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Original Research Article

A time and motion study in outdoor patient department of rural health training centre of tertiary medical college in Konkan region, India

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ABSTRACT

Background: Purpose of time motion study is to know the time taken in different service delivery points in outpatient department (OPD), for specific activity, work function or mechanical process and to assess the perception of beneficiaries regarding the total time spent in the OPD. Therefore, the present study was conducted to study the operational efficiency and also to find the time required for various activities at different service points at rural health training centre attached to medical college.
Methods: It was a cross-sectional study carried out in rural health training centre attached to BKL Walawalkar rural medical college, Sawarde), district Ratnagiri, Maharashtra, India over period of 6 month from July 2018 to December 2018. About 300 patients were included in the study.
Results: According to 26.67% study participants, total time was too long. 26% study participants were not satisfied about the total time taken in the OPD while 50.34% study participants were satisfied regarding the total time.
Conclusions: Patients satisfaction is the most important criterion to be met if more people are to be drawn into the hospital. Thus, improving the satisfaction of patients towards health care services by reducing their waiting time, by attending the patient in time will help to create a positive image of hospital in the mind of people and community.

Keywords: Time motion study, Rural hospital, OPD

INTRODUCTION

Time and motion study are a business efficiency technique. Time motion studies involve the collection of data regarding the amount of time necessary to perform a specific movement or task. Ultimately, these studies are performed in order to improve efficiency in a specific workplace, and, as in a hospital, these studies could be useful as a means of producing more efficient workplace involvement between hospital workers and their patients.[1] Recently many hospitals all around the world have begun to using time motion studies to improve their working and efficiency.[2]

Purpose of time motion study is to know the time taken in different service delivery points in outpatient department (OPD), for specific activity, work function or mechanical process and to assess the perception of beneficiaries regarding the total time spent in the OPD. Time-motion study may be used for two purposes:(1) To assist in finding the most efficient method of doing work; and (2) To assist in training individuals to understand the meaning of time-motion importance, and when the training is carried out with sufficient thoroughness, to enable them to become proficient in applying time-motion principles.[3]

Different types of patients attend OPD that need to be properly managed for patient care and satisfaction. OPD is considered as the window to hospital services and a patient's impression of the hospital begins at the OPD. This impression often influences the patient's sensitivity

to the hospital and therefore it is essential to ensure that OPD services provide an excellent experience for patients. OPD congestion is one of the most difficult problems of management. Huge number of patients in the hospitals with limited manpower creates chaos as well as the chance of mismanagement. Hospitals thus require a systematic study of its service for its efficient management and function. Therefore, the present study was conducted to study the operational efficiency and also to find the time required for various activities at different service points at rural health training centre attached to medical college.

METHODS

It was a cross-sectional study carried out in rural health training centre attached to BKL Walawalkar rural medical college, Sawarde), district Ratnagiri, Maharashtra, India over period of 6 month from July 2018 to December 2018. The study participants included patients above18 years of age, not seriously ill and those who has given consent. The registration records present at the hospital for the last one year was reviewed and the average daily registration including both the old and new cases were found to be 80 in number. Pretesting shows that 10 proforma can be filled up every day. Every 8th patient was included in study. It was decided to collect data for five days in a week for two months which yields 30 working days. Therefore, expected sample size was 300.

Ethical committee clearance was taken. Informed consent was taken from patient before inclusion in study. Predesigned and pretested schedules were used to record time and other information, and pre-synchronized stopwatches were used to record total activity time (which included waiting time + service time). Patients were requested to come to the entrance table after the completion of all the procedures Time was recorded at the entrance (Table 0), After completion of registration (Table 1), After completion of medical check-up (Table 2), After completion of taking medicine slip (Table 3), After completion of taking medicine (Table 4), After completion of any laboratory test (Table 5).

Data was entered in the Microsoft excel sheet and analysed using the software EPI-Info version 2.3.

RESULTS

Out of 300 study subjects, 198 came for the first time to OPD while 102 were old cases. Each study participant on an average had spent 3412.10±114.2589 seconds in OPD. Table 1 shows the service delivery time at different activity points. Mean time taken for registration was 683.88±25.7113 seconds. Medical check-up took the 29.37% of total time while mean was 1002.12±33.2281. For taking medicine slip mean time required was 677.48±11.7161. Pharmacy counter took 675.52±14.2601 seconds (Table 1).

Table 1: Service delivery time at different tables.

Table	Mean	SD	% of total activity time
0 to 1	683.88	25.7113	20.04
1 to 2	1002.12	33.2281	29.37
2 to 3	677.48	11.7161	19.86
3 to 4	675.52	14.2601	19.80
3 to 5	373.10	61.2159	10.93
Exit time (Total)	3412.10	114.2589	100

Table 2: Service delivery time at different table in relation to old and new cases.

Table	Registration	Mean	SD
0 to 1	New	688.697	26.7515
	Old	674.529	20.6732
1 to 2	New	1013.424	34.5662
	Old	980.176	14.1879
2 to 3	New	683.061	8.7640
	Old	666.647	8.7740
3 to 4	New	677.152	16.3380
	Old	672.353	8.1273
4 to 5	New	394.848	54.5500
	Old	330.882	50.6202
Entrance to exit	New	3457.182	108.9687
	Old	3324.588	61.3947

Table 2 shows the service delivery time in relation to old and new cases. It was found that new cases took more time than old cases at all the tables (Table 2).

Table 3: Service delivery time at different table in relation to day of visit.

Table	Monday	Tuesday	Wednesday	Thursday	Friday
0 to 1	722.10 (24.3009)	686.6 (7.6429)	674.5 (7.7098)	665.8 (16.0959)	670.4 (16.8213)
1 to 2	1050.40 (42.1841)	990.5 (10.7317)	982.8 (18.5169)	993.2 (12.1917)	993.7 (12.9932)
2 to 3	687.30 (11.7001)	673 (6.9867)	676.3 (5.9155)	673.5 (8.2452)	677.3 (16.4598)
3 to 4	698.10 (14.4418)	668.3 (5.2989)	667.5 (8.9774)	668.8 (2.3779)	674.9 (4.9496)
4 to 5	408.10 (69.6516)	346.80 (66.6696)	388.10 (15.1162)	350.70 (68.7221)	371.80 (45.3165)
Entrance to exit	3566 (127.9581)	3365.2 (79.2274)	3389.2 (28.4973)	3352 (78.6233)	3388.1 (73.4895)

Table 4: Distribution of study population according to perception regarding the total time taken in the OPD and level of satisfaction (n=300).

Response	Number	Percentage of total	Level of satisfaction (number with percentages with respect to the responses)			
			Not satisfied	Avg. satisfied	Satisfied	Don't know
			N (%)	N (%)	N (%)	N (%)
Too long	80	26.67	60 (75)	8 (10)	2 (2.5)	10 (12.5)
As per need	140	46.67	6 (4.29)	20 (14.29)	100 (71.42)	14 (10)
Too short	50	16.66	0 (0.00)	6 (12)	44 (88)	0 (0.00)
Can't say	30	10	12 (40)	5 (16.67)	5 (16.67)	8 (26.66)
Total	300	100	78 (26)	39 (13)	151 (50.34)	32 (10.66)

Table 3 presents the service delivery time in relation to the day of visit. Medical check-up took maximum time on each day and maximum time required for medical check-up was on Monday (Table 3).

Table 4 shows distribution of study population according to perception regarding the total time taken in the OPD and level of satisfaction. According to 26.67% study participants, total time was too long. 26% study participants were not satisfied about the total time taken in the OPD while 50.34% study participants were satisfied regarding the total time (Table 4).

DISCUSSION

Time motion studies were first described in the early 20th century in industrial engineering, referring to a quantitative data collection method where an external observer captured detailed data on the duration and movements required to accomplish a specific task, coupled with an analysis focused on improving efficiency. Since then, they have been broadly adopted by biomedical researchers and have become a focus of attention due to the current interest in clinical workflow related factors.[4]

The outpatient department is the first contact between the health care facility and the community. The problems of OPDs of developing countries are long waiting times, long queues, inefficient staffs, absence of staffs etc. Such problems are more severe in rural areas due to lack of infrastructure. Very few time motion studies have been carried out in any other OPD of rural hospital. Most of the time motion studies have been carried out in relation to immunization clinic, surgical interventions, nursing activity monitoring. Mean time was maximum in table 2(1002.12±33.2281) as compared to another patient probably due to fact that doctor has to take history of the patient and then examine the patient and also counsel the patient. Mean time in table 2 was higher in new cases (1013.424±34.5662 than that of old cases (980.176±14.1879) because examination and history taking of new patient require more time.

Rahim et al in their study found that each patient spent on an average 66.64 minutes to avail OPD services.[5] This finding is similar to the present study (56.86 minutes). Whereas Aswar et al found that average time spent by each patient was 75.5 minutes and Umar et al found it as 85 minutes which was higher than present study.[6,7]

According to standard operating procedures of OPD for district level hospitals waiting time for collection of OPD ticket is one minute, waiting time of 2-3 minutes for dispensing medicine and time for lab investigation is 10 minutes.[8] In comparison to these standards waiting time, the findings of this study showed that it is rather longer.

In present study it was found that new case took more time as compared to old patients at all table. Also, it was found that more time was required on Mondays at all tables. The finding is similar to study by Manna et al.[9] Mean time taken on Monday at all table was more as compared to other days probably due to more patient load on Monday because on Sunday OPD is closed. Despite of some identified problems like rush of patients in Monday in comparison to other days, they may have some relations to other factors like efficiency of the involved staffs on that day or number of staffs present on the particular day of study. However, these factors need to be studied further.

Umar et al also showed that, the number of patients who expressed satisfaction with the services in the OPDs were 45% which is similar to present study (50.34%).[7] In Nandkeshav et al study total satisfaction of patients with OPD services was 65.3%.[6] The study conducted by Chetwynd reported total satisfaction was 49%.[10] Kumari et al in their study total satisfaction was 73%.[11] Bilkish et al showed 50.89% are satisfied.[12]

The study represents one of the very few time and motion studies carried out in OPD of rural hospital in developing countries, and as such, provides a useful baseline for future. Identifying bottlenecks and constraints in the system is very essential as we can analyse them and we can try to overcome them by suggesting simple solutions to improve the quality and efficiency of OPD services.

Study also has few limitations like result of study cannot be generalized as data was collected from single rural

health training centre of tertiary care hospital. Much more in depth research work on a wider scale is required.

CONCLUSION

Management of time in hospitals is the need of hour and it should be recognized and necessary steps should be taken. One cannot manage the time; one can only manage how he/she can use it in smart, healthy and most rewarding way. This study shows that patients are not satisfied with long waiting time. Patients satisfaction is the most important criterion to be met if more people are to be drawn into the hospital. This study should therefore be replicated in other hospitals in India in order to inform hospital administrators more on the usefulness of the application of time motion study and as a tool for improved decision making. Thus, improving the satisfaction of patients towards health care services by reducing their waiting time, by attending the patient in time will help to create a positive image of hospital in the mind of people and community.

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REFERENCES

1. Abotsi AK. A time and motion study of the time burden on health workers administering expanded programme of immunization and intermittent preventive treatment for infants in the Upper East Region of Ghana. Afr J Interdisciplinary Studies. 2011;4(2):37–43.
2. Saint S, Howell JD, Krein SL. Implementation science: how to jump-start infection prevention. Infection Control Hospital Epidemiol. 2010;31(1):S14–S17.
3. Barnes RM. Motion and Time study. 2nd ed. New York: John Wiley & Sons Inc; 1940.
4. Lopetegui M, Yen PY, Lai A, Jeffries J, Embi P, Payne P. Time motion studies in healthcare: what are we talking about? J Biomed Informatics. 2014;49:292–9.
5. Rahim E, Rahman M, Talukdar AM, Anwar KS. Waiting Time of the Patients at Medical College OPD of Dhaka Medical College Hospital. J Med Sci Res. 2007;08:16-20.
6. Aswar NR, Kale KM, Rewatkar MP. Patients' waiting time and their satisfaction of health care services provided at outpatient department of Government Medical College, Nanded (Maharashtra, India). Int J Health Sci Res. 2014;4(4):21-27.
7. Oche UIMO, Umar AS. Patient waiting time in a tertiary health institution in Northern Nigeria. J Public Health Epidemiol. 2011;3(2):78-82.
8. Director General of Health Service. Standards for district hospitals. Development of health care quality assurance project. 1997: 9-15.
9. Manna N, Samsuzzaman M, Das S. IOSR J Dent Med Sci. 2014;13(7):34-37.
10. Chetwynd SJ. Satisfaction and dissatisfaction with the public and private hospitals. New Zealand Medical J. 1988;101(853):563-9.
11. Kumari R, Idris MZ, Bhushan V, Khanna A. Agarwal M, Singh SK. Study on patient satisfaction in the Government allopathic health facilities of Lucknow district, India. Indian J Community Med. 2009;34(1):35-42.
12. Bilkish NP, Sangita SC, Prakash A, Manjunath KS. A cross sectional study of patient's satisfaction towards services received at tertiary care hospital on OPD basis. National J Community Med. 2012;3:232-7.

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