Patients' Satisfaction with Ophthalmology Services in a Tertiary Hospital in Rivers State, Nigeria: A Cross-Sectional Study

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Abstract		Review Article

Introduction: Patient satisfaction is a key indicator of healthcare quality, reflecting how well patients' expectations and needs are met during care. This study investigated the determinants of patient satisfaction in the Ophthalmology Department of the Rivers State University Teaching Hospital (RSUTH), Port Harcourt.

Aim: To assess patients' satisfaction with eye care services at the Ophthalmology Department of a tertiary healthcare facility in Rivers State.

Methods: A descriptive cross-sectional study was conducted among 216 adult patients (≥15 years) attending the Ophthalmology Department of RSUTH, Garrison Annex. Participants were selected using a systematic sampling technique. Data were collected using a structured researcher-administered questionnaire and analyzed using SPSS version 23. Chi-square tests and multiple regression analyses were used to assess associations and predictors of patient satisfaction. Ethical approval was obtained from the RSUTH Ethics and Research Committee, and informed consent was obtained from all participants.

Results: Most respondents were middle-aged, predominantly female, and had at least secondary education. Prolonged waiting time was a major concern, with most patients waiting over two hours at registration ($\chi^2 = 58.04$, $p < 0.001$), largely due to long queues and staff shortages. Extended waiting time negatively influenced overall satisfaction. However, staff communication was highly rated, reflecting empathy, clarity, and responsiveness. Facility quality, including cleanliness and signage, was also positively rated, although seating comfort and restroom facilities received mixed responses. Multiple regression analysis showed that staff communication and facility quality significantly predicted overall patient experience, explaining 29.8% of the variance in patient experience (F = 45.20, $p < 0.001$).

Conclusion: While communication and interpersonal care were strong aspects of service delivery, prolonged waiting times negatively affected patient satisfaction. Improving operational efficiency, staffing levels, and facility conditions could enhance the overall quality of ophthalmic care.

Keywords: Patients' Satisfaction, Ophthalmology, Staff Communication, Quality of Facility, Overall Patient Experience, Waiting Time.

1. Introduction

Patient satisfaction refers to the extent to which healthcare services meet or exceed patients' needs, expectations, and experiences (Ocheje, 2026). Patient satisfaction is one of the most widely accepted dimensions in determining healthcare service quality. It indicates the level with which patients' expectations, experiences, and perceived needs are met while getting care. In contemporary healthcare, instead of focusing only on quality performance, there is an emphasis on level of patient satisfaction, as it is known to affect treatment compliance, patient retention, outcomes, and use of healthcare services (Alhussin, Mohamed, Hassan, Al-Qudimat, Doaib, Al Jonidy, Al Harbi, & Alhawsawy, 2024).

Therefore, there has been an increasing trend in the use of patient satisfaction surveys by health institutions as a performance assessment and strengthening tool for patient-centered care. According to literature, key drivers or determinants of patient satisfaction include patient demographic variables, patient expectations, and patient experiences. Additionally, communication is an immensely crucial factor that influences patient satisfaction (Kalaja, 2023).

Ophthalmology is a very essential field in the health care system since the visual aspect is paramount to a person's functioning, productivity, as well as quality of life (Burton, Ramke, Marques, Bourne, Congdon, Jones, et al., 2021). Visual impairment will always cause fear and concern to lose sight altogether; hence patients will be very sensitive to the kind of care they get. Additionally, ophthalmology involves equipment, personnel, as well as their efficacy in their interactions with patients. The aspect of clinic organization, waiting time, attitude of the personnel, dissemination of information, as well as the comprehensive aspects of eye clinics in most developing nations can be described by high patient volume, shortage of personnel combined with inadequate infrastructure (Okoloagu & Ndibuagu, 2023).

The tertiary institutions operate as referral health facilities for complicated cases, entrusted with offering high-quality health care services despite being full at a high percentage at periods of increased patient attendance, which can have a negative impact on patient satisfaction results. Despite such shortcomings, it is important to carry out patient satisfaction evaluation to assess gaps in healthcare delivery, form health policies, influence patient outcomes, and boost hospital reputation.

Despite the fact that several studies conducted in Nigeria and other developing nations have investigated patient satisfaction across different hospital departments, little research has focused specifically on ophthalmology departments within tertiary institutions. Existing studies have reported varying levels of satisfaction regarding factors such as the competence of care providers, their communication skills, eye examination procedures, waiting times, provider attitudes, and hospital cleanliness. This highlights an important research gap, particularly concerning the perspectives and experiences of patients in ophthalmology departments of tertiary health facilities. Therefore, the present study seeks to measure patient satisfaction in the ophthalmology department of a tertiary health facility and to provide recommendations aimed at improving the quality of care.

2. Materials and Methods
2.1 Study Area

This study was conducted in the Ophthalmology Department of the Rivers State University Teaching Hospital (RSUTH) Garrison Annex, Port Harcourt, River State, Nigeria, formerly known as Braithwaite Memorial Specialist Hospital (BMSH). RSUTH is a government-owned tertiary healthcare facility that

provides specialized medical services to residents of Rivers State and neighboring states. The hospital is strategically located within the Port Harcourt metropolis and is easily accessible to the general population.

The RSUTH Garrison Annex houses several clinical units, including the Ophthalmology Department, which provides a range of eye care services such as eye examinations, management of ocular diseases, ophthalmic surgeries, post-operative care, and patient education on preventive eye health.

The hospital also serves as a major referral center for primary and secondary healthcare facilities within the state, resulting in a high patient turnout in the Ophthalmology Department. The department is staffed by ophthalmologists, an optometrist, nurses, and other support personnel.

2.2 Study Design

A descriptive cross-sectional study design was adopted for this research. This design was appropriate because it allowed data to be collected from participants at a single point in time, providing a snapshot of patients' experiences and levels of satisfaction during their visit to the hospital.

Data were collected using a structured researcher-administered questionnaire, which also included a few open-ended questions to obtain both quantitative and qualitative information. The cross-sectional design enabled the assessment of the prevalence of patient satisfaction and dissatisfaction, as well as the factors influencing these outcomes in the study setting.

2.3 Study Setting and Population

The study population consisted of adult patients aged 15 years and above who attended the Ophthalmology Department of RSUTH Garrison Annex, Port Harcourt, during the study period.

Participants included new patients, follow-up patients, and those receiving routine eye care or undergoing specific ophthalmic procedures who were capable of responding to the questionnaire and willing to provide informed consent to participate in the study.

Patients younger than 15 years of age, those who were unable to communicate effectively, those with cognitive or mental impairment, patients who declined to give consent, and individuals who were not receiving care in the Ophthalmology Department during the study period were excluded from the study.

2.4 Sample size and sampling technique

A systematic sampling technique was used to select participants for the study. The sampling interval (k) was determined by dividing the estimated number of patients attending the Ophthalmology Department during the study period by the calculated sample size.

The first participant was selected using a simple random sampling method, after which every kth eligible patient was recruited into the study until the desired sample size was achieved. Only patients who met the inclusion criteria and provided informed consent were included in the study, while those who did not meet the criteria or declined participation were excluded.

The sample size for this study was determined using Cochran's formula for sample size calculation in cross-sectional studies (Taherdoost, 2019).

$$n_o = \frac{Z^2 p(1-p)}{d^2}$$

Where; n_o = Initial Sample Size, Z = Z-score (1.96 for 95% Confidence level), p = proportion of population with characteristic (0.5 for maximum sample size), q = 1 -p, d = margin of error (0.05 for 5%). Therefore,

$$n_o = \frac{1.96^2 \times 0.5(1-0.5)}{0.05^2} = 385$$

Given an estimated population of patients attending the Ophthalmology Department during the study period (N = 800), the finite population correction (FPC) was applied:

$$n = \frac{n_o}{1+\frac{n_o-1}{N}}, \qquad n = \frac{385}{1+\frac{385-1}{800}} = 260$$

To account for potential non-response, 10% was added, resulting in a final sample size of 290 participants for the study.

2.5 Data collection tools and variables

The data collection instrument used was a structured, researcher-administered questionnaire to elicit information from patients about their level of satisfaction with the services provided in the Ophthalmology Department. Items in this questionnaire are both closed-ended and open-ended. Closed-ended questions are based on the Likert rating scale of satisfaction dimensions regarding waiting time, attitude of staff members, communication, cleanliness, and overall quality of care provided. Open-ended questions allow extra comments and suggestions that cannot be captured from the other structured items. The development of the questionnaire was based on the available literature and on previously validated questionnaires of patient satisfaction, and pretesting for clarity was conducted among a small subset of patients to ensure that items to be measured were reliable and valid prior to the main collection of data.

The questions were prepared using google form. Despite the fact that google form may present some technical problems or problems with internet connectivity, google form streamlines the process, increases response rates, increases the accuracy of data, is flexible, and good for collaboration. Patients were randomly selected, and the process commenced on 10th October 2025 and ended on 15th November 2025.

2.6 Method of Data Collection

The survey was administered through the use of a structured questionnaire designed by the research team. The structured research questionnaire had a variety of formats, both closed and open questions that served to provide data regarding the socio-demographic characteristics of patients, their perception about the eye department experience, and their satisfaction levels with the services provided. The survey tool was distributed among patients who completed their visit or treatment session within the survey period. The survey was conducted using the self-administered approach where the respondents could read and write. The questionnaires for the respondents lacking the ability to read and write were administered via the interviewer approach.

Before embarking on data gathering, a refresher training on data gathering was done by the researchers in a bid to ensure that the right procedure for data gathering was followed, for example, handling and retrieval of the questionnaire immediately after completion in a bid to reduce non-response rate. Data gathering was done for a period of 2 months until the target sample size was attained.

2.7 Data Analysis

Completed questionnaires were assessed for completeness and validity before the subsequent analysis. Data were coded for entry into the Statistical Package for the Social Sciences (SPSS) software version 23, as well as Microsoft Excel, for cleaning, initial organization, and subsequent analysis. The closed questions conducted in the study were meant to obtain quantitative data, which was then analyzed using descriptive statistics such as frequency, percent, mean, and standard deviation, among others, that gave a description of the respondents in terms of their satisfaction level. For the open questions, the data collected was assessed based on their responses, which in turn was analyzed using content analysis. Responses were grouped according to themes to complement the results.

The study made use of inferential statistics, chi-square (goodness of fit) statistics, to determine whether there is any significance in the observed data with regard to the expected distribution of patients waiting time. In addition, multiple regression analysis was employed to determine whether waiting time, attitude of staff, communication, and environment of the clinic contribute in determining

patients' level of satisfaction. The significance level was set at 0.05.

2.8 Ethical considerations

Ethical approval was obtained from the Rivers State University Teaching Hospital Research and Ethics Committee (**RSUTH/REC/2025852**). Permission to conduct the study was obtained from the hospital management.

3. Results

A total of 216 respondents consented and were interviewed, representing a 74% response rate, and the information obtained was subsequently analyzed.

3.1 Socio-Demographic Information

A total of 216 patients participated in the study conducted in the Ophthalmology Department at the Rivers State University Teaching Hospital in Port Harcourt. Distribution of the respondents according to age revealed that the highest frequency belonged to the 30-49 age group (92; 43%), followed by the 50-69 age group (62; 29%), the 15-29 age group (32; 15%), the 70-89 age group (29; 13%), and finally, the 90 years and over age group (1; 1%). However, the mean age score indicated that 2.421 had measuring deviates of 0.9167, showing that the department is largely middle-aged to older, moderately variable in age. Furthermore, classification according to gender revealed that the male gender had the highest frequency at 82 (38%) compared to the female gender, which had the highest frequency of 134 (62%). However, more females consulted the Ophthalmology Department. Furthermore, the marital status of the respondents revealed that the highest frequency belonged to the married group, accounting for 141 (65%) of the respondents, followed by the single group, accounting for 57 (26%) respondents. Smaller frequencies were accounted for by the widowed group, accounting for 13 (6%) respondents, followed by the divorced-separated group, accounting for only 5 (2%) respondents.

The analysis of the educational background of the respondents revealed that most of the respondents attained tertiary-level education (107; 50%), followed by secondary education (59; 27%), postgraduate education (24; 11%), no education (17; 8%), and primary education (9; 4%). The mean educational background score was 3.519, with a standard deviation of 1.0160, which shows that the study population is better educated. With respect to the type of visitation, most patients visited the hospital for follow-up care (89; 41%), followed by consultation (62; 29%), surgery (53; 25%), and new registration (12; 6%). The mean type of visitation score was 2.2360, with a standard deviation of 0.9325, which indicates moderate variability in the type of services the patients sought. The findings also depicted that nearly all patients visited the hospital in the morning (213; 99%), aside from a small number of patients who visited the hospital in the afternoon (3; 1%). This finding indicates that the Ophthalmology Department of the hospital mostly encounters maximal patient flow during the morning period of the day.

The findings of the study have also presented the graphical representations of the data collected, as shown in Table 1.

Table 1. Sociodemographic Characteristics and Visit Profile of Patients Attending the Ophthalmology Department of Rivers State University Teaching Hospital, Port Harcourt (N = 216).

Age (years) Category	n	%
15–29	32	14.8
30–49	92	42.6
50–69	62	28.7
70–89	29	13.4

≥90	1	0.5
Mean ± SD*	**2.42 ± 0.92**	
Gender Category	**n**	**%**
Male	82	38.0
Female	134	62.0
Educational qualification	**n**	**%**
No formal education	17	7.9
Primary	9	4.2
Secondary	59	27.3
Tertiary	107	49.5
Postgraduate	24	11.1
Mean ± SD*	**3.52 ± 1.02**	
Occupation Category	n	%
Unemployed	21	9.8
Student	26	12.1
Civil servant	62	28.8
Farmer	14	6.5
Business	92	42.8
Mean ± SD*	**3.61 ± 1.39**	
Type of visitation Category	**n**	**%**
Consultation	62	28.7
Surgery	53	24.5
Follow-up	89	41.2
New registration	12	5.6
Mean ± SD*	**2.24 ± 0.93**	
Time of visitation Category	**n**	**%**
Morning	213	98.6
Afternoon	3	1.4

Data are presented as frequencies (n) and percentages (%), unless otherwise stated.

Mean ± SD reported for variables coded numerically for analytical purposes.

Percentages may not total 100% due to rounding.

3.2 Patient Assessment on Waiting Time in the Ophthalmology Clinic

A chi-square test of goodness of fit was performed to analyze patients' perceptions of waiting time in the clinic. With respect to the length of time patients spent waiting at the registration unit, the test assessed if patients' answers were equally distributed in the four categories of waiting time. Significantly, patients' waiting times were not equally distributed, $\chi^2(3, N = 216) = 58.04$, p < .001. More patients waited longer than 2 hours, while fewer patients waited less than 30 minutes. Whether patients were satisfied with the waiting time was established using a chi-square test, which showed a significant difference from the expected equal distribution, $\chi^2(1, N = 216) = 14.52$, p < .001. More patients felt the waiting time was not acceptable (n = 136) compared to the number who felt it was acceptable (n = 80).

The third chi-square analysis was conducted to see which factors were responsible for the waiting times

experienced by the patients. There was an overall statistically significant difference among the four identified factors, χ^2 (3, N = 216) = 214.52, p < .001, indicating that the identified factors occurred much more frequently in the study than others would if the condition of equal probabilities were met. "Long queues," "staff shortage," "complex eye examinations," and "emergency cases" are the most identified factors responsible for waiting times of 151, 57, 21, and 4 patients, respectively.

Regarding satisfaction with waiting times, there was a statistically significant unequal distribution, χ^2(4, N = 216) = 39.78, p < .001, with a larger proportion of participants not satisfied with waiting times. For the overall experience with regard to waiting time, the chi-square test was also statistically significant, χ^2(2, N = 216) = 70.78, p < .001, which revealed that overall experiences were not equally distributed and that most patients experienced a negative encounter with waiting times. Likewise, patient perceptions on quality of care were significantly diverse, χ^2(1, N = 216) = 26.74, p < .001, where the greatest proportion perceived that the long waiting time influenced their quality perceptions about the care received negatively.

At last, evaluation of communication among the staff proved there was a significant difference, χ^2(3, N = 216) = 23.12, p < .001. Again, however, most of the patients felt the communication was good. The results are presented in Table 2.

Table 2: Table 2: Waiting time characteristics and perceived impact on patient experience at the eye clinic (N = 216) Chi-square Table (Goodness of fit)

Variables	Frequency	Percentage (%)	χ^2	P-value
How long did you wait at the registration unit?			58.04	< 0.001
< 30 minutes	15	6.9		
30 - 1 hour	68	31.5		
1 - 2 hours	43	19.9		
> 2 hours	90	41.7		
Was the waiting time acceptable?			14.54	< 0.001
YES	80	37		
NO	136	63		
What factors contributed to the waiting time?			214.52	<0.001
Long queue	134	62		
Shortage of Staff	57	26.4		
Complex eye examination	21	9.7		
Emergency cases	4	1.9		
How satisfied are you with the waiting time?				<0.001
Very Satisfied	16	7.4	39.78	
Satisfied	61	28.2		
Neutral	26	12.0		
Dissatisfied	54	25		
Very dissatisfied	59	27.3		
How did the waiting affect your overall experience at the eye clinic?			70.78	< 0.001

Positive	80	37		
Negative	118	54.6		
Neutral	18	8.3		
Did the waiting time impact your perception of the quality of care?				< 0.001
YES	146	67.6	26.74	
NO	70	32.4		
How would you rate the communication from staff about waiting time?				
Excellent	46	21.3		< 0.001
Good	82	38	23.12	
Fair	54	25		
Poor	34	15.7		

3.3 Patients' Assessment on Staff Communication

Patients evaluated the communication skills of the medical staff favorably on all dimensions. As shown in Table 3, a larger proportion (49.5%) evaluated the communication skills of the medical staff as good, and only 16.7% found them to be excellent. Not more than 11.6% found the communication skills to be poor. The empathy and understanding shown by the medical staff were also found to be favorable, with a larger proportion (50%) finding them to be good and 19% finding them to be excellent. Similarly, a larger proportion (53.7%) found the communication about diagnoses and treatments to be good, while 27.3% found them to be excellent.

Being on time to address the patients' concerns was also given high scores, with 56.9% rating it as good while only 3.7% rated it as poor. Satisfaction with the patients' overall experience at the clinic was generally high since 54.2% rated their experience as good while 18.1% rated it as excellent. Patients' willingness to recommend clinics based on their experience was not much different, with 53.7% rating it as good.

Results show that communication by the staff in the Ophthalmology Clinic is a strength. Patients found the staff empathetic, caring, explained well, and approachable. The percentage of poor communication further emphasizes positive communication by the staff in the particular department.

3.4 Patients' Assessment of Quality of Facility

The quality of the facility received very positive ratings on a number of indicators. The cleanliness of the facility was considered to be good by 59.3% of the respondents and excellent by 35.6%, while none of the respondents found it to be poor. The clarity of the signs was almost unanimously found to be excellent by 94.9% of the respondents. Likewise, ease of navigation at the clinic received highly favorable ratings as 97.2% found it to be excellent.

Nonetheless, the ratings for the available amenities received some mixed responses. Whereas 40.7% of the respondents considered the available amenities, such as seats and toilets, to be good, 20.4% considered them fair, while 19.9% thought the amenities are poor. The comfort as well as the ambience of waiting areas also got similar responses, with 43.1% respondents rating the conditions as good while 18.1% rated them as poor. The point remains that the environment surrounding the facility seems to be well taken care of and very clean, indicating excellent environmental conditions. The comfort elements regarding seating, waiting area ambience, as well as overall amenities should be improved.

3.5 Patients' Overall Experience

In conclusion, the patient experience at the clinic was positive. A majority (54.6%) found the experience at the clinic to be good, while 14.4% found it to be excellent. Likewise, the quality of care obtained was found to be good by 56% while 25.5% found it to be excellent, showing very high levels of satisfaction with the health services delivered at the clinic.

The waiting time, however, proved to be the greatest concern. Most respondents (66.5%) rated this as poor, making this item the lowest rated in Table 3. Although this experience was disappointing, an encouraging finding was that 73.6% of respondents had their expectations fulfilled, and 55.1% would recommend this health facility to other people.

Patient satisfaction was also high with regard to communication with the staff. Communication-related indicators were found to have good or excellent scores. Patient satisfaction was high concerning facility quality such as cleanliness. Facility quality indicators were found to have good or excellent scores. Patient satisfaction was identified to be low with regard to comfort and facilities.

In all, while the overall experience of patients and satisfaction with care and staff interaction was strong, long waiting times significantly undermined satisfaction and remain a critical operational issue to be addressed. This is shown in Table 3.

Table 3: Patients' assessment of staff communication in the ophthalmology clinic (N = 216)

Variables	Excellent n (%)	Good n (%)	Fair n (%)	Poor n (%)	Mean ± SD
Communication skills of staff	36 (16.7)	107 (49.5)	48 (22.2)	25 (11.6)	**2.29 ± 0.88**
Empathy and understanding shown	41 (19.0)	108 (50.0)	46 (21.3)	21 (9.7)	**2.22 ± 0.86**
Explanation of diagnosis and treatment	59 (27.3)	116 (53.7)	33 (15.3)	8 (3.7)	**1.95 ± 0.76**
Attentiveness to patient needs	54 (25.0)	112 (51.9)	32 (14.8)	18 (8.3)	**2.07 ± 0.85**
Timely response to concerns	47 (21.8)	123 (56.9)	38 (17.6)	8 (3.7)	**2.03 ± 0.74**
Satisfaction with staff interaction	39 (18.1)	117 (54.2)	39 (18.1)	21 (9.7)	**2.33 ± 0.90**
Willingness to recommend clinic based on staff interaction	41 (19.0)	116 (53.7)	44 (20.4)	15 (6.9)	**2.15 ± 0.81**
Cleanliness of the clinic	77 (35.6)	128 (59.3)	11 (5.1)	0 (0.0)	**1.69 ± 0.56**
Comfort and ambiance of waiting area	50 (23.1)	93 (43.1)	34 (15.7)	39 (18.1)	**2.29 ± 1.02**
Availability of amenities	41 (19.0)	88 (40.7)	44 (20.4)	43 (19.9)	**2.41 ± 1.01**
Cleanliness and maintenance of amenities	184 (85.2)	32 (14.8)	0 (0.0)	0 (0.0)	**1.15 ± 0.36**

Clarity of signs and directions	205 (94.9)	11 (5.1)	0 (0.0)	0 (0.0)	**1.05 ± 0.22**
Ease of navigation within clinic	209 (97.2)	6 (2.8)	0 (0.0)	0 (0.0)	**1.03 ± 0.17**
Overall facility quality for recommendation	37 (17.1)	131 (60.6)	44 (20.4)	4 (1.9)	**2.07 ± 0.67**
Overall clinic experience	31 (14.4)	118 (54.6)	49 (22.7)	18 (8.3)	**2.25 ± 0.80**
Quality of care received	55 (25.5)	121 (56.0)	29 (13.4)	11 (5.1)	**1.98 ± 0.77**
Communication with healthcare providers	54 (25.0)	112 (51.9)	36 (16.7)	14 (6.5)	**2.05 ± 0.82**
Waiting time	8 (3.8)	51 (24.1)	12 (5.7)	141 (66.5)	**3.35 ± 0.97**
Satisfaction with eye care services	43 (19.9)	127 (58.8)	29 (13.4)	17 (7.9)	**2.09 ± 0.80**
Expectations vs actual experience	159 (73.6)	57 (26.4)	0 (0.0)	0 (0.0)	**1.26 ± 0.44**
Recommendation based on overall experience	34 (15.7)	119 (55.1)	53 (24.5)	10 (4.6)	**2.18 ± 0.75**

Responses were scored on a 4-point Likert scale (1 = Excellent, 4 = Poor). Data are presented as frequency (n), percentage (%), mean ± standard deviation (SD).

3.6 Multiple Regression Analysis on the Association between Overall Patient Experience, Staff Communication, and Facility Quality

A Multiple Regression test was used to establish the predictive value of staff communication and facility quality as predictors of overall patient experience in the Ophthalmology Department. From the results presented in Table 4, the overall model summary indicated that this model explained approximately 29.8% of the dependent variable, overall patient experience, with an R Square = 0.298 (Adjusted R Square = 0.291). This would indicate that approximately one-third of the variation in overall patient satisfaction can be explained by patient perceptions of staff communication and facility quality. This is shown by the results in Table 4.

Table 4: Model summary of multiple linear regression analysis predicting overall patient experience in the ophthalmology clinic

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.546[a]	0.298	0.291	0.6756

Full regression model: Table 5 presents ANOVA for the overall regression model, which was significant, $F(2, 213) = 45.20$, $p < 0.001$. This implies that the predictors in the model, combined as a whole-staff

communication and facility quality-accounted jointly for a significant portion of the variance in overall patient experience.

Table 5: Analysis of variance (ANOVA) for multiple linear regression predicting overall patient experience

Source	Sum of squares	df	Mean square	F	P-value
Regression	41.266	2	20.633	45.198	< 0.001
Residual	97.234	213	0.456		
Total	138.500	215			

df = degrees of freedom; F = Fisher's statistic.

a. Dependent Variable: Overall patient experience

b. Predictors: (Constant), Quality of facility, Staff Communication

A review of the regression coefficients (Table 6) indicates that both predictors contribute significantly to the model. Staff communication is a significant positive predictor of overall patient experience (β = 0.51, t = 8.67, p < 0.001). Also, quality of facility significantly predicted overall experience (β = 0.35, t = 5.87, p < 0.001). The results therefore explain that good staff-communication and good quality facility go hand in hand with higher levels of overall patient experiences.

Table 6: Multiple linear regression coefficients predicting overall patient experience in the ophthalmology clinic

Predictor	Unstandardized β (B)	Standard error	Standardized β	t	P-value
Constant	0.827	0.167	—	4.965	< 0.001
Staff communication	0.407	0.055	0.446	7.359	< 0.001

| Quality of facility | 0.290 | 0.087 | 0.203 | 3.352 | 0.001 |

β = regression coefficient. P-values obtained using the t-test.

3.7 Patient Satisfaction and Service Quality in an Ophthalmology Clinic: A Thematic Analysis

Thematic analysis was used to determine the factors that have an impact on the level of patient satisfaction in an ophthalmology clinic. Results from the thematic analysis are shown in Table 7. Patient concerns on the human resources front include staff attitude, empathy, time, and communication. Patient flow and waiting time were important factors that were expressed, with waiting time particularly causing many patients to complain of the time wasted. Infrastructure and seating were other patients concerns.

Additional themes included requirements for better equipment resources, affordability worries, and positives regarding professional doctors, successful treatment, and a clean and peaceful setting. The themes identified capture both positives and negatives associated with service provision in this clinic. The thematic analysis and maps are shown in Table 7 and Figure 1 below.

Table 7: Thematic analysis of patients' perceptions of care in the ophthalmology clinic

Theme	Description	Representative Quotes
Human Resource Challenges	Staff attitude, empathy, communication, punctuality, training needs	"The staff are rude." "Staff should come work early." "Staff need training on patient interaction."
Patient Flow and Waiting Time	Long waiting periods, rescheduling, queue management	"The waiting time is too long." "Stop wasting patient time and attend to people promptly."
Infrastructure and Patient Comfort	Seating, waiting areas, calm environment	"Provide more seats." "The environment is calm and quiet." "Provide more comfortable space."
Facility Maintenance and Hygiene	Cleanliness and safety	"Cleanliness of the rest room." "Routine maintenance of facilities."
Equipment and Resources	Need for more sophisticated and functional equipment	"The facilities and machines should be improved." "The equipment used in checking my eyes."
Affordability and Financial Access	High fees, multiple payments, payment inefficiency	"Consultation fee is too high." "Payment for folder and consultation is not fair."

Theme	Description	Representative Quotes
Recognition of Positive Practices	Professional doctors, effective treatment, clean environment	"Doctors are very detailed." "The facility is beautiful." "I received good medical care."

Figure 1: Thematic Map for Enhancing Ophthalmology Clinic Patients' Satisfaction in RSUTH

4. Discussion

Socio-demographic characteristics presented in Table 1 provide the background necessary to contextualize the satisfaction assessment of patients of Rivers State University Teaching Hospital's Ophthalmology Department. The distribution pattern according to age was that the highest proportion of patients were in the age bracket between 30 and 40 years, with 32.4%, followed by those falling within the age bracket between 50-69 years, 29%. With a mean age score of 2.421 (SD = 0.916), patients range from low to high variability in ages, with most being middle-aged adults. This reflects existing evidence indicating that the burden for eye conditions like refractive errors, presbyopia, and early degenerative ocular diseases is greater among people as they approach older age (Chang & Congdon, 2018). As shown in the gender distribution, there were more female patients, which agrees with studies on the higher utilization of healthcare services, including ophthalmic care, among females than among males (Otu, Ebenso, & Okuzu, 2020). Factors that have been cited include better health-seeking behavior among women and gender-related differences in disease perception, health literacy, and healthcare engagement.

In relation to the level of educational attainment, a majority of respondents have a secondary/tertiary level of education. Attending higher levels of education has been shown to have positive links with greater awareness regarding eye care needs, greater understanding of disease, and a greater propensity to seek specialized eye care (Ebeigbe, 2018). This implies that the patient group attending the ophthalmology clinics is generally a well-informed

group with greater expectations in regard to health services delivered to meet these expectations. The significance of these demography variables in relation to the interpretation of patient satisfaction results lies in the fact that age, gender, and educational background have all shown significant determinants in factors such as expectations, perceptions, and satisfaction with health care services provided (Cunha Ferreira, Vieira, Pedro, Caldas, & Varela, 2023).

4.1 Patient Assessment on Waiting Time in the Ophthalmology Clinic

The chi-squared test results in table 2 show that patients' self-assessment of waiting time is also unevenly distributed, with a larger proportion of patients waiting for more than two hours, χ^2 (3, N = 216) = 58.04, p < 0.001. It is well recognized in modern empirical studies that waiting time is a significant concern in outpatient health facilities, particularly when operational bottlenecks, such as inefficient registration systems, tend to cause long waiting hours. It is pertinent to point out that recent studies examining time and flow in Nigerian teaching hospitals tend to corroborate these concerns, indicating that delays in registering at reception and prior to consultancy are some of the key contributing factors for overall waiting hours.

The findings in the above table show a correlation between the increase in the waiting times and the dissatisfaction expressed by the patients. The findings seemed to reflect the operational environment. The results in the above table show that the proportion of patients who found the waiting times unacceptable was significantly higher. Overall satisfaction and the perception regarding the care provided reduced as the waiting times increased.

The findings are supported by the results obtained in the recent systematic reviews conducted to determine the effects of waiting times on the dissatisfaction expressed by the patients. Since the beginning of the health system's trust and reliance upon its efficiency lie at the core, any increase in the waiting times is bound to have a bearing on the satisfaction expressed by the patients. Therefore, the finding relating to the dissatisfaction expressed by the patients as the waiting times increased is supported by the determination in the above table.

The results emerging from the analysis on the contributing factors indicated that longer queues and a shortage of staff influenced the reported delays most, χ^2(3, N = 216) = 214.52, p < .001. This indicated convergence with the literature in picking out the challenge of human resource optimization and inefficient patient flow systems as critical out Stringent Factors Influencing Outpatient Delays in High-Density Settings. Dedicated consideration in the literature supports the importance of optimizing human resource management and optimizing the peak flow of staff and the out_patient_workflow systems.

Although communication among staff received a significantly positive response in this particular study, unbiased communication did not compensate for dissatisfaction caused by prolonged waiting times, χ^2(3) = 23.12, p < .001, N = 216. Recent studies indicate that while improved communication and addressing expectations can minimize patient anxiety levels and perceptions regarding inequity, these are best practiced in addition to, rather than in place of, process improvements (Morales, Silva Aravena, & Saez, 2024). This includes strategies such as joint efforts in terms of redesigning work processes and implementing communication tools in real-time via text messages, information boards, or virtual queues that have proved most successful in terms of objective waiting times and subjective patient satisfaction.

In summary, the results do show that the problem of long waiting times in the studied clinic is caused mainly by the challenges in the operation process, such as long queues and staff shortages, and that the problem has adverse effects on patient satisfaction and the level of care. The study results offer support for an overall strategy that covers short-term changes at an operation level (e.g., optimizing the workforce, the use of fast-track systems), process and technology changes on the mid-term level (e.g., using electronic patient records or systems for appointments or patient queues), and monitoring the indicators of the problem. There are good reasons to

believe that implementation initiatives using such a strategy could efficiently decrease registration and consultation delays and improve patient experience in the waiting area.

4.2 Patients' Assessment on Staff Communication, Quality of Facility and Overall Experience

4.2.1 Staff Communication

The patients scored the communication skills of the staff positively on all aspects taken into consideration. The patients' scores showing high empathy, good communication skills, and good patient staff responsiveness are an indicator that the patient-centered communication practices are deeply embedded within the organization. This has been shown to be in line with recent literature, which has suggested that communication skills are some of the biggest determinants of patient satisfaction (Adegboyega, Olatubi, & Akinwale, 2023; Atulaye, Ugwueze, & Nkwocha, 2022). Good communication, whether in the form of explanations or empathy from the staff, can decrease anxiety and increase patient confidence in the treatment process, as happens in the department of ophthalmology due to the nature of the disease explained.

Results similar to these have been observed within an international context, where it has been shown that patient-centered communication increases satisfaction, compliance with care, and overall patient experience (Lee & Daugherty, 2020; Mohammed & Alhassan, 2021). These results from our study are consistent with the overall evidence, which emphasizes the crucial role that communication is given as a strength of the ophthalmology clinic.

4.2.3 Quality of Facility

In analysis of the results showed that the patients are highly satisfied with the cleanness of the clinic, the signs, and the state of organization. Cleanness was one of the factors that have been identified as having high importance in patient satisfaction as it might reflect the quality of the service provided (Khan, Qureshi, & Ahmad, 2021).

Further, the very high ratings for signage and navigation provide confirmation of a well-organized environment that minimizes confusion and helps reduce patient stress, which is corroborated in recent evidence related to hospital facility design (Ali & Oche, 2020). However, assessments of amenities related to seating, comfort in the waiting area, and restrooms were more mixed. Almost 20% rated these as poor, pointing to a significant gap in the non-clinical aspects of service delivery. Very similar deficiencies have been reported from other Nigerian and African outpatient settings, where poor waiting-room facilities detract from overall satisfaction despite adequate care (Okafor, Eze, & Onyekonwu, 2022).

4.2.3 Overall Patient Experience

The overall care experience and the communication from care providers were satisfactory, whereas the waiting time was rated less favorably. Excessive waiting has consistently been shown to correlate with decreased patient satisfaction in outpatient settings (Ameh, Sufiyan, Yusuf, et al., 2023; Mburu, Wafula, & Muthuri, 2021). Existing scientific knowledge has also confirmed that waiting time is a key determinant of overall patient perception of care, regardless of care quality and positive communication between providers and patients (Onwujekwe, Agwu, Orjiakor, et al., 2020). This was also evident within this research, where patients were not satisfied with delays despite positive communication from staff.

Interestingly, despite the low scores associated with waiting time, most patients were satisfied with their expectations being met. This could indicate that good communication and the perceived competency of clinicians could weaken the effect of longer waiting times.

In general, the above results show that the patient is receiving a high standard of clinical and personal care, but that improvements must be made regarding the time it takes to see the doctor and improve the patient's experience.

4.3 Multiple Regression Analysis on the Association between Overall Patient Experience, Staff Communication, and Facility Quality

The regression test assessed the strength and direction of the relationship between the communication processes among the staff in the ophthalmology institution and the general satisfaction with the patient experience. The results indicated a moderate relationship, with the model explaining 29.8% of the variation. Notably, communication and the environment have been recognized as core determinants of patient satisfaction and perceptions of care quality (Al Abri & Al-Balushi, 2022; Doyle, Lennox, & Bell, 2020). The result was statistically significant, $F(2, 213) = 45.20$, $p < .001$, supporting the fact that communication of the staff and the quality of the facility are factors that influence patient experience. This perspective lends credence to the concept, supported by numerous empirical studies, that qualified personnel and favorable physical conditions positively influence patient trust, comfort, and perceptions of care quality (Akintunde, Adebayo, & Akinwale, 2021).

Coefficient estimates revealed communication from staff members as the strongest predictor of patient experience: $\beta = .51$, $p < .001$. This reinforces the point that communication is integral to patient engagement, providing emotional reassurance and clear explanations of clinical processes. Current literature has shown that when healthcare providers are respectful, open, and consistent in their communication, patients report greater engagement and higher satisfaction with care (Brennan et al., 2021; Manaf, Rahman, & Yusof, 2023). In the field of ophthalmology, where the treatment may become slightly complex and awkward for the patient, an empathetic explanation by the patient becomes all the more crucial.

The quality of the facility also proved to influence the outcome for the patient experience ($\beta = 0.35$, $p < 0.001$). This aligns with established literature showing that the healthcare environment significantly shapes perceptions of quality. Both regional and international studies confirm that physical surroundings influence patient satisfaction and the overall notion of care quality (Boateng, Mensah, & Agyeman-Duah, 2021). A facility with high quality contributes towards efficiency and comfort, and this improves the overall experience. The results obtained offer a viable alternative for improving health care satisfaction in ophthalmic health care offerings by focusing on the communication and facility qualities. The moderate R^2 value obtained further indicated the two major prediction models are not the only attributes; however, others like waiting times, attitude, trust in health providers, or insurance and competence might also impact the overall patient experience, similar to the findings by previous studies conducted on patient-centered health care (Salleh, Aziz, & Rahman, 2023; Yeboah, Asamani, & Asante, 2020).

4.4 Patients' Satisfaction: Thematic Analysis

The thematic analysis of patient complaints received by an ophthalmology clinic indicates that some key elements influence patients' levels of satisfaction and perceptions regarding service quality.

4.5 Human Resource Quality

The patients highlighted the key need for professionalism, empathy, and communication on the part of the healthcare staff. Some areas of concern, as highlighted by the patients, were a lack of respect, poor timeliness, as well as some deficiency in staff understanding or knowledge regarding dealing with patients. However, on the other hand, patients were able to recognize some medical practitioners who were careful, professional, as well as compassionate. This complementing situation illustrates that a continuous process for staff development concerning patient communication is necessary.

4.6 Waiting Time and Patient Flow

Some patients complained of long waiting lines, irrational rescheduling of appointments, and inefficient queuing systems. Some patients suggested more health workers, including ophthalmologists,

better appointment schedules, and the establishment of more effective queuing systems. Time to service delivery was determined as an important factor that determined patient satisfaction.

4.7 Infrastructure and Patient Comfort

The waiting areas were not properly seated, and overcrowding was increasing. The proposed solutions to these issues included more chairs in the waiting areas, greater ventilation or provision for shaded waiting areas, as well as a calm, serene atmosphere that promotes patient comfort. Environmental comfort is a known patient satisfaction determinant that highly influences perceptions of care quality (Busari & Henry, 2025).

4.8 Facility Maintenance and Hygiene

Patients pointed out the following issues related to cleanliness: Waiting area, toilets, and overall facility cleaning. They recommended cleaning and a standby cleaning staff during peak times to take care of cleanliness and safety concerns on a constant basis. A proper healthcare system is very much dependent on a clean infrastructure to gain patients' trust and confidence within the system (Boateng, Mensah, & Agyeman-Duah, 2021).

4.9 Equipment and Resources

The patients pointed out the importance of providing up-to-date and functional ophthalmology equipment. Functional and adequate equipment can lead to effective diagnoses and avoid unnecessary referrals. But equally important is the training of staff members on the use of such equipment to promote good patient outcomes.

4.10 Affordability and Financial Access

Patients often complained about the high consultation fee, about having to pay repeatedly for their folders, and about the few numbers of points of payment. Improvement suggested by them included reducing service charges and having more points of

sale terminals to ease up transactions and make them faster. Financial accessibility is also considered an important factor for utilization and satisfaction in healthcare (Adomi, Asogun, Rwuaan, Iliya, & Adebanjo, 2024).

4.11 Recognition of Positive Practices

Although the challenges have been highlighted, some positive experiences in the care services have been expressed by the patients. These positive experiences have been: qualified and caring doctors; the patients were satisfied with the treatment given to them; and the environment was clean and tranquil. It is indicated that although there could be some spheres to work on, there exist positives in the current structure that could be developed to further improve the level of satisfaction among the patients.

Consequently, the key solution to the satisfaction of patients in the eye care department at the medical institution will come through the interaction of the quality of staff, patient flow, facilities, equipment, and cost of care. The fulfillment of these factors, which interact with each other, will not only improve efficiency but also improve perceptions of service quality within the department.

5. Conclusion

The results drawn out of this study provide in-depth information about the levels of patient satisfaction and perceptions within the Ophthalmology Department of the Rivers State University Teaching Hospital. The perusal of the demography shows that the patient tends to belong to the middle age group and is female in majority with an excellent background in education, thereby affecting health-seeking behavior and attitude in terms of expectations.

Patient satisfaction has been identified to have a complex nature with operation-, people-, and infrastructural-related factors. Waiting times have been identified to be the key factors contributing toward dissatisfaction, largely due to a lack of staff and inefficient patient flow process. Staff communications were found satisfactory. Hence, it

could be inferred that a bi-faceted approach needs to be focused on aspects of service quality and communications.

The interpersonal dimension that involved professionalism, empathetic care, and good communication was found to be the strong points of this clinic and were at the forefront of constructing positively experienced healthcare. The attributes of the facility were also an essential component of positive satisfaction, which involved cleanliness and organization; however, waiting space and comfort was found to be inadequate. The regression analysis was also found to validate that good staff communication and high-quality facilities are strong predictors for patient experience and advocate that human and structural resources exist together for patient-centred eye care.

In general, the holistic approach for improving patient satisfaction in the ophthalmology clinic would include attention to specific operational inefficiencies that can be remediated in terms of waiting time and patient flow; improving physical infrastructure; ensuring availability and functionality of necessary ophthalmic instruments; improved financial access; and maintaining superior levels of staff communication. Addressing these interrelated factors, the hospital would not only cultivate better patient trust but also facilitate higher levels of care and more effective utilization of the ophthalmology services.

6. Recommendations

On the findings from this study, the following are the proposed recommendations to improve patient satisfaction and service delivery in the Ophthalmology Department:

i. Operational efficiency and waiting time reduction

The clinic should optimize appointment scheduling, strengthen staff rostering during peak periods, and introduce fast-track systems for routine and follow-up patients to improve patient flow and reduce waiting time.

ii. Strengthening staff communication and professionalism

Regular training on patient-centered communication and empathy should be implemented, alongside clear accountability mechanisms and structured patient feedback systems to improve interpersonal care and service responsiveness.

iii. Improvement of infrastructure, equipment, and overall patient experience

Enhancing waiting-area comfort, signage, cleanliness, availability of modern ophthalmic equipment, and streamlining payment processes will improve service efficiency and overall patient satisfaction, supported by continuous monitoring using patient feedback and performance indicators.

7. Contribution to Knowledge

The study is important for understanding patient satisfaction within the context of an outpatient eye clinic in the following ways:

i. Empirical Evidence on Determinants of Patient Experience in A Nigerian Tertiary Ophthalmology Clinic

This study provides context-specific quantitative evidence from a Nigerian tertiary hospital, demonstrating how demographic characteristics, staff communication, and facility quality shape patient experience. It fills an important local evidence gap in ophthalmology care within Sub-Saharan Africa.

ii. Demonstration of the Combined Influence of Interpersonal and Structural Factors on Patient Experience

The findings confirm that patient experience is multidimensional, influenced not only by staff communication and empathy but also by operational efficiency, infrastructure, equipment availability, comfort, and cleanliness of the care environment. This reinforces a holistic view of service quality in ophthalmic care.

iii. Use of Regression Modelling to Prioritize Quality Improvement Interventions

By applying multiple linear regression, this study quantifies the relative contributions of staff

communication and facility quality to overall patient experience, providing an objective basis for prioritizing policy, managerial, and resource allocation decisions in outpatient ophthalmology services.

iv. Theoretical Contribution

The above study supports and augments current studies related to theories for patient-centered care as it provides empirical evidence that patient satisfaction is not only multi-dimensional but also grounded in demographic, operational, interpersonal, and environmental dimensions.

In conclusion, the topic of this work is a crucial gap in research on a local level that is yet to be covered in connection with eye care provision or ophthalmology in general.

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