DI SSERTATION

at

TATA 1mg, Gurugram

(14th February 2022 to 14th May 2022)

TO UNDERSTAND PATIENT SATISFACTION WITH THE USE OF APP-BASED TELEMEDICINE SERVICES IN INDIA

Report

Submitted by

Dr. Alisha Anand (Roll No. PG/20/005)

Post-Graduate Diploma in Hospital and Health Management (2020-2022)

Guide: Dr. Nikita Sabharwal, Associate professor at IIHMR, Delhi

International Institute of Health Management Research, New Delhi

ABSTRACT

The objective of this study was to look at patient satisfaction with the use of app-based telemedicine services. As we enter the 21st century, an era known as the Information Age, we are realizing that technology and its capabilities are almost limitless. Telemedicine, or the concept of applying innovative technology to medicine, has only recently entered the spotlight post-pandemic. The field of medicine is constantly becoming more advanced as we find more ways to provide healthcare in a more effective and efficient way. Telemedicine was originally introduced in the 1950s however, with the lack of both the proper technology and evidence of effectiveness, it took a very long time for telemedicine to finally be accepted by society.

Telemedicine has received a lot of criticism as some complain that it provides impersonal care and takes away from the patient and physician relationship that is so highly valued today. Although telemedicine sometimes creates a barrier between patients and their providers, it allows those patients to receive care that they would otherwise not have access to. This is the case for patients who live in rural areas, have chronic diseases, and require constant monitoring or those whose condition has simply left them homebound. Therefore, telemedicine has significant sociological implications as it challenges the way medicine has been traditionally practiced for hundreds of years. Its effects can be described from both a patient and provider perspective. In this study, I studied provider satisfaction with the use of telemedicine in the delivery of care for patients. Telemedicine can come in several different forms ranging from sending electronic medical records to examining a patient's body with an electronic scope. The data I gathered in my study comprises unique experiences in the field of telemedicine. From the literature, it is clear that the providers and patients find different aspects of telemedicine to be appealing but have noted certain limitations with its use. I found that the patients are satisfied with the use of telemedicine in healthcare but do feel that telemedicine has its limitations. Positive aspects of telemedicine were that it is convenient, saved costs, and improves care. However, the subjects noted certain limitations including technological incompatibility and loss of personal interaction.

CERTIFICATE OF APPROVAL

The following dissertation titled "UNDERSTANDING PATIENT SATISFACTION WITH THE USE OF APP-BASED TELEMEDICINE SERVICES" at "TATA 1mg, Gurugram" is hereby approved as a certified study in management carried out and presented in a manner satisfactorily to warrant its acceptance as a prerequisite for the award of **PGDM (Hospital & Health Management)** for which it has been submitted. It is understood that by this approval the undersigned do not necessarily endorse or approve any statement made, opinion expressed or conclusion drawn therein but approve the dissertation only for the purpose it is submitted.

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Dr. Sukesh Bhardwaj	
Dr Anandi Ramchandran.	

INTERNATIONAL INSTITUTE OF HEALTH MANAGEMENT RESEARCH, NEW DELHI

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This is to certify that the dissertation titled Understanding patient satisfaction with the use of app-based telemedicine services, submitted by Dr. Alisha Anand Enrolment No. **Roll No PG/20/005** under the supervision of **Dr Nikita Sabharwal,** Associate professor at IIHMR, Delhi for award of PGDM (Hospital & Health Management) of the Institute carried out during the period from Feb 14th, 2022 to May 14th , 2022 embodies my original work and has not formed the basis for the award of any degree, diploma associate ship, fellowship, titles in this or any other Institute or other similar institution of higher learning.

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During her employment with us we found her to be diligent and honest in her duties.

The management would like to thank her for her service with the company and we wish her all the best in her future endeavors.

Yours truly,

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(Authorized Signatory)

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Name of the Organisation: TATA 1mg, Gurugram

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for Archana TC

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The Candidate has successfully carried out the study designated to her during internship training and her approach to the study has been sincere, scientific, and analytical.

The Internship is the fulfillment of the course requirements. I wish her all success in all her future endeavors.

28/6/2022

Dr. Sumesh Kumar
Associate Dean, Academics

IIHMR, New Delhi

Dr. Nikita Sabharwal
Mentor

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The certificate is awarded to

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in recognition of having successfully completed her internship in the department of Corporate Health & Wellness and has successfully completed her project on

"TO UNDERSTAND PATIENT SATISFACTION WITH THE USE OF APP- BASED TELEMEDICINE SERVICES"

at

TATA 1MG, GURUGRAM

She comes across as a committed, sincere & diligent person who has a strong drive & zeal for learning.

We wish her all the best in her future endeavors.

for Chetna

(Dr. ARCHANA NIRULA)
Director

CH&W, TATA 1mg

IIHMR DELHI

INTERNATIONAL INSTITUTE OF HEALTH MANAGEMENT RESEARCH (IIHMR)

Plot No. 3, Sector 18A, Phase- II, Dwarka, New Delhi- 110075
Ph. +91-11-30418900, www.iihmrdelhi.org

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Name of Student (in block letter)	Dr./Mr./Ms.: Alisha Anand		
Enrollment/Roll No.	PG1/20/005	Batch Year	2020-22
Course Specialization (Choose one)	Hospital Management	Health Management	Healthcare IT ✓
Name of Guide/Supervisor	Dr./ Prof.: Nikita Sabharwal		
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Yours truly,

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TATA 1MG HEALTHCARE
Tata 1mg Healthcare Solutions Pvt. Ltd. (formerly known as 1MG Healthcare Solutions Private Limited and Delhi Mediart Private Limited)
Registered Office 23 B Block G T Karnal Road Industrial Area Delhi 110033
Ph 011 43769900 (40 Lines) E-mail info@1mg.com GST No 07AAFCD7691C1ZL PAN No AAFCD7691C CIN No U24290DL2016PTC302634
Corporate Office 5th Floor Tower B The Presidency Building 46/4 M G Road Sector 14 Gurgaon 122001 Haryana

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I would also like to thank my mentor, **Dr. Nikita Sabharwal,** and **Dr. Sumesh Kumar** for their continued support and guidance during my internship period.

Declaration:

I hereby declare that all the information furnished in this project is my original work done without using the data from the organization, to maintain confidentiality. This work is only being submitted to the **INTERNATIONAL INSTITUTE OF HEALTH MANAGEMENT AND RESEARCH, DELHI**.

Dr. Alisha Anand.

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ABOUT ORGANIZATION

INTRODUCTION:

TATA 1mg is India's leading digital consumer healthcare platform with services like E-Pharmacy for ordering medicines & health products online and getting them delivered at home by licensed pharmacies, Online Consultations for consulting qualified and registered doctors, Diagnostic services for booking lab tests online for hassle-free, home sample collection services and get reports online along with the authentic information (read medicine and health content written by qualified doctors and health professionals).TATA 1mg is India's most trusted source of healthcare with more than 195 million visitors and running across 1900 + cities along with 27 million orders delivered. The services offered by TATA 1mg are **Accessible**(the pharma services are available in 1800+ cities, lab services in 40+ cities and e-consults can be accessed via voice, and video calls), **Secure** (TATA 1mg uses a secure socket layer, 128-bit encryption and is PCS DSS compliant), **Affordable** (find affordable medicine substitutes, save up to 50% off on healthcare products, up to 80% off on lab tests and free doctor consultations) and **Reliable** (the programs and health information are reviewed by the in-house doctors).

TATA 1mg is India's first legit scrip-approved healthcare website. All in All, it's a one-stop platform for all health benefits with safety and security guaranteed.

From doctor consultations on chat to online pharmacy and lab tests at home: we have it all covered for you. Having delivered over 25 million orders in 1000+ cities

to date, we are on a mission to bring "care" to "health" to give you a flawless healthcare experience.

Tata 1mg: Online Pharmacy - Tata 1mg is India's leading online chemist with over 2 lakh medicines available at the best prices. We are your one-stop destination for other healthcare products as well, such as over-the-counter pharmaceuticals, healthcare devices, homeopathy, and Ayurveda medicines.

With Tata 1mg, you can buy medicines online and get them delivered to your doorstep anywhere in India. At Tata 1mg, you can buy health products and medicines online at the best discounts.

At Tata 1mg, our goal is to make healthcare understandable, accessible, and affordable in India. The journey in 2015, and have come a long way since then. Along the way, we have been conferred with prestigious titles like BML Munjal Award for 'Business Excellence through Learning and Development, Best Online Pharmacy in India Award, and Top 50 venture in The Smart CEO-Startup50 India. We have been selected as the only company from across the globe for SD3 "Health & Well Being for all" by Unreasonable Group, US State Department. In 2019 alone TATA 1mg received three awards including the BMW Simply Unstoppable Award.

Services- Tata 1mg is India's leading digital healthcare platform, where you can buy medicines online with a discount. Buy medicine online in Delhi, Mumbai, Bangalore, Hyderabad, Pune, Gurgaon, Noida, Kolkata, Chennai, Ahmedabad, Lucknow, and around 1000 more cities. Besides delivering your online medicine order to your doorstep, we provide accurate, authoritative & trustworthy information on medicines and help people use their medicines effectively and safely. TATA 1mg facilitates lab tests at home. You can avail of over 2,000 tests and get tested by 120+ top and verified labs at the best prices. You can talk to over 20 kinds of specialists in just a few clicks.

Customer centricity is the core of our values. The team of highly trained and experienced doctors, phlebotomists, and pharmacists looks into each order to give you a fulfilling experience.

TATA 1mg has made healthcare accessible to millions by giving them quality care at affordable prices. Customer centricity is the core of 1mg's values. The team of highly trained and experienced doctors, phlebotomists, and pharmacists looks into each order to give you a fulfilling experience.

Other Specialties:

- Adult Vaccination camps, Covid testing camps, Expert Health webinars, Health checkups, Diet & Nutrition, Mental Health, Eye Check-ups, Dental check-ups, Home Care Services, Health Challenges, and B2B Offerings.

Vision & Mission: To make healthcare understandable, accessible, and affordable for everyone.

TO UNDERSTAND PATIENT SATISFACTION WITH THE USE OF APP-BASED TELEMEDICINE SERVICES

CHAPTER 1: INTRODUCTION

1.1 Background

What we recognize as telemedicine today started in the 1950s when a few hospital systems and university medical centers started to try to find ways to share information and images via telephone. In one of the first successes, two health centers in Pennsylvania were able to transmit radiologic images over the phone (1).

In the early days, telemedicine was used mostly to connect doctors working with a patient in one location to specialists somewhere else (1). This was of great benefit to rural or hard-to-reach populations where specialists aren't readily available. Throughout the next several decades, the equipment necessary to conduct remote visits remained expensive and complex, so the use of the approach, while growing, was limited (2).

The rise of the internet age brought with it profound changes in the practice of telemedicine. The proliferation of smart devices, capable of high-quality video transmission, opened up the possibility of delivering remote healthcare to patients in their homes, workplaces, or assisted living facilities as an alternative to in-person visits for both primary and specialty care (2)

Telemedicine is a tool that makes healthcare more accessible, and cost-effective, and that increases patient engagement. In addition, the patients that reside in rural areas that previously had difficulties accessing a physician can now reach them virtually (2)

Physicians and patients can share information in real-time from one computer screen to another. And they can even see and capture readings from medical

devices at a faraway location. Using telemedicine software, patients can see a doctor for diagnosis and treatment without having to wait for an appointment. Patients can consult a physician in the comfort of their homes (3).

The continued advances in technology and healthcare innovation have greatly expanded its usability. Moreover, the demand from a new generation of the tech-savvy population has pushed for its rapid adoption due to its convenience, cost-saving, and intelligent features it brings.

It's now a matter of time for the healthcare system, medical groups, providers, and even solo practitioners to integrate telemedicine as part of their medical services offering.

Today, individuals no longer have to schedule an in-person visit with a physician to receive treatment. The use of secure video and audio connections makes it possible for specialists to treat patients who reside in locations with limited access to care.

Even though there has been wide percolation of telemedicine with advanced technology, utilization & acceptance however still have not been commensurate in the integration into clinical care. Some of the identified challenges towards this are human-centric issues like the acceptance and ability to use the technology, belief, and convenience in traditional consultation visits, etc. Additional issues include the potential stigma associated with its use, and confidentiality issues affecting its utilization (3).

1.2 Problem Description

To potentially contribute to healthcare in a developing country like India, telemedicine should be adopted by a large population in a sustainable manner. However, despite the projected growth in usage of the services, there are still many challenges that are being faced by end-users which are preventing it to become a defining pillar of healthcare. If these challenges are identified it will not only aid in improving monitoring of accessibility in healthcare but also make it the main trend for consultations in our country.

Further, there has been an exponential increase in the utilization of telemedicine services both by the providers and the users after the prevalence of COVID-19. There have been many studies pertaining to the identification of barriers and challenges but most of them are particular to specific personal acceptance or utility. Also, despite various studies to review the satisfaction in the use of telemedicine research through systematic reviews have been made, the large number of published papers on the subject makes this a daunting task.

1.3 Objective

The objective of the study is to understand the satisfaction of the patients with the use of app-based telemedicine services.

Also, to study the challenges faced by the patients while using telemedicine practices.

1.4 Outline of the Research Approach

The research design is a descriptive study. The primary data was collected based on responses of the users collected through a web-based questionnaire. The secondary data was collected based on scientific articles published. The study was carried out in the target population which includes telemedicine users residing in India with a sample size of 100. The sampling method used for this study is convenience method.

CHAPTER 2: LITERATURE REVIEW

2.1 Introduction:

Patients are always the first to be affected by any new kind of medical intervention. Standard measures to observe these effects include patient satisfaction and medical outcomes. For the most part, telemedicine has shown to be positively received by patients and actually improves their health. The use of telemedicine also has a large impact on those who deliver it, including physicians, nurses, and the general staff of a hospital.

Similar to high levels of patient satisfaction, studies show that most physicians are very satisfied with the use of telemedicine in their medical practice. This is mainly because the use of this kind of technology makes the process of treating patients more efficient and convenient. Overall, telemedicine has been shown to positively impact medicine with respect to patients and physicians by changing the way healthcare is delivered and received (R Dhingra, 2012)

2.2 Overview of telemedicine:

Telemedicine is a complex term that entails many different aspects making it hard for any one definition to capture its meaning completely. It is defined as "the use of modern information technology, especially two-way interactive audio/video communications, computers, and telemetry, to deliver health services to remote patients and to facilitate information exchange between physicians and specialists at some distance from each other. A simpler definition of telemedicine was proposed by Wootton who defined it as simply: "health care carried out at a distance".

There are several different components of telemedicine of which only some apply depending on the organization implementing it. Even though this electronic mode of sending and receiving patient information from a distance is a key aspect of telemedicine, it only constitutes a small portion of it. Other acts such as analyzing and controlling information are also equally or sometimes even more important. This patient information may include details about the patient's previous

procedures, residence, prescribed medications, and hospital admissions. Second, telemedicine can apply to clinical along with non-clinical aspects of healthcare, depending on what is trying to be accomplished. Clinically, telemedicine can be used in the interaction between the physician and patient to allow for a comprehensive consultation and possible diagnosis. Other times, it can be used non-clinically to advise patients about their health such as in the form of electronically posting any pertinent information patients may need. Connecting patients and providers by overcoming geographic barriers are the most important advantage of telemedicine and thus undoubtedly worth noting in its definition. Often times the terms "telemedicine" and "telehealth" are used interchangeably even though they are distinct. Telemedicine is actually a subcategory of the larger concept of telehealth. The focused concept of telemedicine pertains to actual medical care including preventative health or curative procedures carried out by physicians themselves. On the other hand, the broader concept of telehealth includes telemedicine along with other healthcare services that consist of communication between the patient and any healthcare employee ranging from a nurse to a consultant. This may include services such as electronic medical records, electronic information, and transmission of patient information. Physicians, however, are increasingly losing their autonomy and are collaborating more with other subspecialties including nurses, social workers, and physician assistants. Therefore, it is not practical to use a term that solely focuses on only the physician's part in the care of patients while ignoring all the others in an era of medicine that is increasingly becoming interdisciplinary. In addition, the curative aspect of medicine is expanding to now include giving information to patients and providing healthcare to those who are homebound. Since most of the data reviewed in this study pertain to information consisting of direct consultations between the physician and patient, the term "telemedicine" will be used. (Darkin's and Cary:2000)

2.3 Types of telemedicine:

Telemedicine can be broken into three main categories:

- Store-and-forward.
- remote patient monitoring.

- Interactive services.

Store and forward

Store-and-forward telemedicine involves acquiring medical data (like medical images, bio signals, etc.) and then transmitting this data to a doctor or medical specialist at a convenient time for assessment offline. It does not require the presence of both parties at the same time. Dermatology, radiology, and pathology are common specialties that are conducive to asynchronous telemedicine. A properly structured medical record preferably in electronic form should be a component of this transfer. A key difference between traditional in-person patient meetings and telemedicine encounters is the omission of an actual physical examination and history. The 'store-and-forward' process requires the clinician to rely on a history report and audio/video information in lieu of a physical examination.

Remote monitoring

Remote monitoring also known as self-monitoring or testing enables medical professionals to monitor a patient remotely using various technological devices. This method is primarily used for managing chronic diseases or specific conditions, such as heart disease, diabetes mellitus, or asthma. These services can provide comparable health outcomes to traditional in-person patient encounters, supply greater satisfaction to patients, and may be cost-effective. Examples include home-based nocturnal dialysis and improved joint management.

Real-time interactive

Electronic consultations are possible through interactive telemedicine services which provide real-time interactions between patient and provider. Videoconferencing has been used in a wide range of clinical disciplines and settings for various purposes including management, diagnosis, counseling, and monitoring of patients.

2.4 History of Telemedicine:

Contrary to popular belief, telemedicine is not a new practice. In fact, the concept of telemedicine is dated back to the 19th century. What began as a few hospitals

wanting to reach patients in remote locations became an integrative system across the care continuum? The history of telemedicine will unveil how we got to where we are today.

Telemedicine in the 19th Century: The creation of telemedicine began with the inception of the telecommunications infrastructure, which included the telegraph, telephone, and radio. Casualties and injuries were reported using the telegraph during the Civil War, in addition to the ordering of medical supplies and consultations. This is considered one of the earliest adoptions of telemedicine technology. By 1879, a Lancet report discussed how using the telephone can reduce the number of unnecessary office visits. This was only the beginning of what would be a patient care transformation.

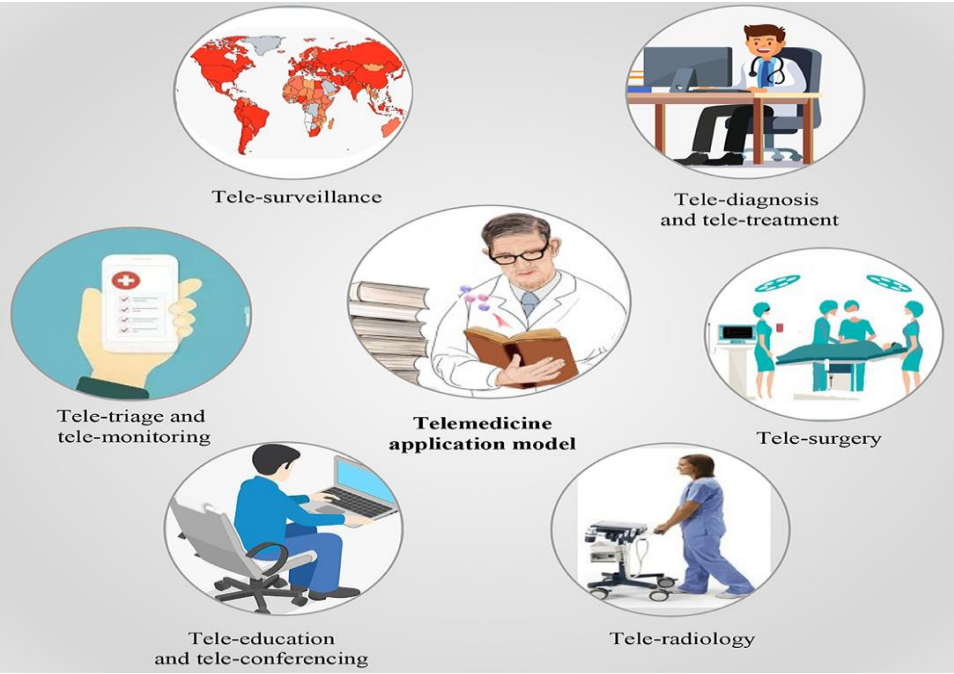
Telemedicine in the 20th Century: In 1922, Dr. Hugo Gernsback featured tele dactyl in a science magazine. Gernsback predicted that this sensory feedback device would permit physicians to see their patients through a television screen and touch them from miles away with robot arms. The first radiologic images were sent via telephone between two medical staff at two different health centers in Pennsylvania by 1948. The health centers were 24 miles apart from one another! Then in 1959, physicians at the University of Nebraska transmitted neurological examinations across campus to medical students using two-way interactive television. Five years later, a closed-circuit television link was built that allowed physicians to provide psychiatric consultations 112 miles away at Norfolk State Hospital.

Telemedicine Today: Today, most people have access to basic telemedicine devices like mobile phones and computers. With improved accessibility, individuals in rural areas and busy urban areas can connect with a provider with ease. Home-use medical devices make it possible for caregivers to monitor everything from vitals to glucose levels. Physicians can gather essential medical information and make a diagnosis without patients stepping foot in a doctor's office.

2.5 Benefits and uses

Telemedicine can be extremely beneficial for people living in isolated communities and remote regions and is currently being applied in virtually all medical domains. Patients who live in such areas can be seen by a doctor or specialist, who can provide an accurate and complete examination, while the patient may not have to travel or wait the normal distances or times like those from conventional hospital or GP visits. Recent developments in mobile collaboration technology with the use of hand-held mobile devices allow healthcare professionals in multiple locations the ability to view, discuss and assess patient issues as if they were in the same room. Telemedicine can be used as a teaching tool, by which experienced medical staff can observe, show and instruct medical staff in another location, more effective or faster examination techniques. It improved access to healthcare for patients in remote locations. "Telemedicine has been shown to reduce the cost of healthcare and increase efficiency through better management of chronic diseases, shared health professional staffing, reduced travel times, and fewer or shorter hospital stays." Several studies have documented increased patient satisfaction with telemedicine over the past fifteen years. The first interactive telemedicine system, operating over standard telephone lines, for remotely diagnosing and treating patients requiring cardiac resuscitation (defibrillation) was developed and marketed by Med Phone Corporation Telemonitoring is a medical practice that involves remotely monitoring patients who are not at the same location as the health care provider. In general, a patient will have a number of monitoring devices at home, and the results of these devices will be transmitted via telephone to the health care provider. Telemonitoring is a convenient way for patients to avoid travel and to perform some of the more basic work of healthcare for themselves. In addition to objective technological monitoring, most telemonitoring programs include subjective questioning regarding the patient's health and comfort. This questioning can take place automatically over the phone, or telemonitoring software can help keep the patient in touch with the health care provider. The provider can then make decisions about the patient's treatment based on a combination of subjective and objective information similar to what would be revealed during an on-site appointment.

Some of the more common things that telemonitoring devices keep track of include blood pressure, heart rate, weight, blood glucose, and hemoglobin. Telemonitoring is capable of providing information about any vital signs, as long as the patient has the necessary monitoring equipment at his or her location. Depending on the severity of the patient's condition, the provider may check these statistics on a daily or weekly basis to determine the best course of treatment. Monitoring a patient at home using known devices like blood pressure monitors and transferring the information to a caregiver is a fast-growing emerging service. These remote monitoring solutions have a focus on current high morbidity chronic diseases and are mainly deployed for the First World. In developing countries, a new way of practicing telemedicine is emerging better known as Primary Remote Diagnostic Visits, whereby a doctor uses devices to remotely examine and treat a patient. This new technology and principle of practicing medicine hold the significant promise of improving major health care delivery problems, for instance, in Southern Africa, because Primary Remote Diagnostic Consultations not only monitors an already diagnosed chronic disease but has the promise to diagnose and manage the diseases a patient will typically visit a general practitioner for. (Field,1996)



2.6 Patient Satisfaction:

With the growing popularity of telemedicine, measuring patient satisfaction is critical in identifying its effectiveness. There are a variety of ways in which patient satisfaction can be measured in a clinical setting. The most expedient way is through the use of questionnaires since they are inexpensive and can be easily arranged. In addition to simple questionnaires, in-depth interviews are also a common form of evaluation of patient satisfaction. This allows for a more expanded and subjective interpretation of what the patients' experience with telemedicine was like. It is critical for the researchers to use the same kinds of questions when administering surveys or asking interview questions to the population sample. Only then will the responses be consistent, allowing for any kind of meaningful comparative analysis surrounding telemedicine to be made. In addition, telemedicine implemented in certain fields of medicine tends to bring about higher patient satisfaction than in others.

Based on the available research, both patients and providers appear to be generally satisfied with telemedicine care. Providers, however, have specific concerns to address, many of which could be resolved through more effective training. Patients seem to find telemedicine to be a good solution to overcoming many of the barriers they regularly face while seeking medical care. The use of technology allows them to work around distances, travel time, and scheduling issues that can be common while seeking specialist care. Aside from removing challenges, patients additionally appreciate the support options presented by telemedicine. Being able to simultaneously consult one's general practitioner and a specialist opens a comprehensive method of care that is unavailable from seeing the two separately.

Provider satisfaction is also a critical determinant of whether Telemedicine will be used to see patients. To be successful, the technology needs to work, and providers need to be trained to see patients using it. In addition, appropriate providers need to be selected and patients need to be prepared for a virtual encounter. Providers are more likely to be successful at using TM if they are flexible and tolerant, creative, and they need to have problem-solving skills. It is also noted that seasoned clinicians tend to do better since they already have developed medical skills and

only need to focus on using the new technology. Younger providers tend to do better if they are coached by more seasoned providers (Whitten & Love, 2005)

2.7 Dimensions to consider when measuring satisfaction

Overall satisfaction with care - usefulness, ease of use, reliability.

Stakeholders - providers, patients, administrators.

Types of care - Medical specialty, types of services provided, ongoing care, consultation.

Types of the system used - Synchronous visits, facilitated visits, asynchronous visits, remote patient monitoring, web-based/ mobile devices.

The context in which care is delivered - medical office, patient home, school, workplace.

Methodologies - In person, by mail, web-based telephone.

CHAPTER 3: METHODOLOGY

3.1 Methodology Overview:

Research Design: Descriptive Study.

Data Source: Primary & Secondary Data

Area of Study: The study was carried out in the target population which includes telemedicine users residing in India.

The time period of the study is March 2022 to May 2022.

FOR PRIMARY DATA:

Sample size: Questionnaire shared with 300 people & received 100 responses.

Sampling method: The sampling procedure used for this study is convenience sampling method.

Data Collection Tool: Semi-structured web-based questionnaire.

Target population: Telemedicine users in India.

Inclusion criteria: Telemedicine users.

Exclusion criteria: Others who haven't used telemedicine services.

FOR SECONDARY DATA: literature data from the previously published articles.

ETHICAL CONSIDERATION:

Confidentiality was ensured and during the process of data collection.
Responses were collected and stored securely.
For the ethical consideration part, consent of the users was taken prior to the filling of the form, by asking them if they want to participate in the survey or not.

3.2 Collection of Data.

A clear strategy was formulated for the collection of secondary data to select the relevant papers for making the thesis a meaningful, robust, and comprehensive document. For the purpose of retrieving relevant papers, search strings and keywords were formulated. The keywords include Telemedicine; Telehealth; health monitoring; patient satisfaction; digital health. Altogether, these sites form a comprehensive citation-based database of peer-reviewed research articles. For the purpose of collecting primary data, a web-based questionnaire was prepared which was spread across various groups randomly to collect the responses and results & analyses were made. The focus of this study was to explore patient satisfaction with the use of telemedicine in the delivery of healthcare. I gathered insight into patients' views by conducting questionnaire-based research amongst the patients who currently use telemedicine frequently to interact with their healthcare providers. All participants in this study were familiar with and had significant experience with the use of telemedicine in various aspects of healthcare. Confidentiality was maintained in the research process, as I was the only one with access to the recording and transcripts of each response.

CHAPTER 4: RESULTS

The use of telemedicine cannot be simplified into a narrow range of services but is rather one that consists of different forms of technology and caters to a wide range of patients.

When choosing and applying telemedicine, it was found that users look for different qualities in the type of technology according to what would best suit them.

Users most often prefer an increase in convenience and comfort by using their telemedicine devices. It was found that the level of convenience, physician/patient relationship, and medical and cost-effectiveness associated with their use of telemedicine were most significant in determining user satisfaction. Telemedicine services are more used for seeking sick-related services during the covid times.

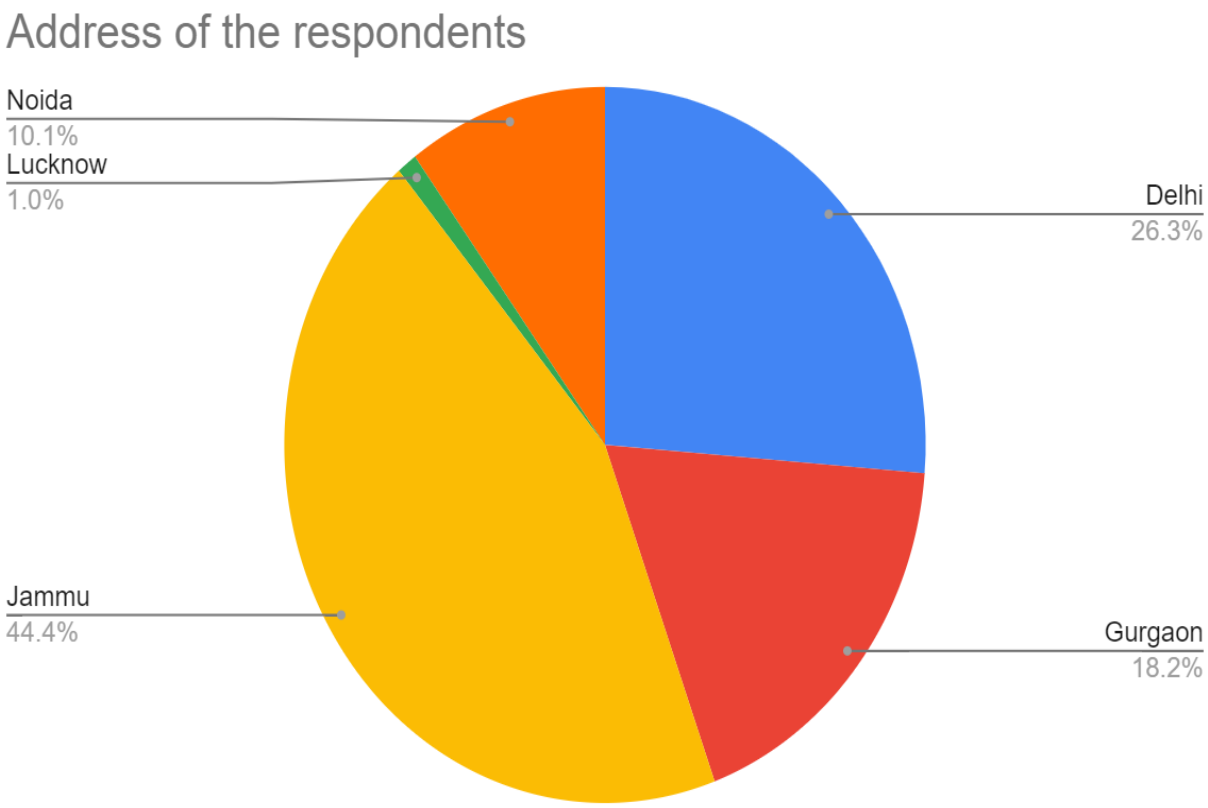
The age group between 20-30 is happier with the telemedicine services and prefers it over the traditional method of going to clinics and nursing care centers. The age group above 35 turned out to be more reluctant in using these digital services as they are finding it difficult to access and some technological barriers and they are more comfortable going to clinics and hospitals for consultations.

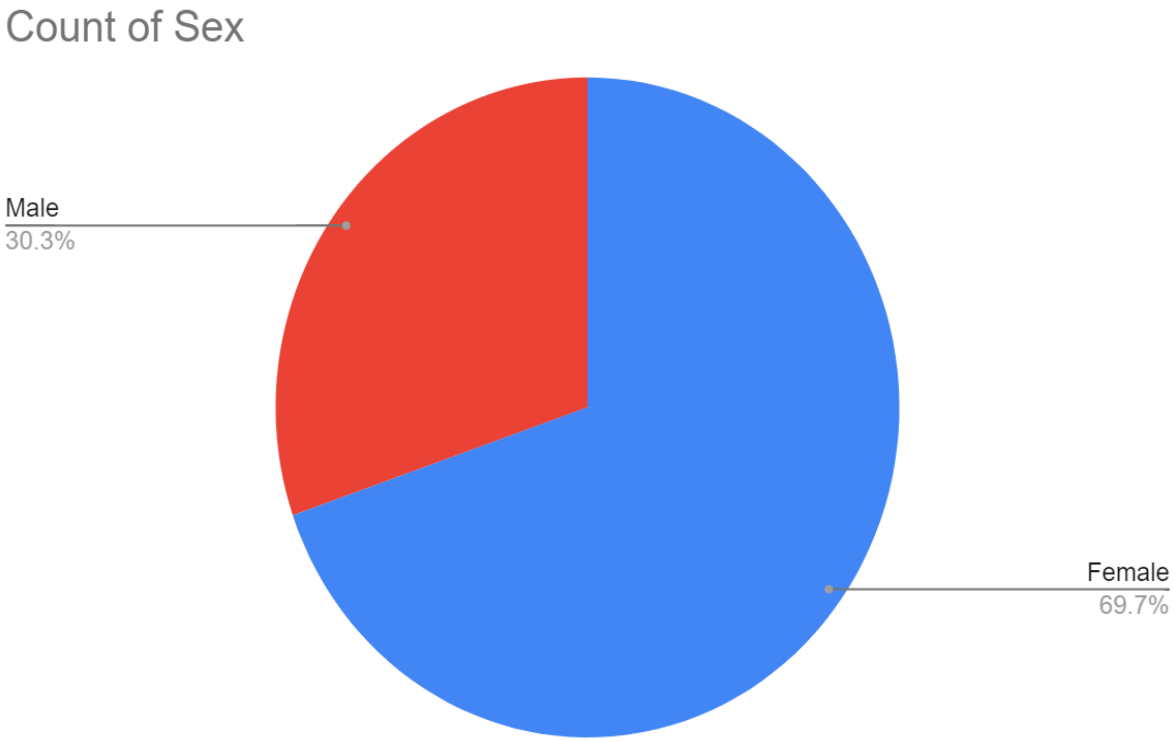
Also, 59.4% of respondents turned out to be healthcare professionals who are highly satisfied with the telemedicine services both in providing as well as seeking teleconsultations. The consultations were mainly for illness consultations, follow-ups, covid-related consultations, mental wellness, follow-ups, and others.

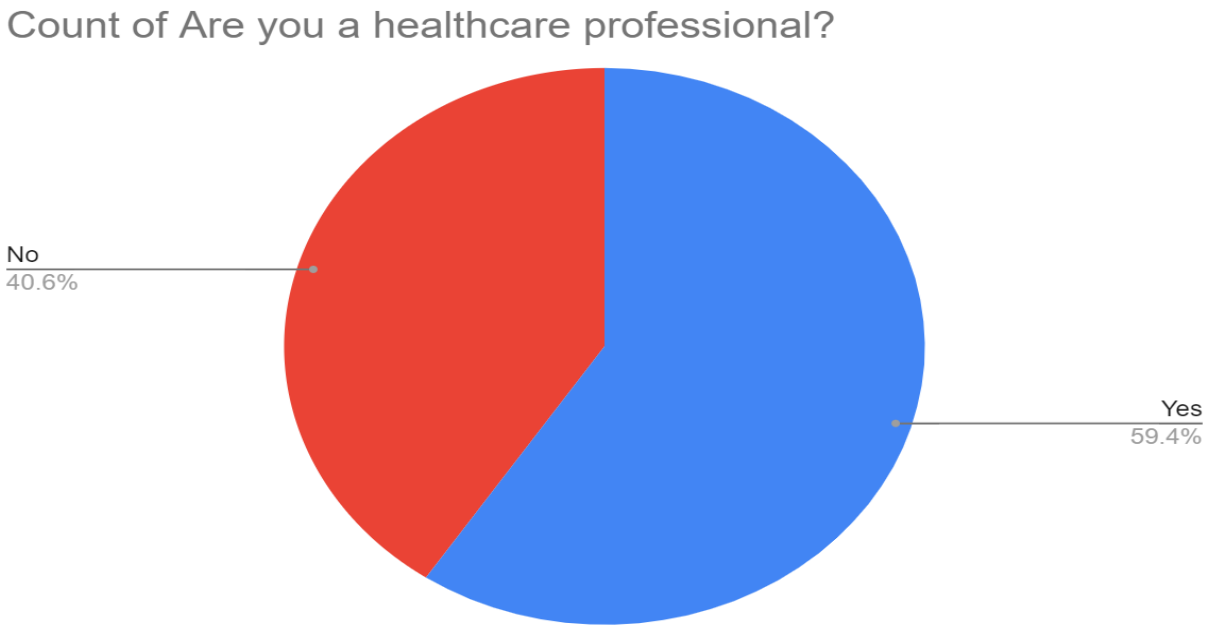
The majority of the respondents were highly satisfied with the timely availability of the consultants i.e., within 15 mins of the scheduled time and were able to comprehend the treatment modalities given by the consultants. Confidentiality is still a concern for many of the users in 14% of the respondents which I believe should be a major constraint in the execution of telemedicine practices in our country.

A majority of the respondents still prefer offline OPD services because there is more physical connection, availability of the doctor, Direct access/contact, verbal communication, and physical presentation. The most frequently used apps for telemedicine services in India include Practo, TATA 1mg, Apollo 24/7, TATA Health, Doctalk, Doc online, one-on-one, and a few hospital portals, eSanjeevani. Few of the consultants are proving mental & diet-related consultations via google meet and zoom video calls.

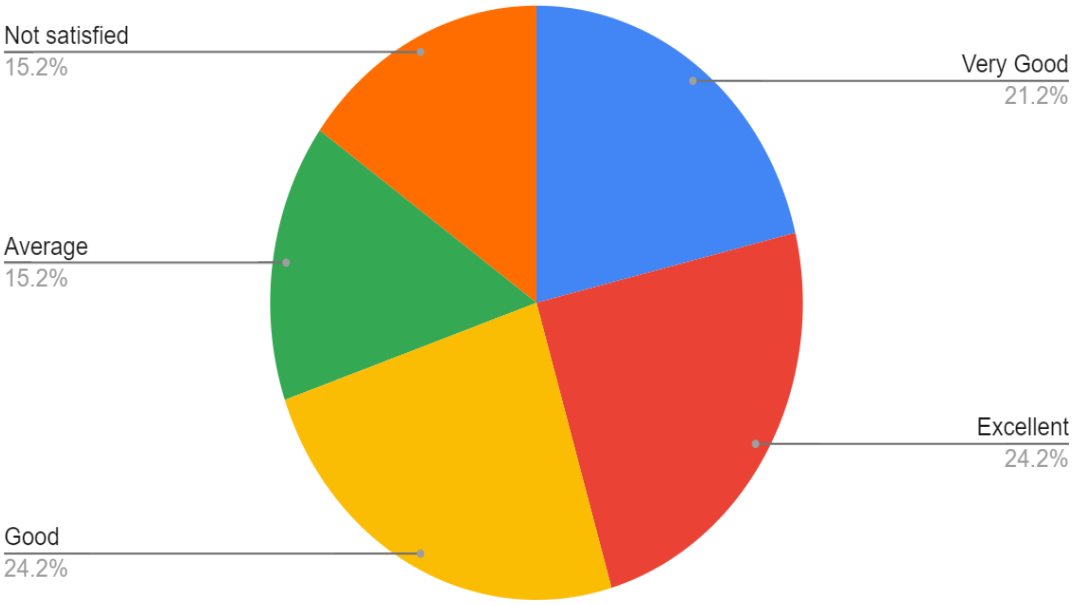
4.1 Responses: (N=100)



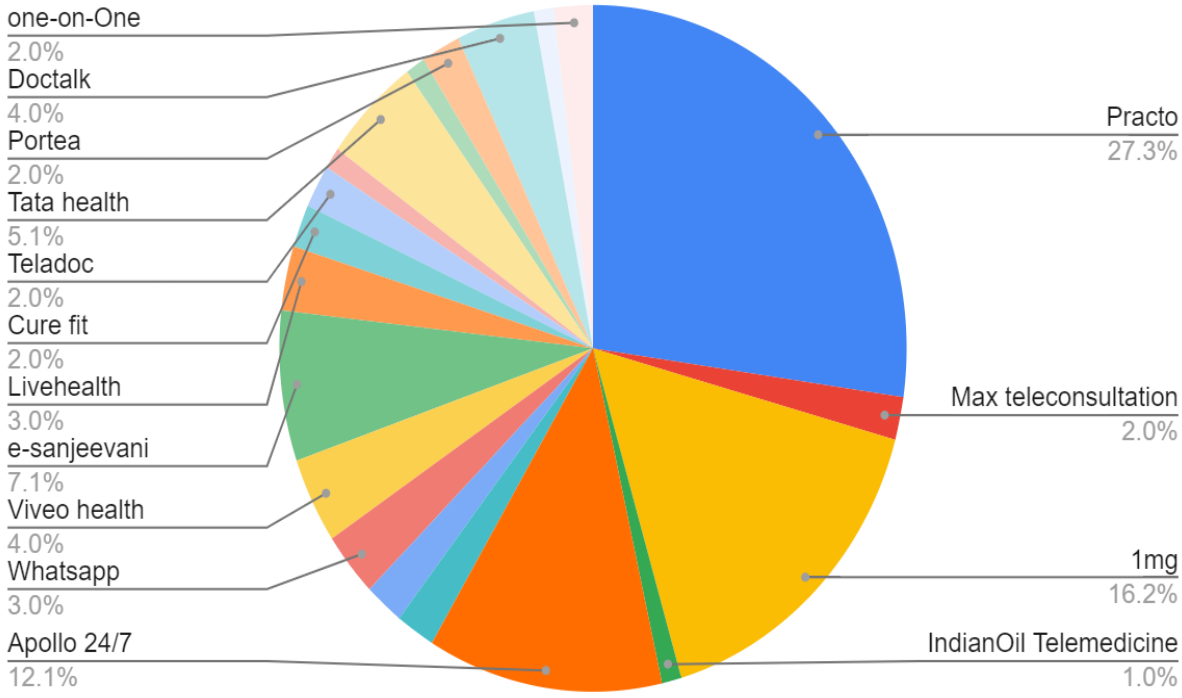

Count of Sex
Male
30.3%
Female
69.7%

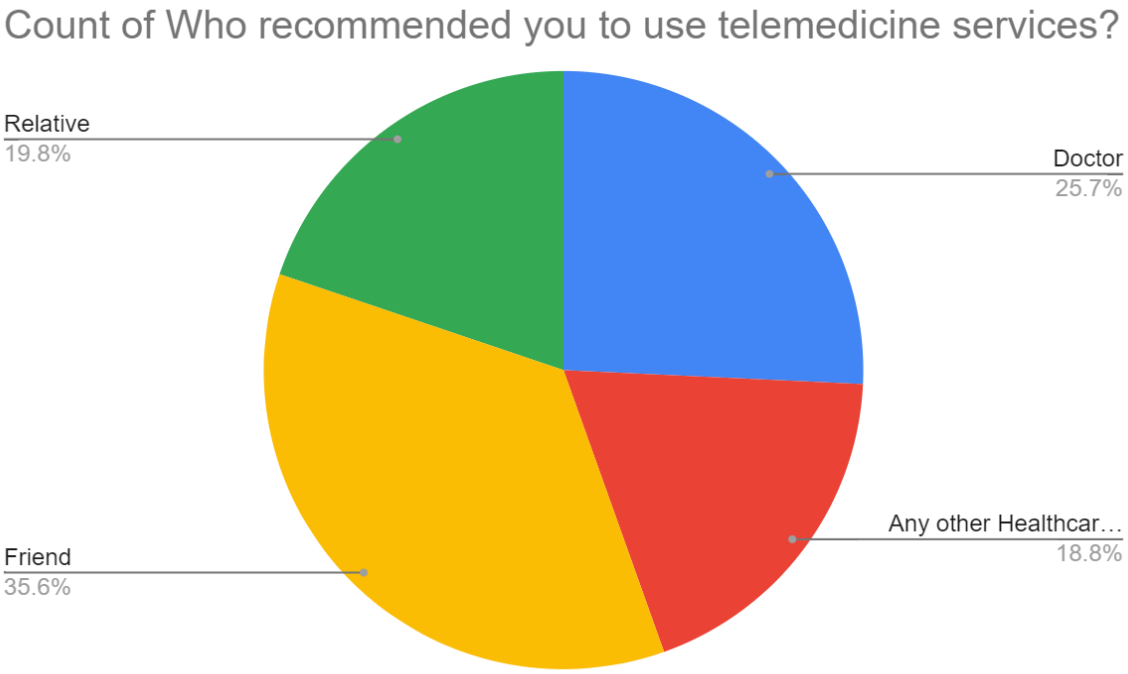

Count of Are you a healthcare professional?
No
40.6%
Yes
59.4%

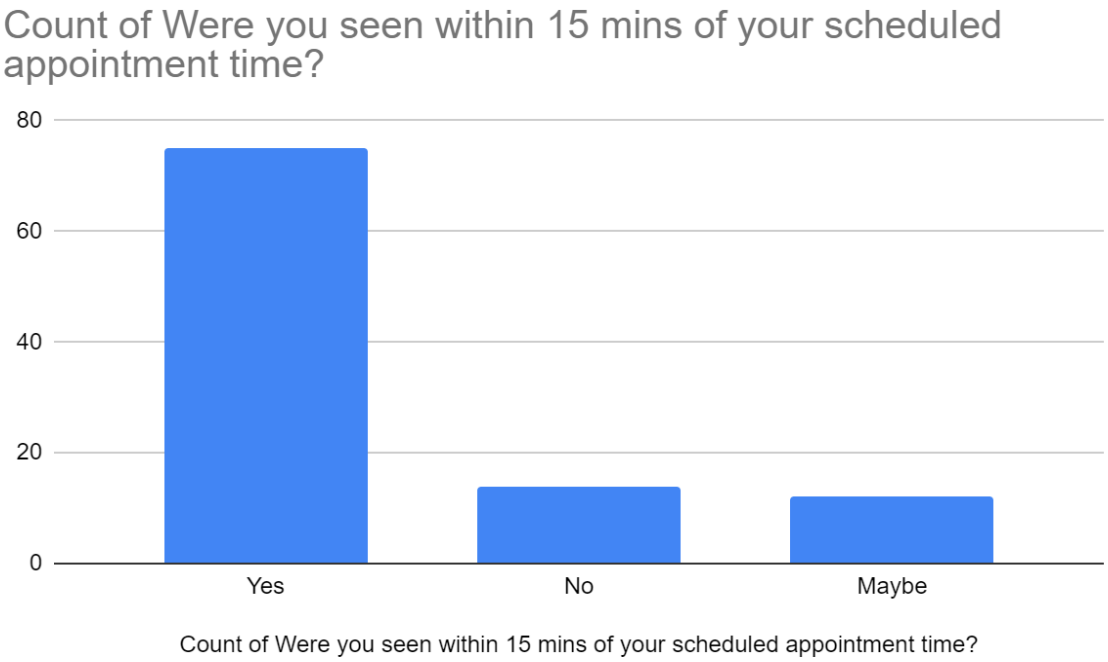
Count of How would you rate the amount of time your healthcare provider spent with you ?



Which app did you use for Tele-consultation?

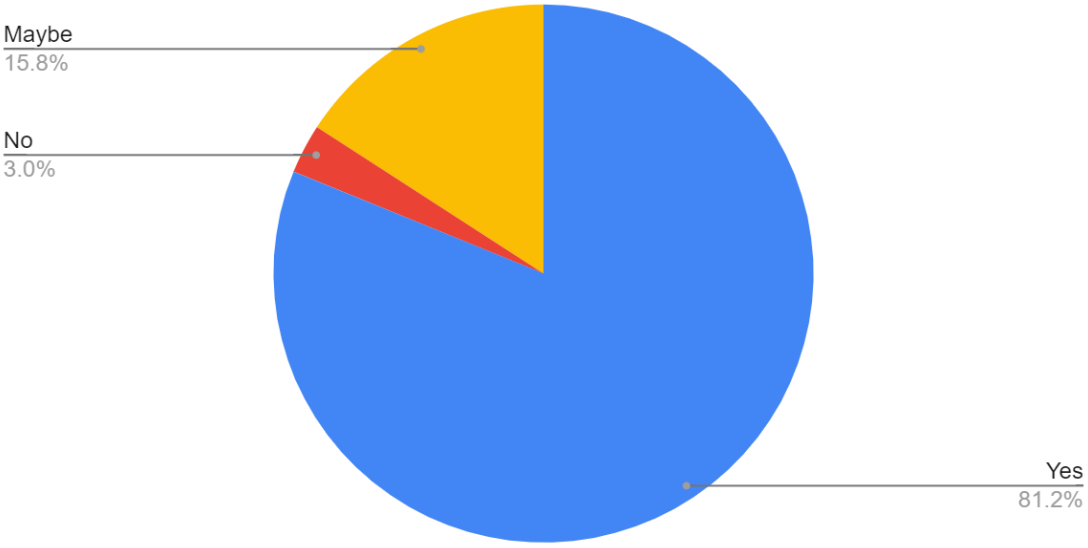


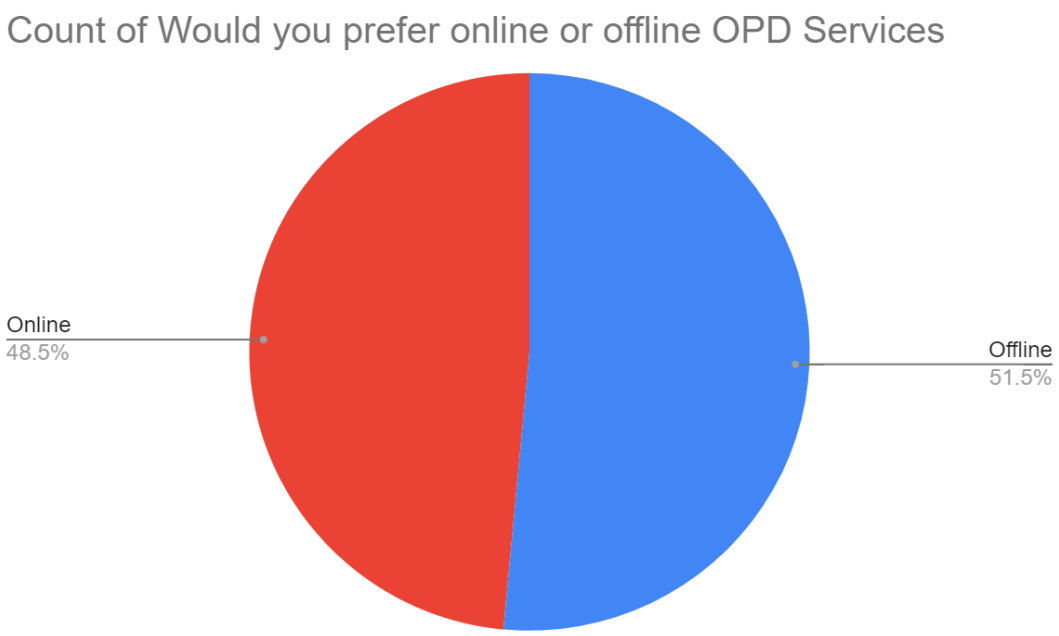

Count of Who recommended you to use telemedicine services?
Relative
19.8%
Doctor
25.7%
Friend
35.6%
Any other Healthcar…
18.8%


Count of Were you seen within 15 mins of your scheduled appointment time?
80
60
40
20
0
Yes
No
Maybe
Count of Were you seen within 15 mins of your scheduled appointment time?

Count of Did you experience any technical difficulties while using telemedicine?

Count of Did your healthcare provider give you easy-to-understand instructions?





4.2 Evaluation of the responses:

Overall satisfaction- This is a composite of the following examples.

- Humaneness - The “personal touch” is present with in-person visits has been reduced after the emergence of telemedicine.
- Technical competence - The provider can diagnose and treat the patient’s medical condition. It’s yet to be improved and is still unknown.
- Outcome - The patient's condition improves after utilizing the telemedicine services if the follow-ups are taken seriously.
- Physical facilities - This dimension has been improved in telemedicine; patients can be seen at their homes.
- Continuity of Care - Patients can see the same provider regardless of where they, or the provider, are located.
- Access - Less distance may need to be traveled. This depends on how far the patient needs to travel.

- Amount of information - In addition to verbal information, includes body language, the ability for back-and-forth discussion, and immediate delivery of handouts. This has been reduced since telemedicine has come in place.
- Cost - Reduced need for gas, meals, and hotels if travel is needed. Parking, long lines, and waiting rooms can be avoided.
- Attention to psychosocial problems - Patients may prefer an in-person or TM visit when discussing sensitive issues.

CHAPTER 5: DISCUSSION

5.1 Current Scenario in India.

During the COVID-19 pandemic, a countrywide lockdown of nearly twelve weeks in India reduced access to regular healthcare services. As a policy response, the Ministry of Health & Family Welfare which exercises jurisdiction over telemedicine in India rapidly issued India's first guidelines. By issuing guidelines for the practice of telemedicine, The Board of Governors of the Medical Council of India (MCI), the erstwhile medical education regulator in India prepared them in consultation with the premier planning body, the NITI Aayog (National Institution for Transforming India), has attempted to fill an important gap: lack of legislation and a framework for the ethical practice of telemedicine. The guidelines list video, audio, and text as three modes of communication and outline the provisions for their use by practitioners, including limitations.

The guidelines lack clarity about privacy and data usage, for patients and practitioners. They place the onus entirely on doctors to maintain records of all exchanges of communication between themselves and patients. The guidelines do not yet specify the duration for storing data nor limit to further use of that data. The guidelines simply require the practitioner to be aware of the data protection and privacy laws and follow them. Privacy concerns arise as details, including a patient's address and other 'reasonable' identification, are required to be recorded by the practitioner. The guidelines explain the concepts of implicit and explicit consent but a mere initiation of a telemedicine consultation by an individual is considered implicit consent. The guidelines need to elaborate more on consent in a teleconsultation and ways to obtain and record it. The guidelines also lack any mechanism for resolving the grievances of patients or practitioners.

Training of new physicians is time-consuming and expensive; hence the doctor-to-patient ratio can be expected to remain low for a long time to come. This deficit is partly being made up by the active telemedicine services in various parts of the country.

Telemedicine services in the country come under the combined jurisdiction of the Ministry of Health and Family Welfare and the Department of Information Technology. Telemedicine division of MoHFW, GOI has set up a National Telemedicine Portal for implementing a green field project on e-health establishing a National Medical College Network (NMCN) for interlinking the Medical Colleges across the country with the purpose of e-Education and National Rural Telemedicine Network for e-Healthcare delivery.

As a constituent of the e-health wing of the National Health Portal (NHP), the National Digital Health Authority of India (NDHAI)/National e-health authority (Neha) is being set up with a vision of achieving high-quality health services for all Indians through the cost-effective and secure use of ICTs in health and health-related fields. To ensure safe data transmission during telemedicine practices, MoHFW developed a set of Electronic Health Records (EHR) standards in 2013 and a revised version of the same in 2016. Telemedicine practices in India are also extended to the fields of traditional medicine. The National Rural AYUSH Telemedicine Network aims to promote the benefit of traditional methods of healing to a larger population through telemedicine.

Registering a new achievement in the e-health journey, India's e-Sanjeevani telemedicine service has crossed 3 crore teleconsultations. A new record has been set by e-Sanjeevani telemedicine by completing 1.7 lakhs consultations a day.

The e-Sanjeevani platform is operational in 31 States/Union Territories and in some states, the service is operational on all days of the week and a few states are running it around the clock as well. It is worth noting that daily, over 35,000 patients across the country are using this innovative digital medium to seek health services. The first of its kind, e-Sanjeevani has brought a digital transformation in the delivery of quality health services on a national scale. During the second wave of the pandemic, e-Sanjeevani provided extensive services and proved its usefulness of easy accessibility while boosting the digital health ecosystem in the country. In a short period, India's National Telemedicine Service has started aiding the Indian healthcare delivery system by bridging the gap that exists in urban and

rural India. It is also addressing the shortage of doctors and specialists at the ground level while reducing the burden on secondary and tertiary level hospitals. In line with the National Digital Health Mission, e-Sanjeevani is also boosting the digital health ecosystem in the country. There are two variants of e-Sanjeevani:

eSanjeevani AB-HWC (Ayushman Bharat-Health and Wellness Centers) – It is a doctor-to-doctor telemedicine system, which is being implemented under Ayushman Bharat Scheme, and aims to carry out teleconsultation in all the 1.5 lakh Health and Wellness Centers in a 'Hub and Spoke' model. States have identified and set up dedicated 'Hubs' in Medical Colleges and District hospitals to provide teleconsultation services to 'Spokes.'

e-Sanjeevani – Launched amid the Covid-19 pandemic to enable patient-to-doctor teleconsultations, e-Sanjeevani OPD aims to provide digital health services to the citizens through more than 250 online OPDs setups. This e-health service has made it convenient for people to avail health services at no cost, with the ease of a 'no travel' policy. It enables two-way interaction and even generates a prescription slip. It is available as a mobile app for both Android and iOS-based smartphones, and so far, the app has seen over 3 million downloads.

Portal specifically speaking, of the 3 crore beneficiaries, 2,26,72,187 have been served through the eSanjeevani-HWC portal while 73,77,779 have availed the benefits through e-Sanjeevani OPD. In terms of specialists, over 1,00,000 doctors, and specialists have been onboarded to serve beneficiaries of the National Telemedicine Service. The substantial rise in the number of consultations indicates that through the e-Sanjeevani AB-HWC portal, rural India has embraced and adopted the use of digital health technologies.

e-Sanjeevani OPD now enables the creation of the Ayushman Bharat Health Account (ABHA), which will facilitate access and shareability of health data with the consent of the beneficiary, with participating healthcare providers and beneficiaries as per Ayushman Bharat Digital Mission (ABDM). AROGYASREE is another internet-based mobile telemedicine conglomerate that integrates multiple

hospitals, mobile medical specialists, and rural mobile units/clinics. The project is an initiative of the Indian Council of Medical Research (ICMR).

5.2 Conclusion:

Telemedicine, especially today, has become extremely important, but the telehealth industry still faces several challenges, both at a microscopic level and at a macroscopic level. With the Coronavirus pandemic making it extremely difficult for patients to physically visit their doctors and other medical practitioners, greater focus is now being placed on telemedicine and its scope. For telemedicine to truly take off and become the norm, there is a need for better regulations, better infrastructure, and offering proper training to clinical providers.

The growth of modern technology has and is continually changing the way medicine is practiced around the nation. Telemedicine allows physicians to connect with their patients in ways that may not be otherwise possible by using different types of technology. This new area of medicine gives patients the opportunity to access diagnostic care and other useful information that helps them take better control of their health.

The purpose of this study was to take a closer look at patient satisfaction with the use of basic telemedicine. I was able to conclude that telemedicine has several strengths and weaknesses in serving the needs of the patients. I found that all the patients were strongly satisfied with their use of telemedicine mainly because it was convenient for them to use rather than visiting the hospital or having a provider come to them. Nonetheless, there were certain mechanical aspects of the technology that frustrated the patients such as its ability to connect and accommodate each patient's individual needs. In addition, this significantly cut time and the costs that would have been required to see the patients. As with the patients, the providers also identified a couple of weaknesses associated with telemedicine including its technological effectiveness such as image clarity.

One of the largest challenges of telemedicine being used in hospitals nationwide is that insurance companies and the government refuse to cover its costs. This is

because owners of these companies are not yet convinced nor believe that telemedicine would be cost-effective in treating its patients.

From my research and my review of the available literature on telemedicine, I believe that telemedicine would be cost-effective and should be covered by insurance companies. Initially, it will be expensive to install and train the employees on how to use the new technology but in the long run, high costs to provide medical care will be saved. Also, telemedicine is both cost-effective and has the potential of improving a patient's health. Another important implication is that telemedicine does in fact decrease the level of personalization between the provider and patient. However, the benefits of providing care and monitoring the health of patients who otherwise do not have access definitely outweigh losing the ability to physically be with the provider. This is because most patients would rather still have some kind of idea about how their health is on a regular or weekly basis rather than live unknowingly of their health until the next time they can make an appointment. These appointments can still be made but the convenience and peace of mind of knowing one's health in between these appointments, especially for severely debilitated patients such as the ones interviewed, is very valuable. Satisfaction with TM is necessary for the adoption of this new technology. To improve satisfaction, it is important to consider factors that drive both patients and providers.

Telemedicine offers a unique opportunity for the delivery of healthcare to rural communities. For this opportunity to be realized, telemedicine services need to be planned carefully with attention to acceptance by clients and providers, economic viability, and effective administration. To be sustainable, services for rural populations must be supported by a well-defined and resourced infrastructure. Managed care, considered an approach to the effective delivery of appropriate services, is indeed the right tool for rural communities. Cost savings will be an important issue for health care managers, but rural telemedicine services should be considered from a broader economic perspective, taking account of both costs and benefits from various perspectives, and considering long-term outcomes.

5.3 Limitations of the study:

First, the sample size was very small, as I had only received 100 responses.

The reason for this was that it was difficult to find subjects who had enough experience with telemedicine to be able to accurately assess what they thought about it. Therefore, the small sample size questions the validity of the results.

Another limitation that decreases the validity of my study is the fact that this study was a cross-sectional analysis observing these subjects' impressions of telemedicine at one point in time. Therefore, I did not have insight as to whether the views of these subjects had changed. In order to improve this, I would have conducted a longitudinal study in which I would repeatedly measure the same levels of satisfaction of the subjects over time and note any changes that would occur.

The third limitation of my study was that the users whom I shared the questionnaire with had a certain level of bias in their responses to my questions.

Since telemedicine is still relatively new and is constantly evolving, more research needs to be done in order to definitively state how effective and efficient it is. Similarly, approaches investigating how the technology used in telemedicine can be tailored to apply to patients of varying conditions would also be helpful.

This study served as a small-scale preview of how telemedicine is being used and received locally by users. It also served as an indicator that more knowledge needs to be gained about the effectiveness and efficiency of telemedicine in order for it to be accepted by other providers and patients as a feasible approach to healthcare.

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ANNEXURE: A

Questions asked in the Research:

1. Are you a healthcare professional?

   YES/NO

2. Who recommended you to use telemedicine services?

   Friend/ Relative/ Doctor/ Any other healthcare provider.

3. What was your visit type?

   Sick/ Well check/ Follow-up/ Others.

4. Were you seen within 15 mins of your scheduled appointment time?

   Yes/No

5. How would you rate the amount of time your healthcare provider spent with you?

   5 being highest & 1 being lowest on a scale of 1to 5.

6. Did you feel your privacy was respected during your telemedicine service?

   Yes/No/Maybe.

7. Did you experience any technical difficulties while using telemedicine?

   Yes/No

8. Did your healthcare provider give you easy-to-understand instructions?

   Yes/No/maybe

9. How likely are you to choose telemedicine for your next appointment?

   5 being highest & 1 being lowest on a scale of 1to 5.

10. Overall, how would you rate your most recent experience using telemedicine?

    5 being highest & 1 being lowest on a scale of 1to 5.

11. Would you recommend using telemedicine to a family member or friend?

    5 being highest & 1 being lowest on a scale of 1to 5.

12. Would you prefer online or offline OPD Services?

    Offline/ Online

13. Which app did you use for Tele-consultation?

ANNEXURE B

Consent form-

Hello. I'm Dr. Alisha Anand. I am completing my post-graduation from International Institute of Health Management & Research, Delhi and currently I'm pursuing my dissertation at TATA 1MG Gurugram. As a part of my dissertation, I am collecting and accessing data on the topic – Understanding patient satisfaction with the use of app-based telemedicine services. You have been randomly selected based to participate in this survey and I would therefore humbly request you to fill out this google form.

I am trying to access awareness of Telemedicine and to study the knowledge, perception. The information you provide will help to provide me clear picture on the patient satisfaction with use of emerging app-based telemedicine services.

The survey form will take approximately 2-3 minutes to be filled. The information you provide is totally confidential and will not be disclosed to anyone. It will only be used for research purposes. Your name, address, and other personal information will be removed from the questionnaire, and only a code will be used to connect your name and your answers without identifying you. Any future contact will only be made again only if it's necessary to complete the information on the survey.

Your participation in the survey is voluntary.

If you have any further questions about this survey you may contact on alishaanand440@gmail.com , I will write back or call you up for the same

Thank you.