
A QUALITY IMPROVEMENT PROJECT TO REDUCE WAITING TIME AND IMPROVE PATIENT'S SATISFACTION IN A PRIVATE HOSPITAL IN LAGOS, NIGERIA

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ABSTRACT

Background: Patient satisfaction has become an important factor in assessing the quality of health care. One factor that influences patient satisfaction is waiting time-- how long a patient waits during a visit to a health care facility.

Objectives: To measure the time spent at each component of a patient's visit to the hospital and its correlation with patient's satisfaction. To reduce long waiting times in our outpatient Clinic by 20%.

Methods: The Reducing Waiting Time Working Group was formed to tackle the waiting time problem in the outpatient Clinic in a private hospital in the highbrow area of Lagos. Extensive literature was searched and reviewed, brainstorming and discussions were carried out and strategies were developed for reducing the outpatient waiting time and improving patient's satisfaction. Baseline data on the waiting time and patient satisfaction was carried out for one week in February 2012. A series of implementations were carried out sequentially including triaging system and assignment of a clinic manager to monitor people in the waiting area every 2 hour and a 24-hour call system. A repeat/intervention survey was carried out in May 2012 for a week i.e. three months after the introduction of the intervention.

Results: One hundred and twenty four (93.9%) patients responded adequately in the baseline survey and two hundred and eighty (95.2%) patients in the intervention group and were analysed. The patients waited 21.1 minutes to see a doctor in the baseline study

which improved to 14.7 minutes with the intervention. Patient satisfaction also improved from 68.6% in the baseline group to 83.1% in the intervention group. The total waiting time also significantly improved from 142 minutes to 108 minutes. There was also a significant improvement in patients' satisfaction.

Conclusion: The sequential introduction of a triage system, assignment of a clinic manager to monitor patient's waiting time and a 24 hour call system reduced waiting time in the outpatient clinic and significantly improved patient satisfaction.

Keywords: Waiting time, Outpatient, Patient satisfaction

INTRODUCTION

In recent years, patient satisfaction has become an important factor in assessing the quality of health care.^{1,2} The Institute of Medicine identified six areas of improvement in quality health care—safe, effective, patient-centred, timely, efficient, and equitable. In this description, patient-centred care describes a focus on patients and their families as a major determinant in patient health and well-being.¹ Patients tend to judge quality of care on the basis of whether they are actually satisfied with the care they receive. In outpatient settings, a consistent feature of patient satisfaction is the length of time spent waiting to see a physician; patients who spend less time waiting are usually more satisfied with their care.³⁻⁸ Understandably, as the emphasis in many health care organizations shifts to a concern for patient satisfaction, waiting time is becoming an important quality performance indicator for outpatient services.^{3,6,9}

Studies in multiple settings have confirmed the importance of waiting time.¹⁰⁻¹² Given the

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importance of the association between waiting time and patient satisfaction, multiple strategies have been proposed to either eliminate or significantly reduce patient waiting times.¹¹ The amount of time that a patient spends in the clinic waiting to be seen by a physician reflects the cumulative effects of many variables. These variables can be very loosely grouped according to whether they reflect primarily activities of the patient, the physician, or the system (Table 1).

In general, outside of the usual strategies of creating a comfortable waiting area and providing distraction with TV and magazines, activities within the waiting room do not seem to improve patient satisfaction with long waiting times.^{11,12} In the current study, we did a pilot study and identified each component of a patient's visit to the hospital and measured the relationship between the time spent at each component and patient satisfaction. The result enabled the hospital to identify specific components of a visit that impact patient satisfaction. With this information we implemented strategies (sequentially including triaging system and assign the clinic manager to make sure patients in the waiting area are attended to and 24-hour Call system to reduce the waiting time in the outpatient department which lead to greater patient satisfaction.

MATERIALS AND METHOD

Setting

The setting for our study was a private hospital in Victoria Island, Lagos. Medical specialist clinic (Surgery, Medicine and Obstetrics and Gynaecology) is by appointment and the general outpatient (GOPD) clinic and Paediatrics clinic is by walk-in, first come first served.

Participants. All the patients who attended the outpatient clinic on the days of the study were encouraged to participate in the study and their consent obtained at the reception desk.

Procedure

A very simple data sheet was used to track time of arrival, time at which registration was

completed, the time when the patient entered and came out of the Vital signs room, Doctors consulting room and the time they left the hospital. Copies of this data sheet were placed at the registration desk which the patient collects on registration. Care was taken to maintain patient confidentiality. Patients were instructed on how to complete the information on the data sheet accurately. As time permitted, the data sheets were reviewed by the primary investigator during the clinic session to ensure that the information was complete. At the end of each clinic session, the data were also reviewed for completeness and accuracy by comparing it with the time recorded by the Out-patient (OPD) nurse attending to the patient. For the purpose of this study, consultation waiting time was defined as the time from when the patient completed the registration process to when he/she was taken to the doctors consulting room, waiting time for vital signs as the waiting time from registration to vital signs and total waiting time as the time from registration to leaving the hospital. The initial data collection began on February 2, 2012 for 1 week, and the intervention data started three months after the introduction of the intervention and lasted for 1 week.

Intervention strategies

1. **Triaging system:** The clinic nurse in charge triaged all referral cases on a daily basis. The triaging system was done with the aims of three Rs, which are: 'Right Patient, Right Time and Right Subspecialty. The referrals were prioritized based on the urgency of the medical conditions.
2. **24 hour call system:** The receptionist/appointment staff calls the patients the day before the scheduled appointment to remind them of the appointment and confirm the time for their appointment. A short message service (SMS) was sent if they were not reached on the phone. If they were unable to come for the appointment, the

slot was open to other patients. Patients who were not able to come were allowed to reschedule their appointments.

3. The clinic manager interacts with the patients in the reception area to help the patients in whatever aspect they needed help.

Analysis

Data were analysed with Epi Info 3.4.3 (CDC, Atlanta Georgia). Results are expressed as mean and standard deviation for continuous normally distributed variables and median with range for non-normally distributed continuous variables. Chi-square or Fisher's exact test was used to find the relationship between categorical variables. Logistic regression was performed to examine the relationship between patient satisfaction and other independent variables. A p-value of 0.05 or less was considered statistically significant.

RESULTS

The baseline period consisted of one week immediately before beginning the intervention while the re-assessment was one week after three months of the intervention strategy. A total of one hundred and twenty four patients were seen in the baseline period and a total of 280 patients were seen during intervention period. There was no difference between the baseline and intervention periods in the average number of patients seen in the clinic in a day (25.7 ± 3.2 vs 40 ± 2.7 , $t = -1.93$, $P = .056$). Similarly, age, sex, place of residence and class of patients in the baseline study were not statistically different from the intervention group. (Table 2.)

Of the 132 patients who consented to fill in the questionnaire, 124 (93.9%) patients responded to all the questions in the baseline group while in the intervention group 280 patient responded to all the questions out of 294 who consented to participate in the study. Majority of the participants were women in both groups. (Table 2). Twelve patients (9.7%) of the participants were new comers whilst one hundred and twelve patients

(90.3%) had attended the clinics previously in the baseline study. In the intervention group majority of the patients were also follow-up patients. (Table 2). Most of the patients came from Lagos and its environs. There was no significant socio-demographic difference between the baseline group and the intervention group.

The average total waiting time was 142.6 minutes (range 10 – 203 minutes) in the baseline study. It was due to the time spent waiting to see a doctor, waiting for the investigations and waiting to collect drugs from the pharmacy. This time was decreased by 24% in the intervention group, 108.4 minutes. (Table 3.) There was a significant reduction in the time waiting for the vital signs and waiting to see the doctor. The mean consultation time with the doctor was similar in both groups. When the waiting time was further analysed for the different clinics in the hospital, it was observed that the clinics that function with the appointment systems (Surgery, Medicine and Obstetrics and Gynaecology (O&G)) had a more significant improvement in their waiting time than the clinic that kept functioning on walk-in basis. (Table 4) Overall patient satisfaction significantly improved with the intervention (21.1% improvement, Table 3) There was no significant change with the classification of patients and the type of clinic visit. (Table 2) Participants were mostly satisfied with the services provided by their doctors.

TABLE 1: FACTORS AFFECTING WAITING TIME

Patient
1. arrival time
2. failure to attend
3. medical complexity
Physician
1. arrival time
2. patient consultation time
3. phone consultation with referring physicians
System
1. patient volume appointments
2. schedule characteristics
3. registration time
4. non-patient care activities
5. staff availability
6. room availability
7. patient work-in rate

TABLE 2: SOCIO DEMOGRAPHIC CHARACTERISTICS OF STUDY SUBJECTS

Variables	Baseline study (%)	Intervention (%)
Age group		
0-15 years	33 (26.6)	56(20)
15-24 years	18 (14.5)	30 (10.7)
25-34 years	15(12.1)	60 (21.4)
35-44 years	21 (16.9)	48 (17.1)
45-54 years	27 (21.8)	36 (12.9)
=55 years	10 (8.1)	30 (10.7)
Total	124 (100)	280 (100)
Mean	32±12.9	36±18
Sex		
Male	47 (37.9)	100 (35.7)
Female	77 (62.1)	180 (64.3)
Place of residence		
Lagos	110 (88.7)	252 (90)
Outside Lagos	14 (11.3)	28 (10)
Type of clinic visit		
New patient	12 (9.7)	29 (10.4)
Follow up visit	112 (90.3)	251 (89.6)
Class of patient		
Private	25 (20.2)	56 (20.2)
Insurance	71 (57.2)	170 (60.5)
Company	28 (22.6)	54 (19.2)

TABLE 3: DURATION OF WAITING TIME

	Baseline	Intervention (mins)	% difference	P-value
Waiting time for vital signs (mins)	12.6	8.7	30.6	0.004
Waiting time for doctor's consultation (mins)	21.1	14.7	30.3	0.003
Consultation time (mins)	17.2	19.2	-11.6	0.19
Total Clinic waiting time (mins)	142.6	108.4	24	0.016
Satisfaction (%)	68.6	83.1	21.1	0.032

TABLE 4: WAITING TIME AND PATIENT SATISFACTION

Department	Clinic waiting time (mins)		Consultation time (mins)		Total clinic waiting time (mins)		Satisfaction (%)	
	Base	Interv.	Base	Interv	Base	Interv.	Bas e	Interv.
Surgery	45	30	15	14.5	67	55	78	92
O&G	47	25	30	29.8	75	60	77	84
Paediatrics	64	60	12	11.4	190	160	65	72
Medicine	52	35	25	22.3	102	80	64	88
GOPD	60	45	14	12.6	58	50	68	78

DISCUSSION

Patient satisfaction is a worthwhile goal of health care service, and there are a lot of reasons for implementing plans to achieve it.^{13,14} It has been suggested that waiting time is the most important determinant of patient satisfaction and waiting time statistics have become an important standard by which

health care is measured.^{15,16} Waiting time statistics also hold great promise in facilitating the evaluation of performance of health care institutions.^{17,18} Long waiting times induce negative effects on the quality of the hospital before finally crippling the competitive advantages of the hospital. Understanding the current situation of

waiting time and exploration of possible strategies to reduce waiting time are the objectives of the present study. We decided to tackle the patients waiting time. Therefore, an intervention which consisted of triage system, 24-hour call system and the clinic manager interacting with the patients in the waiting room was implemented to improve waiting time and increase patient's satisfaction.

The mean age of respondents was 32 years in the baseline and 36 years in the treatment group. The age in this study is similar to other studies in the sub region which varies from 31-40 years.¹⁹⁻²² Majority of the patients and respondents are females which is similar to what was obtained in other studies in the sub-region.¹⁹⁻²² In this study, no significant difference was observed between age, gender, place of residence, type of clinic visit and class of patient in baseline compared with the intervention group. These outcomes are in agreement with the findings of a similar studies in Nigeria by Umar et al.¹⁹ in Sokoto and Ogunfowokan et al.²⁰ in Abuja, and in Ethiopia by Asefa et al.²³ The lower mean age observed in this study could be related to the fact that 53.2% (66/124) of the respondents were below the age of 35 years in the baseline group and 52.1% in the intervention group.

The average consultation time was 19.2 minutes (1 to 30 min), which is similar to the findings from the baseline study 17.2 minutes (1-26 min). The mean consultation time observed in this study is much higher than the 7 minutes observed in a study done in Nigeria.²⁴ Consultation time was found to be a strong predictor of the level of satisfaction with the doctor, while the level of satisfaction with the doctor was also found to be a predictor of overall clinic satisfaction. This is in line with findings from a study in Makurdi, Nigeria by Onwujekwe et al.²⁵ and Abuja by Ogunfowokon et al.²⁰ The reason for this higher consultation time may not be unconnected to the fact that the study area is a private tertiary hospital where the patients are more demanding and exacting and the doctors use the opportunity of their interaction for

health education, thus increasing the consultation time. Time spent with the physician improves the more important variable of overall patient's satisfaction with the clinic visit. Similarly, this effect was most prominent in the group of patients that had to wait for more than 15 min to see the physician. Morrell et al. and Ridsdale and associates found a greater likelihood of patients feeling they had inadequate time with their physicians in visits scheduled to last 10 and 15 minutes respectively.^{26,27}

This study also observed a mean waiting time of vital signs measurement of 12.6 minutes which significantly improved with intervention. This reduction in the waiting time can be attributed to less pressure on the nurse attending to the patients. The waiting time for doctor's consultation in our study is 21.1 minutes in our baseline study and 14.7 minutes in our intervention group which is a significant improvement. Our results was similar with the finding by Christopher et al. and Camacho and co-workers who found a waiting time of 12 ± 11 minutes and 21 ± 15 minutes respectively.^{8,28} This may be due to the use of time-specific appointment system in our hospital. The mean total waiting time from entry to time of leaving the clinic was found to be 108.4 minutes, in contrast to the observation made in a baseline study (168.6 minutes). The average waiting time improved significantly with the intervention strategy adopted by the hospital. Those who did not wait at all (i.e. went straight from the reception without doing vital signs to the doctor's office) experienced no waiting time. The range found in our study is more than 85 minutes (10–165 minutes) found by Umar et al.¹⁹ in Sokoto, and less than 2.7 hours (10 mins to 7.2 hours) found by Ogunfowokon et al.²⁰ in Abuja and 2 minutes to 2 days found by Ofili et al.²⁹ in Benin. The similarity with the study in Sokoto may be due to the fact that our study was done in the outpatient clinics of a private hospital. Appointment systems occurred in the specialist clinics but not in the general outpatients and paediatrics. Long waiting time is common in most general outpatient clinics in Nigeria. These long

waiting times could be a reflection of what happens in most developing countries, where there is a dearth of medical doctors, resulting in low doctor – patient ratio.

The results of this study showed that 80.1% of patients were satisfied with the outpatient health service they received. An improvement in patients' satisfaction was observed with a decrease in waiting time. The overall satisfaction of patients with services received from this center [83%] is similar to the figures reported by Ofili et al.²⁹ in Benin City but higher than those reported from other Nigerian centres. For instance, Olusina et al.³⁰ and Eze et. al.³¹ reported that 75% and 53% of patients in Ibadan and Enugu were satisfied with the services received from different units of their hospitals.

This study should be viewed in the context of our study's limitations. One of the limitations is the bias associated with survey research in general; the findings might not be able to be generalized to community hospitals with different demographic characteristics, staff and resources. The analysis could be limited by the sample size and by only being conducted in the summer and the lack of statistical power. Additional attention should be paid to differences with other studies that used different inclusion criteria. In future analyses we will consider patients' age distribution, medical visit pattern and clinical needs in different levels of the hospital, and try to incorporate the information into our study of waiting time and patient satisfaction. Another limitation of our study is its observational nature. The attitude of health workers to the patients, which was not examined in our study, could affect the level of satisfaction of the patients.

CONCLUSION

Findings from this study have showed waiting time can be improved with the use of triage system, 24-hour call system and the clinic manager interacting with the patients in the waiting room.

Recommendations

The waiting time is still more than 1 h which is

higher than the recommendations of the IOM, there is an urgent need for our health facilities to increase the number of health workers in the outpatients departments which are the gate way to the hospital. This will go a long way in reducing the long waiting time experienced by patients and thus increase the rating of satisfaction with services. Healthcare providers also need training on the various ways by which waiting time can be reduced such as the application of computer simulation to assist in allotting appointment time to patients and triage system to sort out patients with urgent need of attention.

Declaration of Conflicting Interest

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