Summer Training at

Aditya Birla Memorial Hospital, Pune

From 10th May 2021 to 2nd July 2021

A Report by

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MBA-HM

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Acknowledgement

In these difficult times of pandemic, being helpful empathizing with people may it be in any manner is gratification in itself for me and it could only be possible with the opportunity that I got through IIHMR, to be a part of Aditya Birla Memorial Hospital and Birla Group for my Summer training.

First of all, I would like to thank the Aditya Birla Memorial Hospital CEO, Miss Rekha Dubey Ma'am for providing me the opportunity to work in the hospital as a part of my summer training for the month of May-June 2021.

Secondly, I would extend my gratitude and thankfulness to Mr. Pankaj Mishra, the HR manager, who believed in me and selected to be a part of this prestigious organization and guiding me at every step of this phase.

Also, my OPD in charge Dr. Shrikant Suryavanshi, who always made sure that I was working sincerely at every step, whether it was just mere observation, patient coordination or may it be the projected related topic, questionnaire, its analysis, he has been there to acknowledge and advise me no matter when.

My organization mentor, Dr. Piyusha Mane, who more than a mentor, was a friend and a guide to me, with whom I could even go with any mindless doubt, and she would always be there to reassure me with her helpful nature.

Last but not the least my mentor Vinod Kumar sir, without whose help and patience, I would not have been able to work so sincerely.

Opportunities like this of working under such great professionals and to gain experience and knowledge from them in itself is a matter of pride and I express my heartful gratitude and respect towards each and every person who has been a part of this.

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Abbreviations/Acronyms

ABMH-Aditya Birla Memorial Hospital

CGHS-central government health scheme

COVID-corona virus disease

CSMA-central services medical attendance

ECHS- Ex-Servicemen Contributory Health Scheme

ESIC- Employee State Insurance

HR-Human Resource

ICU-intensive care unit

IPD- In-patient department

LAMA-leave against medical advice

OPD-Out patient department

PET scan- Positron Emission Tomography scan

PPE-personal protection equipment

PART-I

Observational Learning

Section-1

General overview of the organization

Aditya Birla Memorial Hospital is a multi-specialty tertiary hospital located at Pimpri-Chinchwad, Pune in the western Indian state of Maharashtra. This hospital is Maharashtra's First National Accreditations Board for Hospital (NABH) accredited hospital, and also India's First HACCP and ISO: 22000:2005 certified hospital.

This hospital is spread across the area of 16 acres of land and 500 Beds, 152 ICU Beds, 13 Operation Theaters and a flat panel Cath Lab. The hospital has employed the finest talent in the medical industry as full-time consultants using ultramodern medical technology to provide highest of its quality and cost-effective medical services. It specifically emphasizes on preventive care towards which is hosts a complete Wellness Assessment Center under one roof. Operating in a paperless and filmless environment, the hospital is committed to maintain the highest standards of healthcare at an affordable cost.

The hospital's Accident and Medical Emergency Center is equipped with 10 beds – 4 red zone, 6 yellow – fortified with most advanced life-saving facilities such as cardiac, trauma, pediatric bays, a special room for infectious diseases, and mini operation theatres within the department to manage all major life saving procedures.

The Mother & Child unit is having modern neonatal intensive care and pediatric surgical care facilities. It is equipped with four independent and fully furnished labor suites connected to a dedicated Gynae operation theatre where patients receive individual pre and post pregnancy care. Its experienced gynecologists are trained to detect cancer in the OPD itself, offering Gynae-Oncology and Urogynecology services for highly specialized care to patients with cancer and urinary problems. The Mother & Child unit also provides Assisted Reproductive Technologies (ART) services, offering In Vitro Fertilization (IVF), Intracytoplasmic Sperm Injection (ICSI) and Intrauterine Insemination (IUI) in a separate test tube baby clinic.

Section-2

Mode of Data collection- GENERAL OBSERVATION

I was supposed to only observe the processes and services that were going on general and day-to-day basis in the OPD of the hospital and come up with the ideas of the project topic along with suggestions for improvement, if any, in the OPD.

Section-3

General findings and work done daily on the basis of Observation

DAY 1- Orientation

On the very first day of our reporting that is on 10th of May 2021, n the Aditya Birla Memorial Hospital, Pimpri Chinchwad, Pune, we had our orientation to the hospital, along with the general documentation process and the work that we need to do for the next 2 months, by the HR manager Mr. Pankaj Mishra.

We were informed about the basic Do's and Do not's, our working timings, the basic Organization Culture of ABMH how we could maintain our health and work as well in these times of COVID in the hospital and the vision and mission of the hospital/ group as well. We were also told about basic exercises and diet that we need to follow to maintain our immune system well and also to increase our efficiency at work.

We had an introduction with the management of the hospital, which included the Human Resource Head, Mr. Ramesh Dixit, the Head of Operations Department Mr. Sandeep Singh, and we were asked about our preferences of the department that we were interested in working. At the end of the day, we had a mindfulness meditation session that we were advised to perform regularly to protect ourselves and keep a positive attitude in these difficult times.

DAY -2

Observation-On the second day, 11th of May20 21, we had our introduction with the OPD in charge Dr. Shrikant Suryavanshi, and we were allotted the respective departments for working and observation. I was allotted the OPD building under the mentorship of Dr. Piyusha Mane. The Guest Relations Coordinator Ms. Harshada introduced us to all the sections of the OPD building. The OPD comprises of the following:

We were explained in detail about the Registration system of the hospital in the OPD and how the billing and appointments of the patients were allotted. The process is as follows:

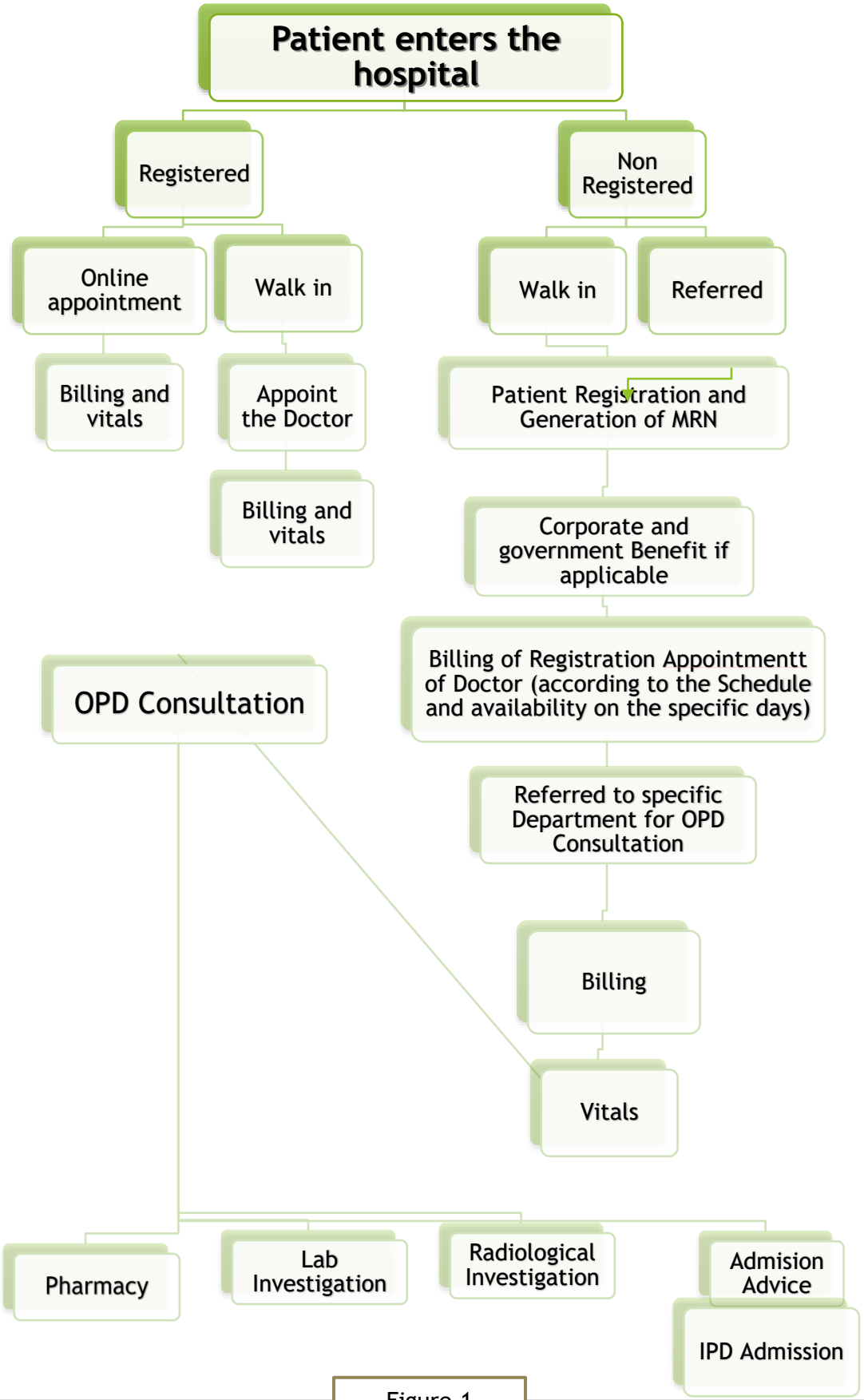

Patient enters the hospital
Registered
Non Registered
Online appointment
Walk in
Walk in
Referred
Billing and vitals
Appoint the Doctor
Patient Registration and Generation of MRN
Billing and vitals
Corporate and government Benefit if applicable
Billing of Registration Appointmentt of Doctor (according to the Schedule and availability on the specific days)
OPD Consultation
Referred to specific Department for OPD Consultation
Billing
Vitals
Pharmacy
Lab Investigation
Radiological Investigation
Admision Advice
IPD Admission

Figure-1

DAY 3

OBSERVATION: On day 3rd, 12th May 2021, that is 13th of May 2021, at the main reception of the hospital, where maximum of new patient registrations is done, whether they are the referred patients or the new walk in. We were asked by our mentor to observe the complete process of how the patient is registered in the Hospital Information System along with the generation of invoice.

I learnt about the registration process and the specific benefits that are available for the patients, as in if they are working in corporate so they can avail corporate benefits, if they work in Government sector, they can avail benefits related to it like CGHS, CSMA, ECHS, ESIC.

Also, this hospital provides a specific card called Neighborhood card, that is valid for a year after initial registration and has specific advantage in terms of the charges of consultation and laboratory tests. It can be renewed annually.

DAY 4-

OBSERVATION: On day 3, that is 13th of May 2021, I observed the registration TAT at the main reception of the newly registered patients and tracked the average time that they took for the process, which is on an average 9 mins. Also, observation of the waiting time of the patients in different departments was done. The average waiting time for the patients here is 23 min in all the departments which is the time taken for the patient after billing till the time they enter the consultant's cabin.

Observation was in the Department of ophthalmology, urology, gastro, and neuro. Maximum waiting time were in the given or the average time limit of the hospital while there are some exceptions for the specific consultants who are available only on the specific days of the week.

DAY 5

Observation- On the 5th Day, that is 14th of May 2021, I was assigned the work of observation of managing the billing section of the cardiac OPD since it is the most active OPD of all the departments. Assisting in the process and understanding the gaps if any in the process was the objective of the day.

DAY 6

OBSERVATION- On the 6th Day, that is on 15th of May 2021, I was allotted the duty of observation of the complete thorough process of patient management in the OPD of Cardiac sciences, since Saturday is the most hectic day with all the appointments as well as the follow ups of the patients.

Also, my mentor allotted me the task to get the thorough acquaintance of all the consultants with specialties according to specific departments.

DAY 7- SUNDAY

DAY 8

OBJECTIVE: Observation and work in the Flu WING- Covid ward

OBSERVATION-On Day 8th, that is 17th May 2021, under the guidance of my Mentor Dr. Piyusha Mane, and with all the due precautions, I was posted in the Covid wing of the hospital. I was assisting my mentor in the following procedures that are carried out on everyday basis for the patients:

- Stock supply of PPE kits, gloves, mask.
- Scheduling of the patient discharges and number of patients discharges per day.
- Follow up of preparation of discharge notes and TPA work.
- Shifting of patients from one ward to the other based on the improvement and requirement.
- Follow-up of regular updates of patient's condition to their family members.
- Shifting of patients from COVID to NON-COVID ward/ICU.
- Letter of second opinion from the relatives and the doctor's signature.

Also, along with the above task, online paperless consultation of the Doctors with the patients in the OPD, and the complete system from entering of clinical notes to the investigations and pharmacy was explained to us.

DAY 9

OBSERVATION- We had meeting with Dr. Shrikant Suryavanshi, OPD in charge. Sir gave us the overall revision on the RHIS, which is used in ABMH. He told us about some issues that then doctors were facing in the system during the online consultation. We were asked to

give our suggestions for seamless working of the seamless and reduce the time required for the consultation. We were asked to work on this and further to decide the project topic based on this.

DAY 10

OBJECTIVE- Observation and work in the Flu WING- Covid ward

OBSERVATION- On Day 10th, that is 19th May 2021, under the guidance of my Mentor Dr. Piyusha Mane, and with all the due precautions, I was posted in the Covid wing of the hospital. I was assisting my mentor in the following procedures that are carried out on everyday basis for the patients:

- The discharges and regular follow up of the process
- LAMA- Leave against medical advice for the patients whose relatives do not wish to keep them admitted in the hospital- this process requires filling up of two forms and approval from the Doctor in charge of the ICU/ Ward.
- Shifting of patient's beds- from ICU to ICU, or ICU to WARD, and the points that are to be kept in mind while managing this process from the administrative point of view.

DAY 11

Observation-On the day 11th, that is 21st of May 2021, we did the task of report preparation on the basis of general observation till date and preparation of the flow chart of the Hospital information system for the purpose of our understanding of it and for preparation for topic of the summer project.

DAY 12

Observation- Observation of the TAT in the internal medicine department as there was too much of patient rush there.

DAY 13

Observation- On Day 13th, that is 22nd of May 2021, Saturday is the busiest day in the OPD of internal medicine so were asked to manage the patient sequence and appointments in the department and observe the whole process throughout the day.

Day 14- Sunday

Day 15

Observation- On day 15th, i.e., 24th of May 2021, we were given the task of meeting the consultants by OPD in charge, in order to know about the problems, they were facing with the system during the consultations. On the basis of this we were supposed to finalize our topics for the project.

Day 16

Observation- On day 16th, i.e., 25th of May 2021, we were assigned the task of assisting our mentors to explain the doctors about the basic changes made in the system for their convenience.

Day 17

Observation- - On day 17th, i.e., 26th of May 2021, we were given the task of meeting the consultants by OPD in charge, in order to know about the problems they were facing with the system during the consultations. On the basis of this we were supposed to finalize our topics for the project.

Day 18

Observation- On day 18th, i.e., 27th of May 2021, we were given the task of meeting the consultants by OPD in charge, in order to know about the problems, they were facing with the system during the consultations. On the basis of this we were supposed to finalize our topics for the project.

Day 19

Observation- On day 19th, i.e., 28th of May 2021, I finalized the topic of summer internship project with my OPD in charge and my mentor and started to collect information required for the preparation of the questionnaire.

Day 20

Observation-On day 20th, i.e., 29th of May 2021, there was task of general observation and coordination in the whole OPD and working on the preparation of SIP questionnaire.

Day 21

Sunday

Day 22

On the 22nd day, i.e., 31st May 2021, I was allotted a task of preparation of a report for the OPD by my mentor based on the previous year and COVID related patient services and prepare a pivot table excel sheet of it.

Day 23

On 23rd Day, i.e., 1st of June, I was allotted a task of preparation of a report for the OPD by my mentor based on the previous year and COVID related patient services and prepare a pivot table excel sheet of it.

Day 24

On Day 24th, 2nd of June, I along with my colleagues, were given the brief overview of the IPD and the departments in it along with visit to all of them.

Day 25

On day 25th, i.e., 3rd of June, I was allotted a task of preparation of a report for the OPD by my mentor based on the previous year and COVID related patient services and prepare a pivot table excel sheet of it.

Day 26

On day 26th, i.e. 4th of June, Preparation of questionnaire for the project was the task along with general observation and to write the Swot side by side for the OPD on the basis of my observation.

Day 27

On day 27th, i.e., 5th of June- Preparation of questionnaire

Day 28

6th of June

Sunday

Day 29

On day 29th, i.e., 7th of June-Preparation of questionnaire

Day 30

Preparation of questionnaire

Day 31

On day 31st, i.e., 9th of June- I did the Project work and finalization of the questionnaire with the OPD in charge and the mentor and general observation at the main reception.

Day 32

On day 32nd, i.e., 10th of June- I did the Project work and finalization of the questionnaire with the OPD in charge and the mentor and general observation at the main reception.

Day 33

On day 33rd, i.e., 11th of June- I did the Project work and finalization of the questionnaire with the OPD in charge and the mentor and general observation at the main reception.

Day 34

Leave

Day 35

Sunday

Day 36 and Day 37

Coordination at the main reception in the OPD due to increase in the patient flow.

Day 38

We were oriented to the complete oncology section which is a separate 5 floor building completely dedicated in the campus for the cancer treatment itself. It had sections like oncology OPD, PET scan, dialysis sections as well.

Day 39

Data collection

Day 40

Data collection

Day 41

Orientation training to the new changes made in the RHIS system of the hospital for Doctors Convenience.

Day 42

Sunday

Day 43-47

Data collection

Day 48

Leave

Day 49

Sunday

Day 50

Leave

Day 51-52

Data collection and general OPD observation

Day 53-54

Leave for vaccination

Day 55

On day 55th, i.e., 3rd of July, I was at the Main reception for patient coordination at the OPD due to increased patient flow on Saturdays and Mondays

Day 56

Sunday

Day 57

Data analysis of the collected data from doctors and patients

Day 58

Data analysis of the collected data from doctors and patients

Day 59

Preparation of the presentation for presenting it in the organization and approval of the changes as suggested by the in charge

Day 60- Final presentation and feedback from the organization and report submission in the organization.

Section-4

Suggestions

- Patient interaction can be more helpful and empathetic.
- More awareness of the reception staff about the hospital terminologies can be done.
- Main reception-only the staff allotted the duty can be available there.
- A digital roadmap at the entrance for the better understanding of the local crowd would be helpful or a miniature model of the hospital can be kept at the entrance also.
- A digital screen in every department for the patients to let them know about their timing and sequence of appointment could be placed.
- An auto generated text message for the non or late availability of the doctors can be circulated for the comfort of the patient, especially geriatric group.

Part-II

Specific Project Findings

Section-1- Introduction

The major department that I was allotted during the whole phase of the internship was in the OPD-patient service. Since the COVID pandemic had started, the aim of hospital was to have minimal contact and go paperless/online in its services as much as possible. Hence, the hospital IT department had developed its own Information system, with all the details and records of the patient for the OPD and IPD sections as well. To know the overall effects of going paperless/online was a topic of interest of the hospital, and hence I was allotted this as my project topic for the same.

Topic- Implementation and the effects of the online/paperless consultation process in the OPD services in ABMH

Research Question- What are the Implementation and the effects of the online/paperless consultation services in the Outpatient department services of the Aditya Birla Memorial Hospital, in the times of Covid-19 Pandemic?

Aim- To observe the implementation and the effects of the online or paperless consultation process in the Aditya Birla Memorial Hospital OPD services during the period of COVID-19 Pandemic.

Objectives:

a) To observe the processes that are carried out paperless/online in the hospital.
b) To study the implementation of these processes in the various sections of the OPD.
c) To study the benefits of Paperless/online consultation for doctors and patients.

Rationale of the study:

Since the COVID-19 pandemic has started, it has been the aim of many hospitals to carry out the processes that have minimal in person contact to maintain the protocols of social distancing and to go paperless as much as possible in their services. But the effectiveness and implementation of these processes still lack in their complete application. As far as hospital services are concerned, OPD is the gateway of the inside of the hospital. If the process is incomplete here, it remains so in the IPD as well.

OPD is meant to know about the onset, duration, and problem of the patient, but Medical Profession needs Radiological and Pathological evidences as well to confirm the diagnosis and proceed with further procedures, if required.

It is alright if the patient has been already seen by the same Doctor and the same hospital, but the improvement assessment is a subjective thing and not just merely objective. Ultimately, online consultations have got its own limitations also in the OPD.

But, to overcome these limitations, though not completely, we need to study the implementation of these online services as well as its effects to get an analysis of it. With this aim, this study was conducted in the ADITYA BIRLA MEMORIAL HOSPITAL, PUNE, in the OPD to observe the implementation and the effects of all the services that are being provided online to the patients and analyze the short comings for the improvement.

Section-2

Methods and materials including research design, sample size, sampling techniques, mode of data collection, analysis used for the collected data.

This study was carried out in the OPD of the Aditya Birla Memorial Hospital, from May-June 2020. It was a qualitative study involving distribution of the questionnaire among the respondents for the survey purpose and later analyzing the results based on the design. A sample size of 100 was taken for the study, from which 50 were patients and 50 were Doctors and the sampling of the patients and the doctors was done randomly, i.e., simple random sampling method was used. A form of 10 questions each was prepared for the doctors and the patients separately, visiting to the hospital. The method of data collection was that of a direct questionnaire type. The questionnaire was circulated among 50 doctors and 50 patients on a random basis, and also specific suggestions, if any, were asked to be mentioned.

Section-3

Data compilation, analysis, and interpretation

A. Demographic distribution of the sample of the study among the patients-

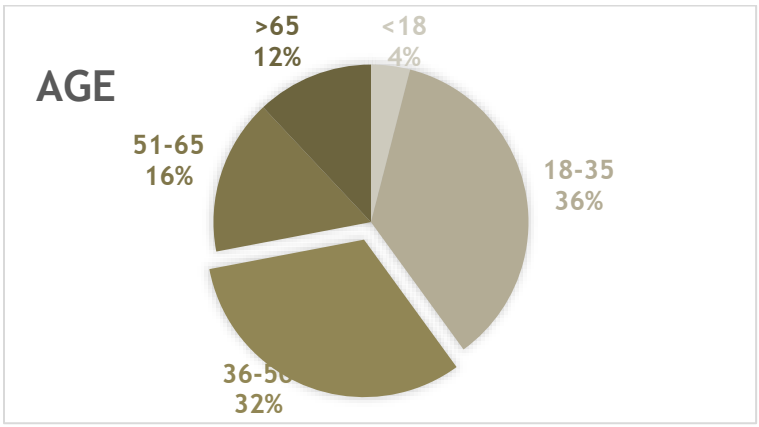


Chart-1

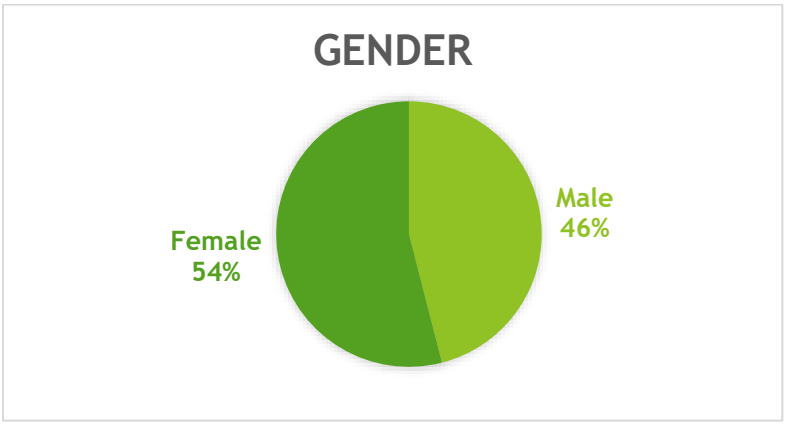


Chart-2

From the above chart 2 and 3, it can be seen that that demographically, the maximum responses of patients among whom the questionnaire was circulated were from the age group of 18-35, which is 36% and less then that were of 36-50, which is 32%. Signinficantly, 12% patients from the age group of 65 and above were also the respondents in the study.

B. Appointment booking services and type of appointment

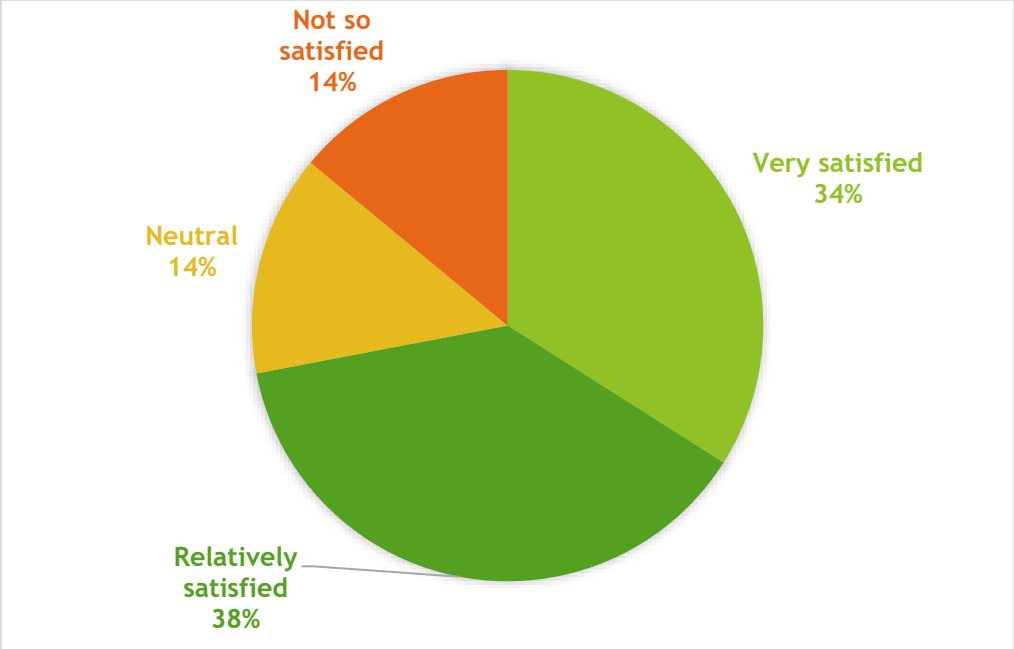
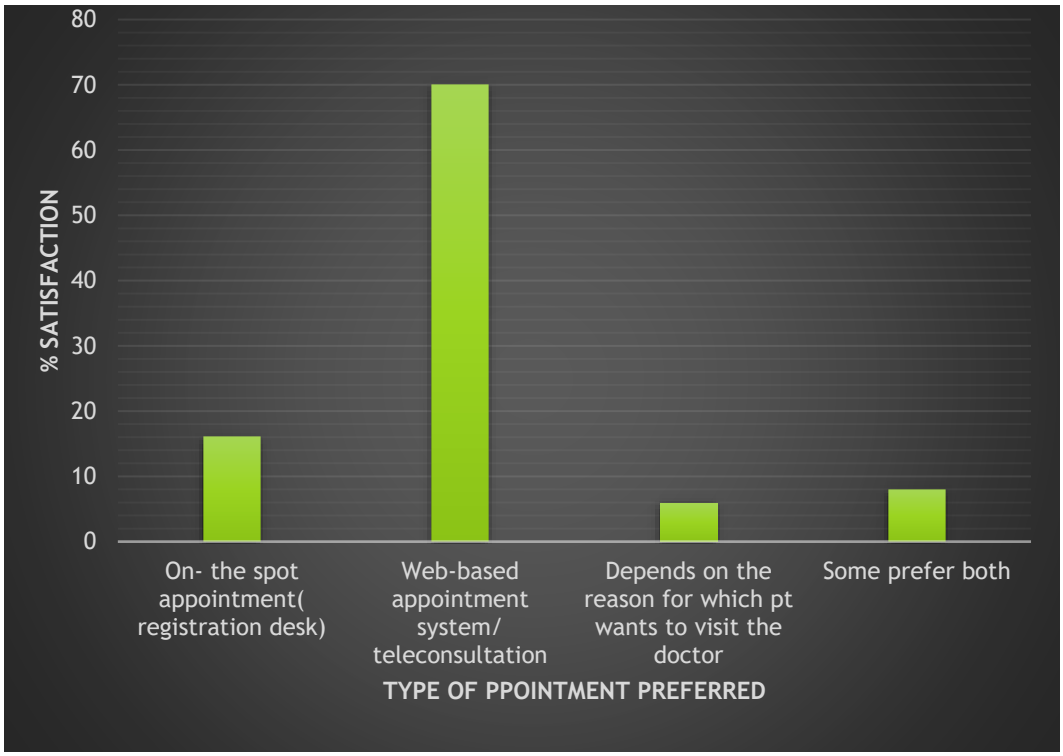


Chart-3 Satisfaction rate of appointment booking services among patients



Graph-1 Type of appointment preferred by the doctors

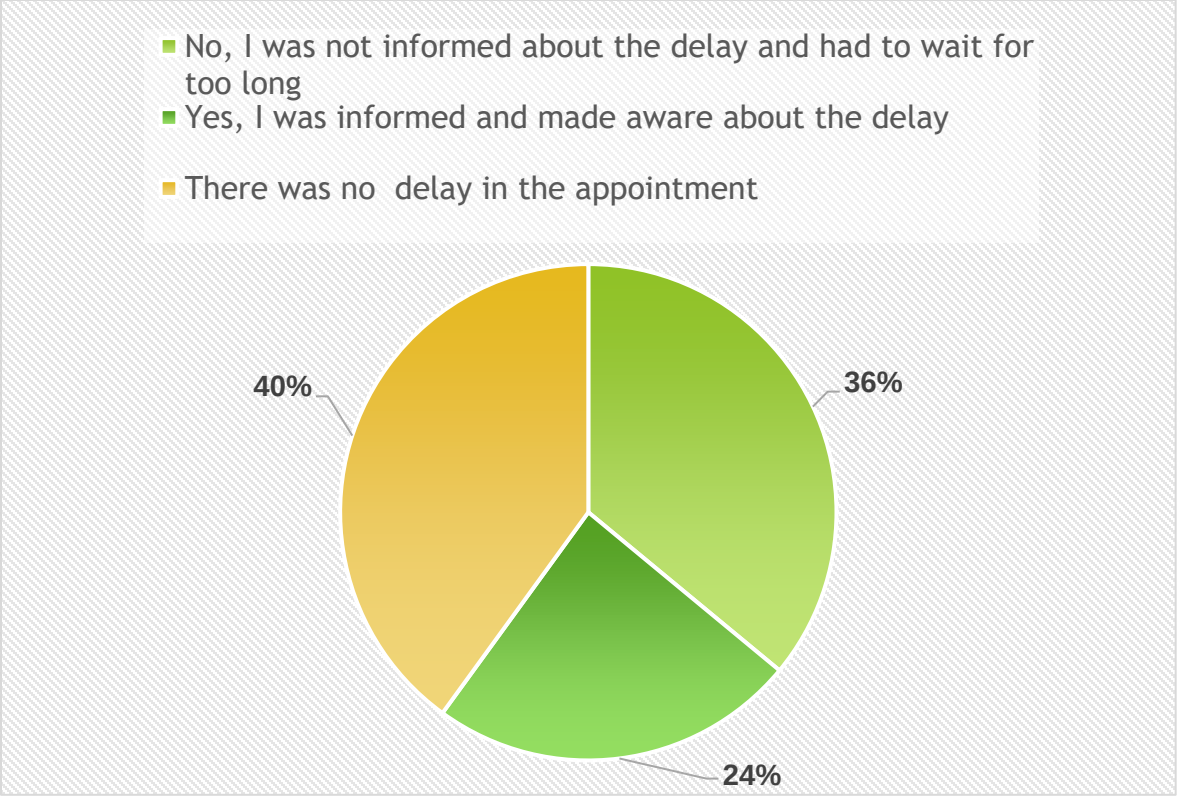
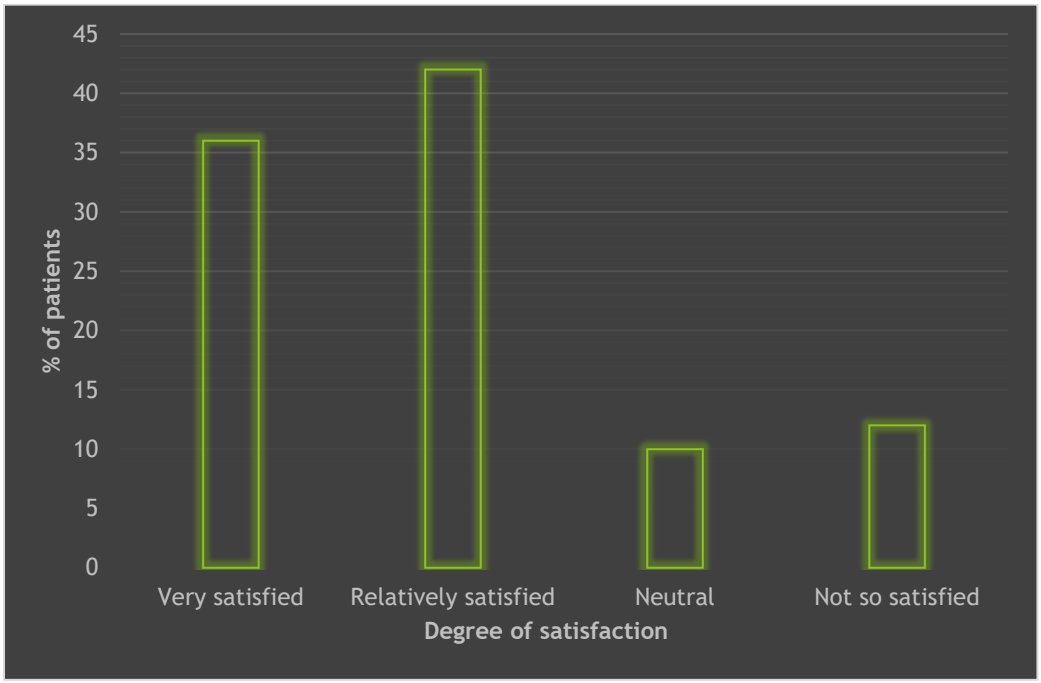


Chart-5 Delay in the appointment of the patients

Chart 5 shows the delay in the appointment from the doctors or hospital side, and 40% of them responded that there was no delay in the apppointment, while 3% of them said that the appointment was also delayed and they werent even informed about it in prior. Whereas 24% of them had an opinion that they were informed about the delay.

C. Time allotment for the consultation



Graph-2 Satisfactory rate of time allotted for consultation among patients

Graph-2 shows the Satisfactory rate of time allotted for consultation among patients and maimum of them are very satisfied or relatively satisfied with the time they have been allotted for the consultation with the doctors.

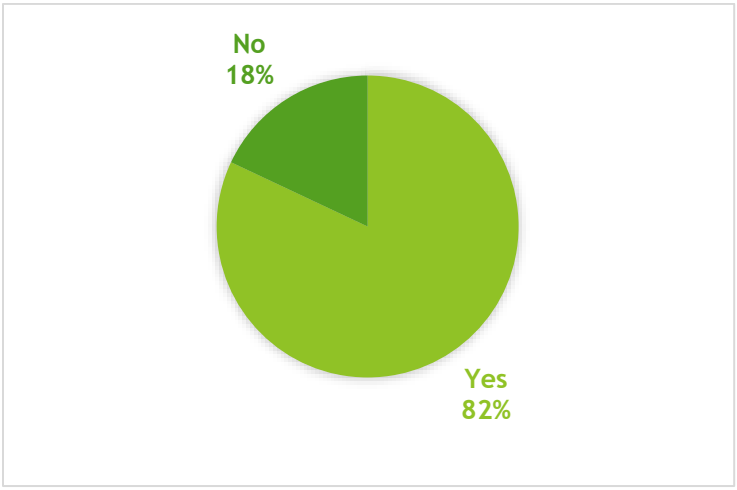
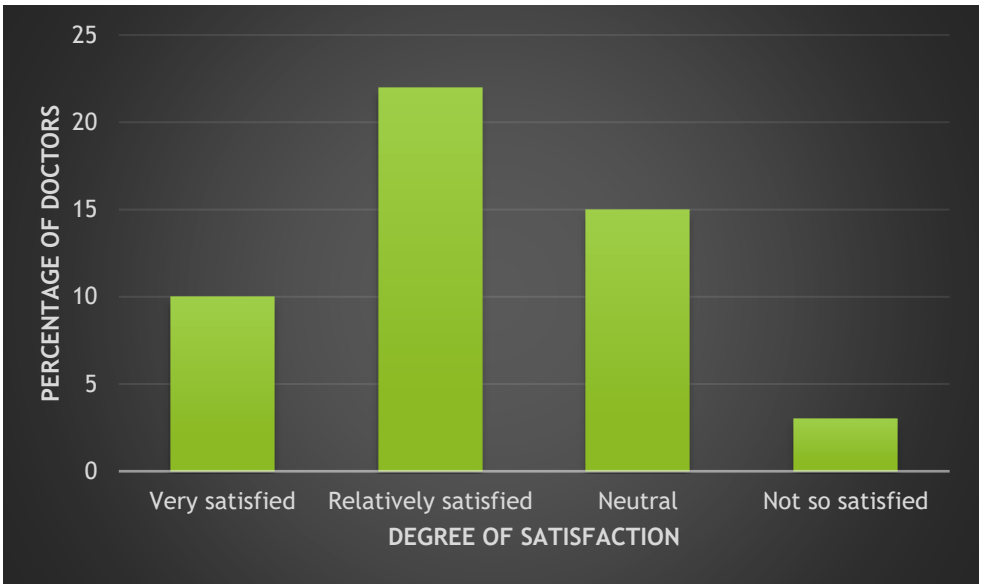


Chart-6 Time alottment for the consultation



Graph-3 Overall process satisfaction among doctors

Chart 6 and graph-3 show the general Time allotment and Overall process flow satisfaction among doctors and 82% of the doctors are satisfied with the appointmnet boooking services and maximum of them are very satisfied or neutral in their opinion about it.

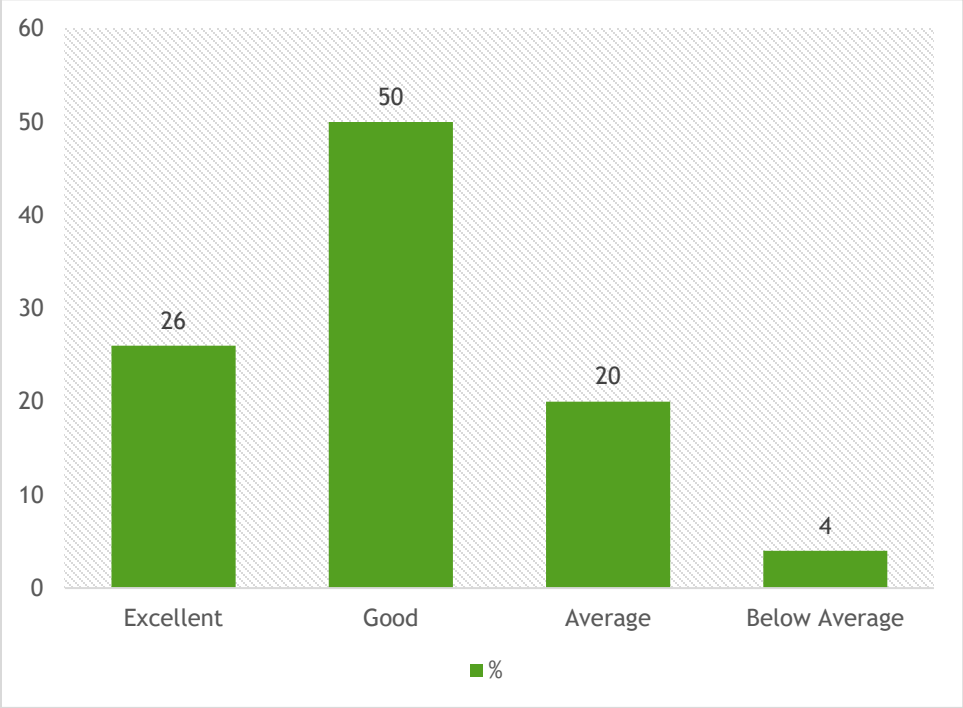


Chart-7- Paperless/online consultation degree of satisfaction-Patients

D. Video Consultation and the online software

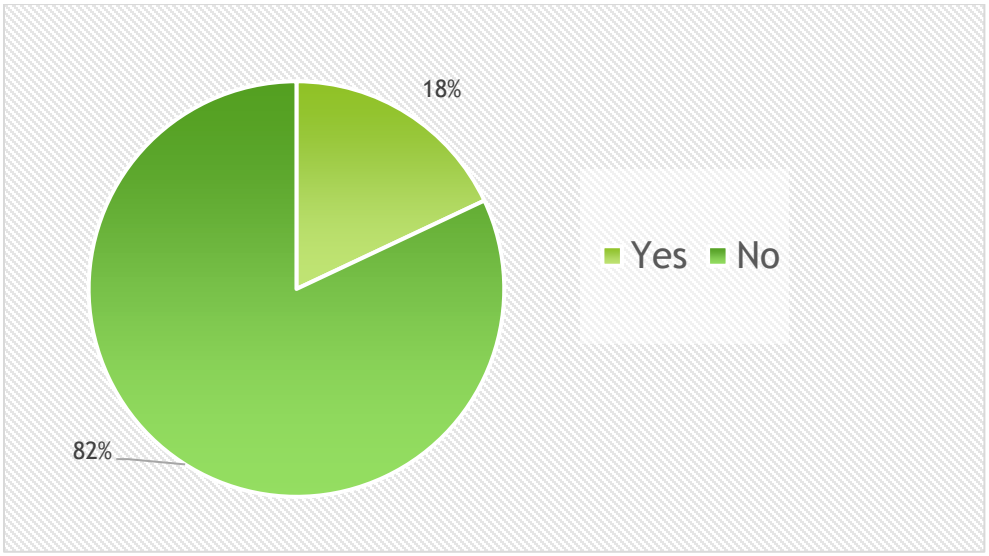


Chart-8 - Percentage of people using video-consultation

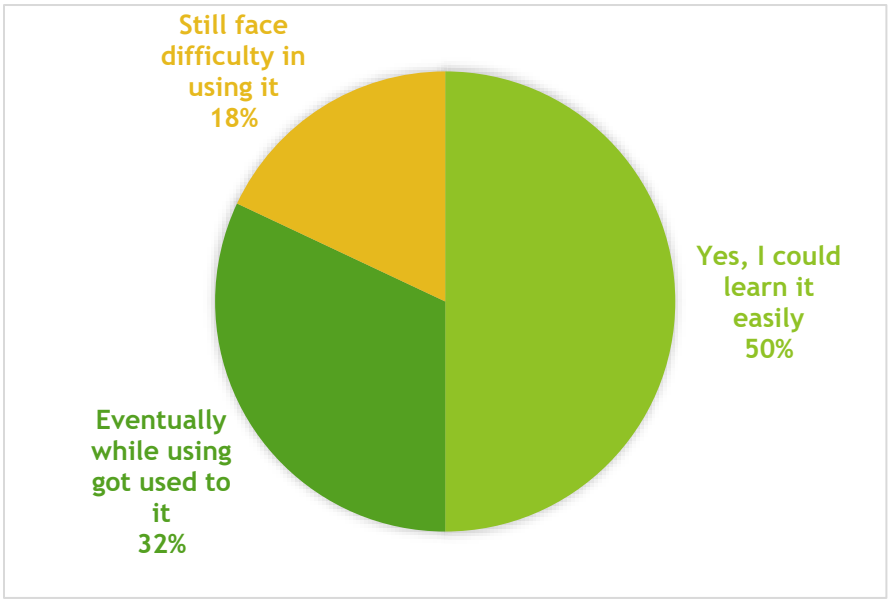


Chart-9- Shows the Ease of online consultation software usability for doctors and 50% of the doctors have no difficulty while using the software but the 18% of them who still face difficulty in using is due to the preference of traditional method of pen and paper consultation.

E. Patient comfort and management through paperless consultation

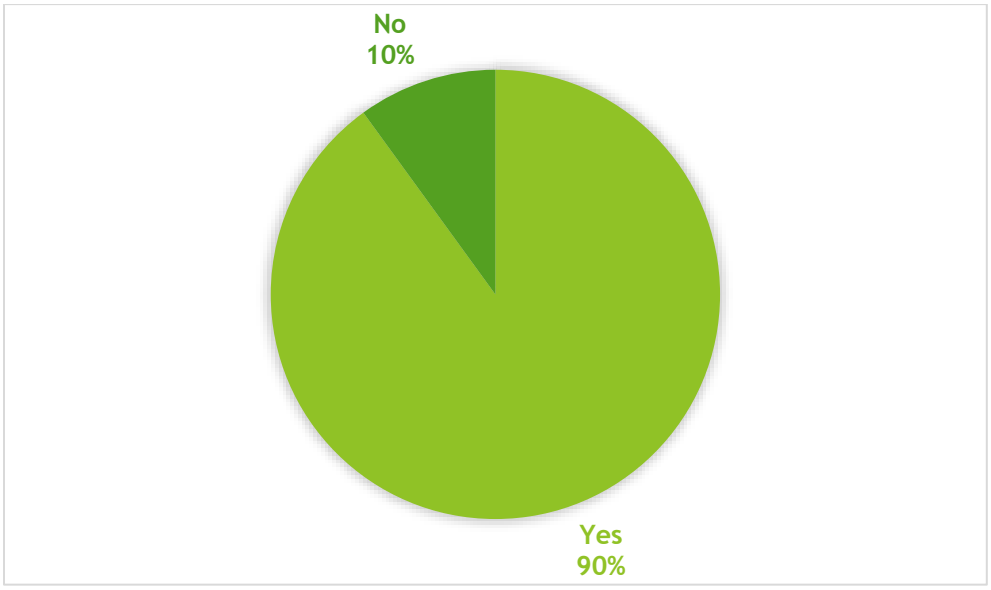


Chart-10 Patient comfort during paperless/teleconsultation

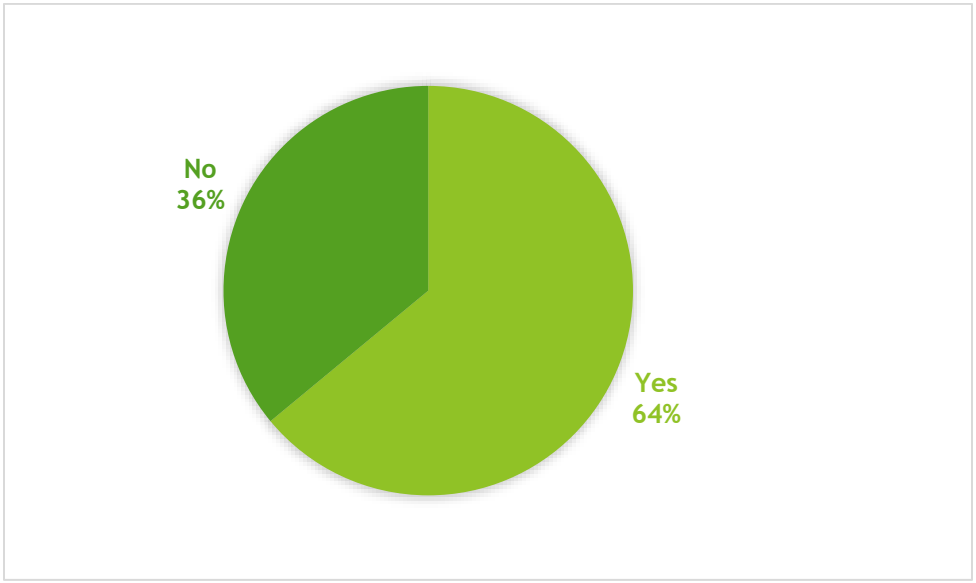


Chart-11- Patients need to clarify any clinical information during or after the appointment

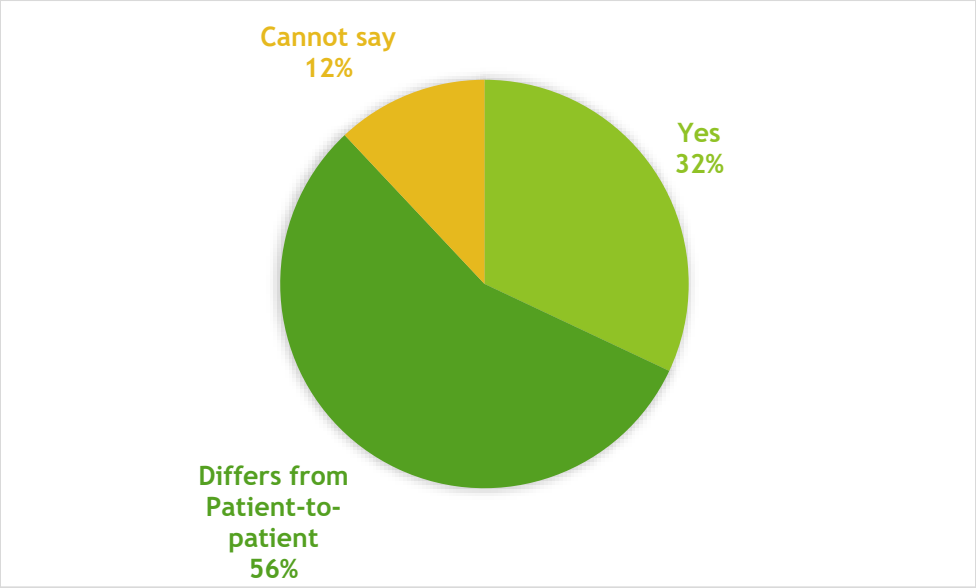


Chart-12-Online consultation help in better managing the patients' health and access his medical needs

Chart 10,11 and 12 show the patient comfort and management while the online/paperless consultation. Maximum patients were comfortable during the consultation, but as figure 14 shows, 64% of them needed to clarify the clinical information again with the doctors due to non-understanding of it.

Figure 15 shows that the management of patient via paperless/online consultation differs from patient to patient in view of 56% of doctors while remaining of them say that 32% of them can either manage them well and 12% of them cannot comment on it.

Section-4

Recommendations and conclusion

For the patients between the age group of 36-50 and 18-35, we concluded that the results were relatively satisfactory with the overall online/paperless and video consultation. While for the doctors, major concerns were that they cannot talk to the patients face-to-face due to more time spent on the screen to ad notes and other information, that hampers the basic doctor patient rapport that needs to be maintained.

Discussion

Online/paperless consultation along with the teleconsultation has been the need of the hour since the COVID-19 pandemic has started, though it is not a traditional and proper method because many of them still believe that a doctor's touch and comfort that can be built with one-to-one conversation lacks here. Hence with this study, my aim was to find the utility and benefit of this in the Aditya Birla Memorial hospital OPD services. There were many suggestions from the consultants specifically regarding the patient comfort and clarity of the information after the consultation like-Interaction with the patient is less due to concentration on system, sometimes they get irritated as the system was not working or slow, sometimes patient complains about not reachable system. On the other hand, patients feel that their overall rating is satisfactory regarding the services.

References

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Annexure

Implementation and the effects of the paperless/online consultation process in the OPD services - in ABMH

Questionnaire for Patients:

1.

A. Your Age

- ☐ <18 years
- ☐ 18-35
- ☐ 36-50
- ☐ 51-65
- ☐ > 65

B. Gender

- ☐ Male
- ☐ Female

2. How satisfied are you with the appointment booking services?

- ☐ Very satisfied
- ☐ Relatively satisfied
- ☐ Neutral
- ☐ Not so satisfied

3. Were you informed if your appointment was delayed?

- ☐ No, I was not informed and had to wait for too long.
- ☐ Yes, I was informed and made aware about the delay.
- ☐ There was no delay in the appointment.

4. Was detailed medical history taken during the consultation?

- ☐ Yes
- ☐ No

5. How satisfied are you with the time allotted for your consultation?

- ☐ Very satisfied
- ☐ Relatively satisfied
- ☐ Neutral
- ☐ Not so satisfied

6. Did you get the prescriptions immediately after the consultation?

- ☐ Yes
- ☐ No

7. Rate the online/paperless consultation process on the degree of your satisfaction.

- ☐ Excellent
- ☐ Good
- ☐ Average
- ☐ Below average

8. Have you ever used the video/tele-consultation service of the hospital?

- ☐ Yes
- ☐ No

9. Why did you choose tele-consultation for your previous visit?

- ☐ Visit type (Sick/ not-not well)
- ☐ Health/ safety
- ☐ Location
- ☐ Save time
- ☐ Frequency of visit
- ☐ Others

10. What is your source of information for the hospital teleconsultation services?

- ☐ Email
- ☐ Message from hospital
- ☐ Social media
- ☐ Hospital enquiry desk
- ☐ Friends/ relatives

Questionnaire for Doctors:

1. What is your Specialty?

- ☐ General Physician
- ☐ Orthopedics
- ☐ Obstetrics/Gynecologist
- ☐ Pediatrician
- ☐ Cardiologist/ CVTS/Pulmonologist
- ☐ Neurologist
- ☐ General Surgeon
- ☐ Gastroenterologist
- ☐ Psychiatrist
- ☐ Dentist
- ☐ ENT
- ☐ Ophthalmologist
- ☐ Others (specify) _____.

2. What kind of appointment do you prefer for the consultation of the patient keeping in mind the COVID situation?

- ☐ On-the spot appointment (registration desk).
- ☐ Web-based appointment system/ teleconsultation.

3. Was it easy for you to use the online consultation software/equipment?

- ☐ Yes, I could learn it easily.
- ☐ Eventually while using got used to it.
- ☐ Still face difficulty in using it.

4. Was the scheduling of the appointment proper?

- ☐ Yes
- ☐ No

5. Did the patient appear comfortable during the online /paperless consultation?

- ☐ Yes
- ☐ No

6. Did the patient need your help to clarify any clinical information during or after the appointment?

- ☐ Yes
- ☐ No

7. What purpose do you use the online/paperless consultation process for?

- ☐ Clinical notes
- ☐ Ordering pharmacy
- ☐ Investigation reports
- ☐ Admission request
- ☐ OT scheduling
- ☐ Diet prescription
- ☐ All of the above

8. Does the online consultation help you better manage the patient's health and access his medical needs?

- ☐ Yes
- ☐ Differs from patient-to-patient
- ☐ Cannot say

9. Do you feel the time given to each patient for the online consultation along with adding notes is appropriate?

- ☐ Yes
- ☐ No

10. How satisfied are you with the general process flow of our online consultation in the OPD?

- ☐ Very satisfied
- ☐ Relatively satisfied
- ☐ Neutral
- ☐ Not so satisfied

Questions	Answer	*n* (%)
Telemedicine service provides desirable results in your patient's diagnosis/treatment	Yes	48 (94)
Patient's content with the treatment through telemedicine	Yes	51 (100)
Patient's turn up promptly for the recall check up	Yes	36 (71)
Patients flow for telemedicine consultation since you have begun has		
Increased	Yes	31 (61)
No change	Yes	18 (35)
Decreased	Yes	2 (4)
Is telemedicine beneficial for your practice?	Yes	45 (90)
Would like to promote your colleagues toward telemedicine service?	Yes	47 (94)

Questions	Answer	*n* (%)
Was scheduling of appointment appropriate?	Yes	64 (90)
Was detailed medical history and consent been taken before treating you?	Yes	71 (100)
Are you satisfied with the treatment given through telemedicine?	Yes	58 (82)
Did you find telemedicine service		
Feasible	Yes	3 (4)
Convenient	Yes	5 (7)
Feasible and convenient	Yes	63 (89)
Would you like to recommend this service to your friends?	Yes	63 (89)
Did you find any difficulty in understanding the process of telemedicine?	No	38 (54)

Item	*N*	M (SD)*	Video Visits	Use and Impact	Variance Explained
A nurse can get a good understanding of my condition during a medical visit	338	4.5 (0.66)	0.824		
My nurse case manager answers my questions	340	4.6 (0.58)	0.819		
My nurse case manager deals with my problems	338	4.5 (0.66)	0.805		
My nurse case manager engages me in my care	338	4.5 (0.63)	0.783		
I can explain my medical problems well enough during a video visit	333	4.5 (0.66)	0.742		
The lack of physical contact during a video visit is not a problem	341	4.4 (0.69)	0.722		
My privacy is protected during video visits	310	4.5 (0.57)	0.696		
Talking to a nurse during a video visit is as satisfying as talking in person	340	4.5 (0.77)	0.686		
Video visits make it easier for me to contact the nurse	337	4.4 (0.78)	0.674		
Video visits are a convenient form of healthcare for me	342	4.5 (0.74)	0.660		
Video visits save me time	330	4.4 (0.82)	0.631		
					34.1%
I am more involved in my care using the telemedicine system	341	4.4 (0.79)		0.773	
The telemedicine equipment is easy to use	343	4.3 (0.85)		0.740	
The telemedicine system helps me to better manage my health and medical needs	342	4.4 (0.74)		0.735	
In general, I am satisfied with the telemedicine system	342	4.5 (0.71)		0.702	
My health is better than it was before I used the technology	335	4.2 (0.93)		0.693	
I follow my doctor's advice better since working with the telemedicine system	338	4.2 (0.90)		0.673	
The telemedicine system helps monitor my health condition	342	4.5 (0.66)		0.642	
It was easy to learn to use the equipment	340	4.2 (0.88)		0.603	
My doctor uses information from the telemedicine system in my office visits	286	4.1 (1.1)		0.597	
I can always trust the equipment to work	341	4.1 (1.1)		0.521	
					29.5%
Total Percent Variance Explained					63.6%

*Satisfaction: 1, strongly disagree to 5, strongly agree.

Interface Quality				
1	The way I interact with this system is pleasant			Y
2	I like using the system			Y
3	The system is simple and easy to understand	S		Y
4	This system is able to do everything I would want it to be able to do	S		Y
Interaction Quality				
1	I could easily talk to the clinician using the telehealth system		Y	
2	I could hear the clinician clearly using the telehealth system		Y	
3	I felt I was able to express myself effectively		Y	
4	Using the telehealth system, I could see the clinician as well as if we met in person		Y	
Reliability				
1	I think the visits provided over the telehealth system are the same as in-person visits		Y	
2	Whenever I made a mistake using the system, I could recover easily and quickly	S		Y
3	The system gave error messages that clearly told me how to fix problems			Y
Satisfaction and Future Use				
1	I feel comfortable communicating with the clinician using the telehealth system		Y	Y
2	Telehealth is an acceptable way to receive healthcare services	S	Y	Y
3	I would use telehealth services again		Y	
4	Overall, I am satisfied with this telehealth system		Y	Y

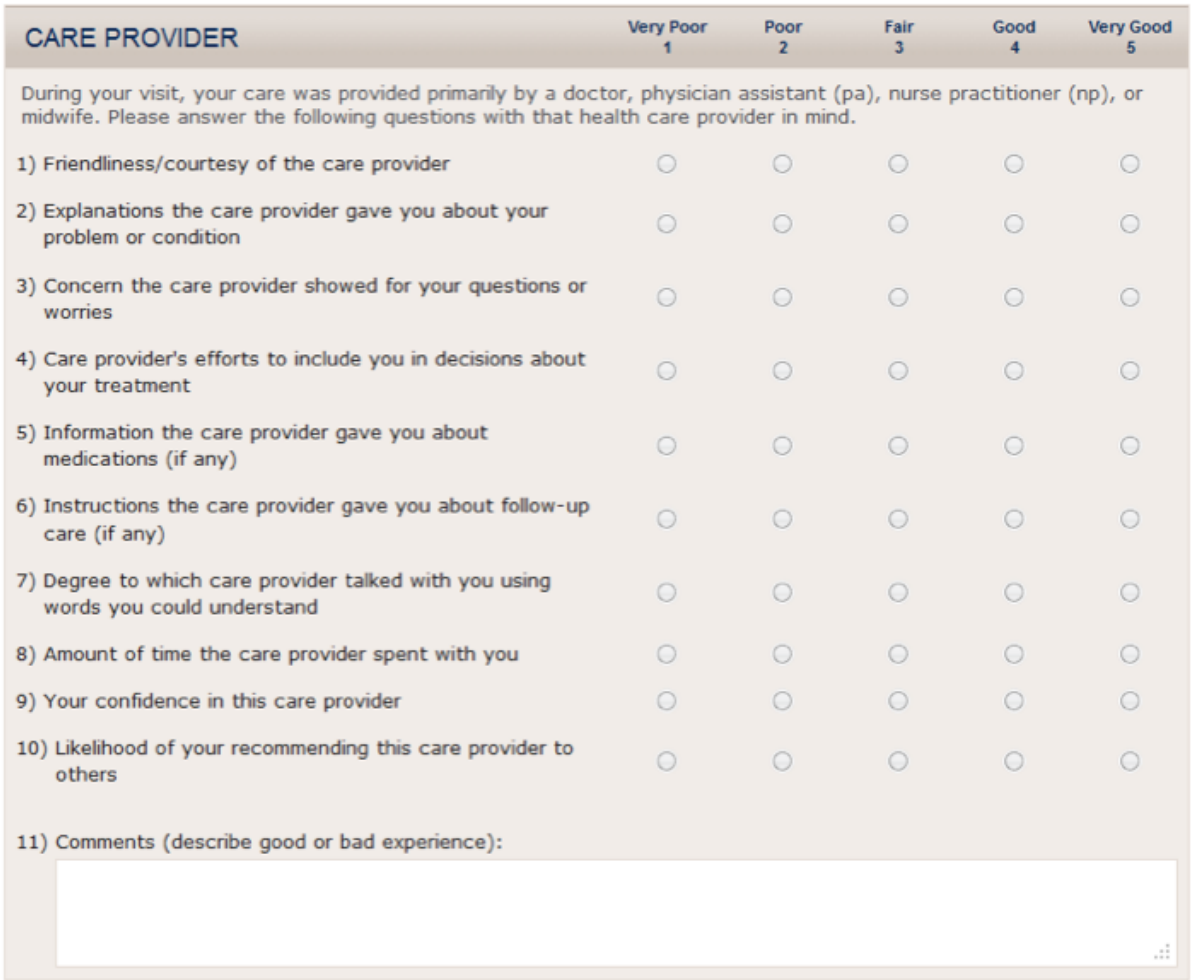
Note. Y = taken from the questionnaire with no or slight change; S = Similar item with different wording exists in the questionnaire.

USABILITY FACTORS

patient satisfaction (Aoki et al., 2003; Heinzelmann, Williams, Lugn, & Kvedar, 2005), while later work

Table 1: Usability Components and Questionnaire Items and Their Source

Components	Questionnaire Items	TAM	TSQ	PSSUQ
Usefulness				
1	Telehealth improves my access to healthcare services	S	Y	
2	Telehealth saves me time traveling to a hospital or specialist clinic	S	Y	
3	Telehealth provides for my healthcare needs	S	Y	
Ease of Use and Learnability				
1	It was simple to use this system	Y	S	Y
2	It was easy to learn to use the system	Y		Y
3	I believe I could become productive quickly using this system	Y		Y



CARE PROVIDER

	Very Poor 1	Poor 2	Fair 3	Good 4	Very Good 5
During your visit, your care was provided primarily by a doctor, physician assistant (pa), nurse practitioner (np), or midwife. Please answer the following questions with that health care provider in mind.					
1) Friendliness/courtesy of the care provider	○	○	○	○	○
2) Explanations the care provider gave you about your problem or condition	○	○	○	○	○
3) Concern the care provider showed for your questions or worries	○	○	○	○	○
4) Care provider's efforts to include you in decisions about your treatment	○	○	○	○	○
5) Information the care provider gave you about medications (if any)	○	○	○	○	○
6) Instructions the care provider gave you about follow-up care (if any)	○	○	○	○	○
7) Degree to which care provider talked with you using words you could understand	○	○	○	○	○
8) Amount of time the care provider spent with you	○	○	○	○	○
9) Your confidence in this care provider	○	○	○	○	○
10) Likelihood of your recommending this care provider to others	○	○	○	○	○

11) Comments (describe good or bad experience):