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The association between waiting time and patient satisfaction in outpatient clinics: Findings from a tertiary care hospital in Saudi Arabia

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Abstract:

BACKGROUND: Patient satisfaction is an important indicator for assessing the quality of health care because it affects the timely, efficient, and patient-centered delivery of quality health care, and patient satisfaction is associated with the clinical outcomes. This study aimed to examine the relationship between waiting time and patient satisfaction in a tertiary hospital in Saudi Arabia.

MATERIALS AND METHODS: A cross-sectional study was conducted at family medicine and other specialized clinics. Data were collected through a structured, self-administered questionnaire distributed to patients seen at the outpatient clinics. Variables collected were sociodemographic information and patient satisfaction scores to evaluate the association between waiting time and satisfaction.

RESULTS: A total of 406 patients participated in the study. Half of the patients reported being satisfied with the waiting time, while the remaining were dissatisfied (mean satisfaction score 38.4 ± 6.63). Family medicine clinic scored better in waiting time than other specialized clinics; between arrival and registration ($P < 0.01$), between registration and consultation ($P < 0.01$), consultation time ($P < 0.01$), and overall waiting time ($P < 0.01$). Patients treated at the family medicine clinic were more likely to be satisfied than those seen in other specialized clinics (61.2% vs. 40%, $P < 0.01$).

CONCLUSION: Overall satisfaction was lower than shown in previous literature. Gender and clinic type were significantly associated with satisfaction score; those who attended the family medicine clinics were more satisfied than those attending other specialized clinics. Findings may be used to inform researchers, clinicians, and policy-makers' decisions on quality improvement programs.

Keywords:

Patient satisfaction, Saudi Arabia, waiting time

Introduction

Patient satisfaction is the extent to which a patient is content with the health care received from their provider.^[1] Satisfaction with health-care services may affect clinical results, patient retention, and medical malpractice claims.^[2] Therefore, it is an important indicator of the quality of work done by physicians and hospitals. A report by the Institute of Medicine (IOM) identified six fundamental aims for health

care: (a) safe, (b) efficient, (c) patient-centered, (d) equitable, (e) timely, and (f) effective. Of these aims, timeliness is the least well studied and understood.^[3]

There is a negative correlation between waiting time and patient satisfaction. Institute of Medicine (IOM) recommends that at least 90% of patients should receive medical care within 30 min of their scheduled appointment time.^[4] Waiting time can affect patient utilization of health services adversely because it affects the patient's

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willingness to return to the clinic, which ultimately has an impact on continuity of care. Therefore, reducing the waiting time may lead to improved patient satisfaction and greater willingness to continue to receive care at the same health-care facility.^[5]

Numerous studies have shown that prolonged waiting times have been associated with low patient satisfaction.^[6] According to a 2015 study in Saudi Arabia, the only factor that had a significant influence on overall satisfaction was waiting time, with those waiting for over 30 min reporting that they were dissatisfied with the service provided.^[7] Another study conducted at King Abdulaziz University found that 65.3% of the patients reported that the long waiting time could influence their satisfaction.^[8] Another Saudi study showed that the perceptions of the patients regarding the waiting time for service were significantly lower than the neutral perception level, at 1% level of significance.^[9] Nevertheless, all of these studies had limitations in methodology or in the selection of patient populations. As most were conducted in a limited area of a tertiary hospital, their results may have been affected by possible selection bias, and the unreliable measures used.

Waiting time, considered an important factor in determining quality of care, may represent a valuable tool for evaluating patient satisfaction. There has not been any study in the Eastern region of Saudi Arabia to explore this topic. Therefore, this study may be the takeoff point for the improvement of the overall quality of health services and outcomes. Specifically, the aim of the study was to investigate the relationship between waiting time and patient satisfaction at King Abdulaziz Hospital in Al-Ahsa and assess factors affecting patient satisfaction and waiting time, which could guide future research and quality improvement programs.

Materials and Methods

This was a cross-sectional study conducted in family medicine clinics and the main outpatients department for specialized clinics comprising general surgery; orthopedics; ear, nose, and throat (ENT); urology; internal medicine; nephrology; gastroenterology; neurology; cardiology; pulmonology; infectious diseases; endocrinology; and rheumatology clinics at King Abdulaziz Hospital in Al-Ahsa city, Saudi Arabia. Data used for this analysis were collected between October 1, 2017 and November 1, 2017.

The sample size for the study was estimated using Epi Info software program. For sample calculation, we considered the following information: the total number of outpatient clinics per month as 408, the total number of patients in a month as 5000, confidence interval as 95%, and 5% margin of error. This resulted

in an estimated sample of 357. We added an extra 10% for incomplete answers, and 13 participants in the pilot were added to the selected sample, resulting in a final sample of 406 patients. Patients who were 18 years or older, attending family medicine or specialized clinics during the study period were eligible for inclusion in the study.

We used a multistage systematic random technique to select the patients. The first stage was the clinic selection: For the family clinic, there is one registration office with two peoples. There were two clinics per day; with one doctor and one nurse per clinic. For the main outpatients department, there are three registration positions, serving seven clinics. Each of these clinics has an average of one doctor and one nurse. We, therefore, chose all family medicine clinics and every other clinic from each panel of the main outpatients department. Next, every morning from 8 am to 12 pm, of each working day of the week from Sunday until Thursday, we selected every other patient who attended the targeted clinics. This was done until the required sample size was obtained. A pilot study involving 13 participants (9 males and 4 females) of attendees to the Outpatients Department at King Abdulaziz Hospital in Al-Ahsa in the same age groups was carried out to test the logistics of the study. The reliability of the questionnaire using Cronbach's alpha was 0.9 (Lance, Butts, and Michels, 2006).

A structured, self-administered questionnaire was distributed to the respondents. The questionnaire asked for the following sociodemographic characteristics: age to the nearest year, gender, marital status as (unmarried and married), level of education was defined as low (illiterate and primary school), intermediate (intermediate and high school), or high (university graduates or postgraduate), occupation status as (unemployed, employed, military), residence (inside Al-Ahsa or outside Al-Ahsa), outpatient department (family medicine or any of the other specialized clinics such as general surgery, orthopedics, ENT, urology, internal medicine, nephrology, gastrology, neurology, cardiology, pulmonology, infectious diseases, endocrinology, and rheumatology and the type of visit (new or follow-up).

The waiting time for the various stages was recorded by medical interns (between arrival and registration, between registration and consultation, consultation time, and overall waiting time from arrival till the end of consultation). The satisfaction score of patients regarding their waiting time was determined by 9 questions using a 5-point Likert scale (range: 1–5) in which the highest satisfaction score was 5, and the lowest was 1: 1 = Strongly disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, and 5 = Strongly agree. Scores of 1 and 2 were

classified as “dissatisfied,” while scores of 3 and more were classified as “satisfied.”

Data were entered into Microsoft Excel, version 16.13.1 and analyzed using the Statistical Package for the Social Sciences (SPSS), version 21 (IBM, Armonk, NY, USA). All variables were coded before entry and checked before analysis. Descriptive statistics were calculated including means and standard deviations. Difference between satisfied and dissatisfied patients was explored using a nonparametric test chi-squared test. In addition, differences between family medicine and other clinics were explored at all stages of visit (between arrival and registration, between registration and consultation, consultation time, and overall waiting time from arrival till the end of consultation). $P < 0.05$ was considered statistically significant. To test the association between waiting time and satisfaction, a multiple univariate logistic regression model was constructed. The study was approved by the Institutional Review Board Research Committee of King Abdullah International Medical Research Center (KAIMRC) and informed written consent was obtained from all participants in the study.

Results

A total of 406 patients were recruited for the study. Less than half of the participants (41.1%) were young (between 15 and 34 years) with a mean age of 29.6 years (SD = 12.9). Females represented 73.4% of the sample and 80.5% of all patients were married. Of the study population, 37.2% of the patients reported that they had a good education, whereas those who had average and little education constituted 35.2% and 27.6%, respectively. However, the majority of the participants (68%) were unemployed, 20.0% were employed and the remaining 12.1% were military personnel.

The proportion of study participants selected from family medicine clinics and other specialized clinics was 49.5% and 50.5%, respectively. Furthermore, the majority were there for follow-up visits (92.1%), but the remainder were new patients [Table 1]. Most patients were residents of Al-Ahsa city (90.4%).

Almost half of the patients reported that they were satisfied but the rest were not. The mean satisfaction score was 38.4 ± 6.6 (mean \pm SD) with a range of 29–100. There were statistical significant differences in the satisfaction score between participants of the different age groups ($P < 0.04$), gender ($P < 0.01$), educational level ($P < 0.01$), employment ($P < 0.01$), clinic type ($P < 0.01$), and visit type ($P < 0.001$) [Table 1]. Patients attending family medicine clinics were more likely to report that they were satisfied than those attending other clinics (61.2% vs. 40%, $P < 0.01$).

Table 1: Participants characteristics stratified by reported satisfaction (n=406)

Characteristics	Overall N (%)	Dissatisfied N (%)	Satisfied N (%)	p-Value
Age groups (years)				
15 ≤ 35	167 (41.1)	95 (56.9)	72 (43.1)	0.044
35 ≤ 55	97 (23.9)	44 (45.4)	53 (54.6)	
≥ 55	142 (35.0)	62 (43.7)	80 (56.3)	
Gender				
Male	108 (26.6)	4 (3.7)	104 (96.3)	<0.001
Female	298 (73.4)	197 (66.1)	101 (33.9)	
Marital status				
Married	327 (80.5)	158 (48.3)	169 (51.7)	0.329
Unmarried	79 (19.5)	43 (54.4)	36 (45.6)	
Educational level				
Low education	112 (27.6)	46 (41.1)	66 (58.9)	0.006
Average education	143 (35.2)	65 (45.5)	78 (54.5)	
High education	151 (37.2)	90 (59.6)	61 (40.4)	
Occupation				
Unemployed	276 (8.0)	166 (60.1)	110 (39.9)	<0.001
Employed	81 (20.0)	33 (40.7)	48 (59.3)	
Military	49 (12.0)	2 (4.1)	47 (95.9)	
Residence				
Inside Al-Ahsa	367 (90.4)	178 (48.5)	189 (51.5)	0.214
Outside Al-Ahsa	39 (9.6)	23 (59.0)	16 (41.0)	
Outpatient department				
Family medicine clinic	201 (49.5)	78 (38.8)	123 (61.2)	<0.001
Other specialized clinics	205 (50.5)	123 (60.0)	82 (40.0)	
Visit type				
New	32 (7.9)	25 (78.1)	7 (21.9)	0.001
Follow-up	374 (92.1)	176 (47.1)	198 (52.9)	

As shown in Table 2, the satisfaction score differed significantly by waiting time. Over 90% of dissatisfied patients waited >20 min between arrival and registration ($P < 0.01$). In addition, this was the overall waiting time between registration and physician consultation ($P < 0.01$) [Table 2].

There was also a significant difference between waiting time and the type of clinic patients attended [Table 3]. While only 2% of family medicine patients waited >20 min between arrival and registration, 14.1% of patients attending other specialized clinics waited for this length of time. This was also the pattern for the waiting time between registration and consultation, consultation time, and the overall waiting time ($P < 0.01$) [Table 3].

Multiple univariate logistic regression analysis identified age, gender, educational level, and outpatient department as significant predictors of patient satisfaction [Table 4]. In addition, specific periods of waiting time (between arrival and registration (OR: 0.1, $P = 0.02$, 95% CI: 0.0–0.7), between registration and consultation (OR: 0.4, $P = 0.02$, 95% CI: 0.2–0.9) and consultation time (OR: 0.3, $P = 0.01$, 95% CI: 0.2–0.7) were significantly related to patients' satisfaction. Patients who waited

Table 2: Distribution of the participants according to waiting time in minutes and relation of waiting time with patient's satisfaction score (n=406)

Waiting time	Overall N (%)	Dissatisfied N (%)	Satisfied N (%)	p-Value
Between arrival and registration time (min)				
≤20	373 (91.9)	171 (45.8)	202 (54.2)	<0.001
>20	33 (8.1)	30 (90.9)	3 (9.1)	
Between registration and consultation (min)				
≤20	242 (59.6)	82 (33.9)	160 (66.1)	<0.001
>20	164 (40.4)	119 (72.6)	45 (27.4)	
Consultation time (min)				
≤20	287 (70.7)	141 (49.1)	146 (50.9)	0.813
>20	119 (29.3)	60 (50.4)	59 (49.6)	
Overall waiting time (min)				
≤20	153 (37.7)	59 (38.6)	94 (61.4)	0.001
>20	253 (62.3)	142 (56.1)	111 (43.9)	

Table 3: Differences in waiting time at the outpatient department

Outpatient department	Between arrival and registration			Between registration and consultation			Consultation time			Overall waiting time		
	≤20 min, N (%)	>20 min, N (%)	p-Value	≤20 min, N (%)	>20 min, N (%)	p-Value	≤20 min, N (%)	>20 min, N (%)	p-Value	≤20 min, N (%)	>20 min, N (%)	p-Value
Family medicine clinic	197 (98.0)	4 (2.0)	<0.001	135 (67.2)	66 (32.8)	0.002	157 (78.1)	44 (21.9)	0.001	91 (45.3)	110 (54.7)	0.002
Other specialized clinics	176 (85.9)	29 (14.1)		107 (52.2)	98 (47.8)		130 (63.4)	75 (36.6)		62 (30.2)	143 (69.8)	

* ≤20 min=Less or equal to 20 min, >20 min=More than 20 min

Table 4: Univariate logistic regression analysis of variables predicting satisfaction score

Characteristics	OR	95% CI for OR
Age	1.5	1.0-2.1
Gender	0.1	0.0-0.03
Educational level	0.5	0.3-0.7
Occupation	1.1	0.5-2.4
Outpatient department	0.2	0.1-0.4
Type of visit	1.0	0.4-2.8
Waiting time		
Between arrival and registration	0.1	0.0-0.7
Between registration and consultation	0.4	0.2-0.9
Consultation time	0.3	0.2-0.7
Overall waiting time	1.1	0.5-2.2

OR=Odds ratio, CI=Confidence interval

for 20 min or less between arrival and registration were more likely to be satisfied than those who waited for >20 min [Table 4].

Discussion

This study aimed at investigating the relationship between waiting time and patient satisfaction and assesses possible factors affecting patient satisfaction and waiting time. Our study found that about half of the participants were satisfied with waiting time. This level of patient's satisfaction is considered relatively low taking in consideration the sample size. Our findings also

found a significant association between patient waiting times and satisfaction scores. These results are consistent with other Saudi study conducted by Aldaqa *et al.* in the Department of Surgery in the University hospital in Jeddah,^[10] where waiting time had an impact on patient perceptions of quality of care and satisfaction. Our results are in line with the previous Saudi study with regard to the satisfaction score, in which patients' satisfaction with waiting time in clinics was as low as 62%.^[10] Other studies include one done at the Eye Specialist Hospital in Riyadh where satisfaction score was calculated with waiting time and other demographic factors such as age, level of education, income, and ethnic group. In that study, the patients' perceptions regarding waiting time in the outpatient was low.^[9] The same results were obtained in primary health-care clinics in Riyadh in a study conducted by Med *et al.* There it was found that long waiting times, especially between registration and consultation, produced a higher rate of dissatisfaction^[7] in patients. In agreement with that is the study conducted by Al-Moajel *et al.* in a primary health care in Jubail City, to investigate the level of patient satisfaction with different aspects of primary care services, one of which was waiting time. In that study, waiting time had a negative relation to patient satisfaction.^[11]

Several international studies have explored either the average waiting time or its association with patient satisfaction. In a study conducted in the United States,

the average outpatient waiting time was over 30 min,^[6] which suggests waiting times exceeding 30 min is not uncommon. Other studies report findings that are consistent with the one presented in our study with regard to the association between waiting time and satisfaction. One of these studies is the one conducted by Service *et al.*, which concluded that patients would say they were satisfied if they waited <37 min if they came on time, and about an hour if they came late.^[8] Various factors may influence the comparability of our findings to other studies. Consultation time varies from country to another. For instance, in Britain, the average consultation time for family medicine is between 5 and 8 min,^[12] whereas consultation time is 10–20 min or more in Sweden and the United States.^[13–15] In our study, 70.7% of the patients' consultation time was <20 min, which is in line with the previous literature.

Overall, we found that half of the patients reported that they were satisfied. Several studies have also reported low satisfaction. According to a 2018 study conducted in a primary health-care setting in Botswana, patients' greatest displeasure was with waiting time, as 63.9% reported that they were unhappy about this.^[16] Another study reported a 62.5% satisfaction rate among patients who waited for >30 min.^[17] Only 38.5% of the patients in a recently published study, rated the waiting time as average.^[16]

The Standard Operating Procedures (SOPs) of OPD of district-level hospitals state that waiting time for registration is 1 min, dispensing medicine waiting time is 2–3 min, and time for laboratory investigation is 10 min.^[18] The findings of this study showed that it is slightly longer in comparison to these benchmarks.^[19] In our study, we found that 91.9% of patients were registered in <20 min of arrival while only 8.1% patients were in the queue for registration for longer than 20 min. Registration time may be affected by factors such as gender, residence, and clinic type. A study by Pandit *et al.* found that more than two-thirds of the patients waited for >30 min to 1 h.^[16] Nevertheless, our result is consistent with Kumari *et al.*, who found that almost all patients waited <30 min.^[17]

In this study, there is an implication that in clinical practice, longer waiting time is associated with a negative impact on patient's satisfaction. The Institute of Medicine acknowledged that patient dissatisfaction was related to long waiting time and had, therefore, recommended that no fewer than 90% of patients must be attended to within 30 min of their scheduled appointment.^[20,21]

The findings indicate that the family medicine department has a higher satisfaction score than other clinics. This difference may be explained by the hospital,

sociocultural settings, and the accessibility of medical resources. One explanation of this association is that the family medicine department is a separate unit with more clinics and a lot of medical staff, doctors, nurses, and unit assistants. As a result, services tend to be faster leading to higher satisfaction of their patients. Patel *et al.* (2017) found that waiting time may be affected by many factors such as the number of registration counters, timing of hospital visits, and the day of the hospital visit.^[22]

Limitations of this study are as follows: Since it was conducted at a single hospital, generalization to cover the rest of Saudi Arabia or even the eastern region remains uncertain. Second, patients were interviewed while receiving medical attention, which may have biased their responses because of the fear of jeopardizing their medical care. Furthermore, results may be affected by probable selection bias and unreliability of the measures used in the study. Future studies may explore alternative methods to reduce this potential risk to validity.

Conclusion

In summary, waiting time differed among participants according to the type of clinic they attended. There was less waiting time at the family medicine clinic and therefore a higher satisfaction score compared to other specialized clinics. This study aimed at studying waiting time and reported satisfaction and found that half of the patients said they were satisfied. This suggests there is a great deal of room for improvement to the quality of health care. In this regard, we recommend that hospital management should deal with the issue of waiting time to raise patient satisfaction. Ultimately, a better understanding of the factors that influence patient satisfaction will pave the way to provide mechanisms for future improvement. We also recommend further studies to measure patients' satisfaction to inform policy-makers and clinicians in their decisions. Quality improvement programs may use these findings as a basis to implement interventions for the improvement of patient satisfaction.

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Conflicts of interest

There are no conflicts of interest.

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