

Assessment of Emergency Department Satisfaction Level in Saudi Arabia General Hospital

ABSTRACT

Background and objectives: An overcrowded emergency department (ED) cannot meet the patients' growing demand. This situation harms employees' performance and, alternatively, causes anxiety and dissatisfaction among patients since the quality of healthcare outcomes fall below their expectations. This study aimed at improving and validating a scale for assessing patient satisfaction in the ED.

Methods: In this study, 134 participants from Wadi Al-Dawasir General Hospital were enrolled using a convenient sampling technique. A cross-sectional survey was conducted using 5-point Likert scales.

Results: All tested hypotheses showed statistical significance ($P < 0.05$). Our results show that male employees were more satisfied compared with their female counterparts. Furthermore, Saudi employees were more satisfied with the health services than non-Saudi ones.

Conclusion: The findings of this study brought to the fore that patients and their families were satisfied with the healthcare services and their quality. This means better service delivery played a crucial role in enhancing satisfaction levels. Nevertheless, this study also highlights that overcrowding is a significant problem for healthcare organizations. Wadi al-Dawasir General Hospital's ED should continually improve its quality to meet the growing needs of its clients.

Key words: Emergency department, employee satisfaction, patient satisfaction, overcrowding, quality healthcare outcomes.

Introduction


The emergency department (ED) plays an instrumental role in the success of any healthcare facility. The ED should offer a prompt and efficient response to meet the patients' urgent health needs. However, its overcrowding may influence the employees' professional practice concerning job satisfaction, morale, and attitude at the workplace. It appears in the form

of anxiety and frustration, which subsequently affect their commitment and performance due to increasing workload.^[1] Furthermore, overcrowding significantly impacts a hospital's response time due to a long queue compared with available resources.^[2] This, in turn, affects the quality of care provided, leading to patient dissatisfaction.^[3,4]

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It is pertinent to mention that overcrowding in the ED does not imply the normal busy work setting.^[5] Rather, it refers to the presence of inpatients embarking for routine care delivery due to scarcity of inpatient beds during the routine and normal working, which is a barrier to the performance of employees, who are trying their best to render optimal and effective emergency care efficiently.^[6,7]

Globally, ED overcrowding has been identified as a public health problem.^[8] In the United States, due to overcrowded EDs, ambulance diversions occur roughly once every minute.^[9] In Saudi Arabia, the shortage of healthcare facilities relative to the health needs of Saudi citizens resulted in a heavy burden and rush on current healthcare facilities, including Wadi Al-Dawasir General Hospital, located in Riyadh.

Measuring patient satisfaction with the performance of healthcare services is needed, and understanding the impact of ED overcrowding on patients and the quality of healthcare outcomes is essential. One of the most essential aspects of identifying the success of healthcare organizations is measuring and ensuring patient satisfaction.^[10] Therefore, this study examined the interrelationships between arrival in reception (AIR), ED staff (EDS), ED environment (EDE), physician care satisfaction (PCS), general patient satisfaction (GPS), and patients' family satisfaction (PFS) at Wadi Al-Dawasir General Hospital's ED.

The four following hypotheses were formulated:

H01: There is no significant relationship between predictors and criterion variables.

H02: There are no significant effects of predictors on the criterion variables.

H03: There is no significant difference in the mean satisfaction score between male and female patients.

H04: There is no significant difference in the mean satisfaction score between Saudi and non-Saudi patients.

Methods

Study design

This descriptive study endeavored to measure the satisfaction level of patients.

Study setting and site

The survey was undertaken by the patients of Wadi Al-Dawasir General Hospital's ED. The hospital is under the Ministry of Health umbrella.

Research instrument

We conducted a cross-sectional survey study using the Brief Emergency Department Patient Satisfaction

Scale (BEPSS) adopted from the literature with minor modifications, which was distributed as hard copies by the researchers.^[11] The questionnaire contains questions categorized into seven domains, namely, demographic characteristics, arrival in reception (AIR), staff of ED (EDS), ED environment (EDE), physician care satisfaction (PCS), general patient satisfaction (GPS), and patients' family satisfaction (PFS).

The BEPSS consisted of 5-point Likert-scale questions to collect primary data from sample respondents with scores ranging from 1 to 5 (*i.e.* "very poor," "poor," "fair," "good," and "very good," respectively). The questionnaire was translated into the Arabic language and implemented along with the original version in English for the survey.

Testing reliability

To check the reliability of the instrument, Cronbach's alpha was computed and showed a value of 0.6, which indicated an acceptable degree of internal consistency.^[12]

Data collection

The survey was conducted by the research team. The survey packet contained a consent form and the Arabic and English versions of the questionnaire. The packet has been handed to each patient to read and decide whether to participate or not.

Participants

The population of this study consisted of patients admitted to the ED of Wadi Al-Dawasir General Hospital. Thus, the patients who visited the ED in October 2019 were selected as the target population. According to the files retrieved from the Director of the Statistics Department, 2,672 patients visited the ED of Wadi Al-Dawasir General Hospital. Therefore, 134 patients were required for the survey. We have excluded children from this study.

Ethical approval

This study was approved by the Central Institutional Review Board of the Ministry of Health. Informed consent was obtained from each participant, who could withdraw from the survey at any point. No identifying information of any respondent was obtained during the survey, and all collected data were exclusively used for statistical analysis. The responses of study participants were kept confidential.

Data analysis

Statistical package for the social sciences, version 23, was used for all data analyses. Descriptive and inferential statistics were used in this study. Descriptive statistics were used to analyze the demographic information of the respondents. Alternatively, inferential statistics were used to examine the

hypotheses.

The Rule of Thumb presented by Guildford (1973) was adopted for interpreting the strength (*i.e.* high, moderate, or low) of the relationship between two factors.^[13] Table 1 summarizes Guildford's (1973) Rule of Thumb for interpreting the correlation coefficients (*r*).

Results

This section presents the results of the interrelationships between AIR, EDS, EDE, PCS, GPS, and PFS. The findings are divided into subsections according to each hypothesis. Before hypothesis testing, Cronbach's alpha coefficient was used to evaluate the consistency and validity of the questionnaires [Table 2]. The accepted value of Cronbach's alpha is 0.7.^[13] However, values above 0.6 were also accepted.^[14] The findings demonstrate that all questionnaire scales have acceptable internal consistency reliability. The results show that AIR ($\alpha = 0.845$), EDS ($\alpha = 0.872$), PCS ($\alpha = 0.890$), and GPS ($\alpha = 0.928$) displayed high internal consistency reliability; alternatively, EDE and PFS showed an acceptable level of internal consistency reliability ($\alpha = 0.692$ and $\alpha = 0.792$, respectively).

Demographic characteristics

One hundred and thirty-four patients responded to this cross-sectional survey. Among them, 96 (62%) were male. Most respondents were Saudi national ($n = 96$; 73%). Only six participants (4%) were illiterates. Most respondents ($n = 34$; 25%) were aged 45–54 years, and only seven (5%) participants were aged 65 years and above. Table 3 summarizes the demographic information of all participants.

Results of the first hypothesis

The section presents the findings of the first hypothesis, which examines the relationships between predictors and criterion variables for this study (*i.e.* AIR, EDS, EDE, PCS, GPS, and PFS).

For clarity, the first hypothesis is presented as follows:

H01: There is no significant relationship between predictors and criterion variables.

The relationships between the abovementioned variables are shown in Table 4.

Positive and significant relationships were observed between AIR and PFS ($r = 0.783$; $P < 0.01$), between EDS and PFS ($r = 0.724$, $P < 0.01$), between EDE and PFS ($r = 0.749$; $P < 0.01$), between PCS and PFS ($r = 0.781$; $P < 0.01$), and between GPS and PFS ($r = 0.848$; $P < 0.01$) [Table 4].

Table 1: Guildford's (1973) Rule of Thumb

<i>r</i>	Association (Strength)
<0.2	Negligible positive/negative correlation
0.2-0.4	Low positive/negative correlation
0.4-0.7	Moderate positive/negative correlation
0.7-0.9	High positive/negative correlation
>0.9	Very high positive/negative correlation

Table 2: Reliability Analysis of the Variables

Variables	No. of items	Cronbach's alpha
Arrival in reception	07	0.845
Staff of emergency department	06	0.872
Emergency department environment	03	0.692
Physician care satisfaction	07	0.890
General patient satisfaction	06	0.928
Patient's family satisfaction	02	0.792

Table 3: Demographic Characteristics of the Respondents

Variable	Characteristics	<i>n</i>	Percentage
Gender	Male	96	72
	Female	38	28
Age	15-24 years	25	19
	25-34 years	21	16
	35-44 years	27	20
	45-54 years	34	25
	55-64 years	20	15
Marital status	65 years and above	07	5
	Single	40	30
	Married	82	61
	Widowed	03	2
Nationality	Divorced	09	7
	Saudi	98	73
	Non-Saudi	36	27
Education	Literate	128	96
	Illiterate	06	4

These suggest a positive, strong, and significant correlation between predictors and criterion variables. Therefore, H01 was rejected.

Results of the second hypothesis

H02: There are no significant effects of predictors on the criterion variables.

Before proceeding for further analysis, there are some assumptions for the regression analysis. According to the Rule of Thumb presented by Guildford (1973),^[13] at least a sample size for regression analysis is 15–20, outliers must be excluded from the data, and there should be no multicollinearity. These data fulfill the aforementioned assumptions.

Linear regression was performed to investigate the effect of the predictors on PFS. The results of H02 are shown in Table 5.

Table 4: The Relationship Between Predictors and Criterion Variables

	Test	AIR	EDS	EDE	PCS	GPS	PFS
AIR	Pearson correlation	1					
	Sig. (two-tailed)						
EDS	Pearson correlation	0.775**	1				
	Sig. (two-tailed)	0.001					
EDE	Pearson correlation	0.778**	0.708**	1			
	Sig. (two-tailed)	0.001	0.001				
PCS	Pearson correlation	0.770**	0.786**	0.650**	1		
	Sig. (two-tailed)	0.001	0.001	0.001			
GPS	Pearson correlation	0.756**	0.765**	0.655**	0.805**	1	
	Sig. (two-tailed)	0.001	0.001	0.001	0.001		
PFS	Pearson correlation	0.783**	0.724**	0.749**	0.781**	0.848**	1
	Sig. (two-tailed)	0.001	0.001	0.001	0.001	0.001	

**Correlation is significant at the 0.01 level (2-tailed). †Arrival in reception (AIR), Staff of ED (EDS), ED environment (EDE), Physician care satisfaction (PCS), General patient satisfaction (GPS), and Patients' family satisfaction (PFS).

In the first regression equation, PFS was added as a criterion and AIR was a predictor, which showed $R^2 = 0.612$ and 61.2% of the variance upon the dependent variable. The goodness of fit index was $F = 154.883$ ($P < 0.01$) and $\beta = 0.783$ ($P < 0.01$), indicating that a one-unit change in AIR services brings a 78.3% change in PFS.

The second regression equation results showed $R^2 = 0.524$ and 52.4% of the variance upon the dependent variable. The goodness of fit index was $F = 107.947$ ($P < 0.01$) and $\beta = 0.724$ ($P < 0.01$), indicating that a one-unit change in the EDS services brings a 72.4% change in PFS.

The results of the third regression equation showed $R^2 = 0.560$ and 56% of the variance upon the dependent variable. The goodness of fit index was $F = 124.919$ ($P < 0.01$) and $\beta = 0.749$ ($P < 0.01$), indicating that a one-unit change in EDE services brings a 74.9% change in PFS.

The results of the fourth regression equation showed $R^2 = 0.610$ and 61% of the variance upon the dependent variable. The goodness of fit index was $F = 153.587$ ($P < 0.01$) and $\beta = 0.781$ ($P < 0.01$), indicating that a one-unit change in PCS services brings a 78.1% change in PFS.

The results of the fifth regression equation showed $R^2 = 0.720$ and 72% of the variance upon the dependent variable. The goodness of fit index was $F = 251.756$ ($P < 0.01$) and $\beta = 0.848$ ($P < 0.01$), indicating that a one-unit change in GPS services brings an 84.8% change in PFS. Therefore, based on the aforementioned results, H02 was rejected.

Results of the third hypothesis

H03: There is no significant difference in the mean satisfaction score between male and female patients.

An independent-samples *t*-test was conducted to compare satisfaction among Saudi and expatriate patients. As seen by Table 6, A significant difference in the scores between Saudi (3.35 ± 0.58) and expatriate (2.58 ± 0.83) patients ($P = 0.000$), suggesting that 49 nationality affects patient satisfaction [Table 7]. Specifically, our results suggest that Saudi patients are more satisfied compared with non-Saudi patients. Thus, H04 was rejected.

Results of the fourth hypothesis

H04: There is no significant difference in the mean satisfaction score between Saudi and non-Saudi patients.

An independent-samples *t*-test was conducted to compare satisfaction among Saudi and expatriate patients. A significant difference in the scores between Saudi (3.35 ± 0.58) and expatriate (2.58 ± 0.83) patients ($P = 0.000$), suggesting that nationality affects patient satisfaction. Specifically, our results suggest that Saudi patients are more satisfied compared with non-Saudi patients. Thus, H04 was rejected.

Discussion

Patient satisfaction is commonly used as an indicator to measure ED performance and quality of care. Quality of care refers to “the degree to which healthcare services provided to individuals and patients improve the desired health outcomes”.^[15] This study measured the satisfaction level of ED patients and their families in Wadi Al-Dawasir General Hospital. For this purpose, four hypotheses were developed and all were rejected.

We found a positive relationship between the predictors and criterion variables. All variables were positively related to each other. In addition, male employees were more satisfied than their female counterparts. Saudi employees were more

Table 5: Results of H02

DV	IV	R	R ²	F	β	P
*PFS	AIR	0.783	0.612	154.883	0.783	0.001
PFS	EDS	0.724	0.524	107.947	0.724	0.001
PFS	EDE	0.749	0.560	124.919	0.749	0.001
PFS	PCS	0.781	0.610	153.587	0.781	0.001
PFS	GPS	0.848	0.720	251.756	0.848	0.001

*Patients' family satisfaction (PFS). Staff of ED (EDS), ED environment (EDE), and Physician care satisfaction (PCS)

Table 6: Independent sample t-test for nationality and patient satisfaction

Variable	n	Mean	Standard deviation	F-distribution	t-test	P
Saudi	98	3.35	0.58	4.432	4.450	0.001
Expatriates	36	2.58	0.83			

Table 7: Independent Sample t-test for Gender and Patient Satisfaction

Variable	n	Mean	Standard deviation	F-distribution	t-test	P
Male	96	3.25	0.808	3.11	3.58	0.001
Female	38	2.32	0.746			

satisfied than non-Saudi employees. Moreover, a significant difference in satisfaction with an overcrowded ED between Saudi and non-Saudi nationals.

This implies that in healthcare organizations, increasing the staff of the ED and enhancing their ED environment could increase the satisfaction of physicians and patients and their families. The results of this study conform to the findings of other studies. Molaligh *et al.*,^[16] have indicated that one of the essential aspects that identify the success of healthcare organizations is patient satisfaction. In Turkey, one study has reported that the length of waiting time in EDs was the most important reason for patient dissatisfaction.^[17] In addition, Weiss *et al.*,^[18] have shown a significant relationship between ED overcrowding and the number of patients who leave ED without being seen as one of the probable indicators of patient satisfaction. Moreover, other studies have reported that for every minute decrease in patients waiting time to be seen by a physician, the satisfaction level will increase by 1.3 times.^[19,20]

The four hypotheses in this study were developed to measure the satisfaction of patients and their families.

The analysis of the results revealed a positive and significant relationship between the predictors and criterion variables. All variables were positively related to each other. This conforms to a study by Shabbir and Malik,^[21] who have reported a positive and significant

relationship between patient satisfaction and healthcare services.

The independent sample *t*-test found that male patients were more satisfied than female patients, and Saudi patients were also more satisfied than non-Saudi patients. Based on the aforementioned discussion, our proposed hypotheses were accepted. Aragon^[22] has revealed different results: overall satisfaction was equal between genders.^[22] In addition, a Kuwaiti-based study has demonstrated that patient gender did not crucially influence patient satisfaction.^[23] Future studies could help explain the differences in the yielded results.

Limitations

Distributing the questionnaires to the patients and staff was difficult because of the precautionary measures to prevent the spread of coronavirus disease 2019. This led the researchers to verbally recite the questions, write the responses in the questionnaire, and then manually enter them into Excel sheets. Furthermore, the generalizability of this study is limited as it was conducted in one region of Saudi Arabia.

Conclusion

A difference in employee and patient satisfaction level was observed based on gender. In addition, a difference in employee and patient satisfaction level was found based on nationality. A better service delivery played an important role in enhancing the satisfaction level. In conclusion, overcrowding is a significant problem for hospitals, primary healthcare facilities, public and private hospitals, and healthcare organizations' management and administration. Future research may use qualitative approaches to measure patient/employee satisfaction based on gender and nationality.

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Conflicts of interest

There are no conflicts of interest.

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