DISSERTATION

IIHMR UNIVERSITY

"ASSESSMENT OF OUTPATIENT WAITING TIME USING HMIS AND OBSERVATIONAL DATA OF TERTIARY CARE HOSPITAL IN KOLKATA, WEST BENGAL, INDIA"

Presented By-

Subrata Rudra Pal
Under the Guidance of
Arindam Das (Associate Professor), PHD

CONTENT

INTRODUCTION

Out-Patient services are provided by hospitals for people with health problems who visit the hospital for diagnosis or treatment, but do not require bed or any critical care.

Waiting time is the duration of time any patient waits in hospital OPD before being seen by consultant.

Objective was to quantify the Out-patient waiting time before consultation, to study the association between higher waiting time (>60 min) and certain Characteristics, to find root causes of waiting time, and steps to reduce waiting time for improving the quality of care.

LITERATURE REVIEW

AUTHORS (YEAR)	STUDY LOCATION	SAMPLE SIZE	SALIENT FEATURES
Tho Dinh Tran, Uy Van Nguyen, Vuong Minh Nong, Bach Xuan Tran (2017)	Vietnam	137,881	**Objective:** To assess patient waiting time in the outpatient clinic to inform evidence-based interventions to improve the quality of healthcare services. **Result:** The average waiting time from registration to preliminary diagnosis 50.41 minutes. A longer waiting time was recorded in the morning and in those having health insurance.
Dr (Brig) Anil Pandit, Er Lalit Varma, Dr.Amruta. P (2018)	India	200	**Aim:** To determine the average time spent by the patient in the OPD and identifying factors responsible for prolonged waiting time in the OPD. **Result:** It was found that the average time a patient spends in the OPD was 60mins. The major bottleneck causing this high waiting time was found to be the waiting time for consultation which was 40 minutes on an average.
Ravikant Patel, Hinaben R. Patel (2017)	India	135	**Objective:** To study the waiting time at various OPDs, and various investigation. And to study the patient satisfaction on hospital process. **Result:** The mean waiting time was 12.16±2.35 min. 94.07% and 98.52% patients were satisfied with treatment cost and behavior of staff, respectively.

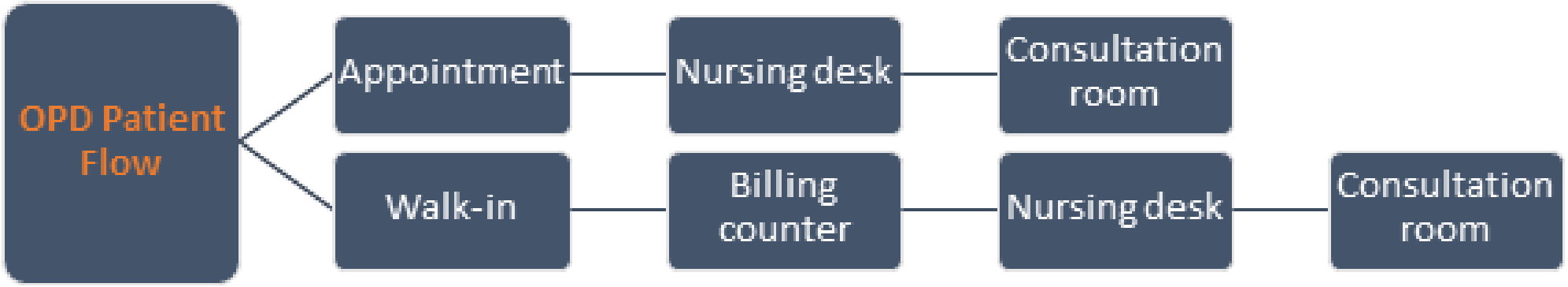
METHODOLOGY

Research Question

What is the average waiting time and major causes of the outpatient waiting time before consultation?

STUDY SETTING

Within a tertiary care hospital, where OPD patient flow is approximately 100-200 each day, and Out-Patient services remain open from Monday to Saturday.



STUDY POPULATION

All the patients seeking OPD services from the hospital are part of the study.

Inclusion criteria is patient must have visited physically in the hospital and taken out-patient consultation from any of the specialized doctors.

Exclusion criteria is patient taken Video Consultation, informal consultation without any appointment, and cancelled appointments.

RESEARCH DESIGN

Both quantitative and qualitative methods are considered for this study. Study duration is 60 days for both the approaches (from 2nd April to 31st May).

Quantitative approach is used for measuring
waiting time and finding associations among higher waiting time and certain characteristics.

Qualitative approach is used for finding the root cause of waiting time.

SAMPLE SIZE & SAMLING TECHNIQUE

For quantitative approach - 5,422

For qualitative approach – 102

Convenience sampling is used for quantitative approach.

Simple random sampling is used, every 50^{th} patient is selected for observation who enters OPD for consultation.

DATA COLLECTION

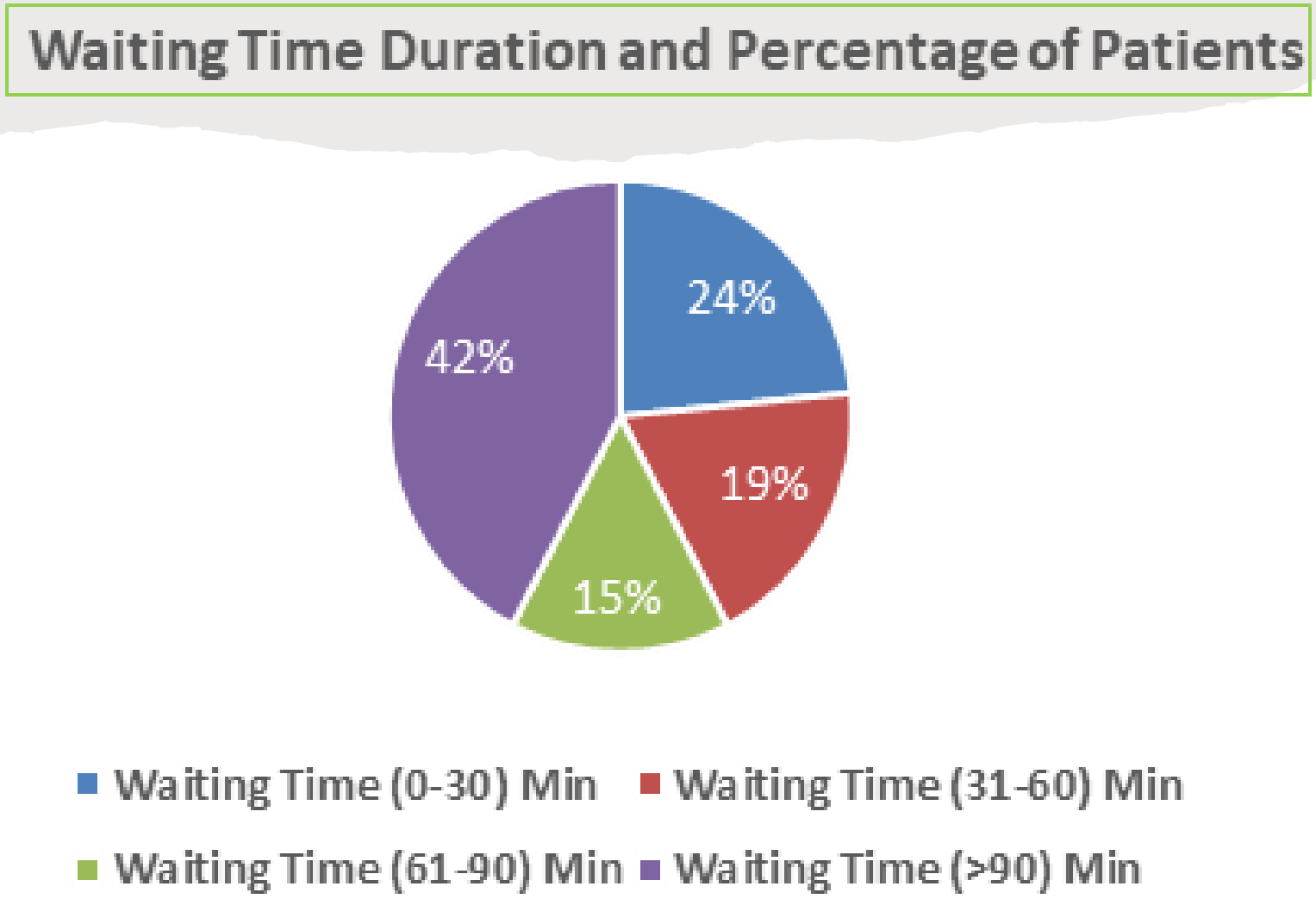
- For quantitative analysis, secondary Data of 5,422 patients are extracted from Hospital HMIS/EMR system, and for qualitative approach observational Data of 102 patients are collected.
- Observation Schedule is used as a data collection tool, a checklist is prepared prior to data collection that includes the behavior and situational features to be observed and recorded during observation.

RESULT- Characteristics of the Sample (N=5422)

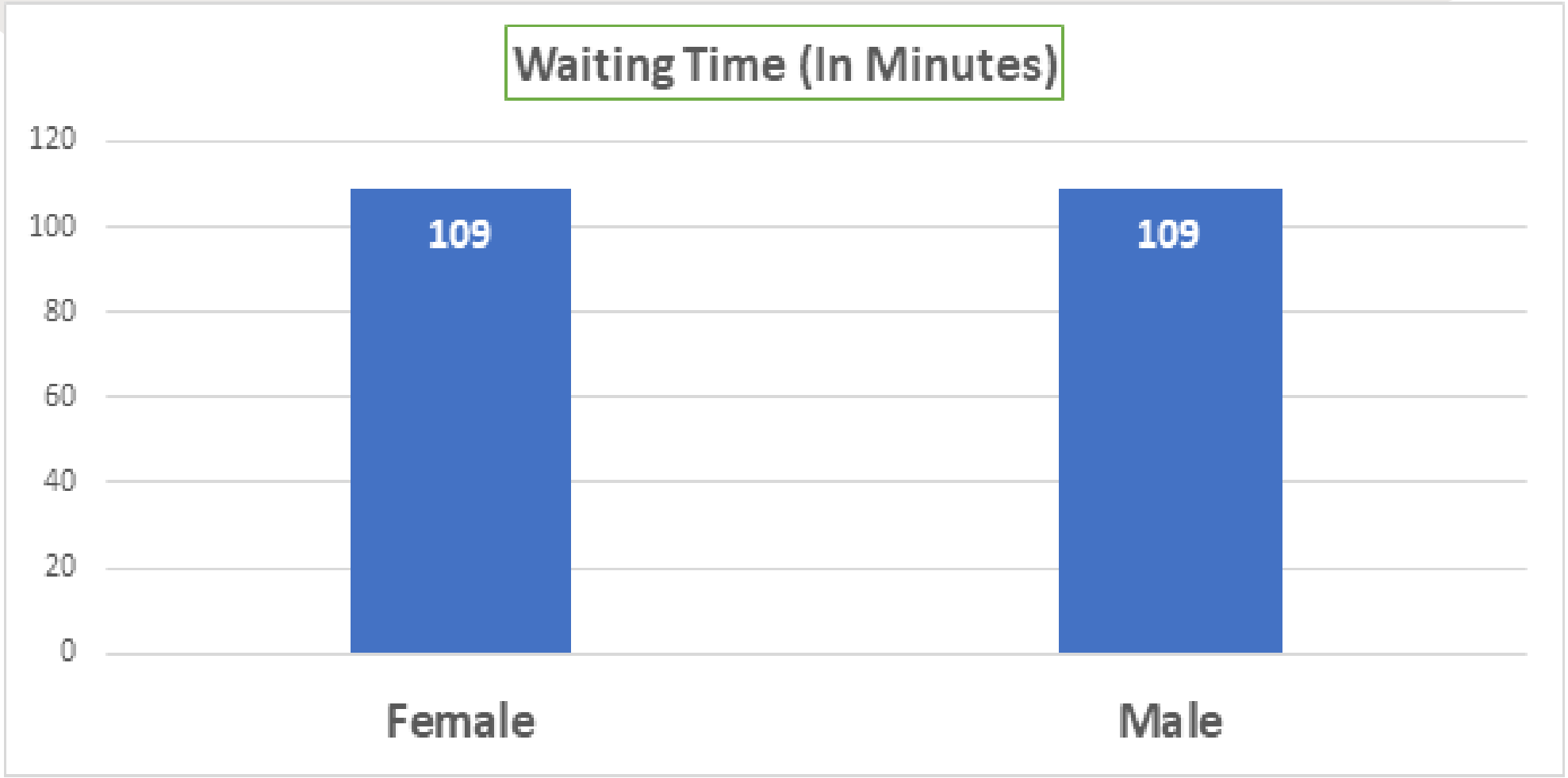
Variables	Frequency	Percentage (%)
Gender-		
• Male	2993	55%
• female	2429	45%
Age group-		
• Up to 20	159	3%
• 21- 40	1323	24%
• 41- 60	2159	40%
• Above 60	1781	33%
Service Type-		
• Appointment	1726	32%
• Walk-in	3696	68%

Variables	Frequency	Percentage (%)
Consultation Type-		
• New	3286	60%
• Follow-up	247	5%
• Revisit	1889	35%
Sponsor Type-		
• Insurance	1201	22%
• Cash	4221	78%
Weekdays-		
• Monday	1089	20%
• Tuesday	982	18%
• Wednesday	1003	19%
• Thursday	881	16%
• Friday	871	16%
• Saturday	596	11%

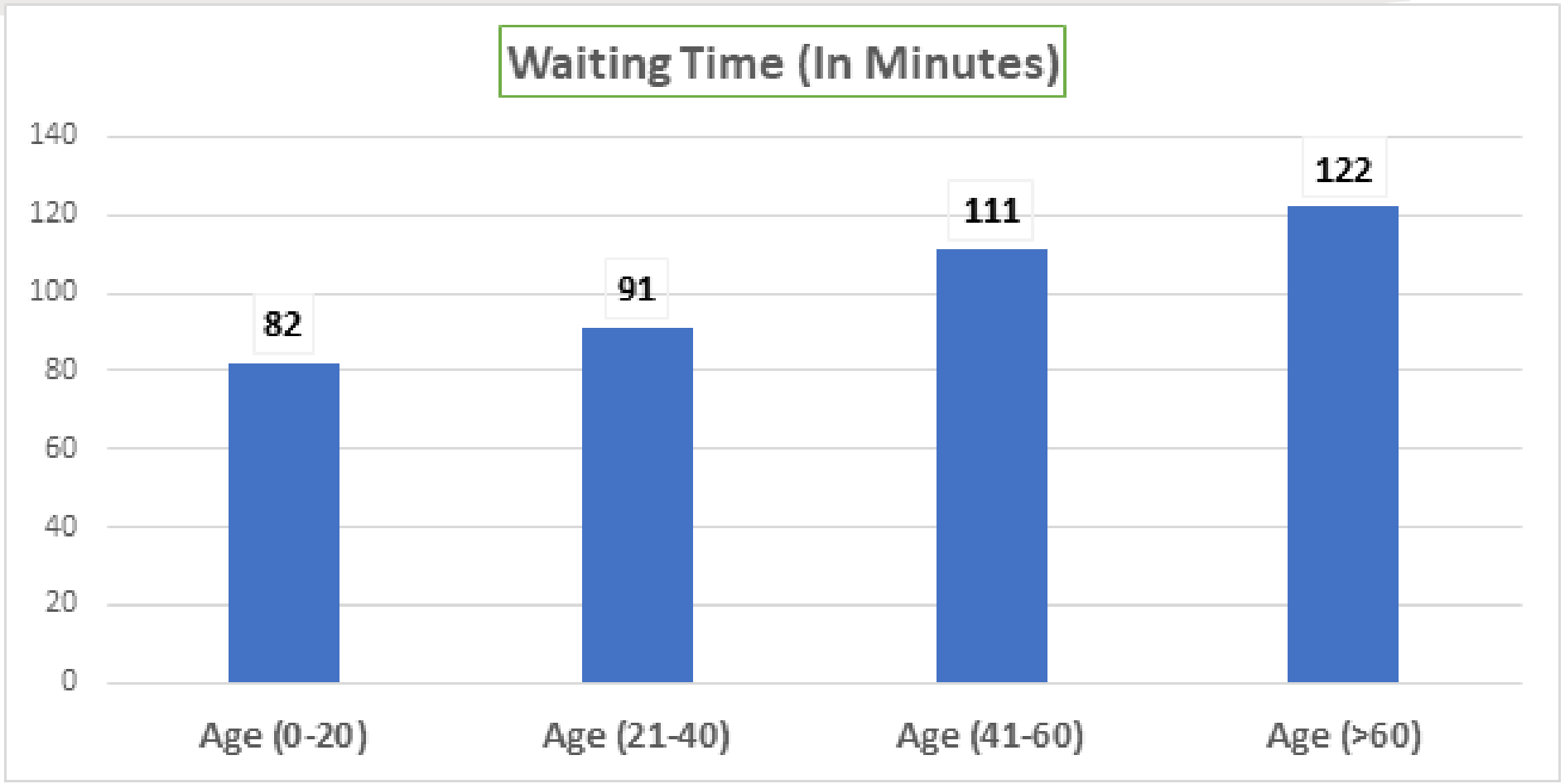
Average Waiting Time



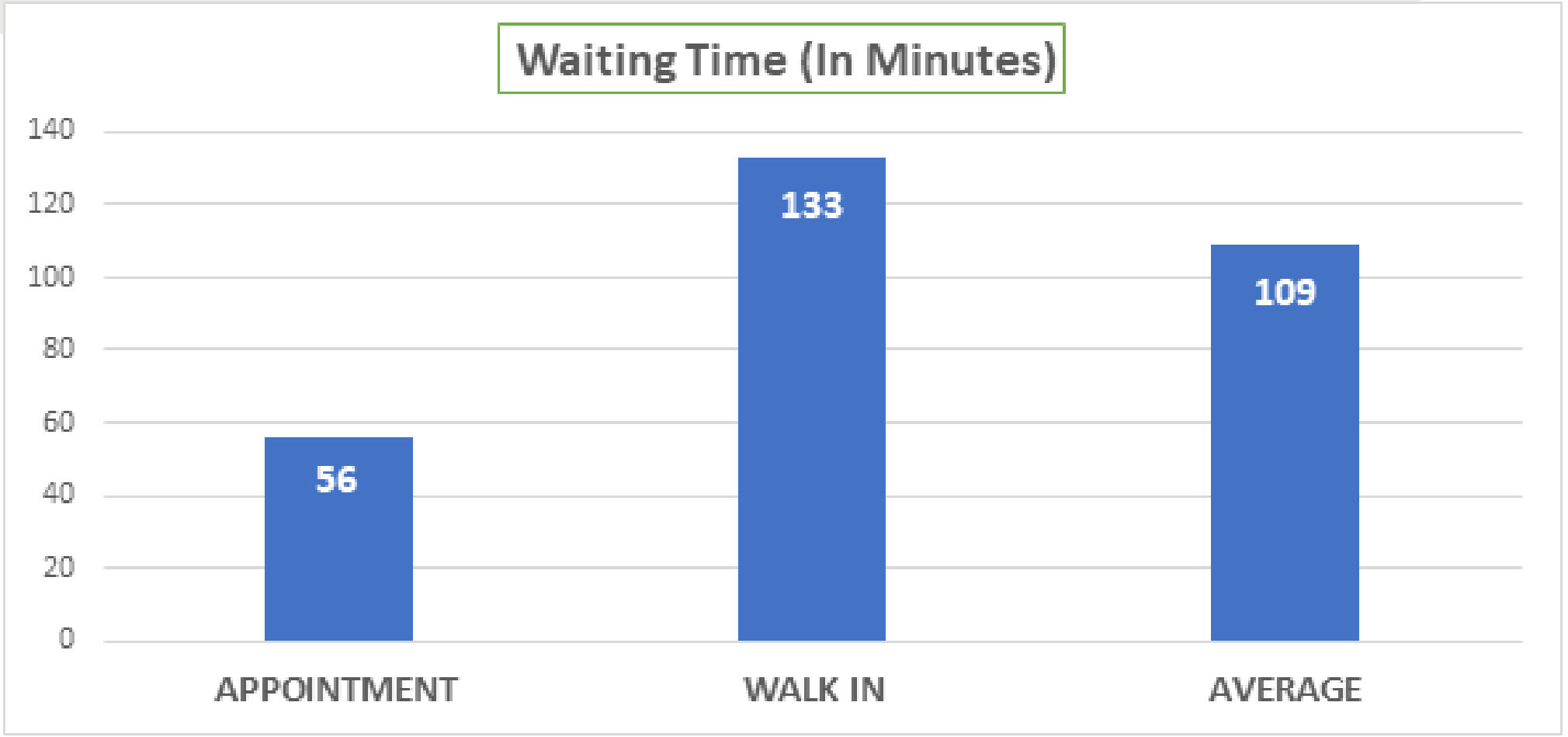
Waiting time according to sex



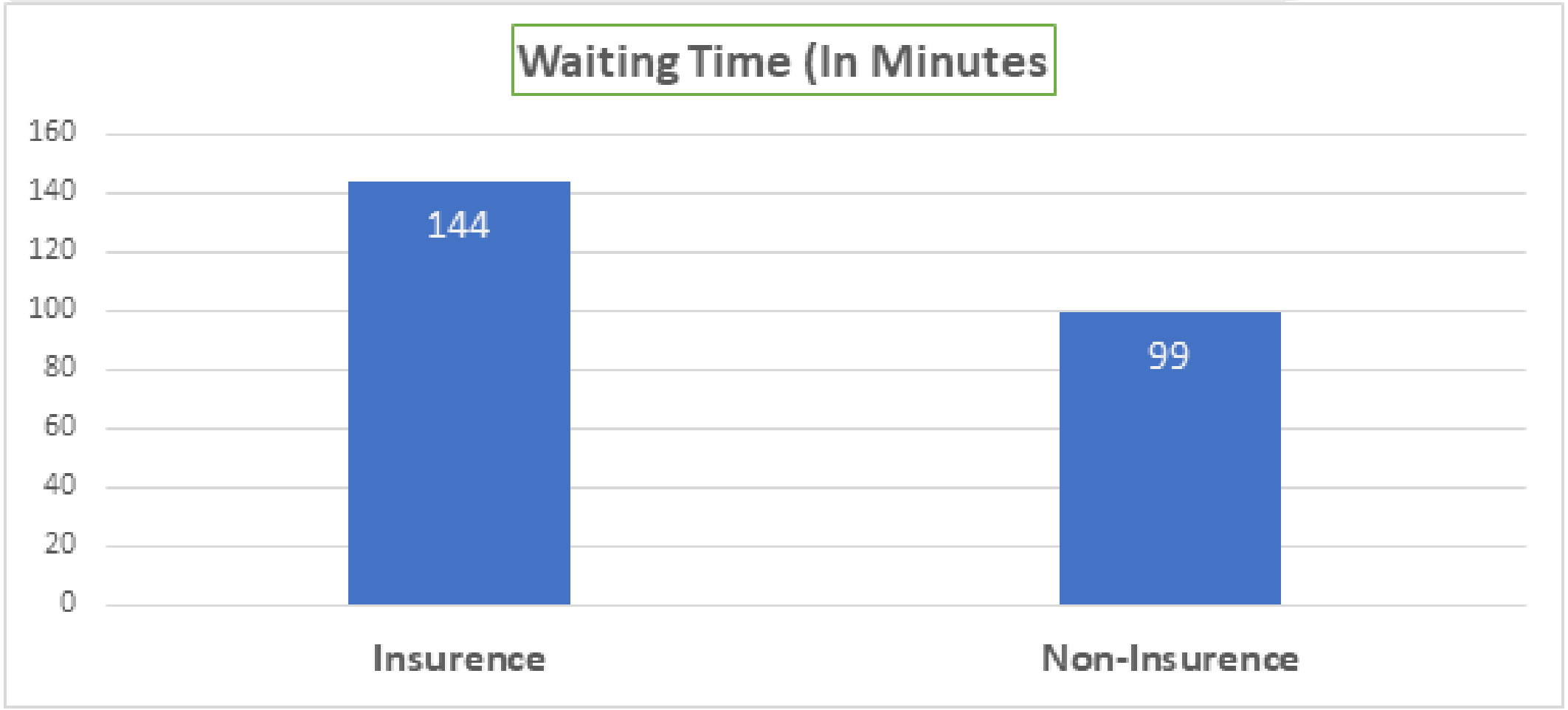
Waiting time according to age groups



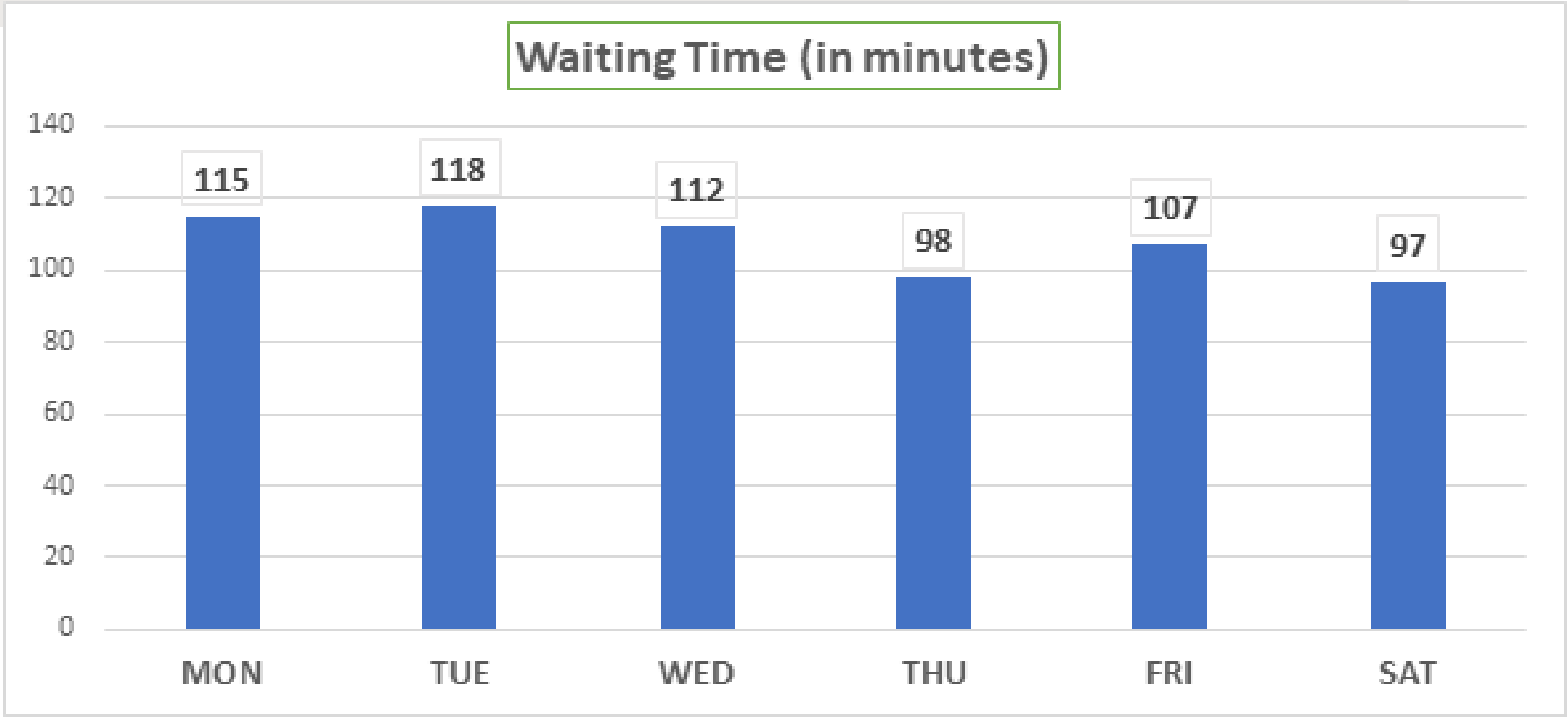
Waiting time for Walk-in and Appointment Patients



Waiting time for insurance and non-insurance/cash patients



Waiting time in different weekdays

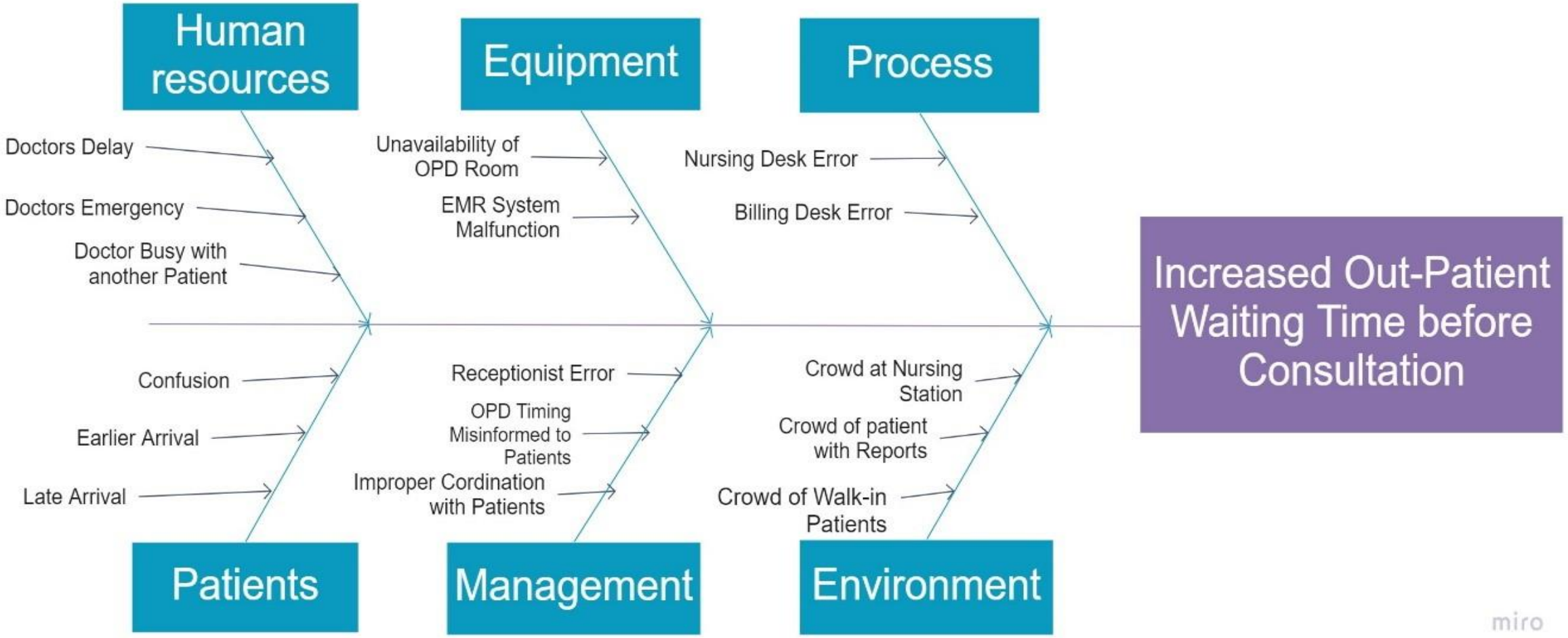


Association with Different Characteristics

Variables	W.T. >60 Min	W.T. ≤60 Min	Odds Ratio	95% CI	'P' Value
Gender- • Female • Male	 1407 1719	 1022 1274	0.02	0.91 - 1.13	0.69
Age group- • Above 60 • 0-60	 1079 2048	 702 1593	1.20	1.06 - 1.34	0.00*
Service Type- • Walk-in • Appointment	 2531 597	 1165 1130	4.11	3.64 - 4.64	0.00*
Sponsor Type- • Insurance • Out of pocket	 838 2289	 363 1932	1.95	1.70-2.24	0.00*

*Statistically significant association **(p<0.05)**

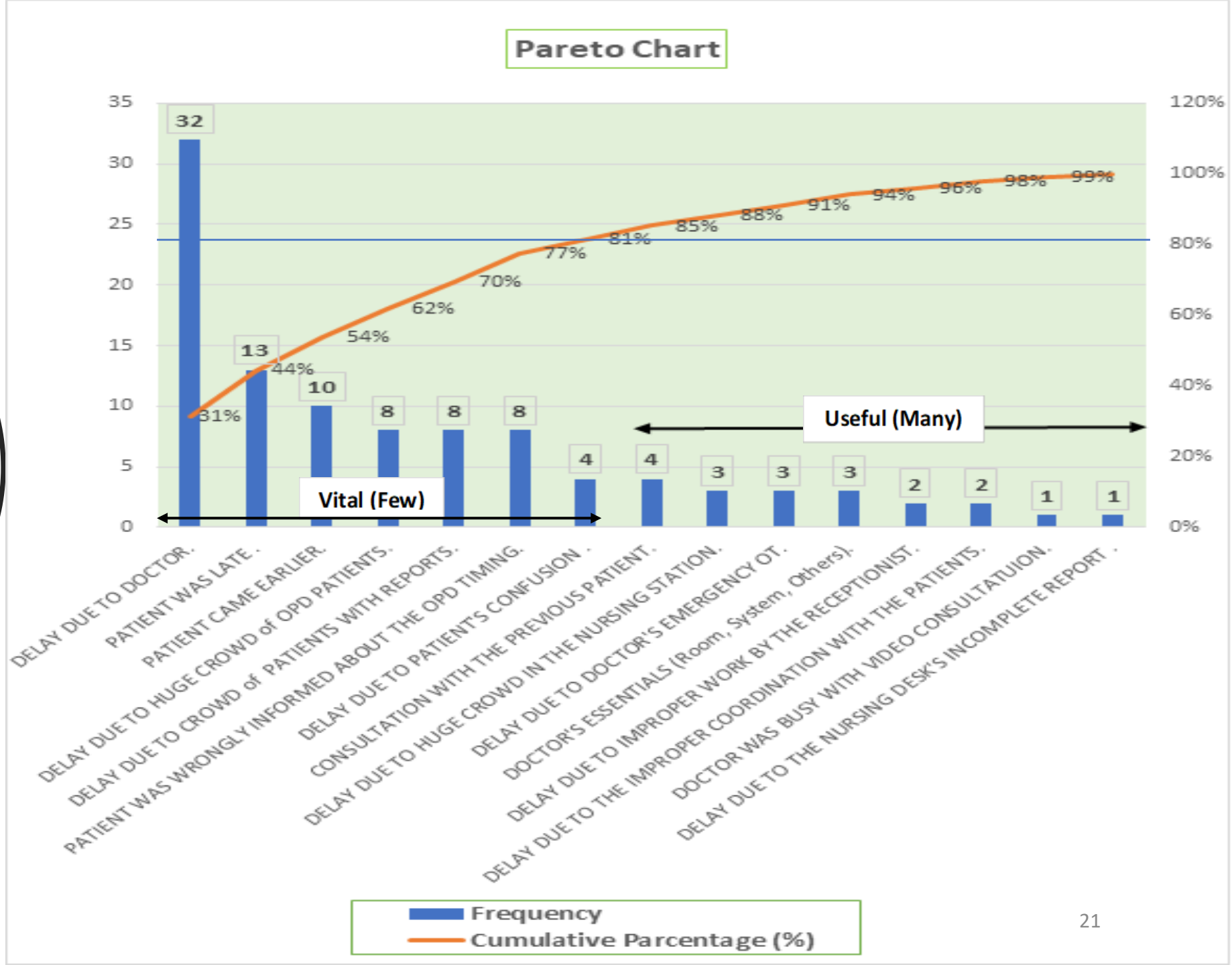
ROOT CAUSE ANALYSIS



PARETO ANALYSIS

CAUSES OF OUT-PATIENTS WAITING TIME	FREQUENCY	CUMULATIVE FREQUENCY	CUMULATIVE PERCENTAGE
Delay due to doctor's late arrival	32	32	31%
Patient was late	13	45	44%
Patient came earlier	10	55	54%
Delay due to huge crowd of patients in OPD	8	63	62%
Delay due to crowd of patients with reports	8	71	70%
Patient was wrongly informed about the OPD timing.	8	79	77%
Delay due to patient's confusion	4	83	81%
Consultant busy with the previous patient.	4	87	85%
Delay due to crowd in the nursing station.	3	90	88%
Delay due to doctor's emergency OT.	3	93	91%
Doctor's essentials (room, system, others)	3	96	94%
Delay due to improper work by the receptionist.	2	98	96%
Delay due to the improper coordination with the patients	2	100	98%
Doctor was busy with video consultation	1	101	99%
Delay due to the nursing desk's incomplete report	1	102	100%

PARETO CHART



CONCLUSION

More number of patients should be encouraged to book appointment before coming to hospital for consultation, which can reduce waiting time by 50 percent for walk-in patients.

Billing process for patients with insurance mode of payments needs to be improved.

Strict policy should be there for compliance with OPD timing, and OT timing should not overlap OPD timing,

Proper utilization of physical spaces and human resources can resolve the crowding problem at OPD.

Capacity building should be done for front desk staff for better coordination with patients and clearing doubts.

REFERENCES

1. Dinesh TA, Singh S, Nair P RT. Reducing Waiting Time in Outpatient Services of Large University Teaching Hospital - a Six Sigma Approach. Manag Heal [Internet]. 2013;17(1):1–13. Available from: journal.managementinhealth.com/index.php/rms/ article/view/259/823
2. Rossiter CE RF. Automatic Monitoring of the Time Waited in Out-Patient Departments. J Med Care [Internet]. 1968;1:218–25. Available from: https://www.jstor.org/stable/3762788
3. O'Malley MS, Fletcher SW, Fletcher RH EJ. Measuring patient waiting time in a practice setting: A comparison of methods. J Ambul Care Manage [Internet]. 1983;6(3):20–7. Available from: doi: 10.1097/00004479-198308000-00006. PMID: 10260999.
4. Camacho F, Anderson R, Safrit A, Jones AS, Hoffmann P. The relationship between patient's perceived waiting time and office-based practice satisfaction. N C Med J [Internet]. 2006;67(6):409–13. Available from: http://www.ncbi.nlm.nih.gov/pubmed/17393701
5. Tran TD, Nguyen U Van, Minh Nong V, Tran BX. Patient waiting time in the outpatient clinic at a central surgical hospital of Vietnam: Implications for resource allocation. F1000Research [Internet]. 2017 Apr 10;6(0):454. Available from: https://f1000research.com/articles/6-454/v1
6. Dr (Brig) Anil Pandit | Er Lalit Varma | Dr.Amruta. P. OPD Waiting Time on Patient Satisfaction IMPACT OF OPD WAITING TIME ON PATIENT SATISFACTION. Int Educ Res J [Internet]. 2018;2(April):86–90. Available from: https://www.researchgate.net/publication/324594239%0A5
7. Patel Ravikant PHR. A study on waiting time and out-patient satisfaction at Gujarat medical education research society hospital, Valsad, Gujarat, India. Int J Community Med Public Heal [Internet]. 2017 Feb 22;4(3):857. Available from: http://www.ijcmph.com/index.php/ijcmph/article/view/1136
8. Sriram S, Noochpoung R. Determinants of hospital waiting time for outpatient care in India: how demographic characteristics, hospital ownership, and ambulance arrival affect waiting tim. Int J Community Med Public Heal [Internet]. 2018 Jun 22;5(7):2692. Available from: http://www.ijcmph.com/index.php/ijcmph/article/view/3095
9. Al-Harajin R, Al-Subaie S, Elzubair A. The association between waiting time and patient satisfaction in outpatient clinics: Findings from a tertiary care hospital in Saudi Arabia. J Fam Community Med [Internet]. 2019;26(1):17. Available from: http://www.jfcmonline.com/text.asp?2019/26/1/17/249385
10. Sumaira Shahzadi SA. Factors Associated Patient Waiting Time at Outpatient Department in Allied Hospital Faisalabad [Internet]. Journal of Biology, Agriculture and Healthcare. 2017 [cited 2021 Apr 26]. p. Vol.7, No.17. Available from: https://core.ac.uk/reader/234662400

****

THANK YOU

"ASSESSMENT OF OUTPATIENT WAITING TIME USING HMIS AND OBSERVATIONAL DATA OF TERTIARY CARE HOSPITAL IN KOLKATA, WEST BENGAL, INDIA"

Presented By-
Subrata Rudra Pal
Under the Guidance of
Arindam Das (Associate Professor), PHD

CONTENT

INTRODUCTION

Out-Patient services are provided by hospitals for people with health problems who visit the hospital for diagnosis or treatment, but do not require bed or any critical care.

Waiting time is the duration of time any patient waits in hospital OPD before being seen by consultant.

Objective was to quantify the Out-patient waiting time before consultation, to study the association between higher waiting time (>60 min) and certain Characteristics, to find root causes of waiting time, and steps to reduce waiting time for improving the quality of care.

OPD — Out Patient Department

LITERATURE REVIEW

AUTHORS (YEAR)	STUDY LOCATION	SAMPLE SIZE	SALIENT FEATURES
Tho Dinh Tran, Uy Van Nguyen, Vuong Minh Nong, Bach Xuan Tran (2017)	Vietnam	137,881	**Objective:** To assess patient waiting time in the outpatient clinic to inform evidence-based interventions to improve the quality of healthcare services. **Result:** The average waiting time from registration to preliminary diagnosis 50.41 minutes. A longer waiting time was recorded in the morning and in those having health insurance.
Dr (Brig) Anil Pandit, Er Lalit Varma, Dr.Amruta. P (2018)	India	200	**Aim:** To determine the average time spent by the patient in the OPD and identifying factors responsible for prolonged waiting time in the OPD. **Result:** It was found that the average time a patient spends in the OPD was 60mins. The major bottleneck causing this high waiting time was found to be the waiting time for consultation which was 40 minutes on an average.
Ravikant Patel, Hinaben R. Patel (2017)	India	135	**Objective:** To study the waiting time at various OPDs, and various investigation. And to study the patient satisfaction on hospital process. **Result:** The mean waiting time was 12.16+2.35 min. 94.07% and 98.52% patients were satisfied with treatment cost and behavior of staff, respectively.

METHODOLOGY

Research Question

What is the average waiting time and major causes of the outpatient waiting time before consultation?

STUDY SETTING

Within a tertiary care hospital, where OPD patient flow is approximately 100-200 each day, and Out-Patient services remain open from Monday to Saturday.

STUDY POPULATION

All the patients seeking OPD services from the hospital are part of the study.

Inclusion criteria is patient must have visited physically in the hospital and taken out-patient consultation from any of the specialized doctors.

Exclusion criteria is patient taken Video Consultation, informal consultation without any appointment, and cancelled appointments.

OPD — Out Patient Department

RESEARCH DESIGN

Both quantitative and qualitative methods are considered for this study. Study duration is 60 days for both the approaches (from 2nd April to 31st May).

Quantitative approach is used for measuring waiting time and finding associations among higher waiting time and certain characteristics.

Qualitative approach is used for finding the root cause of waiting time.

SAMPLE SIZE & SAMLING TECHNIQUE

For quantitative approach - 5,422

For qualitative approach – 102

Convenience sampling is used for quantitative approach.

Simple random sampling is used, every 50th patient is selected for observation who enters OPD for consultation.

DATA COLLECTION

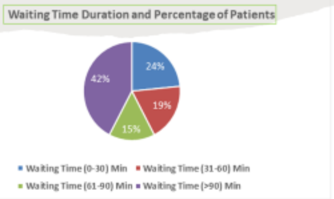
- For quantitative analysis, secondary Data of 5,422 patients are extracted from Hospital HMIS/EMR system, and for qualitative approach observational Data of 102 patients are collected.
- Observation Schedule is used as a data collection tool, a checklist is prepared prior to data collection that includes the behavior and situational features to be observed and recorded during observation.

RESULT- Characteristics of the Sample (N=5422)

Variables	Frequency	Percentage (%)
Gender-		
• Male	2993	55%
• female	2429	45%
Age group-		
• Up to 20	159	3%
• 21- 40	1323	24%
• 41- 60	2159	40%
• Above 60	1781	33%
Service Type-		
• Appointment	1726	32%
• Walk-in	3696	68%

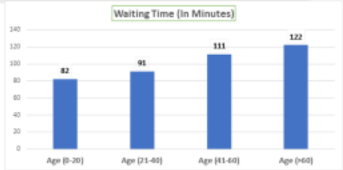
Variables	Frequency	Percentage (%)
Consultation Type-		
• New	3286	60%
• Follow-up	247	5%
• Revisit	1889	35%
Sponsor Type-		
• Insurance	1201	22%
• Cash	4221	78%
Weekdays-		
• Monday	1089	20%
• Tuesday	982	18%
• Wednesday	1003	19%
• Thursday	881	16%
• Friday	871	16%
• Saturday	596	11%

Average Waiting Time



Waiting time according to sex

Waiting time according to age groups



Waiting time for Walk-in and Appointment Patients

Waiting time for insurance and non-insurance/cash patients

Waiting time in different weekdays

Association with Different Characteristics

Variables	W.T. >60 Min	W.T. ≤60 Min	Odds Ratio	95% CI	'P' Value
Gender-					
• Female	1407	1022	0.02	0.91 - 1.13	0.69
• Male	1719	1274			
Age group-					
• Above 60	1079	702	1.20	1.06 - 1.34	0.00*
• 0-60	2048	1593			
Service Type-					
• Walk-in	2531	1165	4.11	3.64 - 4.64	0.00*
• Appointment	597	1130			
Sponsor Type-					
• Insurance	838	363	1.95	1.70-2.24	0.00*
• Out of pocket	2289	1932			

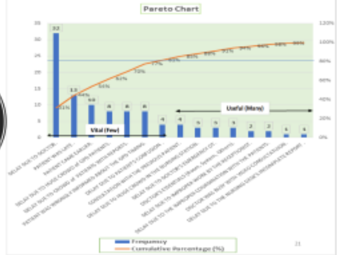
*Statistically significant association (p<0.05)

ROOT CAUSE ANALYSIS

PARETO ANALYSIS

CAUSES OF OUT-PATIENTS WAITING TIME	FREQUENCY	CUMULATIVE FREQUENCY	CUMULATIVE PERCENTAGE
Delay due to doctor's late arrival	32	32	31%
Patient was late	13	45	44%
Patient came earlier	10	55	54%
Delay due to huge crowd of patients in OPD	8	63	62%
Delay due to crowd of patients with reports	8	71	70%
Patient was wrongly informed about the OPD timing.	8	79	77%
Delay due to patient's confusion	4	83	81%
Consultant busy with the previous patient.	4	87	85%
Delay due to crowd in the nursing station.	3	90	88%
Delay due to doctor's emergency OT.	3	93	91%
Doctor's essentials (room, system, others)	3	96	94%
Delay due to improper work by the receptionist.	2	98	96%
Delay due to the improper coordination with the patients	2	100	98%
Doctor was busy with video consultation	1	101	99%
Delay due to the nursing desk's incomplete report	1	102	100%

PARETO CHART



CONCLUSION

More number of patients should be encouraged to book appointment before coming to hospital for consultation, which can reduce waiting time by 50 percent for walk-in patients.

Billing process for patients with insurance mode of payments needs to be improved.

Strict policy should be there for compliance with OPD timing, and OT timing should not overlap OPD timing,

Proper utilization of physical spaces and human resources can resolve the crowding problem at OPD.

Capacity building should be done for front desk staff for better coordination with patients and clearing doubts.

REFERENCES

[illegible]