Original Article

Waiting time and patient satisfaction: Survey of patients seeking care at the general outpatient clinic of the University of Port Harcourt Teaching Hospital

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Abstract

Background: Improving efficiency in patient flow and the satisfaction of patients attending outpatient clinics may require paying close attention to the actual time spent by patients at the various service points during their visit to the hospital. This study assessed the time clients spent at various service stations, the level of their satisfaction with the time spent and the relationship between waiting time and satisfaction for patients seeking care at the General Outpatient Clinic of the University of Port Harcourt Teaching Hospital.

Methods: A total of 422 adult patients seeking care at the clinic were selected by time-limited systematic random sampling and followed through all their engagements within the hospital. Details of the time spent at each service station and clients' satisfaction with the time spent were collected using record sheet and a patient satisfaction questionnaire. Data were analysed with the Statistical Package for the Social Sciences, version 20. The statistical effect sizes and confidence intervals of measured outcomes were reported. The $P < 0.05$ was considered statistically significant.

Results: More of the patients were female (58.6%), married (65.3%) and regular visitors to the clinic (72.6%). The mean time of 83 min was spent on the movement to the hospital and further 274 min to conclude all relevant activities in the course of seeking general practice service in the hospital. The average time of consultation with the doctors was 19 min, whereas the longest mean waiting times of 77 and 50 min were spent while waiting to access radiological and laboratory services, respectively. More patients were satisfied with the time they spent consulting the doctors (93%) or waiting to have their vital signs checked by the nurses (83%) than they were with the time taken to access radiological (30%) and laboratory services (47%). There was a significant inverse relationship between the level of patient satisfaction and the duration of time spent at the service stations.

Conclusion: The waiting time for patient accessing general outpatient care in the teaching hospital is long and could be a major contributor to negative patient experiences. There is a need for system redesign, establishment of patients' appointment scheduling and other interventions by service providers that will ensure efficient and effective management of patient flow, timely access to health services and an overall improvement of patient experience with the general outpatient encounter.

Keywords: General Outpatient Department, Nigeria, patient satisfaction, perceived quality, teaching hospital, University of Port Harcourt Teaching Hospital, waiting time

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INTRODUCTION

The increasing calls for improved efficiency in the delivery of health-care services in Nigeria are often connected with the length of time patients spend to access hospital-based services.[1] In Nigeria like many developing countries, waiting for long periods before accessing care is prevalent.[2] This is a usual observation in healthcare delivery systems without specific appointments and where there is a relative or absolute shortage of health workforce.[2] Long waiting time is also a common cause for concern for patients but if appropriately managed could significantly improve the experiences of patients seeking care from the hospitals.[3,4] A number of studies had quantitatively assessed the length of time patients wait to access outpatient care in Nigerian hospitals. Some of these studies conducted in Abuja,[5] Ibadan,[2] Sokoto[6] and Benin[1] showed waiting times to be quite long that appropriate interventions will be required to improve the efficiency of patient flow management and outpatients' experiences.

Waiting time is an important predictor of health service access, utilisation and patients retention.[6,7] Patient experience with healthcare services is sometimes linked to their expectation before or during encounter with care providers. In this way, patients satisfaction may improve following prompt receipt of outpatient services.[5] Besides the potential influence of expectation, the undertheorised concept of patient satisfaction could also be a reflection of their experiences as elucidated in the 'value-expectancy', 'fulfilment' or 'discrepancy' models often used to unpack the meaning of patient satisfaction.[8] Understandably, both patient satisfaction and experience can be influenced by factors at the level of either the patient or the health service.[9] Being a major factor influencing the experience and satisfaction of patients in many healthcare delivery setting, waiting time is an important health service factor for achieving a positive patient experience following encounter with outpatient services.[10] Furthermore, ensuring that patients have positive experience after encounter with healthcare can predict their future utilisation of healthcare, compliance with current management, continuity of care and the overall effectiveness of health interventions.[11,12]

Currently, time-specific appointments are not the usual practice in general outpatient clinics in Nigeria. As such, patients seeking outpatient care arrive early to the health facility, with most arriving about the same time. Such earlier visitors are expected to wait for the commencement of the doctor's consultation services. The causal consequence of delayed commencement of consultations is that attending physicians become overwhelmed with the pool of patients while the patients are made to wait longer before being attended to by the physician.[5]

This study was designed to obtain baseline data that would be useful in future intervention aimed at improving quality, efficiency in patient flow and patient experiences in the outpatient department of the hospital. Specifically, this study aims to assess the time spent by clients who seek outpatient care and examine its correlations with their level of satisfaction.

METHODS

Study area

This study was conducted at the General Outpatient Clinic of the University of Port Harcourt Teaching Hospital (UPTH), Rivers State, Nigeria. The UPTH is an 800-bed, multi-speciality tertiary hospital that also receives undifferentiated patients from contiguous States and serves a large population of low-, middle- and high-income earners. The mandates of the hospital are to train health workforce; provide health services to the populace, and undertake research that will expand the frontiers of knowledge and the practice of medicine. The General Outpatient Department, currently run by family physicians, is one of the clinical departments in the hospital that was set up to provide care for undifferentiated patients. It is the entry point for most first-time adults seeking healthcare in the hospital. The current use of paper-based patient record system requires that first time or regular visitors to the hospital first get to the medical record department where personal medical files are either opened or retrieved and sent to the outpatient clinic. As there is no appointment system, each patient is assigned a number by the nurses as they arrive in the outpatient clinic to allow for orderly management of patient flow. The nurses check their vital signs and sometimes deliver health talks while patients are waiting to see the doctors. Subsequent activities of the patient after consultation are determined by the recommendation of the attending doctors. This may involve going for laboratory or radiodiagnostic services, visiting the pharmacy or other service points as shown in Figure 1.

Study population

The study population is patients aged 18 years and above attending the general outpatient clinic of the UPTH.

Study design

This study used an observational study design involving client flow analysis and exit interviews.

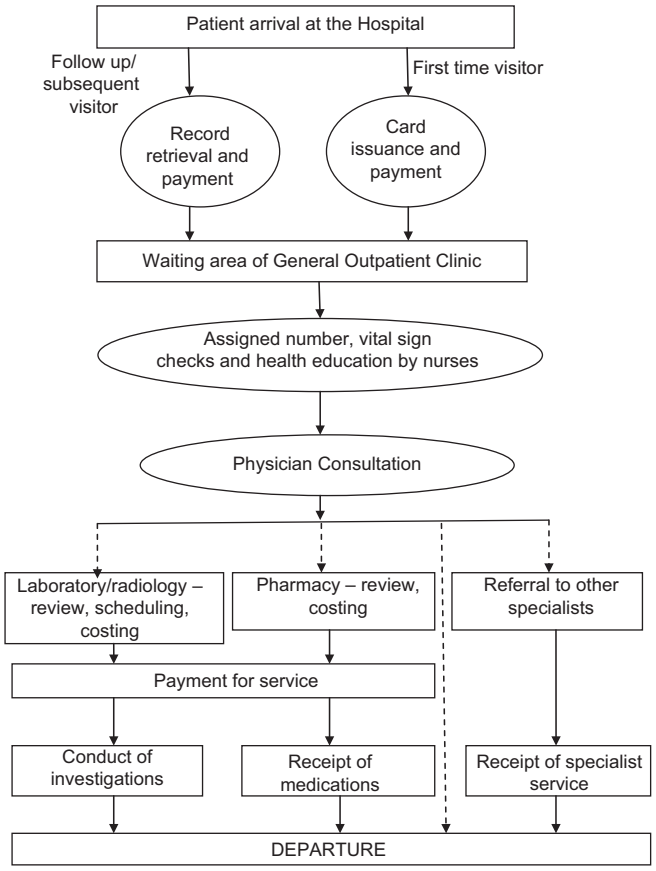

Figure 1: Patient flow during general outpatient clinic visit

Subject selection

One in every two patients seeking care at the general outpatient clinic was systematically recruited from a sample frame of all eligible adult patients that congregate at the record unit of the hospital each day but were for the general outpatient clinic. As most of the patient arrive the hospital before the commencement of official duties of the staff, a daily cut-off time of 10 am was given for the recruitment of patients. These first time or regular visitors who were identified at the record section of the hospital are followed through their entire activities in the hospital by research assistants who are responsible for ensuring that study participants keep accurate clocking of the time they commence and finish each activity during the index visit. Patients who are staff of the hospital, relations of staff, being assisted by staff or those seeking other services apart from general outpatient service were excluded from the study.

Sample size

The sample size was derived on the assumption that 50% of patients who visit the general outpatient clinic of the hospital would be at least satisfied with the time they spend at each care station during their visit. The 50% was taken to allow for an estimation of a robust sample size that can be used for the study. The sample size of 422 patients was thus calculated using a formula $n = pq / (e/1.96)^2$ which is appropriate for an observational study with a precision of 5%, confidence interval of 95% and further markup of 10% to compensate for non-response or inappropriately entries.[13]

Data collection

The structured record sheet and questionnaire developed for data collection in this study had three sections that were designed to collect data relating to patient's sociodemographic characteristics, clock in and out time for every activity in the index visit and an assessment of their satisfaction with time spent at each station. Each eligible patient who gave consent was given a structured data sheet at the record department of the hospital. This enabled them to document all the major activities during the visit, the time these activities commenced and ended and their satisfaction with the time spent during the activities. Digital timepieces were given for use only to patients who did not have personal timepieces or mobile phones with them during the visit.

This study protocol regarded waiting time as the period from arrival at the service station to the commencement of intended service at that station. Similarly, total visit time was defined as the time from patient arrival at the hospital to the conclusion of all activities of importance to the index visit. The entire time spent in relation to their visit to the hospital was disaggregated using the typical patient flow pattern in the hospital [Figure 1]. The period for each service station excluded the time patient spent moving there from the previous station. From the total visit time, the time spent waiting to see the doctor commenced when the patient enters the waiting area of the outpatient clinic to the commencement of consultation. This included the time of interaction with the nurses at the clinic. Similarly, the time spent for investigative and pharmacy services span from the time when patient reach the point where such services are to be delivered, and this included the time spent making payments.

Patients entered the time they reached and leave the service station and immediately provided feedback on the level of their satisfaction with the time spent at the service station. Feedback on patient satisfaction with the various time spent was rated on a 5-point response scale (1 = highly dissatisfied, 2 = dissatisfied, 3 = indifferent, 4 = satisfied and 5 = very satisfied). A pre-test of the instrument was conducted with 20 patients attending the Medical Outpatient Clinic of the same hospital.

Data analysis

Data analysis was done using the IBM-Statistical Package for the Social Sciences(Chicago, USA) Version 20.0.[14] Analyses conducted were focused around the objectives of the study which are to determine the duration of time spent and the level of patient satisfaction with the duration of time spent at each service station. For the assessment of patient satisfaction with time spent at the various service stations, the 5-point responses on patient satisfaction were recategorised into satisfied (comprising very satisfied and satisfied participants), indifferent and dissatisfied (very dissatisfied and dissatisfied participants). The relationships between waiting times and patient level of satisfaction with each period of waiting were explored using the Pearson's correlation coefficient (as satisfaction measured on the scale of 1–5, was treated as a continuous variable). The point estimate of the correlation coefficient (r), its 95% confidence interval and *P* value were reported. The calculated statistical effects of the waiting time on patient satisfaction were ranked as small ($r < 0.1$), medium ($0.1 < r < 0.5$) or large ($r > 0.5$).[15]

Ethical considerations

The UPTH's ethics review committee gave clearance for this study while permission was also obtained from the head of the General Outpatient Department and further consent was received from each patient included in the study. Participation in the study was voluntary, and participants were informed that they could withdraw their participation at any point and such action would not affect their care in the hospital.

RESULTS

Complete data were collected from 401 of the 422 patients giving a response rate of 95%. From Table 1, more of the patients were female (58.6%), married (65.3%), attained more than primary education (87%) and were self-employed (43.9%). The mean age of the participants was 40.9 years with a range from 18 to 95 years.

Table 2 gives a summary of the time spent at each service station in the hospital for patient accessing general outpatient services. The mean time spent within the hospital before the commencement of consultation with the doctor was 82 min. This showed high variability with a standard deviation of 61.2 and range of 5–360 min. The mean total time spent going through all care stations during the index visit was 274 min with a range from 80 to 525 min.

Table 3 presents information on the reaction of these patients to the time spent in each of the care stations.

Table 1: Sociodemographic characteristics of the respondents (*n*=401)

Variables	Distribution (*n*=401)
Gender (%)	
Male	41.4
Female	58.6
Marital status (%)	
Currently single	34.7
Married	65.3
Level of schooling (%)	
None	3.2
Primary	9.7
Secondary	33.4
Tertiary	53.7
Employment status (%)	
Unemployed	15.0
Self-employed	43.9
Working in private organisation	8.7
Working in public organisation	26.7
In multiple employment	5.7
Visit status (%)	
First time	27.4
Regular visitor	72.6
Age (years)	
Mean	40.9
SD	13.5
Range	18–95

SD: Standard deviation

More patients were satisfied with the time spent at the nursing (82.5%) station than the waiting times for radiological (29.7%) and laboratory (47.2%) services.

Table 4 shows the effect of the time spent at the various stations in the hospital on the level of satisfaction. Apart from the time spent during consultation with the doctors, an inverse relationship exists between the length of time at each station and the patients' level of satisfaction. These relationships were not only observed to be statistically significant but also seen to have large statistical effect sizes except for the waiting time before receiving attention from the nurses. Further analysis shows that the effect of duration of consultation time on patients' satisfaction was small and not statistically significant [Table 4].

DISCUSSION

The main objective of the study was to assess the time spent and the satisfaction of patients attending general outpatient care. Patient on the average spends 83 min to travel to the health institution and the mean total time of 274 min within the hospital when seeking general outpatient care. The mean of the time used for consultation was 19 min, whereas the longest mean waiting times of 77 and 50 min were in relation to accessing radiological and laboratory services, respectively. Patients were more satisfied with the time spent consulting with the doctors (93%) and being with the nurses (83%) than they were with the time taken

Table 2: Summary statistics of time spent at various point of seeking care

Aspect (number of respondents)	Mean (min)	SD	Range (min)
Movement to hospital (*n*=401)	83.4	48.9	10-360
Registration with record department (*n*=401)	24.8	16.5	3-120
Waiting time before nursing service (*n*=401)	18.2	18.4	2-240
Waiting time before doctor consult (*n*=401)	82.0	61.2	5-360
Consulting time with doctor (*n*=401)	19.3	6.8	5-60
Waiting time for laboratory service (*n*=169)	50.0	36.3	10-280
Waiting time for radiological service (*n*=33)	77.4	59.6	15-240
Time spent to buy drugs from hospital (*n*=398)	26.5	14.2	5-120
Effective time spent in hospital (*n*=399)	274.1	103.4	80-525

SD: Standard deviation

Table 3: Satisfaction with time spent on various health-seeking activities

Activity (number of respondents)	Satisfied, frequency (%)	Indifferent, frequency (%)	Dissatisfied, frequency (%)
Time taken to travel to hospital (*n*=401)	183 (45.6)	12 (3.0)	206 (51.4)
Time with hospital's record unit (*n*=401)	286 (71.3)	16 (4.0)	99 (24.7)
Time receiving nursing service (*n*=401)	331 (82.5)	53 (13.2)	17 (4.3)
Time waiting to see the doctor (*n*=401)	203 (51.1)	30 (7.5)	166 (41.4)
Time consulting doctor (*n*=401)	373 (93.0)	15 (3.7)	13 (3.3)
Time waiting for laboratory service (*n*=163)	77 (47.2)	14 (8.6)	72 (44.2)
Time waiting for radiological service (*n*=37)	11 (29.7)	2 (5.4)	24 (64.9)
Time waiting for drugs from hospital (*n*=350)	264 (75.4)	31 (8.9)	55 (15.7)
Effective time spent in hospital (*n*=399)	308 (77.2)	29 (7.3)	62 (15.5)

Table 4: Impact of time spent on patient level of satisfaction

Activity	*r* (95% CI of *r*)	*P*	Statistical effect
Time taken to travel to hospital	−0.69 (−0.74–−0.62)	0.000	Large
Time with hospital's record unit	−0.58 (−0.64–−0.52)	0.000	Large
Time receiving nursing service	−0.43 (−0.58–−0.22)	0.000	Medium
Time waiting to see the doctor	−0.76 (−0.81–−0.72)	0.000	Large
Time consulting doctor	0.00 (−0.15-0.14)	0.948	Small
Time waiting for laboratory service	−0.64 (−0.73–−0.57)	0.000	Large
Time waiting for radiological service	−0.64 (−0.79–−0.48)	0.000	Large
Time waiting for drugs from hospital	−0.57 (−0.67–−0.47)	0.000	Large

r: Pearson's correlation coefficient, CI: Confidence interval

to access radiological and (30%) laboratory services (47%). Aside the observation that stations with longer waiting time accounted for higher proportions of patients who were dissatisfied, a consistent inverse relationship was observed between the lengths of time spent at these stations and their level of satisfaction. The only exception was the time spent in consultation with the doctor.

The finding from this study shows that the average time for consultation was 19 min with a range of 5–60 min. This might be much longer than a median time of 9 min (2 min– 2 h) reported at the outpatient clinic in National Hospital, Abuja.[5] Other available findings from studies involving patients attending outpatient clinics in tertiary health facilities revealed consultation time ranging from 5 to 35 min in Sokoto State;[6] a mean duration of 15 min from a multi-centre hospital study in Malaysia;[10] and a mean of 13.9 min in the Teaching Hospital in Karachi, Pakistan.[16] Interestingly, shorter mean time of 8.6–9 min was observed for consultation in a health centre in Southwest Nigeria.[17] While the reason for this is largely unclear, it might not be unrelated to the use of simplified approaches such as treatment guidelines that can lead to faster turnover at outpatient clinics. The comparison of observed waiting times with available institutional-based standards as reported in some of the previous research is important;[16,17] as this practice has additional benefits that could assist interpretation of observed waiting time and also the management of improvement actions. This is quite pertinent in settings like Nigeria, where there are no official standards, policies or regulations on waiting time.

The average total time spent coming to seek general outpatient care in the teaching hospital was 274.1 min (80–525). Other studies had reported the average time spent for accessing general outpatient services to be 162 min with a range of 12–432 min in Abuja[5] and 173 min with a range of 2 min to 2 days in the University of Benin Teaching Hospital in Edo State, Nigeria.[1] Larger, multi-centre study in Malaysia showed that patients could spend more than 2 h from the time of registration to the time of getting their prescription slips.[10]

Although it is important for healthcare organisations, especially tertiary health facilities to address problems related to waiting times of patients who throng in daily to seek care in these facilities, not much research on the status and remediation had been conducted in tertiary hospital settings in Nigeria.

Besides contextual issues related to the measurement processes, there are indications that the delays and negative patients' experiences following their encounters with the hospital might be related to patients, staff or the service delivery system. For example, financial constraints faced by patients have been implicated as a cause of delay in receiving appropriate care and some of these patients may experience some frustrations if they are expected to pay for needed services at the point of access but they do not have sufficient funds to pay for these services. Indeed, the requirement for patients to pay for separately each service and the modalities for making such payments before accessing the service in this hospital is known to be a major source of discomfort and dissatisfaction for many patients and their relations.[18,19]

Issues related to effective workforce could also contribute to long waiting time in the hospital.[20] A shorter waiting time reported in outpatient services in health centres[17] may be due to the ability of the available staff to cope with the lower patient turnout compared to the high patient load presenting with undifferentiated health conditions often seen at the general outpatient clinics in most teaching hospital.

There are evidence that organisational process, employees' attitude, work process, workload, management, problems with supervision and inadequate facilities contribute to the problem of waiting time.[10,21] The total time spent on a visit to the tertiary health facility can also be a function of the time the patients arrive at the hospital. It had been reported that patients who arrive quite early for care often end up spending longer time than those who arrive late to the hospital.[21] This may be due to health attendants being unprepared or unavailable to commence their clinical duties to early visitors that are present at the official opening time of the clinic. This is notwithstanding that it would be beneficial to further explore how staff and organisational factors affect waiting time in the outpatient clinics of teaching hospitals in Nigeria.

We observed that the longest waiting times were related to accessing radiological and laboratory services. This could be due to the multiple referrals from the different clinics to these service points and relative insufficient staffing and facilities to handle the volume of referrals. The situation with the urban primary healthcare centre gave a strikingly different picture as the longest waiting time was related to the time of waiting to see the doctor.[17] This may be attributed to the difference in complexities of these institutions as most health centres provide rudimentary services through solo health attendant without laboratory and radiological services. Similarly, the long waiting time before seeing the doctor in the health centre may have arisen because the same health centre doctor has responsibility for providing care for both inpatients and existing emergencies first before attending to those on outpatient visits. Despite the above, the introduction of either a manual or electronic appointment system is an urgent necessity for improving efficiency of facility-based outpatient management.

We observed that the highest proportion (89.8%) of patients were satisfied with the time spent consulting with the doctors. Similar high proportions of 94.8% and 84% of patients were reported to be satisfied with the time spent consulting the health worker in the studies conducted in Abuja[5] and Benin,[1] respectively. Although the highest proportion of patients were satisfied with the duration of time made available for consultation, the relationship between the duration of consultation and level of patients' satisfaction was not statistically significant. Furthermore, the duration of time spent on consultation had minimal statistical effect on patients' satisfaction. While it is necessary for patients to be allowed sufficient time with their doctor during consultation; this may not guarantee a positive experience or significantly higher level of satisfaction as long waiting time before contact with the doctor could have negative psychosocial effects of the patients. In essence, the level of satisfaction of patient may be the function of the sum total of their experience with healthcare and not isolated events during the process or encounter with healthcare.

Besides the duration of time spent consulting the health worker, there is also a need to uncover other factors that could be association with positive patient experiences during the consultation process.

This study found a consistent inverse relationship between the length of time spent and the level of patient satisfaction. This observation corroborates with the findings from previous studies showing shorter waiting times to be associated with more positive patient experience.[5,6] However, the observed relationship between waiting time and patient satisfaction from our study also present other interesting patterns. First, the time spent waiting for nurses'

attention had medium-sized effect on patient satisfaction as against the larger negative effects observed with time spent at other stations. This is related to the level of receptiveness of the staff and waiting environment with the provision of seats, regular interactions and the availability of audio-visual entertainments to engage patients during this period. Indeed, there are observations that where patients are provided seats in the waiting areas of a clinic, they can be distracted from the effect of long waiting times since they can be engaged in watching things happening round the clinic, reading and chatting.[2]

Second, the period after vital signs checked by the nurses and actual consultations with the doctor had larger negative effect on patient level of satisfaction. This may be that heightened expectations of meeting with the doctors which is often seen as an end for many patients, may account for this negative statistical effect. It is known that both the experience and the satisfaction of patients on healthcare can be predicted by their expectations either before or during their encounter with healthcare providers.[8,11] There are suggestions that constructive engagement with patients during this period of waiting could mitigate the negative effect of long waiting time before the doctor's consultation.[2]

This study may be limited by the fact that some confounders that are known to influence waiting time and patients' experience with healthcare encounter may not have been measured. Second, the use of cross-sectional research design limits strong suggestions about the causal relationships, and there is need to confirm findings from this study using analytical designs. While it is necessary to explore other predictors of satisfaction besides waiting time in health facilities, it would also be relevant to explore staff perspective on the causes of delays which were not captured in this study.

There are research, practice and policy implications from the findings of this study. Further exploration of the causes of delays at the various service points as well as strategies for improving patients' experiences even while they are waiting for attention is needed. The high variability in time spent by clients in the service points and the observed discrepancies in the impact of time spent on patient satisfaction calls for further investigations into yet to be identified predictors of patients' satisfaction besides waiting time.

Some implications of the findings for practice include the need for continuous quality improvement through system redesign, establishment of patients' appointment scheduling and other interventions by service providers that would ensure efficient and effective management of patient flow, timely access to health services and an overall improvement of patient experience with service encounter. There is also need for hospital managers to evolve innovative solutions to reduce the boredom, frustration and other negative experiences faced by patients who are waiting to receive care. Such actions should include providing useful health information, entertainment and other constructive engagement with patients.

There is urgent need for policy support towards the establishment of guidelines and standards for outpatient waiting time at health organisations. There is also the need to institutionalised periodic audit of patient flow management to improve efficiency of underlying processes. While changing waiting time and inefficient organisational processes are emphasised in this study, it is also essential to provide effective workforce would also aid the delivery of timely services to patients.

CONCLUSION

Waiting time at the General Outpatient Department is long and negatively influences patient satisfaction and experiences. There is need to explore the causes of these long waiting times as well as other patient and system predictors of patient satisfaction. There is also compelling need to initiate interventions based on these findings that would improve quality, efficiency in time management and the experiences of patients accessing general outpatient care on the tertiary hospital.

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Conflicts of interest

There are no conflicts of interest.

REFERENCES

1. Ofili AN, Ofovwe CE. Patients' assessment of efficiency of services at a teaching hospital in a developing country. Ann Afr Med 2005;4:150-3.
2. Ajayi IO. Patients' waiting time at an outpatient clinic in Nigeria – Can

it be put to better use? Patient Educ Couns 2002;47:121-6.
3. Ajayi IO, Olumide EA, Oyediran O. Patient satisfaction with the services provided at a general outpatients' clinic, Ibadan, Oyo state, Nigeria. Afr J Med Med Sci 2005;34:133-40.
4. Iliyasu Z, Abubakar IS, Abubakar S, Lawan UM, Gajida AU. Patients' satisfaction with services obtained from Aminu Kano teaching hospital, Northern Nigeria. Niger J Clin Pract 2010;13:371-8.
5. Ogunfowokan O, Mora M. Time, expectation and satisfaction: Patients' experience at National Hospital Abuja, Nigeria. Afr J Prim Health Care Fam Med 2012;4:398.
6. Umar I, Oche MO, Umar AS. Patient waiting time in a tertiary health institution in Northern Nigeria. J Public Health Epidemiol 2011;3:78-82.
7. Weisman CS, Rich DE, Rogers J, Crawford KG, Grayson CE, Henderson JT, *et al*. Gender and patient satisfaction with primary care: Tuning in to women in quality measurement. J Womens Health Gend Based Med 2000;9:657-65.
8. Lewis JR. Patient views on quality care in general practice: Literature review. Soc Sci Med 1994;39:655-70.
9. Ogaji DS, Giles S, Daker-White G, Bower P. Findings and predictors of patient-reported experience of primary health care in Nigeria. J Patient Exp 2016;3:69-80.
10. Pillay DI, Ghazali RJ, Manaf NH, Abdullah AH, Bakar AA, Salikin F, *et al*. Hospital waiting time: The forgotten premise of healthcare service delivery? Int J Health Care Qual Assur 2011;24:506-22.
11. Pascoe GC. Patient satisfaction in primary health care: A literature review and analysis. Eval Program Plann 1983;6:185-210.
12. Vuori H. Patient satisfaction – An attribute or indicator of the quality of care? QRB Qual Rev Bull 1987;13:106-8.
13. Kirkwood BR. Essentials of Medical Statistics. 2nd ed. Oxford: Blackwell Scientific Publications, 1988.
14. IBM-Statistical Package for Social Sciences. IBM SPSS Statistics Base 20. Chicago, IL: IBM-Statistical Package for Social Sciences Inc., 2011.
15. Nakagawa S, Cuthill IC. Effect size, confidence interval and statistical significance: A practical guide for biologists. Biol Rev Camb Philos Soc 2007;82:591-605.
16. Qidwai W, Dhanani RH, Khan FM. Implications for the practice of a patient expectation and satisfaction survey, at a teaching hospital in Karachi, Pakistan. J Pak Med Assoc 2003;53:122-5.
17. Akinyinka MR, Adebayo BI, Wright KO, Adeniran A. Client waiting time in an urban primary health care centre in Lagos. J Community Med Prim Health Care 2016;28:17-24.
18. Ogaji D, Nwi-ue L, Agalah H, Ibok S, N-u DM. Impact and contributors to cost of managing long term conditions in a university hospital in Nigeria. J Community Med Prim Health Care 2015;27:30-40.
19. Ogaji DS, Mark OC, Oghenetega EP, Ebebechukwu UG, Mezie-Okoye MM. Cost burden for accessing paediatric emergency services at a tertiary health facility. Niger Health J 2016;15:103.
20. Adamu A, Maigatari M, Lawal K, Iliyasu M. Waiting time for emergency abdominal surgery in Zaria, Nigeria. Afr Health Sci 2010;10:46-53.
21. Chen BL, Li ED, Yamawuchi K, Kato K, Naganawa S, Miao WJ, *et al*. Impact of adjustment measures on reducing outpatient waiting time in a community hospital: Application of a computer simulation. Chin Med J (Engl) 2010;123:574-80.