

Time Motion Study of The Ground Duty Assistants in Fortis Escorts Hospital, Jaipur

By

Abhishek Sen

*Dissertation submitted in partial fulfillment of the requirements of the degree
MBA Hospital and Health Management*

Academic year, 2018-2020



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This is to certify that the dissertation titled “**Time Motion Study of The Ground Duty Assistants in Fortis Escorts Hospital, Jaipur**” and submitted by **Abhishek Sen** enrollment no. **IIHMR-U/01/2018-20/0703** under the supervision of **Dr. Monika Chaudhary** for award of MBA in hospital and health management of the university carried out during the period from 2018 to 2020 embodies my original work and has not formed the basis of the award of any degree, diploma associate ship, fellowships, tittles in this or any other institute or other similar institution of higher learning.

Signature

ABSTRACT

Background

Time and motion study have been carried out in healthcare organizations as a tracking study for healthcare professionals in order to check the efficiency of working individuals.

This study demonstrates the time carried out for each activity performed involving an estimate of ideal time one happens to spend at work.

Time and motion, two techniques combined where time study developed in the direction of establishing standard times, while motion study evolved into a technique for improving work methods. When combined the study applies to the improvement and upgrading of work systems.

Methodology

A time motion study was performed on the GDAs in the main lobby and OPD 1 & 2 of Fortis escorts hospital Jaipur. The study was conducted over a period of 13 days on different GDAs.

- Research Question behind the study was How does a GDA peddle between Work related and Non-work-related activities in a day in Fortis hospital, Jaipur?

The study was an *Observational Cross-Sectional Study* with a sample size of 13. After a systematic literature review a tool was prepared to track the time and motion of the GDAs in order to accomplish the following objectives:

1. To find the mean daily consumption of GDAs in main lobby and in OPD1 & OPD 2.
2. To compare the time consumed in the work related and non-work-related activities by the GDAs.
3. To find the mean daily idle time of GDAs.
4. To find the time consumed by GDAs in lunch.

Results

- ✓ The mean idle time of the GDAs is 148 minutes and 20 seconds.

Mean idle time of GDAs in main lobby	134 minutes and 10 seconds
Mean idle time of GDAs in OPDs	181 minutes and 54 seconds

- ✓ The mean lunch time of GDAs is 33 minutes and 45 seconds.

Mean lunch time of GDAs in main lobby	34 minutes and 34 seconds
Mean lunch time of GDAs in OPDs	32 minutes and 36 seconds

- ✓ The mean time consumed for the Work-Related Activities by the GDAs is **150 minutes and 54 seconds**.
- ✓ The mean time consumed for the Non-Work-Related activities by the GDAs in **221 minutes and 20 seconds**.

Conclusion

The time consumed in Non-Work-Related activities has been observed to be more by the GDAs' in OPD as compared to the GDAs in the main lobby. 34% of the mean daily time consumption of the GDAs is observed to be idle and Lunch consumes 7% of their mean daily time consumption. Thus, it was observed that the mean idle time is more than the time consumed for lunch by the GDAs.

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Table 2 – Tool used for the study and table showing the mean time consumption of GDAs in different activities which they perform.

ABBREVIATIONS

GDA – Ground Duty Assistant.

OPD – Out - Patient Department.

INTRODUCTION

A time and motion study are a business efficiency technique combining the Time Study work of Frederick Winslow Taylor with the Motion Study work of Frank and Lillian Gilbreth.

Time and motion study have been carried out in healthcare organizations as a tracking study for healthcare professionals in order to check the efficiency of working individuals. This study demonstrates the time carried out for each activity performed involving an estimate of ideal time one happens to spend at work. Time and motion, two techniques combined where time study developed in the direction of establishing standard times, while motion study evolved into a technique for improving work methods. When combined the study applies to the improvement and upgrading of work systems.

There are different methods to collect data for time motion study. Some of them are as follows

External observer: Someone visually follows the person being observed, either contemporaneously or via video recording. This method presents additional expense as it usually requires a 1 to 1 ratio of research time to subject time. An advantage is the data can be more consistent, complete, and accurate than with self-reporting.

Self-reporting: Self-reported studies require the target to record time and activity data. This can be done contemporaneously by having subjects stop and start a timer when completing a task, through work sampling where the subject records what they are doing at determined or random intervals, or by having the subject journal activities at the end of the day. Self-reporting introduces errors that may not be present through other methods, including errors in temporal perception and memory, as well as the motivation to manipulate the data.

Automation: Motion can be tracked with GPS. Documentation activities can be tracked through monitoring software embedded in the applications used to create documentation. Badge scans can also create a log of activity.

RESEARCH QUESTION

- How does a GDA peddle between Work related and Non-work-related activities in a day in Fortis hospital, Jaipur?

OBJECTIVES

5. To find the mean daily consumption of GDAs in main lobby and in OPD1 & OPD 2.
6. To compare the time consumed in the work related and non-work-related activities by the GDAs.
7. To find the mean daily idle time of GDAs.
8. To find the time consumed by GDAs in lunch.

RESEARCH METHODOLOGY

1. **Study design** – Observational cross-sectional study.

Time motion study are usually observational as the collected data is based on the observation done on the sample, and the data is of a particular time frame thus is a cross-sectional study.

2. **Study population** – GDAs of Fortis Escorts hospital, Jaipur
3. **Sample Size** – 13 GDAs.
4. **Study tool** – After conducting literature review a tool was developed specifically for the study (Table 2).
5. **Duration of study** – 13 days.

LITERATURE REVIEW

1) Where did the day go? A time-motion study of hospitalists

Matthew D. Tipping MA Victoria E. Forth MA Kevin J. O'Leary MD, MS David M. Malkenson BS David B. Magill BS Kate Englert BS Mark V. Williams MD, FHM

Hospitalists spent 17% of their time on direct patient contact, and 64% on indirect patient care. For 16% of all time recorded, more than one activity was occurring simultaneously (i.e., multitasking). Professional development, personal time, and travel each accounted for about 6% of their time. Communication and electronic medical record (EMR) use, two components of indirect care, occupied 25% and 34% of recorded time respectively. Hospitalists with above mean patient loads spent less time per patient communicating with others and working with the EMR than those hospitalists with below mean patient loads but reported delaying documentation until later in the evening or next day. Patient load did not change the amount of time hospitalists spent with each patient.

Hospitalists spend more time reviewing the EMR and documenting in it, than directly with the patient. Multi-tasking occurred frequently and occupied a significant portion of each shift.

2) A time motion study in the OPD clinic of a rural hospital of West Bengal

Dr Nirmalya Manna, Dr Md Samsuzzaman, Dr Saikat Das

Department of Community Medicine, Medical College Kolkata

Mean time taken is maximum (44 min) for both pathological & radiological investigations. Mean total time (entrance to exit) is maximum (106 min) for those required any laboratory investigations. Mean times in table – 1 were lower (17.19 min) in old or follow up cases than that of new cases (20.50 min). Total mean time was higher in new cases (79.68 min). In Monday, mean time was greater in all tables including mean total time between entrances to exit.

3) A 36-Hospital Time and Motion Study: How Do Medical-Surgical Nurses Spend Their Time?

Ann Hendrich, RN, MSN, FAAN, Marilyn P Chow, DNSc, RN, FAAN, Boguslaw A Skierczynski, PhD, and Zhenqiang Lu, PhD

A total of 767 nurses participated. More than three-quarters of all reported time was devoted to nursing practice. Three subcategories accounted for most of nursing practice time: documentation (35.3%; 147.5 minutes), medication administration (17.2%; 72 minutes), and care coordination (20.6%; 86 minutes). Patient care activities accounted for 19.3% (81 minutes) of nursing practice time, and only 7.2% (31 minutes) of nursing practice time was used for patient assessment and reading of vital signs.

The time and motion study identified three main targets for improving the efficiency of nursing care: documentation, medication administration, and care coordination. Changes in technology, work processes, and unit organization and design may allow for substantial improvements in the use of nurses' time and the safe delivery of care

4) A time–motion observation study to measure and analyse clinical nursing workload in an acute care hospital in Singapore

Mei Ling Lim, Shin Yuh Ang

The majority of the medical RNs' (in-charge role; $n = 4$) time was spent on documentation (18%) and medication administration (18%); only 12% of their time was allocated to patient care activities. The least amount of time was spent on caregiver and patient education (3%). The RNs also spent 9% of their time on coordinating care; this includes performing administrative work related to discharge planning for the patients, scheduling outpatient follow-up appointments and referrals to the community partners. For nurses performing supportive roles ($n = 6$), more than half of their time (57%) was spent on patient care activities. Up to 3% of their time was used to transport patients for diagnostic scans and procedures outside the medical ward.

**TIME MOTION STUDY OF GDAs IN MAIN LOBBY AND OPD 1& 2
IN FORTIS HOSPITAL, JAIPUR**

The time motion study was performed on the General Duty Assistants (GDA) for 4840 minutes over the tool with the below mentioned activities to track their time consumption on each of them.

The table shows the different activities performed by the GDAs in a day and the details of the activities which show what the activities mean in this study.

The activities were enlisted on the bases of the observations made prior to the study.

The above table shows the **mean** time consumption of GDAs in different activities which they perform.

	Activities	Details
Work Related Activities	Transporting Patients	Transporting patients to the respective ward/room/OPD/counter via wheelchairs/stretchers.
	Near Doctor's Chamber	To assist the doctor for any procedure or transportation of the patient.
	Arranging Documents	Arranging the documents at the nursing station.
	Transporting Documents	Transporting the documents to other departments.
	At the Token Counter	Assisting at the Token counter.
	Waiting Time	Waiting with the patient to transport them to the respective department.
	At the Reception	Assisting at the Reception.
	Assisting Patient / Attendants	Assisting patient/attendant with their issues.
	Other Activities	Other activities like arranging flyers & brochures, refilling water, some work given by the receptionists or doctors, arranging stretchers and wheelchairs, arranging reception desk, bringing tea for the staff, carrying doctors' lunch and bags to them.
Non – Work Related Activities	Talking to Other GDA	Talking to other GDA staff at a place other than their workstation.
	Idle Time	Idle time.
	Personal Activities	Personal activities like Eating, On calls, Washrooms, Out for personal work etc.
	Lunch	Eating within the lunch timings.

Table - 1

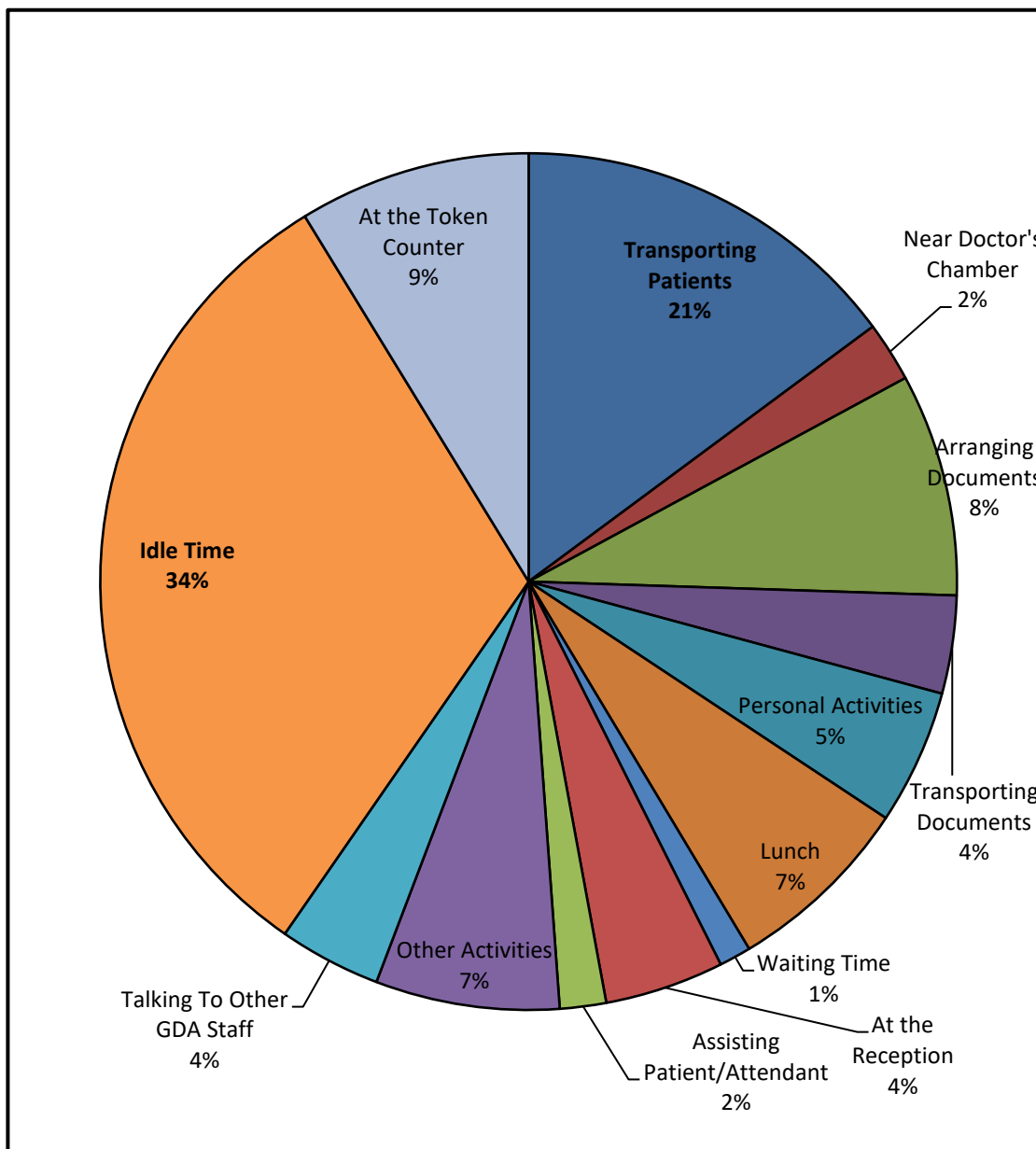
	Activities	GDA 1	GDA 2	GDA 3	GDA 4	GDA 5	GDA 6	GDA 7	GDA 8	GDA 9	GDA 10	GDA 11	GDA 12	GDA 13	TOTAL	MEAN TIME PER DAY
Work Related Activities	Transporting Patients	144	21	110	116	56	54	150	41	48	44	21	43	-	848	70.67
	Near Doctor's Chamber	1	-	8	-	23	-	-	-	-	-	-	-	-	32	10.67
	Arranging Documents	3	-	-	-	-	-	-	146	-	28	30	28	5	240	40.00
	Transporting Documents	-	10	-	-	-	3	-	22	-	-	25	28	18	106	17.67
	At the Token Counter	-	42	-	-	-	-	-	-	-	-	-	-	-	42	42
	Waiting Time	6	3	12	7	7	2	22	2	1	3	2	2	-	69	5.75
	At the Reception	9	67	2	-	8	-	-	-	-	-	-	-	-	86	21.50
	Assisting Patient / Attendants	1	7	1	3	9	11	25	23	7	12	3	5	2	109	8.38
	Other Activities	12	56	41	20	27	13	18	25	4	21	73	66	54	430	33.08
Non – Work Related Activities	Talking to Other GDA	8	10	22	19	3	11	10	10	49	16	22	19	32	231	17.77
	Idle Time	125	82	175	203	171	139	140	23	213	119	195	187	156	1928	148.31
	Personal Activities	24	33	47	18	16	21	23	38	38	9	17	10	20	314	24.15
	Lunch	34	44	32	33	34	37	32	32	30	-	32	32	33	405	33.75
															4840	

Table - 2

*Figures in minutes

The above table shows the **mean** time consumption of the GDA's in different activities which they perform.

MEAN DAILY TIME CONSUMPTION OF THE GDAs



The chart shows the mean daily time consumption of the GDA staff.

- The idle time of the GDA staff turns out to be 34% of the daily work hours, which means 34% of the total working hours of the GDAs are idle.

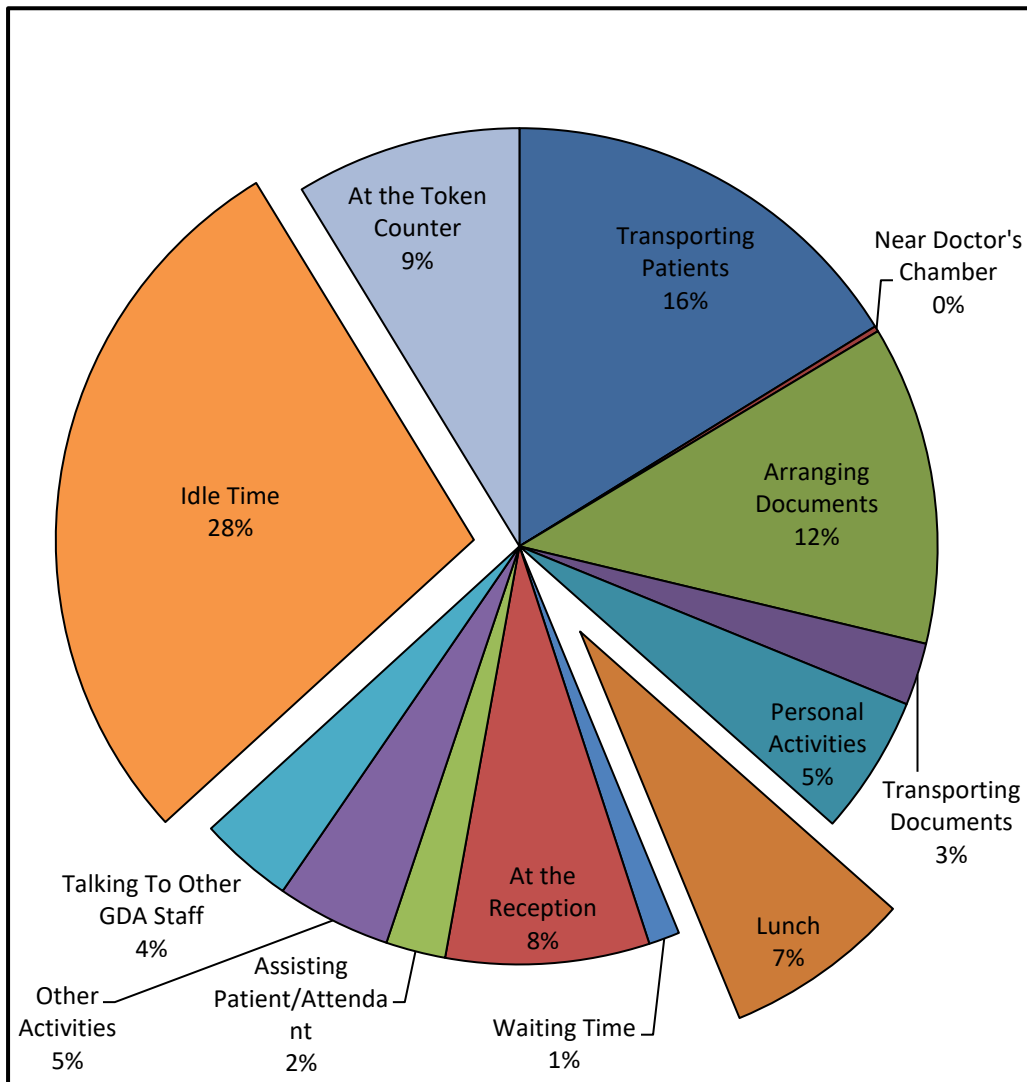
Figure - 1

- Lunch consumes 7% of the total working hours of GDAs.
- Personal activities consume 5% of the working hours.
- 4% of the working hours are consumed by the GDAs in talking with the other GDAs or hospital staff.

MEAN DAILY TIME CONSUMPTION OF GDA IN MAIN LOBBY

The chart shows the mean daily time consumption of GDAs in the main lobby.

- The main lobby carries 6 GDAs and on mean there is always 1 GDA present in the main lobby at any point of time.



- Patient care including transporting patients, assisting them or waiting with them at the doctor's chamber is 19% of their mean daily working hours, on mean.

- The chart shows that the lunch time taken by a GDA in the main lobby, on an mean, comes out to be 7 % of the mean daily working hours.

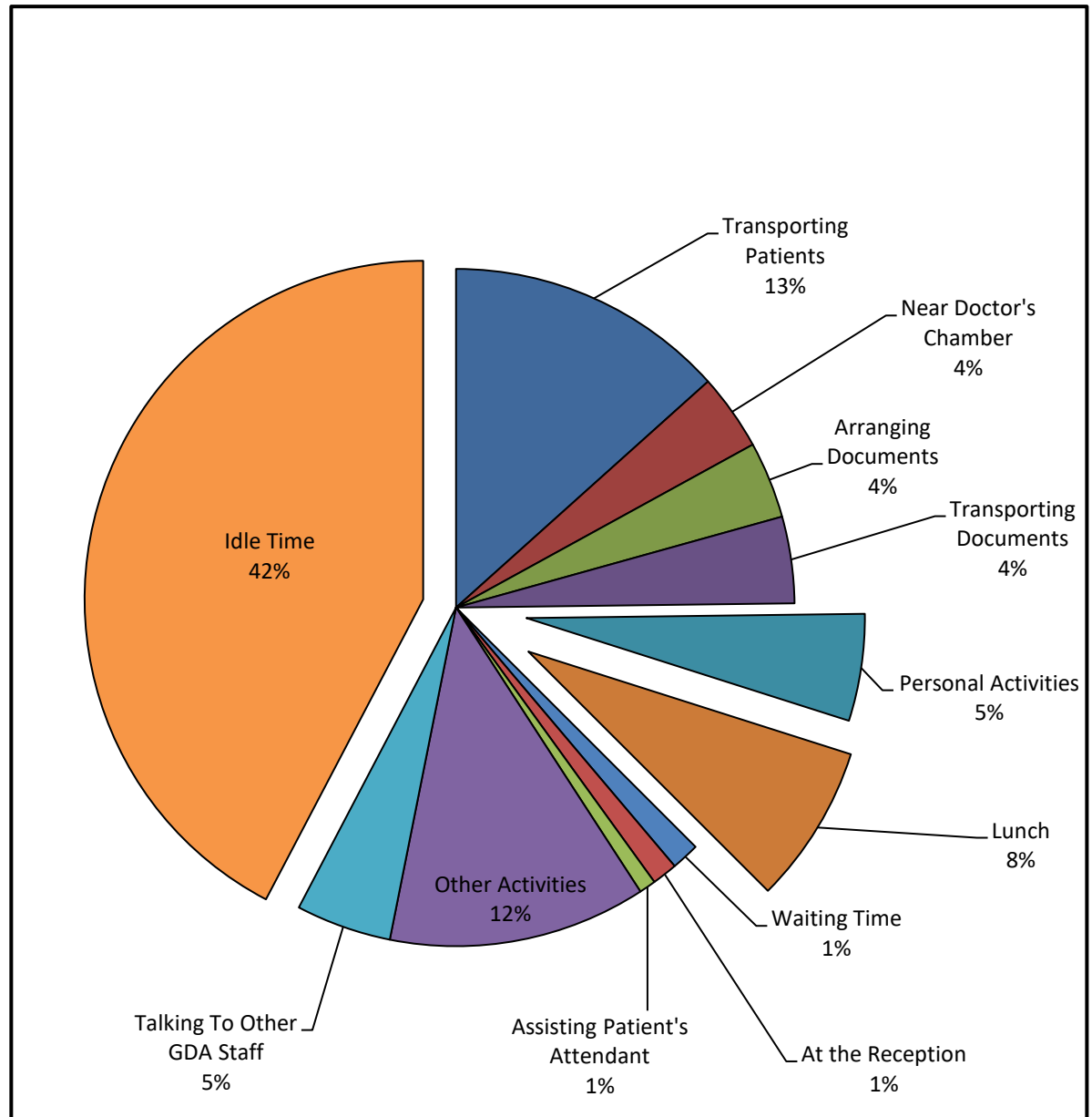
- Idle time

turns out to be **28%** of the mean daily working hours.

MEAN DAILY TIME CONSUMPTION OF GDAs IN OPD 1 & 2

The chart shows the mean daily time consumption of GDAs in OPD 1 & OPD 2.

- Idle time of the GDAs in OPD 1 & 2 come out to be 42% of the mean daily working hours of a day, on a mean.
- The GDAs spend 19% of their mean daily working hours on patient care.
- Time consumed for lunch by them is 8% of their mean daily working hours.



TIME CONSUMED FOR WORK RELATED VS NON-WORK-RELATED ACTIVITIES OF GDAs

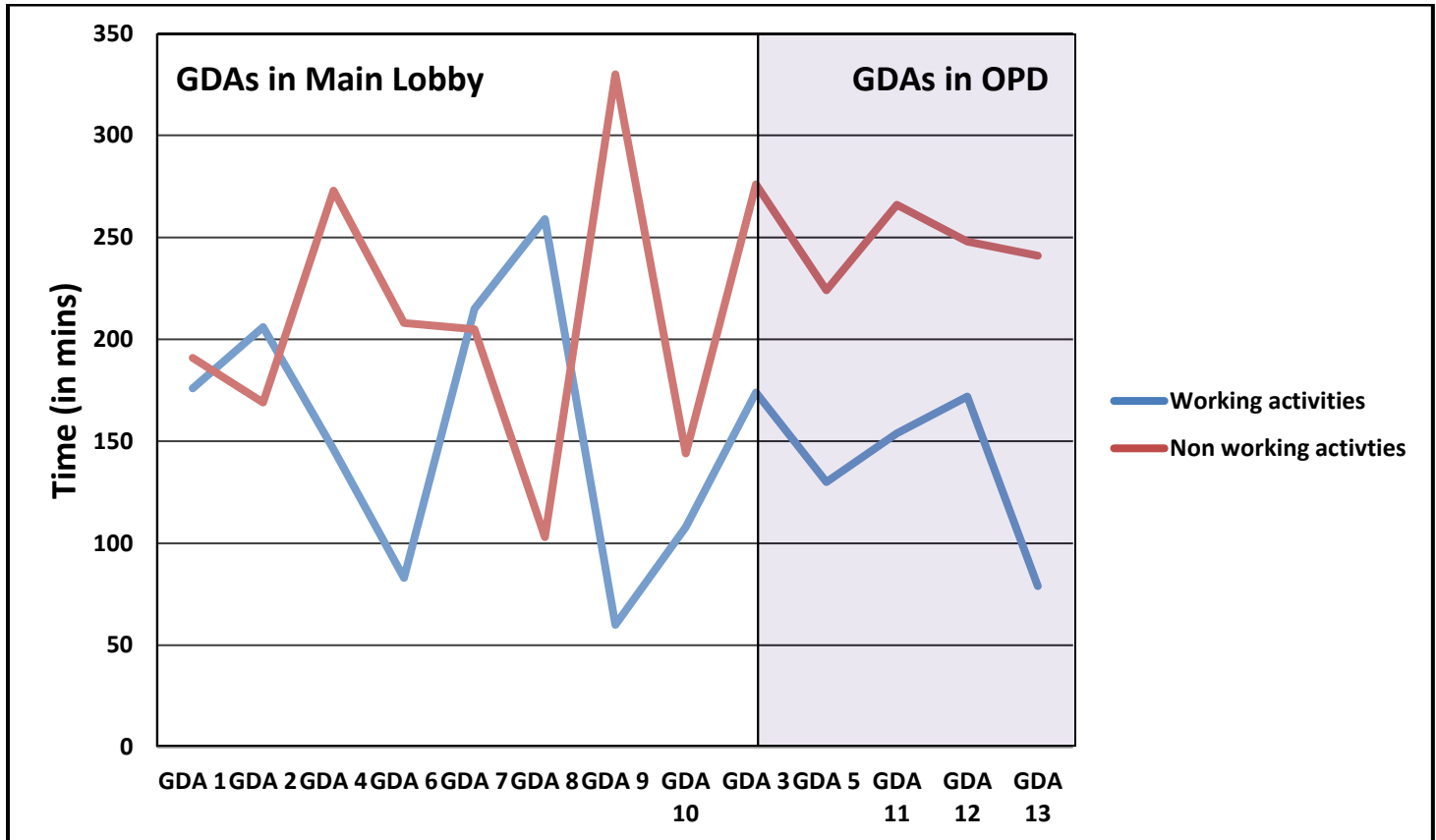


Figure - 4

The above graph shows the time consumed by the GDAs for Work-Related activities in comparison with the time consumed by them for Non-Work-Related activities.

In addition to the comparison the graph also shows the trend of this comparison in the main lobby and the OPDs separately.

- The mean time consumed for the Work-Related Activities by the GDAs is **150 minutes and 54 seconds**.
- The mean time consumed for the Non-Work-Related activities by the GDAs in **221 minutes and 20 seconds**.

- It can be observed that the time consumed for the Non-Work-Related activities by the GDAs' in the Main lobby is comparatively low than that of the GDAs working in the OPDs.

TIME CONSUMED IN LUNCH BY GDAs

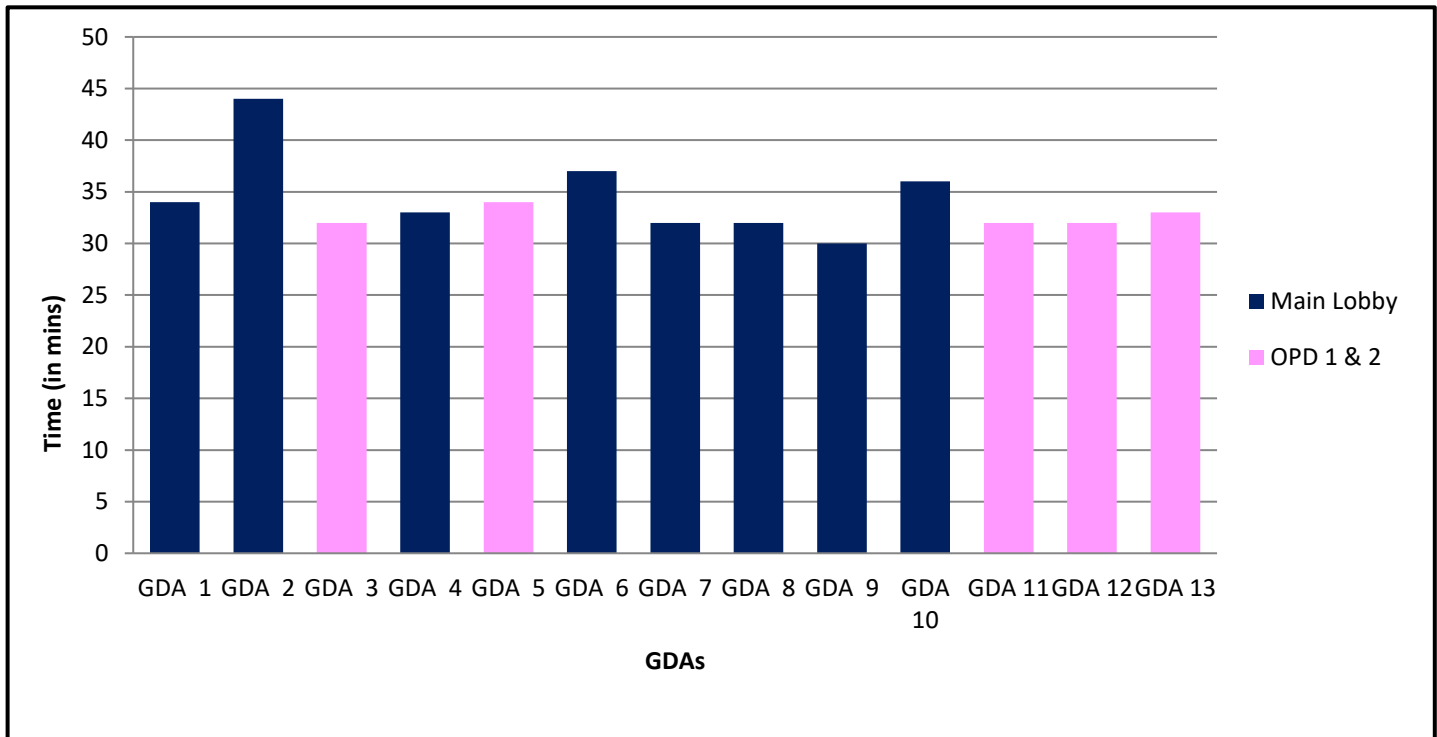


Figure - 5

The graph shows the time consumed by the GDAs of Main lobby and OPD 1 & 2 for lunch.

- The study infers that on a mean the time consumed by the GDAs for lunch is **33 minutes and 45 seconds** i.e. 7% of their mean daily working hours.
- The lunch time taken by the GDAs in main lobby as well as the GDAs in OPDs was almost similar.

GDA's' IDLE TIME

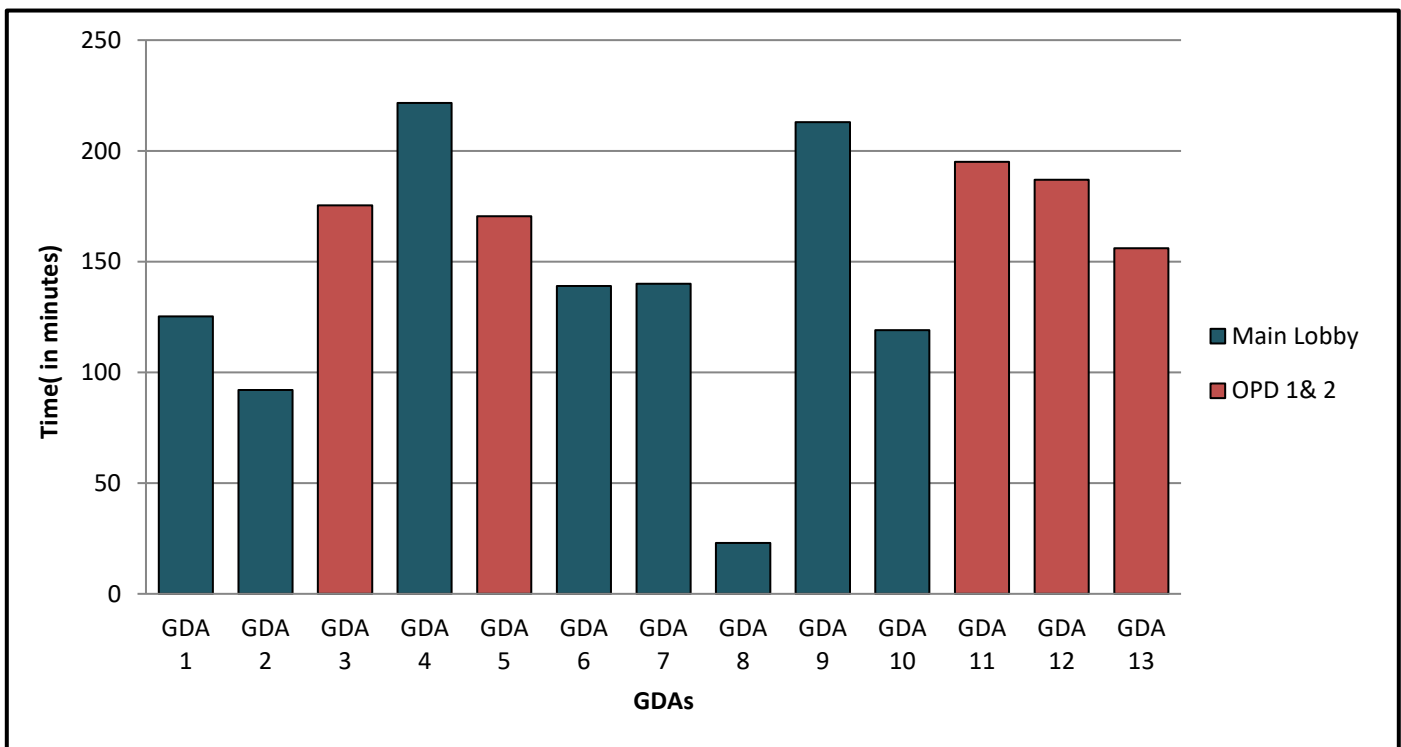


Figure- 6

The graph shows the idle time of GDAs in the main lobby and OPDs.

- According to the study the mean idle time of GDAs is **149 minutes and 20 seconds** i.e. 34% of the mean working hours.
- The range of idle time is between 23 minutes to 222 minutes.
- Idle time may also vary from day to day as it also depends upon the flow of patients in the hospital.

LIMITATIONS OF THE STUDY

- The awareness of the study being conducted among the GDAs might have altered their normal performance, which may lead to misleading data.
- Limited sample size as observation was done only in main lobby and OPD 1 & 2.
- The patient flow differs on day to day basis, thus resulting in difference in the working pattern of the GDAs.

RESULTS

- ✓ The mean idle time of the GDAs is 148 minutes and 20 seconds.

Mean idle time of GDAs in main lobby	134 minutes and 10 seconds
Mean idle time of GDAs in OPDs	181 minutes and 54 seconds

- ✓ The mean lunch time of GDAs is 33 minutes and 45 seconds.

Mean lunch time of GDAs in main lobby	34 minutes and 34 seconds
Mean lunch time of GDAs in OPDs	32 minutes and 36 seconds

- ✓ The mean time consumed for the Work-Related Activities by the GDAs is **150 minutes and 54 seconds**.
- ✓ The mean time consumed for the Non-Work-Related activities by the GDAs in **221 minutes and 20 seconds**.

CONCLUSION

The time consumed in Non-Work-Related activities has been observed to be more by the GDAs' in OPD as compared to the GDAs in the main lobby. 34% of the mean daily time consumption of the GDAs is observed to be idle and Lunch consumes 7% of their mean daily time consumption. Thus, it was observed that the mean idle time is more than the time consumed for lunch by the GDAs.

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