Evaluation of waiting time and associated factors influencing patient satisfaction levels in an outpatient department: A case study of government hospital in Sierra Leone

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ABSTRACT

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The issue of waiting time has received little attention in the delivery of healthcare services in Sierra Leone. The time spent waiting in the hospital has been considered a major indicator in measuring healthcare quality and patient satisfaction with services. However, long waiting time have constituted a substantial impediment to maximizing healthcare quality. This quantitative study employed data collected from 347 patients in an outpatient department using an online survey. The data collected was analyzed using SPSS version 20. Correlation and regression analyzes were conducted to test the relationship and impact among the variables. The findings revealed an overall dissatisfaction with the waiting time to see a doctor, the behavior and professional competency of medical staff, and the service delivery. Furthermore, significant values were obtained for the correlation and effect between the constructs ($p<0.05$). Therefore, it is recommended that training on effective communication skills should be provided to address perceptions of ill behaviors from hospital staff and aid better working relationships among caregivers, patients and families. The government and hospital administrators should also introduce an online appointment booking system to minimize waiting time.

Keywords: patient satisfaction; service delivery; waiting time; outpatient department

1. INTRODUCTION

Patients have specific needs for health treatment when they visit a health facility. A poor response to these demands may result in dissatisfaction with medical care, which negatively influences the perceptions of the healthcare system (Geta and Edessa, 2020). Patient waiting time has been identified as a crucial indicator in measuring healthcare quality and patient satisfaction with healthcare services. Long waiting time have created a significant obstacle in maximizing healthcare quality (Oche and Adamu, 2013). The duration of time spent waiting for an examination in a clinic is an essential aspect in determining the general quality of the evaluation process (Ward et al., 2017). In today's hospitals and clinics, minimizing waiting time and enhancing patient

satisfaction have become growing concerns (Sun et al., 2017). Long waiting time are a problem for patients since they are prone to develop fatigue and a reluctance to visit a hospital (Hardavella et al., 2017). The process of receiving healthcare services can be explained using the queuing system from the time of arrival to departure. In this system, patients can be categorized based on the severity of their condition or the type of service required. The queuing process begins when patients arrive at the hospital. They either enter a general queue or are directed to specific queues based on factors, like the department they need to visit or whether they have an appointment. The queues are managed by hospital staff to ensure that patients are served in an orderly manner. This includes directing patients to appropriate queues and ensuring that patients with urgent medical needs are prioritized. Queues represent the waiting areas or lines where patients wait to receive medical attention. These can be physical spaces in a hospital, digital queues displayed on screens or a combination of both. Servers in a hospital queuing system are the personnel responsible for providing medical services to the patients. After receiving medical attention, patients depart from the system. For some patients, this might mean being discharged with a prescription or medical advice. For others, it might involve being referred to another department for further treatment (Green, 2016).

Bo Government Hospital is the only public hospital in the southern region of Sierra Leone and just like most government-owned hospitals, it lacks a policy to regulate patient waiting time, is congested with patients, and has a strict routine for hospital staff. These issues have resulted in long waiting time which is one of the leading causes of patient dissatisfaction (Xie and Or, 2017). Evaluating patients' perception of care is a vital factor in enhancing healthcare quality and understanding the determinants of patient satisfaction in the utilization of public health services. Despite the efforts of Bo government hospital to enhance service quality, the issue of long waiting time has not been adequately addressed. Detailed evidence-based improvement solutions cannot be developed and evaluated without a specific understanding of the causes and effects of waiting time. To the best of our knowledge, an evaluation of waiting time has not been systematically studied in Sierra Leone. Hence, the purpose of this study is to evaluate waiting time and factors influencing patient satisfaction at the outpatient department of Bo Government Hospital. Figure 1 shows the proposed model of different factors that affect patient satisfaction.
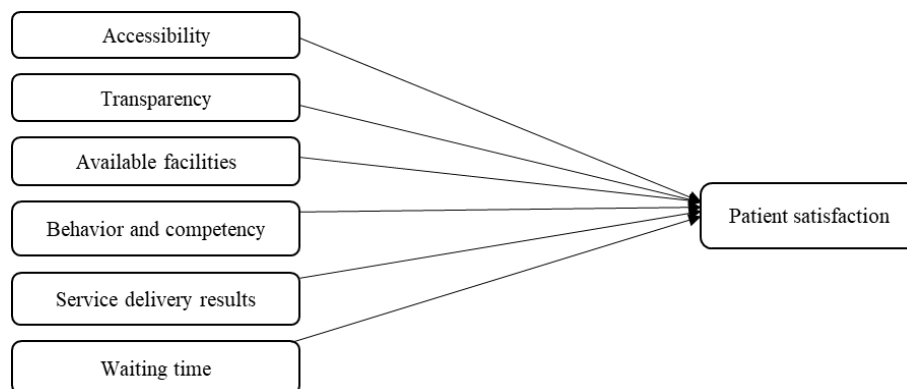

Figure 1. Research model showing factors affecting patient satisfaction

2. MATERIALS AND METHODS

2.1 Measures
This cross-sectional study explores the evaluation of waiting time and factors influencing patient satisfaction. Accessibility was measured using 4 items, transparency had 6 items, available facilities had 4 items, behavior and competency had 3 items, service delivery results had 3 items, waiting time had 3 items and patient satisfaction had 6 items. The survey items were adopted from research studies carried out by Nhung (2019) and Pearse (2005). The items were rated on a 5-point Likert scale. All items were reliable and valid after appropriate tests were conducted.

2.2 Research population
Patients receiving care in the outpatient section aged 18 years or older made up the research population. According to information obtained from the hospital, the monthly outpatient department population was estimated to be 3,500. Only patients who had visited the outpatient department at least twice within 12 months were included in the study. Patients who visited other departments were excluded from the study.

2.3 Sample size
The selection of respondents was conducted using a convenience sampling method. Convenience sampling is a non-probabilistic sampling method that involves using respondents who are 'convenient' to the researcher. Each respondent had an equal chance to take part in the study. The sample size (n) of 347 patients was calculated using Equation 1, as suggested by Cochran (1973).

$$n = NZ^2 (pq) \div e^2 (N - 1) + Z^2 pq \qquad (1)$$

where the population size (n) = 3,500, probability (p) = 0.5, frequency of the event (q) = 0.5, standard error (Z) = 1.96, and acceptable sample error (e) = 0.05.

2.4 Data collection
Full consent was obtained at the commencement of data collection. No private details, such as a name or telephone number, were needed throughout the data collection

process. The study collected data online from outpatients at the government hospital using Google Forms created by the researcher and distributed with the assistance of those in-charge and nurses. Before the questionnaire distribution, information on the research objectives was provided to obtain honest responses. Each questionnaire was supposed to take about 15 min to complete. A total of 358 patients partook in filling out the online survey. However, 11 responses had missing information which was omitted. Hence, an aggregate of 347 valid questionnaires were employed for analysis. The link was opened from February 1 to March 10, 2023.

2.5 Ethical approval
The Ethical Committee of the Bo Government Hospital (Reference number BoHOSP084/2022) approved the commencement of this research. Before collecting data, all participants gave informed consent, after the purpose of the study was conveyed to the individuals. Confidentiality was also maintained.

2.6 Data analysis
Data analysis was carried out using the IBM Statistical Package for Social Sciences (SPSS), version 20. Before data analysis, the data was examined for missing data and errors. An analysis to check for outliers was conducted and descriptive statistics such as mean, standard deviation, frequency and percentages were employed for descriptive analysis. A validity test was conducted using factor loadings. A reliability test on the valid items was employed by generating Cronbach's alpha values. As suggested by Daud et al. (2018), a coefficient of 0.6 and above was considered acceptable. Correlation analysis was conducted to measure the association between the constructs. Regression analysis was then performed to test the impact between the predictor and outcome variables.

3. RESULTS

3.1 Socio-demographic characteristics
The data collected on parameters such as age, gender, marital status and educational level was analyzed and is reported in Table 1. Most respondents (23.1%) were aged 35–44 years while only 9.8% were 64 years or above. accounted for of the respondents. The majority of the respondents were females (62.2%) and single (72%). Regarding education status 49.6% of the respondents had a diploma or above, 36.3% had completed high school, and only 14.1% elementary school.

3.2 Analysis of factors influencing patient satisfaction
According to Table 2, most of the respondents were satisfied with the clarity of signs and directions to the hospital and pathways in the hospitals. However, the majority of participants were dissatisfied with the difficulty in locating blocks and stairs. As seen in Table 3,

negative responses were generally received relating to the transparency of information, procedures for medical examinations and treatment, simplicity and convenience of the processes, and procedures for medical examination. More positive responses were received on issues such as the welcoming attitude of the medical staff towards the patients. Responses were generally negative for the evaluation of the available facilities in the hospital (Table 4), the behavior and professional competency of medical staff (Table 5), and service delivery results (Table 6). The results show that 45.8% of respondents waited more than 56 min for registration and to see the doctor, 55.2% of the respondents had a 1–15 min consultation with the doctor, and 37.2% waited 16–30 min after consultation to get their prescription (Table 7). A fair satisfaction rating was observed among respondents on items such as waiting time (not having to wait too long when you arrived before being attended to), waiting room comfort (comfortable chairs and pleasant chairs), the helpfulness of the medical staff, the way the hospital routine and procedures were explained and the cleanliness of the toilets and showers. Most respondents claimed that information about their rights and responsibilities as patients was not provided in the hospital (Table 8). Lastly, respondents were asked about their intention to revisit the government hospital or if they would recommend it to others. The results revealed that 34.6% of respondents would never go back, 25.1% may revisit, and 17.6% will revisit or introduce others. This result shows a low intention to revisit or recommend which is unfavorable (Table 9).

Table 1. Socio-demographic characteristics of respondents

Variable	Frequency	Percentage (%)
Age groups		
18–24 years	65	18.7
25–34 years	76	21.9
35–44 years	80	23.1
45–54 years	49	14.1
55–64 years	43	12.4
64 years and above	34	9.8
Gender		
Male	131	37.8
Female	216	62.2
Marital status		
Single	250	72.0
Married	97	28.0
Educational status		
Elementary school	49	14.1
High School	126	36.3
Diploma or above	172	49.6
Occupational status		
Employed	110	31.7
Unemployed	166	47.8
Student	71	20.5
Residence		
Within Bo City	184	53.0
Outside Bo City	163	47.0

Table 2. Patients' evaluation of accessibility

Item	Scale	n	Percentage (%)
Signs and directions to the hospital are clear, easy to see, and easy to find.	Strongly disagree	8	2.3
	Disagree	36	10.4
	Neither agree or disagree	130	37.5
	Agree	173	49.9
	Strongly agree	-	-
Diagrams and signs showing directions to the department and rooms in the hospital are clear, easy to understand, and easy to find.	Strongly disagree	16	4.6
	Disagree	34	9.8
	Neither agree or disagree	237	68.3
	Agree	55	15.9
	Strongly agree	5	1.4
The blocks and stairs are numbered clearly and easy to find.	Strongly disagree	6	4.6
	Disagree	174	50.1
	Neither agree or disagree	111	32.0
	Agree	54	15.6
	Strongly agree	2	0.6
The pathways and the corridors in the hospital are flat and easy to use.	Strongly disagree	2	0.6
	Disagree	29	8.4
	Neither agree or disagree	262	75.5
	Agree	44	12.7
	Strongly agree	10	2.9

Table 3. Patients' evaluation of transparency of information and procedures for medical examination and treatment

Items	Scale	n	Percentage (%)
The medical examination process is clear and easily understood.	Strongly disagree	100	28.8
	Disagree	127	36.6
	Neither agree or disagree	71	20.5
	Agree	49	14.1
	Strongly agree	-	-
The procedures for medical examinations are performed simply and conveniently.	Strongly disagree	53	15.3
	Disagree	106	30.5
	Neither agree or disagree	95	27.4
	Agree	60	17.3
	Strongly agree	33	9.5
Medical service prices are clear and listed publicly.	Strongly disagree	63	18.2
	Disagree	127	36.6
	Neither agree or disagree	65	18.7
	Agree	86	24.8
	Strongly agree	6	1.7
The medical staff warmly welcomed and guided the patients through the procedures.	Strongly disagree	9	2.6
	Disagree	71	20.5
	Neither agree or disagree	89	25.6
	Agree	145	41.8
	Strongly agree	33	9.5
Be lined up in a specified order after completing the procedures of registration, payment, medical examination, and screening.	Strongly disagree	47	13.5
	Disagree	-	-
	Neither agree or disagree	95	27.4
	Agree	145	41.8
	Strongly agree	60	17.3
The waiting time for examination and registration procedures is evaluated.	Strongly disagree	69	19.9
	Disagree	100	28.8
	Neither agree or disagree	68	19.6
	Agree	100	28.8
	Strongly agree	10	2.9

Table 4. Patients' evaluation of available facilities

Item	Scale	n	Percentage (%)
There is a room/ lounge for a clean and airy examination in the dry season, which is airtight and warm in the rainy season.	Strongly disagree	91	26.2
	Disagree	155	44.7
	Neither agree or disagree	49	14.1
	Agree	24	6.9
	Strongly agree	28	8.1
I am assured of privacy during a medical examination or X-ray procedure.	Strongly disagree	61	17.6
	Disagree	148	42.7
	Neither agree or disagree	46	13.3
	Agree	61	17.6
	Strongly agree	31	8.9
Toilets are convenient to use and clean.	Strongly disagree	105	30.3
	Disagree	154	44.4
	Neither agree or disagree	37	10.7
	Agree	24	6.9
	Strongly agree	27	7.8
The environment on the hospital grounds is green, clean, and beautiful.	Strongly disagree	46	13.3
	Disagree	12	3.5
	Neither agree or disagree	154	44.4
	Agree	120	34.6
	Strongly agree	15	4.3

Table 5. Patients' evaluation of behavior and professional competency of medical staff

Item	Scale	n	Percentage (%)
Health workers use the right words, have a positive attitude and communicate.	Strongly disagree	87	25.1
	Disagree	71	20.5
	Neither agree or disagree	99	28.5
	Agree	57	16.4
	Strongly agree	33	9.5
Medical staff care and help during treatment with fairness.	Strongly disagree	57	16.4
	Disagree	135	38.9
	Neither agree or disagree	35	10.1
	Agree	53	15.3
	Strongly agree	67	19.3
Doctors and nurses meet expectations in a professional capacity.	Strongly disagree	99	28.5
	Disagree	66	19.0
	Neither agree or disagree	70	20.2
	Agree	68	19.6
	Strongly agree	44	12.7

Table 6. Patients' evaluation of service delivery results

Item	Scale	N	Percentage (%)
The results of the examination met your expectations.	Strongly disagree	70	20.2
	Disagree	101	29.1
	Neither agree or disagree	61	17.6
	Agree	89	25.6
	Strongly agree	26	7.5
I have a high level of trust in the quality of medical services	Strongly disagree	86	24.8
	Disagree	95	27.4
	Neither agree or disagree	86	24.8
	Agree	80	23.1
	Strongly agree	-	-
I have a high level of satisfaction with the price of medical services	Strongly disagree	125	36.1
	Disagree	-	-
	Neither agree or disagree	140	40.3
	Agree	82	23.6
	Strongly agree	-	-

Table 7. Patients' evaluation of waiting time

Item	Scale	n	Percentage (%)
How long did registration and waiting for the doctor take?	1–15 min	35	10.1
	16–30 min	25	7.2
	31–45 min	27	7.8
	46–55 min	101	29.1
	More than 55 min	159	45.8
How long did the consultation take?	1–15 min	143	41.2
	16–30 min	52	15.0
	31–45 min	7	2.0
	46–55 min	118	34.0
	More than 55 min	27	7.8
How long after consultation did you wait to get your prescription?	1–15 min	73	21.0
	16–30 min	129	37.2
	31–45 min	-	-
	46–55 min	118	34.0
	More than 55 min	27	7.8

Table 8. Patients' satisfaction rating

Item	Scale	n	Percentage (%)
Waiting time: not having to wait too long when you arrived before being attended to	Poor	46	13.3
	Fair	164	47.3
	Good	100	28.8
	Very good	37	10.7
	Excellent	-	-
Waiting room comfort: comfortable chairs and pleasant chairs	Poor	14	4.0
	Fair	214	61.7
	Good	69	19.9
	Very good	50	14.4
	Excellent	-	-
The helpfulness of the medical staff	Poor	24	6.9
	Fair	149	42.9
	Good	166	47.8
	Very good	5	1.4
	Excellent	3	0.9
The way the hospital's routines and procedures were explained to you	Poor	14	4.0
	Fair	145	41.8
	Good	73	21.0
	Very good	100	28.8
	Excellent	15	4.3
The cleanliness of the toilets and showers	Poor	84	24.2
	Fair	129	37.2
	Good	84	24.2
	Very good	-	-
	Excellent	14.4	14.4
Provision of information about rights and responsibilities as a patient	Yes	87	25.1
	No	260	74.9

Table 9. Patient revisit intention

Item	Response	n	Percentage (%)
If you have medical needs, would you come back or introduce others?	Never come back	120	34.6
	Maybe come back	87	25.1
	Don't want to go back, but there are a few other options	79	22.8
	Will come back or introduce others	61	17.6

3.3 Reliability and validity analysis

Table 10 presents the validity and reliability of the measurement items. For a factor loading to be significant, authors set a practically significant cut-off threshold of 0.5 as recommended by Gupta and Falk (2017). Accessibility had a factor loading ranging 0.511–0.765, transparency 0.671–0.874, facilities 0.565–0.755, behavior and professional competency 0.688–0.851, service delivery 0.591–0.735, waiting time 0.612–0.812, and patient satisfaction 0.580–0.797. Regarding internal consistency, the reliability values obtained were above the threshold suggested by Daud et al. (2018).

3.4 Correlation analysis

The analysis represented in Table 11 revealed a significant association between the variables which met the criteria for conducting the regression analysis.

3.5 Hypothesis testing

For this study, regression analysis was conducted to test the research hypotheses. Regression is a method for determining the strength of the association between one dependent variable and independent variables (Schneider et al., 2010). It aids a researcher in predicting the impact the independent variables have on the dependent variable. Items of each variable were computed to obtain the mean. The values were employed for the analysis seen in Table 12.

Table 10. Validity and reliability

Variable	Indicator	Factor loadings	Cronbach's α
Accessibility	A1–A4	0.511–0.765	0.801
Transparency	T1–T6	0.671–0.874	0.783
Facilities	F1–F4	0.565–0.755	0.795
Behavior and professional competency	B1–B3	0.688–0.851	0.775
Service delivery results	S1–S3	0.591–0.735	0.754
Waiting time	W1–W3	0.612–0.812	0.831
Patient satisfaction	P1–P6	0.580–0.797	0.800

Table 11. Correlation analysis

Construct	1	2	3	4	5	6	7
Accessibility (1)	1						
Transparency (2)	0.226**	1					
Facilities (3)	0.373**	0.677**	1				
Behavior and professional competency (4)	0.318**	0.351**	0.626**	1			
Service delivery results (5)	0.517**	0.329**	0.479**	0.670**	1		
Waiting time (6)	0.435**	0.433**	0.308**	0.563**	0.729**	1	
Patient satisfaction (7)	0.523**	0.332**	0.453**	0.513**	0.612**	0.576**	1

Note: **Correlation is significant at the 0.01 level (2-tailed)

Table 12. Correlation analysis

Path	Coefficient	*p*-value	Decision
Accessibility–Patient satisfaction	0.425	0.013	Supported
Service delivery results–Patient satisfaction	0.722	0.003	Supported
Transparency–Patient satisfaction	0.528	0.001	Supported
Behavior and professional competency–Patient satisfaction	0.647	0.000	Supported
Facilities–Patient satisfaction	0.669	0.032	Supported
Waiting time–Patient satisfaction	0.457	0.000	Supported

Note: p values significant at *p*<0.05

4. DISCUSSION

It is widely acknowledged that patient and family satisfaction are critical factors in assessing the quality-of-care delivery provided by healthcare organizations (Adhikary et al., 2018). From the findings, it was revealed that most of the respondents were dissatisfied with the waiting time for receiving test results, waiting time to see the doctors, and waiting time for examinations and consultations by doctors. It is generally believed that in a well-designed care management system, people should not have to wait long for appointments or consultations. The results of the research are in line with a recent review that found many patients attribute poor healthcare quality to the long waiting time for OPD treatments (Tuzkaya et al., 2019). This is also backed by the findings of a study conducted in Egypt, which showed that waiting time accounted for 47% of patient dissatisfaction with the quality of care (Diab, 2015). A comparative study conducted in Israel pointed out that the "time factor" (time spent on appointments and sitting at the clinic) is a significant determinant of overall satisfaction and discovered that waiting time was linked with overall satisfaction (Bar-dayan et al., 2002). Several studies have proposed various strategies to minimize waiting time. According to Manaf and Nooi (2007), when healthcare is provided for free but supply is limited, a portion of the demand is unfulfilled, resulting in the generation of a waiting list or queue; as a result, people

must wait to access healthcare. Admittance via waiting lists is typically utilized as a rationing strategy for most organizations, especially in economic cooperation and developed nations where universal healthcare is provided for free (Hussain et al., 2019). A cross-sectional study conducted at Usmanu Danfodiyo University, Nigeria analyzed the waiting time in both the waiting area and the consultation room. The findings suggested that to assess and improve patient waiting time, a facility must evaluate the quality of healthcare based on feedback provided by patients to understand their experiences and identify areas for improvement (Umar et al., 2011). Sæther et al. (2020) revealed that when demand is high, waiting time can be reduced by prioritizing patients who demand shorter service durations. This is the shortest processing time rule that has been proven to reduce waiting time. Rathi et al. (2022) suggested the application of principles from Lean and Six Sigma methodologies to identify and eliminate waste, inefficiencies and variation in patient care processes. According to their recommendations, significant improvements in process performance may be achieved by systematically identifying the sources of variability at different stages in the process and taking steps that reduce the undesirable effect of variability. Delays, preparation time, referral handling, and booking procedures all contribute to waste. Process control and policy deployment may be implemented by setting targets for these measures. Continuous governance and management of these processes are required to guarantee that they are executed to minimize variance and maximize efficiency and effectiveness.

The findings of the present study also reveal that most participants were displeased with the physical environment of the hospital. A study conducted by Ammo et al. (2014) suggested that medical facilities have a significant influence on patient satisfaction. They go on to say that hygienic conditions, a healthy interior atmosphere for patients, natural light arrangements, a peaceful environment of the wards, clean wards, and adequate bed positioning are all vital ambient items required in any hospital. If these items are well organized, they will influence 60 per cent of the patients to revisit the facility. This finding is also supported by that of Irfan and Ijaz (2011) suggesting that one of the prime causes of patients experiencing a poor standard of care delivered by public hospitals is the inconvenience of the hospital environment.

Regarding the relationship between medical staff and patients seeking healthcare at the OPD, the result obtained is similar to Chipidza et al. (2015). In their study, the majority of patients stated that the nurses were engaged in other conversations while attending to them, they had a low participation in the treatment decision, the staff were quick to explain the procedures at the OPD, and that they had low engagement with patients. The findings also showed that respondents were generally displeased with the health workers. Konlan et al. (2021) highlighted that good behavior is essential for achieving patient satisfaction. Enuameh et al. (2016) pointed out that poor attitude among health workers is associated with inadequate training. Patient satisfaction with the quality of care had an influenced the intention to revisit as most respondents agreed to never return to the hospital.

In line with our expectations, all dimensions of service quality analyzed (accessibility, service delivery results, transparency, behavior and professional competency, facilities and waiting time) had a significant effect on patient satisfaction. The findings are supported by those of (Hussain et al., 2019).

4.1 Implications

The study offers important implications for healthcare administrators and policymakers. Since the waiting time was found to be unsatisfactory, healthcare administrators can focus on strategies to minimize waiting time which could include optimizing scheduling, allocating resources more efficiently, and streamlining administrative processes. Information about the operation of the clinic, treatment procedures and a list of medical prices should be made visible to all through manuals, banners, and journals in the waiting room and bulletin boards. The hospital management can tailor interventions to address the issues that affect patient satisfaction. This could involve improving communication with patients, enhancing the physical waiting area and offering clearer information about expected wait times. Resources should be allocated strategically to reduce waiting time. This might involve increasing staffing during peak hours or reorganizing the layout of the outpatient department. In addition, the issue of understaffing should be addressed to ensure patients are attended to on time. Policymakers could use the findings as an insight to develop guidelines or regulations to ensure acceptable waiting time and patient satisfaction levels across healthcare facilities.

4.2 Limitations and future research

It is important to acknowledge the limitations of the study, such as its focus on one government hospital and one department in a specific region, which may limit the generalizability of the findings. Future studies could include a broader range of healthcare institutions and regions to provide a more comprehensive understanding of the dynamics of waiting time and determinants of patient satisfaction. Comparative studies could also be employed to draw valuable inferences across various healthcare settings (private and public). The study employed a quantitative approach to collect data from patients. Future studies could use a mixed approach to collect data from both patients and healthcare providers. The study also did not analyze the effect of cofounding variables on patient satisfaction. Further studies could include these to better understand the determinants of patient satisfaction. By addressing the identified factors affecting satisfaction and implementing evidence-based strategies, healthcare institutions can seek to create an environment where patients experience shorter waiting time and enhanced satisfaction, ultimately leading to a more positive perception of healthcare services.

5. CONCLUSION

The findings of the study underscored the importance of minimizing waiting time as a major component in improving patient satisfaction. Long waiting time were found to impair patient satisfaction and may affect the overall perception of healthcare services. Several key factors emerged as potential contributors to patient satisfaction such as accessibility, clear communication and healthcare staff's behavior and competence. These findings provide healthcare managers and policymakers with practical information for implementing targeted interventions

aimed at optimizing wait time and enhancing the patient experience.

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