

THE ASSESSMENT OF PATIENTS' PERCEPTION AND SATISFACTION OF RADIOLOGY WAITING TIME IN UNIVERSITY OF MAIDUGURI TEACHING HOSPITAL.

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**ABSTRACT**

**Background:** The patient is the most important person in the entire hospital setup and it is the duty of the health care personnel to give special attention to the management of patient to enhance effective service delivery. Waiting time is the total time from registration until consultation with healthcare personnel. It is an aspect of care that patients value most.

**Objective:** The aim of this study was to evaluate Patients' perceived satisfaction with waiting time in Department of Radiology, University of Maiduguri Teaching Hospital, Borno State Nigeria.

**Method:** The study was a cross-sectional prospective survey, that targeted patients who presented at the radiology department for HSG and IVU over the period of six months with a response rate of 70%, (n=70). The mean age of the participants was 33.6years. Data was collected using a 23 item self-completion questionnaire designed in line with the objectives of the study. Data were categorized into groups and analyzed using statistical package for social sciences version 16.0, where descriptive statistics such as the mean, percentages and frequencies were generated and tabulated. Pearson's correlation at  $p < 0.01$  (2 tailed) was used to test for relationship

**Results:** The results showed that 64.3%, (n=45) were female while 35.7%, (n=25) were male, out of these, 42.9% (n=30) were referred for HSG, and 57.1% (n=40) were for IVU. Among the patients referred for IVU, 37.5%, (n=15) were female, and 62.5%, (n=25) were male. Waiting time (before and after investigation) and satisfaction was found to be significant at ( $p < 0.01$  2-tailed), with the waiting time.

**Conclusion:** Insufficient number of counter service staff (Receptionist) and insufficient number of Radiologist and Radiographers were some of the factors that affect patient's satisfaction with waiting time, as investigations and reports were delayed.

**Keywords:** Patient, HSG, IVU, Waiting time, satisfaction.

**INTRODUCTION**

The patient is the most important person in the entire hospital setup and it is the duty of the health care personnel to give special attention to

the management of patient to enhance effective service delivery.<sup>1</sup> Thus this is not only restricted to giving the appropriate treatment only but the patient's time must be respected as it is one of

the contributing factor that lead to poor diagnosis and sometimes even worsen the patients situation.

Waiting time is the total time from registration until consultation with healthcare personnel in the radiology department and it is an aspect of health care that patients value most. patients tend to be dissatisfied with health care system for having to wait for long period of time in the waiting area.<sup>2</sup>

Patient waiting time in the radiology department is a total period of time a patient spends to obtain radiologic services. This covers the time the patient is registered for investigations till the time the patient finally collects his/her diagnostic report for prognostic or further investigations.<sup>3</sup>

Hysterosalpingography (HSG) and Intravenous Urography (IVU) have been observed to be among the common special radiologic examinations for which patients are referred in the Radiology Department of the University of Maiduguri Teaching Hospital (UMTH). However, due to the nature of these examinations, patients may have to wait for some time before being attended to or after the investigation, will have to wait for his/her diagnostic report. This could be because some of the examinations are time consuming, example delayed IVU, which may take up to twenty four hours, and some results may need to be vated by a senior consultant radiologist before it is released out to the patient. waiting for a long period of time before being attended to, or before collecting the result tend to affect the course of entire treatment rendered to them.

Assessing the waiting time for a patient undergoing special radiologic examination (HSG and IVU) is aimed at investigating the possible operational problems that may lead to excessive patient waiting time which influences his/her perception to quality of service.<sup>4</sup>

It is usual that special radiologic examinations like (HSG and IVU) require the patient to strictly adhere to some instructions so that the diagnosis should be accurate and appropriate.

Sometimes, the patient may be asked to take some drugs, fast on the morning of examination day, or take light food.<sup>5</sup>

Patients for special investigations in most cases prefer to spend more time with the Imaging Scientist (Radiologist/Radiographer) than spending longer time waiting on the queue.<sup>6</sup>

It has also been proven that the period of time a patient waits to be seen is a factor that affects the quality of healthcare service he/she receives, as patients regard long waiting time a hinderance to clinical service delivery.<sup>1</sup> Patient waiting time also plays an important role in public assessment of clinical proficiency and can attract new costumers. Waiting time becomes a factor to retain even the current patronage of the service because patients who received service with satisfaction are the best referral.<sup>7</sup>

## METHOD

A cross-sectional prospective survey study was conducted at the tertiary health institution in Maiduguri Borno State, North Eastern Nigeria. Ethical clearance to conduct the study was obtained from the research committee of the institution. A total number of 100 questionnaires were distributed to the patients that were referred for special radiological examinations (HSG and IVU), the response rate over the period of six month was 70%, (n=70), with mean age of 33.6 years. A 23 item scale of a self-completion questionnaire was administered to all the patients that consented to participate in the study. The questionnaire consists of three parts, A, B and C.

PART "A" consists of Demographic Data of the patients; Age, Gender and Academic Qualification.

PART "B" consists of waiting time before registration which ranges from question one (1) to eight (8).

PART "C" consists of waiting time after investigation which comprises of questions

ranges from one (1) to six (6). Questions were coded with four (4) letters options in regards to patients overall rating of satisfactions on each stage of waiting (Before and after) the examinations.

The collected data were categorized into groups, and analyzed using statistical package for social sciences version 16.0, descriptive such as mean, percentages and inferential statistics using pearsons' correlation ( $p < 0.01$ ) were generated for the study.

## RESULTS

A total number of 100 questionnaires were distributed to the patients that were referred for special radiological examinations (HSG and IVU), over the period of six month with response rate of 70%, ( $n=70$ ), with mean age of 33.6 years. About 64.3%, ( $n=45$ ) of the participants were female while 35.7%, ( $n=25$ ) were male. The patients age range between 15-55 years, and 45.7% ( $n=35$ ) were within the age group of 26-35 years, while 46-55 years were the least with 11.4% ( $n=8$ ) (Table 1). About 64.3% of the participants were female among which 42.9% ( $n=30$ ) were referred for HSG and 21.4% ( $n=15$ ) for IVU, while 35.7% ( $n=25$ ) were male that were referred for IVU only (Table 2). The

Pearson's correlation between satisfaction and waiting time before investigation was significant at  $p < 0.01$  (2-tailed) (Table 3).

Table 4 shows that about 31.4% ( $n=22$ ) of the respondents were attended to immediately, while 45.7% ( $n=32$ ) waited for 30mins before been attended to on the examination day and 21.4%, ( $n=15$ ) waited for up to an hour, and 1.4%, ( $n=1$ ) waited for up to two hours before being attended to. The Pearson's correlation between satisfaction and waiting time after investigation was significant at  $p < 0.01$  (2-tailed) as shown in table 5 below.

Fig 1. Shows that 40% of the participants reported to have waited for two days before getting their investigation report, 35% reported to have waited for 3-4 days, and about 17% of the patients collected their examination result the following day while only 10% collected their results on the same day. About 58% of the participants were satisfied, and 34% were highly satisfied with the service rendered in radiology department and time spent, while 5% reported they were dissatisfied and 4% were highly dissatisfied as shown in fig 2.

**Table 1:** Showing Cross-Tabulation of Age Group and Gender

Age group	Gender		Total
	Male	Female	
15-25	4	8	12
	5.7%	11.4%	17.1%
26-35	10	22	32
	14.3%	31.4%	45.7%
36-45	5	13	18
	7.1%	18.6%	25.7%
46-55	6	2	8
	8.6%	2.9%	11.4%
<b>Total</b>	25	45	70
	35.7%	64.3%	100.0%

**Table 2:** Showing Cross-Tabulation of type of investigation referred and Gender

Type of Investigation referred for	Gender		Total
	Male	Female	
HSG	0 0%	30 42.9%	30 42.9%
IVU	25 35.7%	15 21.4%	40 57.1%
<b>Total</b>	25 35.7%	45 64.3%	70 100.0%

*Key:* HSG: Hysterosalpingography & IVU: Intravenous Urography.

**Table 3:** Pearson's Correlations of overall satisfaction and Waiting Time before investigation

		Waiting time before investigation	Overall grade satisfaction
Waiting time before investigation	Pearson Correlation	1	-.448**
	Sig. (2-tailed)		.000
	N	70	70
Overall grade satisfaction	Pearson Correlation	-.448**	1
	Sig. (2-tailed)	.000	
	N	70	70

\*\* . Correlation is significant at the 0.01 level (2-tailed).

**Table 4:** Cross-tabulation of Waiting Time before being attended to and if instructions and procedure were explained before investigation

time taken before attended to on the day of investigation	Instruction and procedure explained before investigation		Total
	Yes	No	
Immediately	10 14.3%	12 17.1%	22 31.4%
After 30 minutes	12 17.1%	20 28.6%	32 45.7%
after 1 hour	8 11.4%	7 10.0%	15 21.4%
after 2 hours and above	1 1.4%	0 .0%	1 1.4%
Total	31 44.3%	39 55.7%	70 100.0%

**Table 5:** Pearson's Correlation of overall satisfaction and Waiting Time after investigation

		overall grade satisfaction level	Waiting time after investigation
overall grade satisfaction level	Pearson Correlation	1	-.502**
	Sig. (2-tailed)		.000
	N	70	70
Waiting time after investigation	Pearson Correlation	-.502**	1
	Sig. (2-tailed)	.000	
	N	70	70

\*\* . Correlation is significant at the 0.01 level (2-tailed).

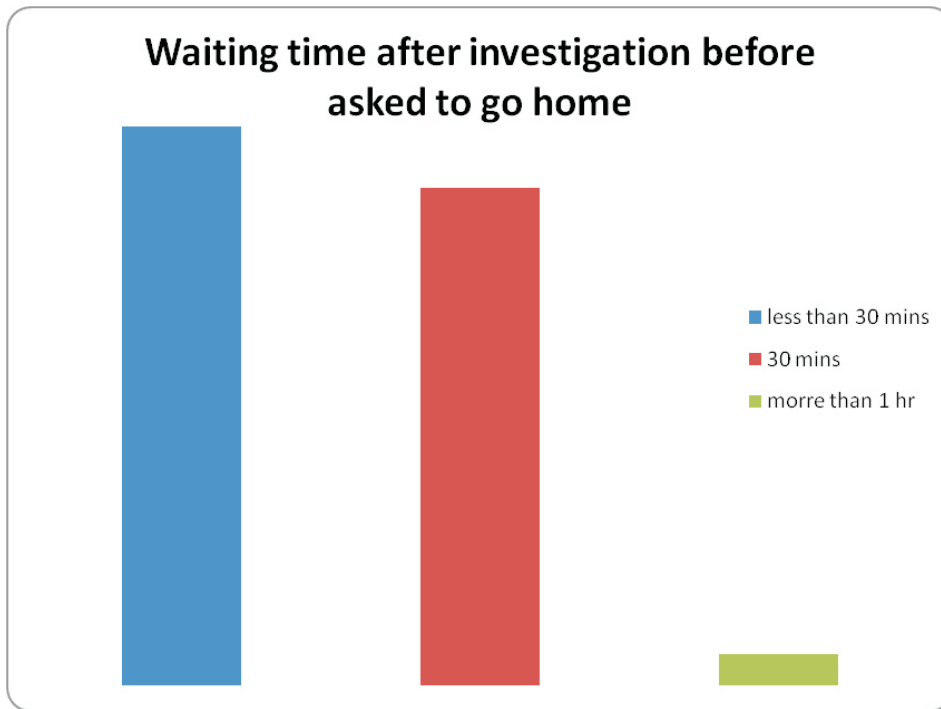


Fig.1: waiting time after investigation

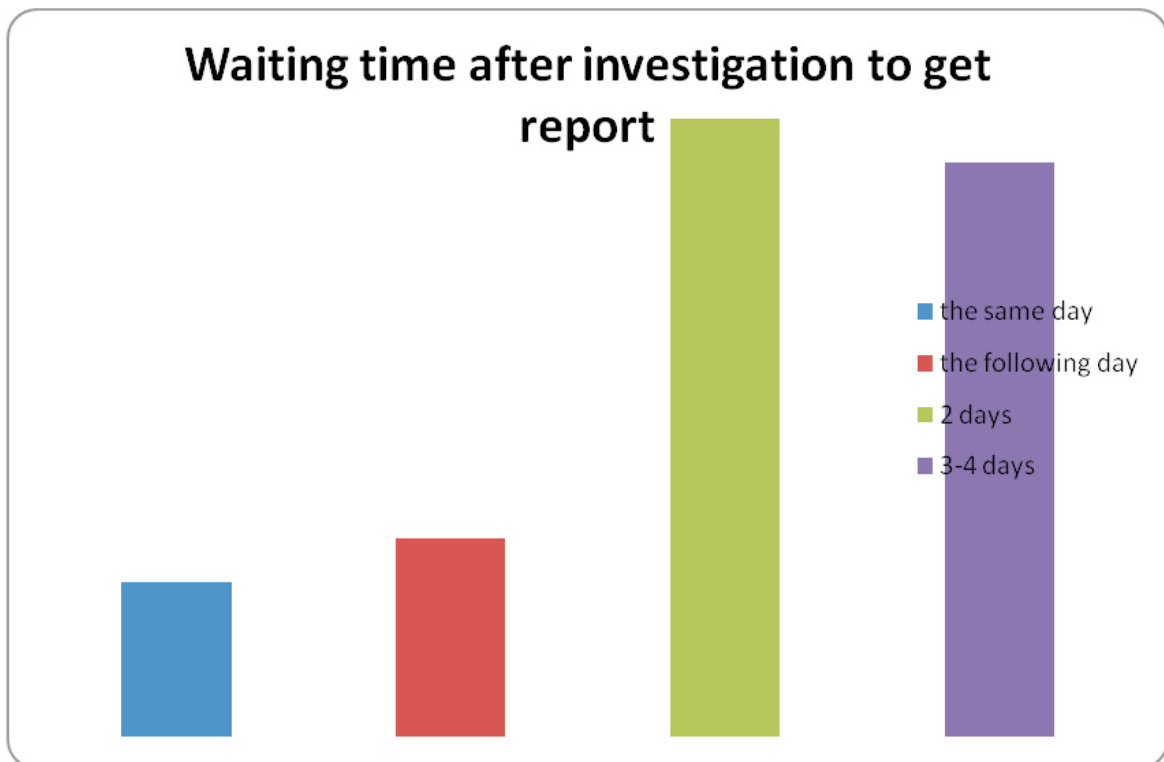


Fig. 2: waiting time after investigation before results were collected

## DISCUSSION

Patient waiting time in Radiology Department is the total length of time spent to obtain radiologic service which covers from the time the patient is registered for investigation until the time the patient finally collects his/her diagnostic reports for prognostic or further investigations.<sup>3</sup>

From the result of the study, it shows that more than half of the respondents were female 64.3% (n=45) signifying that more female participated in the study. There were more respondents in the age group of 26-35 years 45.7%, (n=32) while the least were within the age group of 46-55 years 11.4%, (n=8), this could be because most women are referred for HSG before they reach the menopause at 45 years and above.

Pearson's correlation between waiting time before and after investigation, and satisfaction was significant at  $p < 0.01$  (2tailed), this implies that when patient stay longer than necessary, the level of the satisfaction will be affected. A similar result was obtained by Pothieret al.<sup>4</sup> who found that "time spent in outpatient department is a significant source of dissatisfaction for patients".

Majority of the participants waited for two to four days before their investigation reports was obtained and only 10% collected their investigation report the same day. Signifying that most patients waited for long time (between 2-4 days) before the examination results was obtained. This agrees with the findings of Kenagy<sup>8</sup> that delay in diagnosis mostly affects patients' clinical outcome.

This concurs with why the Rad-stream which is a system that was developed by Radiology Informatics Research with the aim to deliver radiology services more quickly. It was built to improve existing states of the art filmless radiology system which uses voice recognition technology to provide electronic radiology reports.

Although most patients complained of delayed diagnostic results, (between 2-4 days), about 58% of the patients were satisfied with the time they spent in the radiology department. It signifies that the overall satisfaction level of patient waiting time before, and after the examination was found to be satisfactory.

This could be because most of the patients were informed to go home immediately after the examination and come back on a later date for their diagnostic reports.

Finally, 60% suggest that more facilities should be made available and 85% suggest that the booking system should be improved while 50% complain on the attitude of the reception staff/medical record officers towards the patient. Although majority of the patients that participated in the study responded that they were satisfied with the services rendered at the department.

## CONCLUSION

It is obvious that the longer the patient waits before being attended to (registration time, booking for an appointment) or after the procedure before his/her diagnostic report were collected affects the overall satisfaction rating towards services rendered. Therefore, maintaining good patient and health personnel relationship with the provision of adequate facilities and given clear and precise instruction to the patient, will also improve the quality of service, and will reduce waiting time in Radiology Department during special investigations to a minimum level.

## RECOMMENDATION

Based on the findings, the following recommendations are of great importance:

1. Reception staff/Record Officers should be increased and retrained on how to maintain good patient relationship through effective communication.
2. Enough entertainment facilities should be made available in the waiting area for example

magazines, newspapers, Air Conditioner, Televisions suitable for different taste and age groups, pictures, toys, music and flowers which help in engaging the interest of the patient while he/she waits.

3. The special radiologic investigation days should also be increased in order to reduce the booking interval and the patient should be given a clear instruction (explanation) prior to the investigation.

4. A better working shift schedule should be made to balance workload among radiology staff. There should be at least two staff assigned to provide information to the patients while others handle new cases.

5. The use of filmless radiology can help to reduce the long time patient spend in the department and improve the departmental through put generally, although the cost of these equipment and the maintenance can be seen as limiting factors.

## REFERENCES

1. Dansky K.H, Miles J.: Patient Satisfaction with Ambulatory Health Care Services; Waiting Time and Filling Time. *Hospital Service Adm*, 1997; 42: 165-177
2. Anderson RT, Weisman CS, Scholle SH, Henderson JT, Oldendick R, Camacho F. Evaluation of the Quality of Care in the Clinical Care Centre of the National Centre of Excellence in Women Health Issues, 2007; 12:287-90
3. Thacker TD. Out Patient waiting time in Jos University Teaching hospital. *Highland research Journal*, 2005; 3(1): 30-42.
4. Pothier DD, frosh A. Do information sheet improved patient satisfaction in out-patient department annals of the Royal College of surgeons of England, 2006; 95: 119-124
5. Afolabi and Erhum, Patient respond to waiting time in an out-patient Pharmacy in Nigeria *Tropical journal of Pharmaceutical research*, 2003; 2(2): 207-210
6. Ofevwe CE. Patient satisfaction assessment of efficiency of services at a teaching hospital in a developing country. *Annals of African medicine*, 2005; 4(4): 150-153.
7. Zollers JS, Lackland DT, Silverstein MD. Predicting Patient intent to return from patient satisfaction scores *J. Ambul Care Manager*, 2001; 24:44-50
8. Kenagy XM Patient attitude towards waiting in outpatient clinic and its applications. *Health Services Management res*, 2009; 7:2-8