' satisfaction at the chest department of Al Demerdash University Hospital (DUH)**

Domains	General inpatients satisfaction			Significance
	Satisfied patients	Dissatisfied patients	Total number of patients and percentage of total [ <i>n</i> (%)]	
Satisfaction for physicians' care of patients				
Satisfied patients	84	23	107 (61)	0.000 (HS)
Dissatisfied patients	35	34	69 (39)	
Total number of patients and percentage of total [ <i>n</i> (%)]	119 (68)	57 (32)	176 (100)	
Satisfaction for nursing care				
Satisfied patients	59	15	74 (42)	0.003 (HS)
Dissatisfied patients	60	42	102 (58)	
Total number of patients and percentage of total [ <i>n</i> (%)]	119 (68)	57 (32)	176 (100)	
Satisfaction for administrative facilities				
Satisfied patients	69	23	92 (52)	0.021 (S)
Dissatisfied patients	50	34	84 (48)	
Total number of patients and percentage of total [ <i>n</i> (%)]	119 (68)	57 (32)	176 (100)	
Satisfaction for physical environment				
Satisfied patients	60	20	80 (46)	0.040 (S)
Dissatisfied patients	59	37	96 (54)	
Total number of patients and percentage of total [ <i>n</i> (%)]	119 (68)	57 (32)	176 (100)	

HS, highly significant; S, significant.

### Chest clinic of DUH

Outpatients' satisfaction for physicians' care of patients, nursing care, administrative facilities and physical environment in the chest clinic of DUH was 70, 63, 38 and 38%, respectively, with the general outpatients' satisfaction for the provided healthcare services being 81% (Table 5).

In chest clinic of DUH there was highly significant statistical relation between the general outpatients' satisfaction and outpatients' satisfaction for each of physicians' care of patients and nursing care, whereas there was highly significant statistical relation between the general outpatients' satisfaction and outpatients' dissatisfaction for each of administrative

facilities and physical environment ( $P = 0.000$  and  $0.001$ , respectively) (Table 5).

There was highly significant statistical relation between sex and the general outpatients' satisfaction ( $P = 0.008$ ) in the chest clinic of DUH, as male patients were more likely to be satisfied with the provided healthcare services.

Outpatients who previously visited the chest outpatient clinic of DUH were more likely to be satisfied with the chest clinic provided services compared with patients who visited the clinic for the first time ( $P = 0.001$ ).

There was highly significant statistical relation between age and the general outpatients' satisfaction ( $P = 0.002$ ), as outpatients between 18 and 30 years of age were more

likely to be satisfied with the chest clinic provided services, with the general outpatients' satisfaction being 89% within this studied age category. Furthermore, outpatients older than 60 years had the lowest general outpatients' satisfaction of 50% within this studied age category.

### Chest Department of ASUH

Inpatients' satisfaction for physicians' care of patients, nursing care, administrative facilities and physical environment in the chest department of ASUH was

81, 74, 71 and 72%, respectively, with the general outpatients' satisfaction for the provided healthcare services being 90% (Table 6).

In chest department of ASUH there was highly significant statistical relation between the general inpatients' satisfaction and inpatients' satisfaction for each of physicians' care of patients and physical environment. Moreover, there was significant statistical relation between the general inpatients' satisfaction

**Table 5 Description of different domains of outpatients' satisfaction at the chest clinic of Al Demerdash University Hospital (DUH)**

Domains	General outpatients satisfaction			Significance
	Satisfied patients	Dissatisfied patients	Total number of patients and percentage of total [n (%)]	
Satisfaction for physicians' care of patients				
Satisfied patients	143	8	151 (70)	0.000 (HS)
Dissatisfied patients	32	32	64 (30)	
Total number of patients and percentage of total [n (%)]	175 (81)	40 (19)	215 (100)	
Satisfaction for nursing care				
Satisfied patients	125	10	135 (63)	0.000 (HS)
Dissatisfied patients	50	30	80 (37)	
Total number of patients and percentage of total [n (%)]	175 (81)	40 (19)	215 (100)	
Satisfaction for administrative facilities				
Satisfied patients	79	2	81 (38)	0.000 (HS)
Dissatisfied patients	96	38	134 (62)	
Total number of patients and percentage of total [n (%)]	175 (81)	40 (19)	215 (100)	
Satisfaction for physical environment				
Satisfied patients	75	6	81 (38)	0.001 (HS)
Dissatisfied patients	100	34	134 (62)	
Total number of patients and percentage of total [n (%)]	175 (81)	40 (19)	215 (100)	

HS, highly significant.

**Table 6 Description of different domains of inpatients' satisfaction at the chest department of Ain Shams University Specialized Hospital (ASUH)**

Domains	General inpatients satisfaction			Significance
	Satisfied patients	Dissatisfied patients	Total number of patients and percentage of total [n (%)]	
Satisfaction for physicians' care of patients				
Satisfied patients	115	2	117 (81)	0.000 (HS)
Dissatisfied patients	16	12	28 (19)	
Total number of patients and percentage of total [n (%)]	131 (90)	14 (10)	145 (100)	
Satisfaction for nursing care				
Satisfied patients	101	6	107 (74)	0.010 (S)
Dissatisfied patients	30	8	38 (26)	
Total number of patients and percentage of total [n (%)]	131 (90)	14 (10)	145 (100)	
Satisfaction for administrative facilities				
Satisfied patients	97	6	103 (71)	0.020 (S)
Dissatisfied patients	34	8	42 (29)	
Total number of patients and percentage of total [n (%)]	131 (90)	14 (10)	145 (100)	
Satisfaction for physical environment				
Satisfied patients	101	4	105 (72)	0.000 (HS)
Dissatisfied patients	30	10	40 (28)	
Total number of patients and percentage of total [n (%)]	131 (90)	14 (10)	145 (100)	

HS, highly significant; S, significant.

and inpatients' satisfaction for each of nursing care and administrative facilities (Table 6).

There was significant statistical relation between sex and the general inpatients' satisfaction ( $P = 0.030$ ) in the chest department of ASUH, as male patients (75% of the included males) were more likely to be satisfied with the provided healthcare services.

There was highly significant statistical relation between age and the general inpatients' satisfaction ( $P = 0.008$ ) in the chest department of ASUH, as inpatients between 46 and 60 years of age were more likely to be satisfied with the provided healthcare services, with the general inpatients' satisfaction being 97% within this studied age category. Furthermore, inpatients between 30 and 45 years of age had the lowest general inpatients' satisfaction of 75% within this studied age category.

#### Chest clinic of ASUH

Outpatients' satisfaction for physicians' care of patients, nursing care, administrative facilities and physical environment in the chest clinic of ASUH was 71, 67, 60 and 38%, respectively, with the general outpatients' satisfaction for the provided healthcare services being 86% (Table 7).

In chest clinic of ASUH. There was highly significant statistical relation between the general outpatients satisfaction and outpatients satisfaction for each of physicians' care of patients, nursing care and

administrative facilities, whereas there was highly significant statistical relation between outpatients' dissatisfaction for physical environment and the general outpatients' satisfaction ( $P = 0.000$ ) (Table 7).

There was significant statistical relation between age and the general outpatients' satisfaction ( $P = 0.023$ ) in the chest clinic of ASUH, as outpatients between 46 and 60 years of age were more likely to be satisfied with the chest clinic provided services, with the general outpatients' satisfaction being 93% within this studied age category. Furthermore, outpatients between 30 and 45 years of age had the lowest general outpatients' satisfaction level of 69% within this studied age category.

Patients who previously visited the chest clinic of ASUH were more likely to be satisfied with the provided healthcare services compared with patients who visited the clinic for the first time ( $P = 0.020$ ).

#### Discussion

It has been increasingly recognized that patients' satisfaction is an important outcome measure for evaluating the quality of medical care [16], especially given the tendency of hospital performance indicators to be made publicly accessible in the industrialized countries of the west. Public access to these performance indicators gives patients the possibility to compare hospitals and physicians. It is generally assumed that transparency of these indicators is an incentive for improving the quality of medical care [17].

**Table 7 Description of different domains of outpatients' satisfaction at the chest clinic of Ain Shams University Specialized Hospital (ASUH)**

Domains	General outpatients satisfaction			Significance
	Satisfied patients	Dissatisfied patients	Total number of patients and percentage of total [n (%)]	
Satisfaction for physicians' care of patients				
Satisfied patients	93	5	98 (71)	0.000 (HS)
Dissatisfied patients	25	20	40 (29)	
Total number of patients and percentage of total [n (%)]	118 (86)	20 (14)	138 (100)	
Satisfaction for nursing care				
Satisfied patients	93	0	93 (67)	0.000 (HS)
Dissatisfied patients	25	20	45 (33)	
Total number of patients and percentage of total [n (%)]	118 (86)	20 (14)	138 (100)	
Satisfaction for administrative facilities				
Satisfied patients	78	5	83 (60)	0.001 (HS)
Dissatisfied patients	40	15	55 (40)	
Total number of patients and percentage of total [n (%)]	118 (86)	20 (14)	138 (100)	
Satisfaction for physical environment				
Satisfied patients	53	0	53 (38)	0.000 (HS)
Dissatisfied patients	65	20	85 (62)	
Total number of patients and percentage of total [n (%)]	118 (86)	20 (14)	138 (100)	

HS, highly significant.

Patients' satisfaction is a state in which the patients not only feel they are receiving the necessary care and treatment but they also feel satisfaction with the hospital environment and the quality of the care provided. A state of full satisfaction is defined by the patients' tendency to return to the hospital in future and recommend it to other patients. Patients' satisfaction also has a great impact on the number of further visits and reputation as well as the credibility of the hospital.

The scope of the present study was to measure the level of inpatients' and outpatients' satisfaction for physicians' care of patients, nursing care and performance, administrative facilities and physical environment in DUH and ASUH and to develop a reasonable self-administered questionnaires for the assessment of inpatients' and outpatients' satisfaction that can be applied widely at governmental and private hospitals based on the patients' point of view.

On the basis of the findings of the current study, the general inpatients' satisfaction for the provided healthcare services of the chest departments in both DUH and ASUH was 68 and 90%, respectively, and the general outpatients' satisfaction for the provided healthcare services of chest clinics in both DUH and ASUH was 81 and 86%, respectively.

In the chest department of DUH, a highly significant statistical relation between inpatients' dissatisfaction for nursing care and the general inpatients' satisfaction was found ( $P = 0.003$ ), denoting that, despite nurses being in a vital position to understand the needs and preferences of patients and their families, 58% of the studied inpatients in the chest department of DUH were dissatisfied with nursing care and performance. Moreover, in the chest department of DUH, there was significant statistical relation between inpatients' dissatisfaction for physical environment and the general inpatients' satisfaction ( $P = 0.040$ ). Both dissatisfaction indices; inappropriate nursing care and nonconducive physical environment, occurred despite the general inpatients' satisfaction for the chest department of DUH being 68%. This was probably due to the fact that DUH is a governmental hospital with low resources and overcrowded, and the majority of inpatients admitted to the chest department of DUH are low-income people and could tolerate disadvantages for the sake of free and sometimes low-priced medical services and management. Furthermore, in the chest clinic of DUH, there were two dissatisfaction indices, administrative facilities and physical environment, despite the general outpatients' satisfaction being 81%. This was mostly due to the previously mentioned explanation.

Moreover, in the chest clinic of ASUH, there was outpatients' dissatisfaction for physical environment, although the general outpatients' satisfaction was 86%. This was probably due to overcrowded waiting areas of all clinics and a high flow of patients visiting the chest clinic of ASUH; the majority of them were medically insured.

The results of the current study showed that the general outpatients' satisfaction in ASUH had significant statistical relation with the four main domains (physicians' care of patients, nursing care, administrative facilities, physical environment), which was in accordance with the results of Grogan *et al.* [18], who found a statistically significant relationship between general outpatients' satisfaction and all of their studied subscales (physicians, nurses, facilities, access and appointments) suggesting that all subscales were useful measures for the overall patients' satisfaction.

Numerous studies have shown that satisfaction with physicians has an important role in the overall patients' satisfaction level [19]. Patients who are more satisfied with physicians consider their advices and orders more seriously, and have better treatment outcome [13]. The results of this study revealed that among the four different main domains of services, the physicians' care of inpatients and outpatients in both DUH and ASUH received the highest satisfaction rate, which was consistent with results of the study conducted by Ameryoun *et al.* [20] in Tehran, Iran, who assessed patients' satisfaction level in six military hospitals and their clinics regarding healthcare services. Moreover, in a cross-sectional study conducted by Matis *et al.* [21] at the university general hospital of Alexandroupolis, Thrace, Greece, inpatients' satisfaction as regards the five domains (admission, medical services, nursing services, accommodation services and administration services) revealed that the inpatients' global satisfaction was 75% and that the medical services domain had the highest satisfaction rate denoting the marked value of that domain, which was in accordance with the results of this study.

The present study showed that patients' satisfaction for nursing care was an important domain of overall patients' satisfaction, and it was considered to be the second important domain for overall patients' satisfaction (at DUH outpatients only, ASUH inpatients and outpatients) after physicians' care of patients. This was in accordance with the results of Demir and Celik [22], who conducted a study in military medical educational academy, in Ankara, Turkey, for determining the factors that most affect patients' satisfaction. It was in accordance with the results of Matis *et al.* [21].



The current study revealed that the level of education of patients was an insignificant factor for determining overall patients' satisfaction; this was in accordance with the results of researchers [23] who performed a cross-sectional study in governmental educational centers in Shiraz, Iran, to compare the patients' satisfaction between surgical inpatients and outpatients. However, this was in disagreement with the results of Demir and Celik [22], who found that inpatients who had less than 6 years of education were more satisfied with hospital services compared with inpatients who had at least 6 years of education. Furthermore, the results of the present study were in disagreement with those of Farmahini *et al.* [24], who found that inpatients' satisfaction was significantly positively correlated with participants' education level. They explained this correlation by the fact that individuals with higher levels of education are more aware of their rights and thus hold higher expectations.

Results of this study revealed that specific age category (46–60) years at DUH inpatients, ASUH inpatients and outpatients. However, 18–30 years at DUH outpatients had significant statistical relation with the overall patients' satisfaction. This was concordant with the results of Ganasegeran *et al.* [25], who found that outpatients' aged 50 years or more were likely to be satisfied with outpatient healthcare services. This was in accordance with the findings of a study conducted by Grogan *et al.* [18] for the assessment of outpatients' satisfaction for healthcare services as the researchers revealed that older outpatients (>60 years) were significantly more satisfied with healthcare services compared with younger outpatients. Furthermore, the previous results were in accordance with the results of Matis *et al.* [21], who revealed that patients 66 years or older had high inpatients satisfaction level. In contrast to the previous mentioned results of the present study, Demir and Celik [22] stated that inpatients between 19 and 35 years of age were more satisfied compared with inpatients older than 35.

The current study showed that there was significant statistical relation between sex and overall patients' satisfaction, as male patients were more likely to be satisfied with the provided healthcare services in the chest clinic at DUH and the chest department at ASUH; this conformed with Ganasegeran and colleagues [25] who assessed the influence of sex on outpatients' satisfaction. In contrast to the findings of the current study, in a cross-sectional study [26] conducted at Ayub teaching hospital in Abbottabad, Pakistan, to assess inpatients' satisfaction for the provided healthcare services, the researchers found that women were more satisfied compared with men, and they reported high satisfaction level among women by

the fact that women in their culture are confined to home and less exposed to society and hence unaware of the standards of care. Furthermore, Grogan *et al.* [18] found that women were more satisfied compared with men as regards the healthcare services provided to them in the clinic. Matis *et al.* [21] also stated that women had high inpatients' satisfaction level. Other studies showed that sex did not affect outpatients' satisfaction [27], or inpatients and outpatients satisfaction [23].

The results of the present study revealed that patients who previously visited the chest clinic of DUH and ASUH were more likely to be satisfied with the provided healthcare services compared with patients who visited the clinic for the first time; this was in accordance with the results of Matis *et al.* [21], who revealed that the larger the number of admissions the larger the inpatients satisfaction declared.

Physicians' care of patients and nursing care remains a key determinant of overall patients' satisfaction during a hospital admission or clinic visit. Both nurses and physicians need to be aware of the factors that influence patients' satisfaction so as to improve the quality of healthcare. Periodic training courses and regular supervision should be administered for the nurses and assisting personnel. Moreover, administrative procedures should be reduced so as to not burden the patients, especially those severely ill. Physical environment of hospitals and their clinics, especially governmental hospitals, should be improved within the available resources to achieve a reasonable acceptance for patients.

This study had some obvious limitations. The study was limited only to the chest department and the chest clinic in DUH and ASUH. In the future, studies on patients' satisfaction should be generalized to a wide scale to involve the two hospitals entirely. It did not include information about patient health status, treatment types and outcomes because it affects patients' perceptions of the healthcare received during their hospital stay or during clinic visit and thus affects patients' satisfaction. The method of data collection used, in which patients completed the questionnaire just before being discharged, overestimated the level of satisfaction compared with questionnaires completed at home. Lastly, serious patients, as they cannot be interviewed, were excluded from the survey, and so their perceptions about the quality of care are not reflected in this study.

## Conclusion

These inpatients' and outpatients' satisfaction questionnaires are simple, short and realistic and can

be applied on a wide scale. I believe that the obtained results from these questionnaires that were valued by the patients should be viewed carefully, as it will give insights to health authorities and managers in our country in improving the quality of healthcare services in hospitals.

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### Conflicts of interest

There are no conflicts of interest.

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