International Journal of Community Medicine and Public Health
Acharya A et al. Int J Community Med Public Health. 2023 Aug;10(8):2813-2820
http://www.ijcmph.com
pISSN 2394-6032 | eISSN 2394-6040

DOI: https://dx.doi.org/10.18203/2394-6040.ijcmph20232370

Original Research Article

Association between waiting time, service time and patient satisfaction in the out-patient department of a tertiary care hospital in Maharashtra

Anvesha Acharya*, Varsharani Kendre, Yallapa Jadhav, Muralidhar Tambe

Department of Community Medicine, B. J. Government Medical College and Sassoon General Hospitals, Pune, Maharashtra, India

Received: 13 May 2023
Revised: 03 July 2023
Accepted: 04 July 2023

***Correspondence:**
Anvesha Acharya,
E-mail: anvesha9699@gmail.com

ABSTRACT

Background: Quality patient care is controlled by various factors - degree of fulfilment of patients' needs being one of them. Lesser waiting times, empathetic doctors and availability of medications yield more satisfied patients.
Methods: A descriptive cross-sectional study was carried out among 80 patients attending the OPD of a tertiary care hospital from 9 am to 1 pm, Monday to Saturday from 8th February 2021 to 8th April 2021. Consenting patients were shadowed and observed until they completed their visit. Actual waiting time, consultation time and overall visit duration were calculated. An exit interview was conducted to assess satisfaction with waiting time, infrastructure and doctor-patient interaction.
Results: The mean waiting time in one visit was 59.025±39.497 minutes. The mean consultation time with the doctor was 6.925±7.688 minutes. Statistical analysis showed that patients with lesser waiting time were significantly more satisfied with hospital services (p=0.004). Domains of dissatisfaction were waiting time at the registration desk, outside the OPD, seating arrangement, cleanliness and availability of medications. Doctor-patient interaction and consultation time were rated highly.
Conclusions: The results showed that significant changes are required in the queueing system and hospital infrastructure. The positive response received in case of doctor-patient interaction is a step in the right direction. Regular surveys can help us rectify oversights in the present healthcare system.

Keywords: Hospital services, OPD waiting time, Patient satisfaction

INTRODUCTION

Modern medicine is an aggregation of immensely skilled and knowledgeable practitioners, cutting edge diagnostic techniques, ground breaking infrastructure and excellent management. In India, these changes have come up at whirlwind speed. A patient visits a hospital with certain expectations- a diagnosis, a cure or simply a form of relief from their troubles. These needs are met by a host of healthcare providers- a group of physicians and auxiliary staff whose job is to listen to the patient's complains, examine them and then formulate a diagnostic or treatment plan. Consultation time is when the patient wants to feel heard, understood and taken care of in a compassionate manner. Any reformation that is undertaken in the healthcare industry is carried out keeping the patient's best interests at heart. Achieving universal health care coverage, access to quality, essential healthcare services and access to safe, effective, quality and affordable medicines and vaccines for all is target 3.8 of the Sustainable Development Program.[1] The onus is not on doctors alone. A patient's satisfaction with the care

received is governed by a multitude of factors including but not limited to, waiting time for registration, consultation, hospital infrastructure, cleanliness, long queues at the pharmacy, diagnostic centre etc. For most patients, their first point of interaction with healthcare services is at the out patient department (OPD), where their medical needs are recognized and resolved. The first visit, involving the facilities provided, infrastructure, doctor-patient interaction, forms the basis of follow up care, future visits and patient compliance to treatment. Patient satisfaction has been defined as the degree of congruency between a patient's expectations of ideal care and their perception of the real care that they receive.[2] Patient satisfaction denotes the extent to which general health care needs of the clients are met to their requirements.[3] It is thus an effective indicator of degree of fulfilment of patient's expectations.

Patient satisfaction affects clinical outcomes, patient retention and medical malpractice claims. It affects the timely, efficient and patient centred delivery of quality health care.[4] It helps to develop trust, a rapport between the patient and the healthcare service. It affects follow up visits, adherence to treatment plans and overall level of health in a community. A satisfied patient is easier to care for, more compliant with prescribed treatment and requires less time for the doctor in dealing with them. To evaluate the impact of reformations made in the healthcare system, we need a robust patient feedback system. Regular patient satisfaction surveys with services provided can act as a tool to rectify mistakes and oversights and prevent serious complications in the future. It can assist us to provide quality healthcare as well as assure patient retention and high patient footfall. Keeping OPD services and patient centric care at the heart of this project, we seek to find out patient satisfaction with services provided.

Aim and objectives

The aim of the project is to assess average waiting time at the OPD and patient satisfaction with respect to the time taken and overall care provided. Primary objective was to determine patient satisfaction with respect to the care provided and secondary objectives were; to determine average waiting time at the OPD, To determine association between waiting time and patient satisfaction and To determine association between demographic data and patient satisfaction

METHODS

Study setting

A descriptive cross-sectional study was carried out among patients attending the outpatient department (OPD) of a tertiary care hospital in Maharashtra from 9 am to 1 pm, Monday to Saturday from 8th February 2021 to 8th April 2021. The calculated sample size was 80 and sampling technique used was consecutive sampling method. A pilot study was conducted prior to the main study to assess feasibility of the project.

Patient selection

Only those patients who were above 18 years of age, visiting the hospital for the first time and consented to participating in the study were included. Follow up patients and those suffering from severe mental illness or debilitating diseases were excluded. Patients were approached randomly at the entrance near the registration desk. The project was explained, they were informed that the investigator was not a part of the treatment team and that all personal details of the patient would be kept confidential. Then the patient's consent was taken. They were shadowed and observed from the registration desk until they completed their visit. This included waiting time at the registration desk, waiting time for OPD consultation, consultation time with the doctor, radiological and laboratory investigations prescribed by the doctor and/or waiting time at the pharmacy. For increased reliability of the study, a stopwatch and an information sheet were used to observe and record the total waiting time and service time. Actual waiting time was used instead of perceived waiting time to prevent recall bias.

The outpatient departments that were visited include Medicine, Surgery, Obstetrics and Gynaecology, Ophthalmology, ENT, Orthopaedics, Skin and Venereal Diseases, Psychiatry, Pulmonary Medicine, Cancer OPD and Rabies Vaccine OPD. Tests included X ray, ultrasonography, electrocardiography, Doppler studies, blood test, sputum examination and COVID-19 testing. The service provided at the pharmacy was also under study. This was followed by an exit interview to evaluate patient satisfaction with care provided.

Study tool

Demographic data including age, sex, religion, marital status, education level, income and occupation were taken. The exit interview was conducted using a structured questionnaire consisting of four dichotomous questions, two open ended questions and ten scaling questions on a five-point Likert scale. The questions covered a range of domains- satisfaction regarding waiting time at the registration desk and OPD consultation, hospital cleanliness, infrastructure, experience with doctors, availability of medications and an overall score of the hospital on a scale of 1 to 10. The questions were set in English and were translated into Marathi and Hindi, based on their level of comfort. In the end, patients were asked to give their own suggestions for ways of improving hospital services and quality of care provided.

Study analysis

Data was entered and analysed in Microsoft Excel and Epi Info Version 7.2.5. Descriptive statistics such as percentages and measures of central tendency were applied to the data collected. Confidence interval was taken as 95% and p value less than 0.05 was taken as significant. To study associations in different groups, non parametric tests

were applied. Results are depicted in the form of tables, charts and graphs wherever necessary.

RESULTS

A total of 80 patients who met the inclusion criteria of the project were observed, shadowed and interviewed. Majority of respondents (70%) were males while 30% were females. Most patients i.e., 25 (31.25%) were between the ages of 20 and 30 years followed by 24 (30%) between the ages of 30 and 40 years. Least number of patients were in the age groups below 20 and above 70 years of age, being 1 (1.25%) in each group (Figure 1).

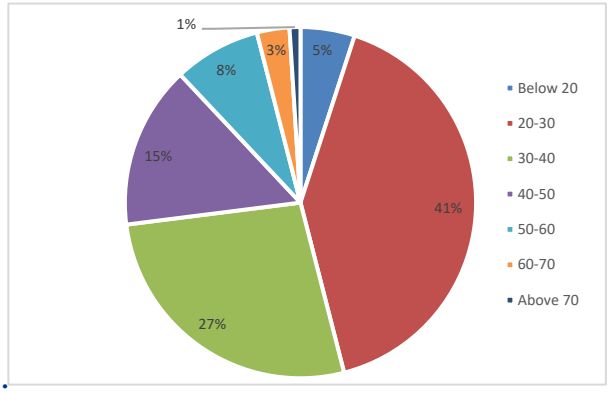

Figure 1: Age wise distribution of patients visiting OPD.

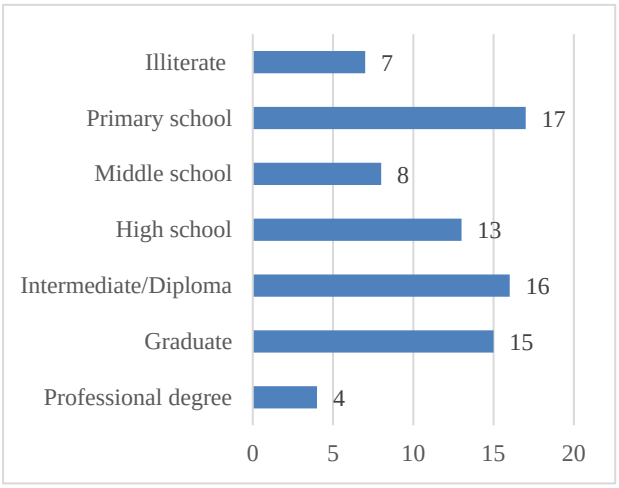

Figure 2: Education level of patients visiting OPD.

17 (21.25%) were educated up to primary school followed by 16 (20%) with an intermediate or diploma degree and 15 (18.75%) with a graduate degree (Figure 2). As shown in (Figure 3), 34 (42.50%) respondents belonged to lower middle class (III) of the Modified Kuppuswamy Scale followed by 31 (38.75%) in upper lower class (IV), 10 (12.5%) in upper middle class (II), 3 (3.75%) in lower class (V) and 2 (2.50%) in upper class (I). 67 (83.75%) respondents had been referred by friends and family whereas 13 (16.25%) were referred from other hospitals.

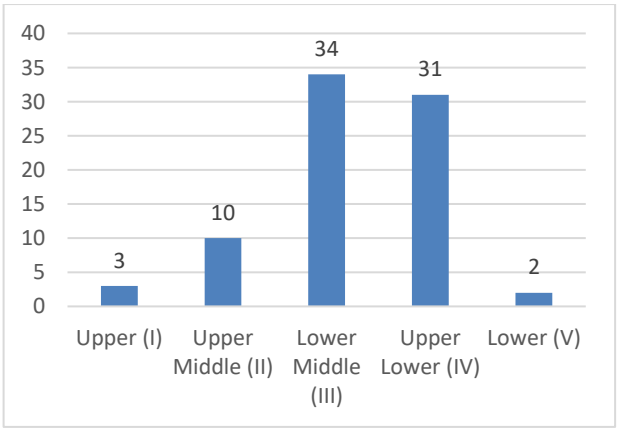

Figure 3: Socio-economic status of patients visiting OPD.

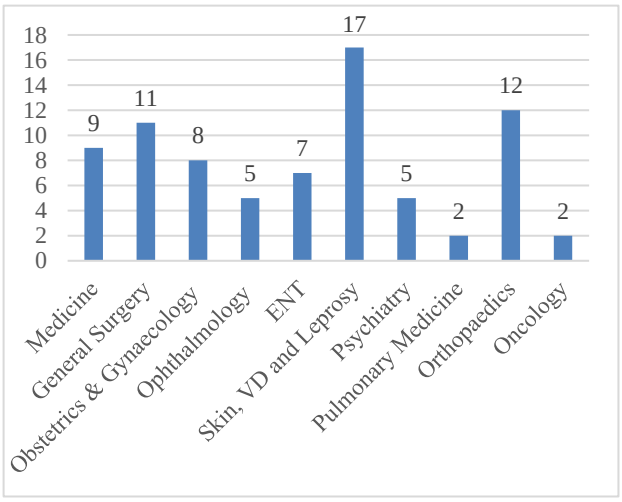

Figure 4: Department wise distribution of patients visiting OPD.

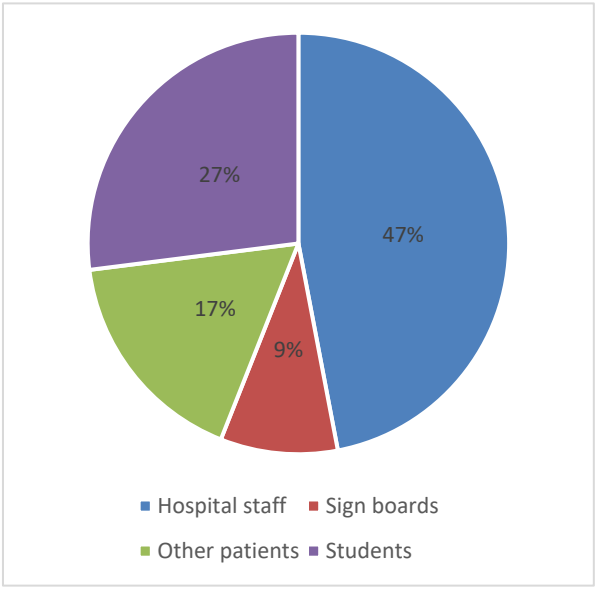

Figure 5: Source of guidance for patients looking for OPD.

Maximum respondents i.e., 17 (21.25%) were visiting the Skin, Leprosy and Venereal Diseases OPD, followed by 12 (15.00%) in the Orthopaedics OPD and 11 (13.75%) in the General Surgery OPD (Figure 4). 42 (52.5%) respondents said that it was easy for them to find their way around the healthcare facility with the aid of hospital staff (73.75%), other patients (26.25%), medical students (42.5%) and sign boards (15%) (Figure 5). On a Likert scale of 1 to 5, 65 (81.25%) respondents rated the cleanliness of the OPD as "excellent". 8 (47.06%) out of the 17 who used the bathroom facilities rated it as "very poor". 40 (50%) respondents rated hospital infrastructure as "good".

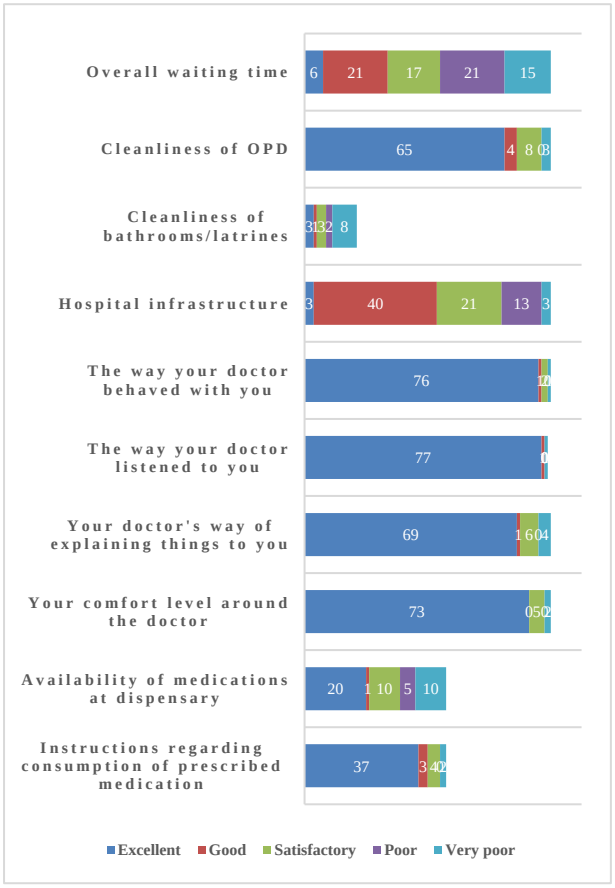

Figure 6: Five-point Likert scale questions with responses.

The key area of patient satisfaction was their experience with the doctor. When it comes to treating their patients with respect and courtesy, 76 (95%) respondents rated their doctor's behaviour as "excellent". 77 (96.25%) respondents said that the way the doctor gave them time and listened to their complaints could be rated as "excellent". 69 (86.25%) respondents rated the doctor's way of explaining their condition and treatment plan to them as "excellent". 73 (91.25%) respondents rated their comfort level around the doctor as "excellent". 37 (80.44%) patients rated the doctor's explanation of how to consume their prescribed medication as "excellent". Of the 46 patients who visited the pharmacy, 20 (43.48%) rated the availability of medication as "excellent". A summary of Likert scale responses (Figure 6). 74 (92.50%) respondents agreed that their doctor gave them enough time to listen to their complains, examine and explain their condition to them. All 80 (100%) respondents agreed that their doctor would keep their details confidential.

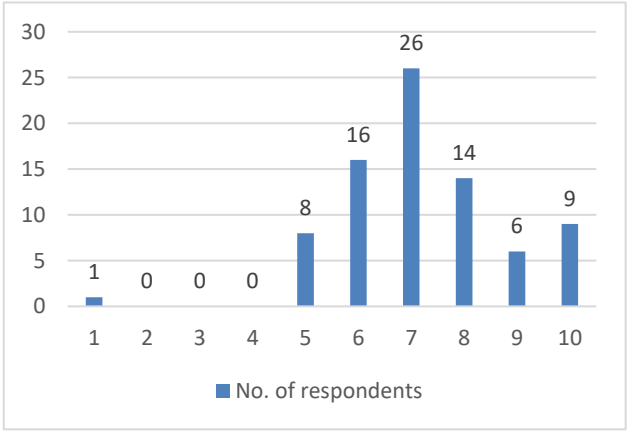

Figure 7: Rating the hospital on a scale of 1 to 10.

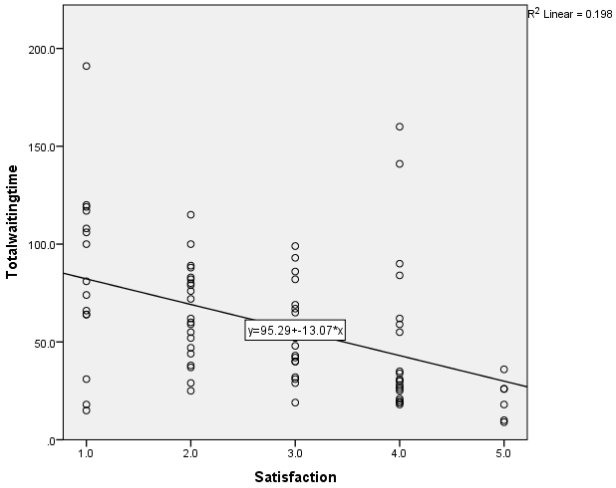

Figure 8: Correlation between total waiting time and patient satisfaction.

The mean waiting time in one visit for a patient was 59.025±39.497 minutes, ranging from a minimum of 9 minutes to a maximum of 191 minutes. Of this, the mean waiting time for OPD registration was 23.713±18.383 minutes, mean waiting time outside the OPD was 13.550±15.155 minutes and mean consultation time was 6.925±7.688 minutes. For those who were prescribed radiological and laboratory investigations, the mean waiting time at the cash counter was 11.15±8.425 minutes. The mean waiting time for a test in the department of radiology was 43.810±29.674 minutes, for an electrocardiogram was 23.667±6.658 minutes, for a blood test was 7.667±7.633 minutes, for a COVID test was 33±18 minutes, a brainstem-evoked response audiometry (BERA) test was 124±0 minutes, endoscopy procedure was 53±0 minutes and histopathology was 6±0 minutes.

Overall, for a diagnostic test, the mean waiting time was 34.405±30.226 minutes. For those who were prescribed medications, the mean waiting time at the pharmacy was 3.390±3.820 minutes, the minimum being 1 minute and maximum waiting time being 17 minutes. The waiting time findings have been summarized in Table 1. The overall waiting time was rated as "good" by 21 (26.25%) respondents and as "poor" by 21 (26.25%) respondents, followed by 17 (21.25%) who rated it "satisfactory", 15 (18.75%) who rated it "very poor" and only 6 (7.5%) who rated it as "excellent". When asked to rate the hospital on a scale of 1 to 10 (1 being worst possible hospital and 10 being best possible hospital), 26 (32.5%) respondents gave it a score of 7, followed by 16 (20%) respondents who scored it 6 and 14 (17.25%) who scored it 8, as shown in (Figure 7). 71 (88.75%) respondents said that they would definitely recommend this hospital to friends and family.

To understand patient satisfaction with waiting time, we applied Chi square test to the given data. P value was observed to be 0.004. Therefore, patients with less waiting time were significantly more satisfied, as shown in Table 2. Pearson coefficient is - 0.445 at p value 0.01. It shows that there is a strong negative correlation between total waiting time and patient satisfaction on Likert scale (Figure 8).

To understand patient satisfaction with respect to demographic data such as age, gender, level of education, socioeconomic status and occupation, we applied non parametric tests. Mann - Whitney U test was used to compare means of two different groups and Kruskal Wallis test to compare means of more than two groups. No significant association was found (Table 3).

Table 1: Waiting time and its components.

Time (minutes)	Mean	SD	Minimum	Maximum
Wait at registration desk	23.7125	18.38284406	3	114
Wait outside OPD	13.55	15.15481	<1	71
Wait at pharmacy	3.390243902	3.820196649	1	17
Wait at radiology department	43.80952381	29.67426334	5	113
Wait for ECG	23.66666667	6.658328118	16	28
Wait for blood test	7.666666667	7.633260553	3	23
Wait at cash counter	11.15	8.424744257	1	37
Wait for COVID test	33	18	15	51
Total waiting time	59.025	36.49656651	9	191
Total time spent with doctor	6.925	7.688187553	1	55

Table 2: Association between waiting time and patient satisfaction.

Time taken (minutes)	Satisfied	Unsatisfied	Total
≤30	18	4	22
30-60	14	9	23
60-90	8	14	22
≥90	4	9	13

χ^2=12.88, df=3, p value=0.004.

Table 3: Associations between socio-demographic factors and patient satisfaction.

Variables	N(%)	Mean	SD	P value
Age group (in years)				
Below 20	1 (1.25)	3.57	0	0.180
20-30	25 (31.25)	4.1708	0.560698	
30-40	24 (30.00)	4.3808	0.3634008	
40-50	18 (22.50)	4.3872	0.337739987	
50-60	8 (10.00)	4.0363	0.464571	
60-70	3 (3.75)	4.2867	0.1450287	
Above 70	1 (1.25)	4.14	0	
Gender				
Female	24 (30.00)	4.1013	0.527094	0.283
Male	56 (70.00)	4.3359	0.392913	
Level of education				
Illiterate	7 (8.75)	4.1629	0.292102	0.890
Primary School	17 (21.25)	4.2176	0.387903	
Middle School	8 (10.00)	4.3563	0.443458	

Continued.

Variables	N(%)	Mean	SD	P value
High School	13 (16.25)	4.2754	0.433774	
Intermediate/Diploma	16 (20.00)	4.1956	0.691606	
Graduate	15 (18.75)	4.3327	0.318309	
Postgraduate	4 (5.00)	4.4625	0.243498	
Occupation				
Unemployed	3 (3.75)	4.19	0.219317	
Unskilled worker	16 (20.00)	4.2413	0.270083	
Skilled worker	4 (5.00)	4.605	0.134039	
Semi-skilled worker	15 (18.75)	4.2653	0.40944	0.115
Clerical/Shop/Farm	32 (40.00)	4.2188	0.582916	
Semi professional	5 (6.25)	4.17	0.369932	
Professional	5 (6.25)	4.512	0.238159	
Socioeconomic status				
Upper class (I)	2 (2.50)	4.71	0	
Upper middle class (II)	10 (12.50)	4.428	0.302537	
Lower middle class (III)	34 (42.50)	4.1635	0.555282	0.267
Upper lower class (IV)	31 (38.75)	4.3035	0.348143	
Lower class (V)	3 (3.75)	4.19	0.219317	

DISCUSSION

The present study aimed to assess waiting time and patient satisfaction with healthcare services provided at a tertiary healthcare centre in Maharashtra. 70% respondents were males, which can be compared with 61% male respondents of a study conducted by Jain et al.[2] The OPD was mostly visited by patients between the ages of 20 to 30 years, the mean age being 37.5±6.32 years, similar to the study samples of Jain et al (40±17.87 years) and Patel et al (30.31±15.65 years).[2,5] In this study, 17 (21.25%) were educated up to primary school followed by 16 (20%) with an intermediate or diploma degree and 15 (18.75%) with a graduate degree, similar to Sharma et al (26 primary school pass, 22 graduate pass) and Patel et al (40.74% have primary education, 20.47% have secondary).[3,6]

In this study, 42 (52.5%) respondents said that it was easy for them to find their way around the healthcare facility with the aid of a combination of hospital staff (73.75%), other patients (26.25%), medical students (42.5%) and sign boards (15%). Similar findings were reported by Sharma et al (72%) but there was a high degree of satisfaction with sign boards (64%).[3] In case of Patel et al, 49.98% found the hospital staff most helpful, followed by 35.56% being satisfied with signboards and 11.11% with medical students.[6] Nilakantam et al reported 92% satisfaction with hospital staff and sign boards.[6] 65 (81.25%) respondents rated the cleanliness of the OPD as "excellent", which is comparable with Sharma et al (70%), Nilakantam et al (91%) and Joshi et al (78%).[3,6,7] 8 (47.06%) out of the 17 who used the bathroom facilities rated it as "very poor". Dissatisfaction is high even in the study conducted by Sharma et al (68%) but not with studies by Verma et al (82% satisfied) and Joshi et al (70% satisfied).[3,7,8] 40 (50%) respondents rated hospital infrastructure (including seating arrangement, lighting arrangement, drinking water facility) as "good", 21 (26.25%) rated satisfactory and 3 (3.75%) as excellent. This is comparable with 82% satisfaction by Sharma et al, 83% satisfaction seen in a study by Verma et al, 78% by Joshi et al and 73.9% by Padhiar et al.[3,5,8,9] The primary area of patient satisfaction in this study was experience with the doctor. This can be compared with findings by Sharma et al and Joshi et al.[3,8] When it comes to treating their patients with respect and courtesy, 76 (95%) respondents rated their doctor's behaviour as "excellent".

Similar findings were reported by Nilakantam et al (98.5%) and Padhiar et al (88.6%).[7,9] 77 (96.25%) respondents said that the way the doctor gave them time and listened to their complaints could be rated as "excellent". This is almost equal to findings by Nilakantam et al (97%) and higher than that of Joshi et al (70%).[7,8] 69 (86.25%) respondents rated the doctor's way of explaining their condition and treatment plan to them as "excellent". This is higher than that by Verma et al (59%) but a little lower than satisfaction seen by Nilakantam et al (97%).[5,7] 73 (91.25%) respondents rated their comfort level around the doctor as "excellent". 37 (80.44%) patients rated the doctor's explanation of how to consume their prescribed medication as "excellent". This finding is higher than that by Verma et al (65%) but lower than that of Nilakantam et al (98.5%).[5,7] All 80 (100%) respondents agreed that their doctor would keep their details confidential. This is comparable with findings of Padhiar et al (93.2%).[9]

In our study, for the 46 patients who were prescribed medications, the mean waiting time at the pharmacy was 3.390 ± 3.820 minutes, the minimum being 1 minute and maximum waiting time being 17 minutes. This can be compared with the results of a study by Dharmasivam et al, where average waiting time to collect medication was 11 minutes, ranging from 3 to 30 minutes.[10] The time taken was rated satisfactory by 52% patients in a study by Sharma et al [3] and 58% by Joshi et al.[8] 20 (43.48%) rated

the availability of medication at the pharmacy as "excellent", 1 (2.17%) rating it as "good" and 10 (21.74%) rating it "satisfactory", a finding lesser than Nilakantam et al (84%) but consistent with that of Dharmasivam et al (64.4%).[7,10] In studies by Jain et al and Joshi et al, satisfaction with pharmacy services was rated the lowest.[2,8]

The mean waiting time in one visit for a patient was 59.025±39.497 minutes, ranging from a minimum of 9 minutes to a maximum of 191 minutes. Of this, the mean waiting time for OPD registration was 23.713±18.383 minutes and mean waiting time outside the OPD was 13.550±15.155 minutes. This is longer than findings by Patel et al (12.16±2.35).[6] It is comparable with Verma et al average waiting time of 45 minutes and Padhiar et al i.e., <30 min, with 64.7% satisfied respondents.[5,9] In this study, 74 (92.50%) respondents agreed that the mean consultation time of 6.925±7.688 minutes with the doctor was satisfactory. This is much higher than Verma et al (56%) but comparable with the findings of Nilakantam et al (89.7%) and Joshi et al (82%).[5-8] The overall waiting time was rated as "good" by 21 (26.25%) respondents and as "poor" by 21 (26.25%) respondents, followed by 17 (21.25%) who rated it "satisfactory", 15 (18.75%) who rated it "very poor" and only 6 (7.5%) who rated it as "excellent". In total, 44 (52%) respondents were satisfied with the overall waiting time at the hospital. This can be compared with findings by Joshi et al (52% satisfied).[8] In our study, 71 (88.75%) respondents said that they would definitely recommend this hospital to their friends and family. Similar findings were reported by Sharma et al (94%), Nilakantam et al (95.5%) and Padhiar et al (90.9%).[3,7,9] The main domains of dissatisfaction were overall waiting time at the registration desk and outside the OPD, cleanliness of washrooms/latrines and availability of medications at the dispensary, indicating that the hospital infrastructure needs a lot of improvement. The main domain of satisfaction was the experience with the doctor. Most patients felt that their doctor was courteous, respectful, gave them enough time to listen to their problem and explain their treatment protocol to them. Majority patients were satisfied and agreed to recommend the hospital to friends and family.

Limitations

The limitation of the study is that it does not explicitly state the OPD waiting time in every department, separately. Thus, any interventions in the future based on the study, will be in general and not individualized to the needs of a specific department.

CONCLUSION

The mean waiting time in an entire visit was 59.025±39.497 minutes. The mean consultation time with the doctor was 6.925±7.688 minutes. Statistical analysis of this data showed that patients with lesser waiting time were significantly more satisfied with hospital services. No association between waiting time satisfaction and demographic data was found. The main domains of dissatisfaction were overall waiting time at the registration desk and outside the OPD, seating arrangement, cleanliness of washrooms/latrines and availability of medications at the dispensary. Doctor-patient interaction, on the other hand, received a higher score on the Likert scale by majority of respondents. They felt that the doctor was respectful, compassionate, caring and empathetic. Patient satisfaction surveys can act as a proxy to understand and improve the quality of a healthcare facility, while also providing a feedback system for patients. In the future, it should be undertaken at regular intervals so as to determine flaws that can be worked upon and developed in the everchanging landscape of the healthcare industry.

Recommendations

At the end of the interview, patients were asked to give their suggestions to improve hospital services. The most common suggestion was to increase social distancing at the registration desk and waiting areas. This came after the first wave of COVID-19, with most patients saying that crowding at the OPD made them feel unsafe and deterred them from visiting the hospital. Other suggestions included more registration counters along with better management of long queues, bigger and organized seating areas, improved infrastructure for wheelchair accessibility, cleaned and renovated bathrooms, increased privacy in OPD clinic rooms and more courteous auxiliary staff. Based on study findings, we would like to suggest a strategically well-placed information desk along with designated helpers to guide around the facility. Pictorial sign boards can be used for those unable to read the local language. Continuous supply of potable drinking water is required, especially in the Department of Radiology, prior to certain investigation procedures. Patient satisfaction surveys should be carried out periodically and along similar lines for tertiary care hospitals as stated in the IPHS guidelines for district hospitals.[11]

Funding: The project was funded under ICMR STS (Short Term Studentship) 2020 Project
Conflict of interest: None declared
Ethical approval: The study was approved by the Institutional Ethics Committee

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Cite this article as: Acharya A, Kendre V, Jadhav Y, Tambe M. Association between waiting time, service time and patient satisfaction in the out-patient department of a tertiary care hospital in Maharashtra. Int J Community Med Public Health 2023;10:2813-20.